



Annual Report

2022–2023

Indian Institute of Technology Madras
Chennai — 600 036



2022–
2023

Annual Report



The Visitor

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Ms. Droupadi Murmu (from July 25, 2022)
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Members of the Board of Governors

Dr. Pawan Goenka

Former Managing Director, Mahindra & Mahindra
 Chairman, Indian National Space Promotion Authorization Centre (In-SPACe)
 Independent Director, Sun Pharma & Bosch India

Prof. V Kamakoti
 Director, IIT Madras

Council Nominees

Dr. B Mahadevan

Professor of Operations Management
 Indian Institute of Management Bangalore
 Bannerghatta Road, Bengaluru

Prof. Shireesh B Kedare

Department of Energy Science and Engineering
 Indian Institute of Technology Bombay, Mumbai

Shri Rakesh Ranjan

Additional Secretary (TE), Department of Higher Education
 Ministry of Education, Government of India, Shastri Bhawan, New Delhi

Dr. S Kishore Kumar

DRDO Fellow, Gas Turbine Research Establishment
 CV Raman Nagar, Bengaluru

Smt. Saumya Gupta

Joint Secretary (TE), Ministry of Education
 Government of India, Shastri Bhawan, New Delhi

Senate Nominees

Prof. V R Muraleedharan

Department of Humanities and Social Sciences
 Indian Institute of Technology Madras

Prof. C Chandra Sekhar

Department of Computer Science and Engineering
 Indian Institute of Technology Madras

State Government Nominees

Thiru S Krishnan, IAS

Additional Chief Secretary to Government, Industries Department,
 Secretariat, Government of Tamilnadu, Chennai

Prof. S Mohan

Vice Chancellor, Puducherry Technological University
 Pillaichavady, Puducherry

Dr. Utpal Sharma

Principal (BRAIT) cum Special Secretary (IT)
 Dr. BR Ambedkar Institute Technology Campus Pahargaon, Port Blair

Secretary

Dr. Jane Prasad
 IP&TAFS Registrar
 Indian Institute of Technology Madras

Invitees

Prof. Koshy Varghese
 Dean (Administration)
 Indian Institute of Technology Madras

Prof. Murali K
 Dean (Faculty)
 Indian Institute of Technology Madras

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Director's Report

Presented on the 60th Convocation of IIT Madras, held on July 22, 2023



Chief Guest, Hon'ble Dr. Justice Dhananjaya Y Chandrachud; Chairman, Board of Governors, IIT Madras, Dr. Pawan Goenka; Members of the Board of Governors; Members of the Senate; Dearest Graduands; Distinguished Invitees; colleagues and dearest students,

IIT Madras is today witnessing her Diamond Jubilee Convocation. In our country, 60 is an auspicious number. The 60th birthday, *shashtiabdapoorthi*, marks the beginning of an era wherein one is expected to share the acquired knowledge for the benefit of all by utilizing the experience gained in the past to provide guidance to the world. I am happy that this 60th Convocation is being graced by none other than the supreme judicial authority of our country, Honourable Dr. Justice Dhananjaya Y Chandrachud, the 50th Chief Justice of India. I am sure the graduands are lucky to have Honourable Dr. Justice Dhananjaya Y Chandrachud as the Chief Guest, an Indian jurist who has served in benches that have delivered landmark judgments and who has visited the universities of Mumbai, Oklahoma, Harvard, Yale and others as a Visiting Professor. Thank you very much for accepting our invitation, Sir.

IIT Madras was opened up to all students starting on July 1, 2022. The year gone by has seen the rolling out of many new and major initiatives, the top two being the launch of a new **Department of Medical Sciences and Technology** and opening of the first overseas campus at Zanzibar, Tanzania. The Department of Medical Sciences and Technology was launched on May 11, 2023 and will offer a 4-year B.S. programme in Medical Sciences and Engineering. An MoU was signed earlier this month between the Ministries of Education of India and Tanzania for setting up the first international **IIT campus in Zanzibar** that will offer a 4-year M.S. and a 2-year B.S. in Data Science and Artificial Intelligence. Classes will commence in the campus from October 2023 with an initial intake of 70 students.

IIT Madras has proved herself by sustaining the top ranks in the **NIRF Ranking** this year too. She has retained the #1 position for the fifth year in a row for overall performance among all universities in India, #1 position among Engineering Institutes for the eighth year since inception of NIRF, and ranked #2 among Research Universities in India, for the second time in a row. Thanks to the persistent efforts of the students, faculty, staff, alumni, and industry partners in making this achievable. IIT Madras has also clinched the Confederation of Indian Industries (CII) Industrial Intellectual Property Awards 2022 for Best Patent Portfolio (2017–22) and has been conferred the National Intellectual Property Awards 2022 by the Department of Industrial Policy & Promotion of the Ministry of Commerce & Industry, Government of India in the category of top Indian Academic Institution for patent applications filing, patents granted, IPs commercialised and their economic significance. In the QS ranking, IIT-Madras jumped up by 50 places to come at 98th spot in Mathematics. Our B.S. in Data Science and Applications has won a Silver Prize in the 'Best Online Program' category. Additionally, NPTEL (National Programme on Technology Enhanced Learning), a joint initiative of IITs and IISc, won the Gold in the 'Lifelong Learning Category.'

Ever since she was granted the Institute of Eminence status in 2019, IIT Madras has made all efforts to bolster her research infrastructure and had identified 68 research initiatives across 21 technology clusters, from which after rigorous review **15 Centres of Excellence** have been launched recently to carry out cutting-edge research for development of next generation technologies having global impact. The 15 Centres are: Critical Transitions in Complex Systems, NDE 5.0 – Industrial Assets and Process Management, Centre of Excellence on Molecular Materials and Functions, Technologies for Low Carbon and Lean Construction, Healthcare and Assistive Technologies, Maritime Experiments to Maritime Experience, Centre for Quantum Information, Communication and Computing, Sports Science and Analytics Centre for Soft Matter, Centre of

Excellence in RF, Analog, and Mixed Signal ICs, Atomistic Modelling and Materials. Design, Geophysical Flows Lab, Centre for Cancer Genomics and Molecular Therapeutics, Quantum Centre for Diamond and Emergent Materials, and Energy Consortium. Nearly 65% of our faculty are involved in this initiative that encompasses a broad spectrum of disciplines.

This would not have been possible without the Strategic Plan 2021-2027 that was launched by the Hon'ble Minister of Education, Government of India that is guiding us in striding towards our vision of establishing ourselves as a world-class institution.

At this Convocation, 2571 graduands will receive their degrees which includes around 453 Ph.D. students. A total of 19 Ph.D. scholars among them will receive joint degrees with foreign universities—4 from Swinburne University of Technology, Australia; 2 from RWTH Aachen University, Germany; 2 from The University of Melbourne, Australia; 2 from Curtin University, Australia; 2 from Deakin University, Australia; 1 from The University of Technology, Sydney, Australia; 1 from Queensland University of Technology QUT, Australia; 1 from Ecole Centrale De Nantes, France; 1 from University of Bordeaux, France; 1 from University of Bordeaux, France; 1 from UTS Singapore and 1 from The Technische Universitat Kaiserslautern (TUK), Germany. This year we will witness the first set of 15 students getting their Post-Graduate Diploma Programme in Bridge Engineering (PGDPBE).

1.1. Degree and Outreach Programmes

IIT Madras has restructured her M.A. programme with an aim to expand and open up to larger sections of students by scrapping its 5-year integrated M.A. programme that had entry through HSEE examination and introducing the **2-year M.A. programme** through GATE examination. This 2-year M.A. programme is offered in three streams: Development Studies, Economics, and English Studies. A Dual Degree M.A. in Public Policy for the engineering students of the Institute has also been introduced. IIT Madras has undertaken many initiatives that are in congruence with the National Education Policy. Following the grand success of the online B.S. in Data Science and Programming, an online B.S. Degree in Electronic Systems has been launched earlier this year that is open to persons of varied aged groups and diverse backgrounds to pursue at their own pace and with multiple entry and exit options. I am happy to place on record that the L&T sponsored user-oriented M. Tech. programme in Construction Technology and Management has been running successfully for the past 25+ years and is probably the longest sustained User-Oriented Programme (UOP) in the world.

A Certificate Programme on eMobility and Electric Vehicle Engineering for Working Professionals is the first Executive Certification programme offered by the Centre for Outreach and Digital Education (CODE), the erstwhile Centre for Continuing Education through the Department of Engineering Design.

As an Institute of National Importance and in consonance with our Strategic Plan we are focusing more on 'local relevance leading to global excellence' to make 'IITM for All'/'Anaivarukkum IITM'. We have therefore rolled out several initiatives that will focus on reaching out to rural India through the Section 08 company hosted by IIT Madras and housing the Technology Innovation Hub funded by the Department of Science and Technology under its National Mission on Cyber Physical Systems, IIT Madras Pravartak Technologies Foundation. **Kalvi Shakti and Vidya Shakti** are such initiatives, which reach 12000 school students from 5th to 12th grades, in Tamil Nadu and Uttar Pradesh. Science, Mathematics, and English are taught through live online classes in Tamil and Hindi medium. They have Rural Interaction Centres (RICs) in 89 villages in Tamil Nadu and 100 villages in Uttar Pradesh. The tutors use virtual reality lessons to teach 2500 school students; and demonstrate science experiments face to face, to 3200 students. This innovative approach has increased the attention and retention spans in children significantly, that is evident from the 98% passing rate in the RICs across all grades. They also provide empowerment programmes for rural women in niche areas including software testing. The RIC initiative is to be expanded to 8 more states and 1000 RICs in future. Pravartak **Rural Technology Centres (RTCs)** aim to provide high-quality education in technology (web development, animation, programming, hardware devices through sensors and controllers, etc.) for free to middle, high, and higher secondary school students. Nearly 2000 students have benefitted under this through the six RTCs launched, four in Thiruvallur and two in Tuticorin. The **Sony Pravartak Finishing School Programme** aims to train economically weaker students from Tier 2 and 3 engineering colleges with deep technological skills required by Industry to make them employable. 32 students have benefitted this year under this scheme. **Out of the Box Thinking (OOBT)** through Mathematics, an initiative of IITM Pravartak Technologies Foundation, to nurture young minds and solve problems through an indirect and creative approach, using reasoning that is not immediately obvious and involves ideas that may not be obtainable using only traditional step-by-step logic has, after the successful completion of levels 1 and 2 that had 1.40 lakh registrants, launched Level 3 and 4. The programme '**Science Technology Engineering and Mathematics (STEM)**' was inaugurated by the Honourable Chief Minister of Tamil Nadu, who also distributed the electronic kits to the schools. This STEM program aims to conduct a year-long program in Electronic Science for about one lakh government school students (studying in 9th to 12th classes) in rural areas every year so that they would be motivated to take up a career in the semiconductor technologies domain. Thanks to our alumnus who has donated magnanimously for this initiative. **NPTEL and SWAYAM** continue to provide online certificate courses reaching several lakhs of students. NPTEL has, in order to reach out to local rural population, created a portal that has its text transcripts translated to local languages and a dedicated portal for GATE preparation. NPTEL has also provided soft skill training to nearly 3787 students from 229 colleges and arranged internship opportunities at the Institute for about 220 students. Under the **Quality Improvement Programmes (QIP)**, IIT Madras continues to offer Ph.D. courses to the faculty members of the AICTE approved technical

institutions. This year 22 have been admitted taking the total number of such beneficiaries to 724. IIT Madras is mentoring **Sindhu Central University**, the first Central University being set up in Ladakh.

The **Interdisciplinary Dual Degree** programme, initiated in 2018, is being offered in 14 cutting-edge areas like Artificial Intelligence, Machine Learning, Data Science, Robotics, Electric Vehicles, Public Policy, and Quantitative Finance among others. The **web-enabled M.Tech. programme** has enabled industry personnel to upgrade their technical knowledge and skill and that too at their own pace. Nearly ten such programmes have been launched so far under this scheme, with the recent one being with Tata Consultancy Services (TCS) on Industrial AI that saw nearly 50 enrollments from those already employed for upskilling.

1.1.1. International Outreach

IIT Madras hosted a seminar on 'The Role of Digital Technology in Education' of the First Educational Working Group meeting of the G20 on 31st January 2023 with about 12 countries presenting and discussing their strategies and best practices followed in School Education, Higher Education, and Skill Development. Around 75 delegates from 31 invited countries and organizations, 400 college students, and 200 faculty from local renowned colleges participated in this seminar, which culminated with a spectacular show of Tamil art and culture.

The International Interdisciplinary Master's degree programmes (I2MP), started in July 2022, saw the enrollment of 18 international students, in addition to 8 in the M.S. programme and 4 under the Joint Masters programme. These students will study several core and elective courses at our campus, in addition to a research project in their area of interest.

As informed earlier in this report, a B.S. and M.Sc. in Data Science and AI will be offered at the IIT Madras Zanzibar campus from October 2023. An inter-disciplinary M.Tech. in Energy Systems was offered to Nepalese and international students at the Kathmandu University last year and saw an enrollment of 4 students. The Department of Management Studies has started an international immersion course for the Executive M.B.A. students at Institut d'Économie Scientifique Et de Gestion (IESEG), Paris this year.

1.2. Academic Research

IIT Madras, as informed earlier in this report, has launched 15 Centres of Excellence committed to carry out cutting-edge research in emerging technologies that would create global impact. IIT Madras has, in the year under review, recruited 29 high quality faculty under the Mission Mode recruitment of the Government of India to carry forward the cutting-edge research in the various emerging and disruptive fields.

1.2.1. Snapshots of Research and Innovations

IIT Madras has always ensured that research in her laboratories get translated to impact society, some of which are highlighted here:

A **National Centre for Precision Medicine in Cancer**, inaugurated by the Honourable Finance Minister Mrs. Nirmala Sitharaman in November 2022, will promote research in molecular biology, cell biology, genomics, proteomics, bioinformatics, data science, and other interdisciplinary research to develop affordable cancer care solutions. Thanks to Karkinos Healthcare India Pvt. Ltd., Mumbai that has generously contributed INR 45 crore to this initiative.

The **National Centre for Assistive Health Technologies**, IIT Madras (NCAHT-IITM), an initiative of the Indian Council for Medical Research (ICMR), conceived and developed by the TTK Center for Rehabilitation Research and Device Development, was inaugurated at the Research Park in June this year. The Centre vividly demonstrates the real-life challenges faced by Individuals with disabilities through various experience zones. It additionally features an Innovation Hub for User-centric Design, a Wheelchair Skills Lab, an Open Innovation Portal, a Policy Research Desk, and a Dissemination Center, all aimed at cultivating an assistive technology ecosystem that complements the research, design, development, and incubation efforts in assistive technologies.

The **ePlane Company** is developing a 2-seater electric vertical takeoff and landing aircraft for short haul/urban air mobility within cities, suburbs, rural, and remote areas. Their fully carbon-fibre composite subscale prototype at half the scale manufactured in-house at the IITM Discovery Campus has been test-flown recently, aiming to take cargo payloads. ePlane is the only private company in India to obtain the Design Organisation approval for designing a full aircraft from the Directorate General of Civil Aviation.

Agnikul Cosmos makes fully metal 3D-printed LOX/kerosene semi-cryo rocket engines to configure launch vehicles that can take micro satellites to space orbits. They have established the Rocket Factory at the IITM Research Park where the 3D printing of the rocket is done, and they static test-fire the engines at a facility in the IITM Discovery Campus. Agnikul has also established India's first private launchpad at Sriharikota with ISRO's support, from where they are expected to undertake their first fully controlled suborbital launch shortly.

Avishkar Hyperloop, a student team at IIT Madras developing the full stack of hyperloop technologies since 2017, has been participating in global competitions and winning awards. It has been recognized as Asia's best team since 2019. This year,

they will be demonstrating a fully levitating magnetically propelled and braked subscale pod. With support from the Indian Railways, construction of a 400m long subscale vacuum tube track at the IITM Discovery Campus is underway. The scaleup towards commercialisation is being undertaken by the IITM incubated startup, TuTr Hyperloop, which has struck collaboration with Tata Steel, L&T, and Haardt Hyperloop from the Netherlands for full scale implementation.

Prof. T Pradeep and his research team's work on development of a low-cost filtration system to remove arsenic and other heavy metals from groundwater has helped millions of people around the world living with contaminated water get access to clean water.

Prof. R I Sujith and his research group developed novel, dynamical, and complex systems approaches, to analyse and control highly detrimental flame blowouts and combustion instabilities that critically affect operational margins, efficiency, and emissions of jet engines, gas turbines and rockets. They discovered that the onset of any oscillatory instability is accompanied by a loss of multifractality and loss of scale-free behaviour of the fluctuations, and is always presaged by a state of intermittency. This group was the first to characterise these transitions using measures that quantify multifractality, intermittency statistics, and complex network topology, thereby identifying precursors that determine the proximity of the system to the onset of instabilities or blowouts and predicting the instability amplitude at the onset. They were also the first to identify the presence of hubs in complex reacting combustor flow fields that offer optimal locations for implementing control strategies, and established international networks of top researchers who are collaborating on the development of new approaches for controlling practical, complex, and dynamical systems.

An **India Centre for Lab Grown Diamond (InCent-LGD)** to promote indigenous manufacturing of Lab-Grown Diamonds (LGD), with a budget overlay of INR 242 crore over 5 years has been approved by the Ministry of Commerce. LGDs significantly reduce the environmental and social impacts of mining natural diamonds and finds applications in jewellery, quantum computing, computer chips, satellites, 5G/6G network technology, defence, optics, thermal, medical, and mechanical industry. The Centre will develop the technologies and provide assistance to industries and entrepreneurs, thereby increasing the employment opportunities, promote export, and fuel the country's economic growth.

Dr. Greeshma Thrivikraman and her team made significant contributions to the fields of biomedical science, nanobiotechnology, and tissue engineering and in emerging areas of bioelectronic medicine, stem cell technologies, and regenerative engineering.

Dr. Aravind Kumar Chandiran and his group developed halide perovskite materials with selective cationic vacancy that enhanced the stability of material even in strong acids and bases. This material because of its extreme stability, absorbs complete sunlight covering ultraviolet, visible, and NIR and hence was employed as semi conductor and demonstrated solar water splitting.

Prof. M Jeganmohan and his team developed an efficient ruthenium based catalytic system, $[\text{Ru}(\text{OAc})\text{p-cymene}][\text{SbF}_6]$, for C-H functionalisation of organic molecules assisted by a weak chelating group, that has been well recognized and widely used by several international research groups. The group has synthesized biologically important natural products such as phenanthridinone, aristolactam and benzo[c]phenanthridine alkaloids in shorter steps that have potential application in biological sciences.

Prof. Jitendra Sangwai and his team's work in the field of crude oil, natural gas, shale gas, and gas hydrate discovery and exploration, as well as studies on formation/dissociation kinetics and robust phase behavior models are quintessential to understand the science behind exploration, production, and storage of natural gas from hydrate reservoirs.

Prof. Md. Mahiuddin Baidya and his team has carried out fundamental investigations into organometallic catalysis and exploration of greener visible light photocatalysis that unlocks new synthetic platforms towards designer molecular frameworks and heterocycles with biological significance.

Prof. P N Santhosh and his team has contributed significantly in the area of strongly correlated systems. Mimicking the giant magnetoresistance (GMR) device in bulk brownmillerite oxides, giant exchange bias phenomenon in layered oxide systems are some recent prominent research outputs.

1.2.2. New Research Facilities/Centres

IIT Madras constantly upgrades her research facilities and infrastructure that will enable her scholars and students pursue cutting-edge research.

Some additions this year are: a higher performance computing cluster at INR 1.7 crore in the Department of Applied Mechanics; an IVIS Spectrum In Vivo Imaging System at INR 4.5 crore in the Department of Biotechnology; a Liquid Chromatography facility in the Department of Chemistry; a Total Organic Carbon (TOC) facility in the Civil Engineering Department; a hyperthermia clinical device for treatment of intact breast cancer and a diagnostic and repair Supercontinuum Laser in the Department of Engineering Design; and a combination alloy design facility in the Department of Materials Engineering.

In addition to the 15 Centres of Excellence, and the National Centre for Precision Medicine in Cancer that has been provided earlier in the report, a **CAMSIITM Fintech Lab** has been established in the Department of Management Studies to accelerate Fintech related innovation; the **Veena and Pratap Subrahmanyam Centre for Digital Intelligence, Security**

Hardware & Architecture (V&PS-CDISHA) was inaugurated in April 2023 and will work on SHAKTI, the IIT Madras- developed indigenous Micro- processor & build a new class of computers to handle emerging AI applications. Thanks to our alumnus Pratap for his generous contribution; a new recycled aggregate laboratory to simulate the production of recycled materials in laboratory conditions and their fundamental characterization is being established; a **laboratory to facilitate traffic studies** in a safe and controlled environment which are difficult to achieve from conventional traffic real-world data collection methods and Laboratories for Micro Analytical Characterization of Civil Engineering Materials (MACCEM) have been established. The **Centre for Responsible AI** (CeRAI), a virtual inter-disciplinary research centre has been set up at IIT Madras, in November 2022 with the objective of carrying out multidisciplinary research in Responsible AI to ensure fair, ethical, safe, & responsible development, deployment, monitoring and management of AI based solutions in the real world.

The researchers of Ocean Engineering Department have developed a wave energy converter that was successfully tested at the Tuticorin Port.

1.2.3. Academic Distinctions by Faculty and Students

Our faculty continued to earn accolades during the academic year gone by. Notable among the academic honours bestowed on our faculty members are the following: **Prof. T Pradeep** has been bestowed the prestigious ENI award, the VinFuture Prize dedicated to 'Innovators from Developing Countries', and the 10th Prince Sultan Bin Abdulaziz International Prize, and has been selected as Fellow of the African Academy of Sciences; **Prof. R I Sujith** has been elected as an International member of the US National Academy of Engineering; **Prof. K Ramesh** has been bestowed the 2023 M.M. Frocht Award; **Dr. Greeshma Thriyakraman** has been bestowed the NASI-Young Scientist Award 2022; **Prof. Ashok Jhunjunwala** has been bestowed the Best Business Mentor Award by Naanayam Vikatan and **Prof. Michael Gromiha** has been elected as Indian National Science Academy (INSA) Fellow.

Dr. R Santhosh and **Dr. Anindita Sahoo** will be visiting Sussex University and the University of Birmingham respectively on Fellowships, and **Prof. Sujatha Srinivasan** will be visiting the University College of London as an Honorary Professor.

Among the honours bestowed by our Institute, **Prof. RI Sujith** has been awarded the Institute's Life Time Achievement Award (the Senior-Level R&D Award). **Prof. Rayala Suresh Kumar** and **Prof. Radhakrishna G Pillai** have been awarded the Mid-Career R&D Award, and **Dr. Rupesh Nasre** and **Dr. V Nagabhushana Rao** have been awarded the Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching. **Dr. Shweta Agrawal**, **Dr. Akanksha Agrawal** and **Dr. Yamijala S R K Chaitanya Sharma** have been chosen as Faculty Fellows.

Our students have also won recognitions: **Ms. Athira Anand** has been bestowed the Prof. KV Krishna Ayyar Scholarship; **Ms. Ashna Joy** has won the 2023 Taiwan Fellowship; **Dr. Tapas Kumar Das** has been conferred the IEI Young Engineers Award; **Ms. Preethi Mariam George** has been awarded the Inlaks Research and Travel Grant 2022; **Ms. Rizana Salim** has been selected for the Fulbright Kalam Climate Fellowship; **Ms. Mathu Mathi M** has been awarded the Optica Women Scholars Prize 2023; **Dr. Amrithesh Kumar** has been awarded the Alexander Von Humboldt Postdoctoral Fellowship; **Dr. M Agilan** has been awarded the Young Metallurgist Award: Metal Sciences; and **Mr. Madhu Narayanan** has been chosen as an MPIWG Visiting PDF.

1.2.4. Industrial Consultancy and Sponsored Research

I wish to place on record the yeomen services rendered by the Centre for Industrial Consultancy and Sponsored Research (IC&SR) over the past five decades. It has indeed played a major role in the growth of our Institute by attracting substantial funding for her research and consultancy activities from Ministries of the Government of India and from industry, while supporting the faculty and students in their innovations, patenting, and transfer of technology. In 2022-23, the Institute received sanction for 239 Ministry-sponsored projects for a total value of INR 577.64 crore. Our strong industry collaboration is evident from the 696 consultancy and industry-sponsored research projects that have been received this financial year amounting to INR 457.22 crore that is almost 65% more than last year.

The Ministry of Defence has sanctioned a project at a cost of INR 14.86 crore for carrying out research on analysing signal problems. The Ministry of Electronics & Information Technology has sanctioned a project at a cost of INR 14.30 crore to develop next generation technologies for 6G applications at higher mm-Wave and sub THZ bands towards the realisation of denied technologies under Aatmanirbhar Bharat. The Ministry of Road Transport and Highways has sanctioned a project for INR 11.92 crore to set up a pilot test facility for full-scale testing of bridge girders. Ministry of Housing and Urban Affairs has sanctioned a project for INR 9.58 crore to develop 3D Volumetric precast construction technology and concrete 3D printing technology for mass housing in the country. Department of Telecommunications has sanctioned a project for INR 169.95 crore for development of an Advance Optical Communication Test Bed.

We filed 232 patents during the year, of which 69 were international filings, and were granted 175 Indian and 21 international patents. Our faculty have undertaken nearly 46 projects in various research areas under the Corporate Social Responsibility (CSR) activities at a total value of INR 83.62 crore and an additional 33.26 lakhs was received for ongoing projects. The bimonthly science and technology magazine of IIT Madras, 'IIT Madras Shaastra', that showcases the development in science and technology and its impact on society, both nationally and internationally, continues to be well-received by the scientific community.

1.3. Research Park and Our Deep-Tech Startup Incubation System

The IITM Incubation Cell and its sector-specific incubators for Medical Technology, Biosciences, Cyber physical systems, and Rural Technologies continue to incubate around 50–60 companies annually, with a cumulative portfolio of 320 deep-tech startups. Founded by IITM faculty, staff, students, alumni and external entrepreneurs, the companies span the breadth of deep tech areas in globally critical domains, including manufacturing, robotics, data sciences, IoT, e-mobility, energy, water, healthcare, biotech, and agri-tech. Of these, 22% companies have raised investments from angel investors/VCs: several companies started a few years ago have received Series A funding and are now attracting Series B/C funding at significant valuations. IIT Madras-incubated companies are together valued at INR 38,000 crore based on their last investment data. 106 startups are in the market, having generated a cumulative revenue of INR 1870 crore in FY 2021–22 and creating more than 7000 direct jobs. IIT Madras-incubated startups have filed over 210+ patents, and 10% of these startups are founded by women, and 30% co-founded by IIT Madras faculty. It is pertinent to note that all these are deep-technology startups that incorporate sophisticated engineering and high-end manufacturing in their products, and many address national challenges and redefine markets.

Over the years, the IIT Madras Incubation Cell (IITMIC) has created a thriving ecosystem consisting of feeder channels within IIT Madras, a global Mentor network comprising 100+ alumni, industry, tech leaders, serial entrepreneurs and investor partners among angels, VCs, industry CSR funds and banks, managers of central startup schemes (e.g. oil & gas), and agencies, along with a vast array of support services. All of this helps us to support our startups, over a wider time period, with a flexible or 'exit when you want' approach, steering them through the very challenging initial years where other sources of support or funders are more cautious to move into the slow-starting deep-tech space.

IITMIC's main focus going forward, is to set an agenda and charter the course for the coming years. We wish to stabilise our growth and make it sustainable, while also continue to lead as a national hub for deep-tech startups. IC envisions becoming an aspirational force for young entrepreneurs across the country, as 'the place to be' to build global brands from Indian technological innovations, eventually expanding our presence in the Association of Southeast Asian Nations (ASEAN) & Africa region. IITMIC is presently developing ways to replicate its model nationally and support large population of young startups in the country. As a key step in this process, it has initiated formal engagements with Tier 2/3 colleges helping them strengthen their entrepreneurial ecosystems and co- incubating their startups. IITMIC has signed MoUs with 17 institutions/incubators in South India (Tamil Nadu (TN), Andhra Pradesh (AP) and Karnataka (KA)) so far including KSR Educational Institutions (Trichengode, TN), Sona Incubation Foundation (Salem, TN), Crescent Innovation and Incubation Council (Chengalpattu, TN), Atal Great Lakes Balachandran Incubator (Chengalpattu, TN), M.A.M. College of Engineering and Technology (MAMCET) (Trichy, TN), Maxelerator Foundation (Madurai, TN), Samunnati Foundation (Chennai, TN), Villgro Innovations Foundation (Chennai, TN), Thiagarajar College of Engineering Technology Business Incubator (Madurai, TN), STPI FinBlue (Chennai, TN); Presidency University (Bengaluru, KA); Alagappa Chettiar Government College of Engineering and Technology – Alagappa Chettiar Government College of Engineering and Technology (ACGCET) (Karaikkudi, TN); Sri Vishnu Educational Society (SVES) Group (AP & Telengana) and Sri Sivasubramaniya Nadar (SSN) Incubation Foundation (Chennai, TN). IITMIC has also jointly incubated 8 startups with our partner incubators.

The top valued startups in IITMIC's portfolio are: Uniphore (first unicorn, USD 2.5 billion), Ather Energy (soonicorn), Medibuddy, Agnikul, Detect Technologies, Stellapps, UVI, Hyperverge (AI), Ubifly (ePlane) and Planys Technologies.

Startups scaling in multiples in terms of commercial value and social impact are: Solinas (sanitation and water), Galax-eye (spacetech), Neomotion (Assistive Tech), Mind-grove, PiBeam, Esmite (e-mobility), Agrosperity (agri-fintech) and Xyma (IIoT).

1.4. International Collaborations

The Office of Global Engagement has facilitated IITM in furthering her international collaborations and working towards increasing the exchange of scholars and students. They have enabled the visit of several University and Embassy delegations throughout the years strengthening our international relations.

In the year under review, IIT Madras has signed 22 MoUs and renewed 30 active ones that enable student exchanges and faculty collaborations, taking the total number of active MoUs to around 306. We have 19 Joint Degree programmes and renewed 3 active joint doctoral programmes this year.

IIT Madras received 34 full time and 42 exchange international students during the academic year and sent 140 of our own students (nearly twice last year numbers) to various universities abroad under the exchange programmes. A total of 72 scholars are enrolled in joint Ph.D. programmes with our partner universities. Under the International Immersion Experience Programme, we have sent 60 Ph.D. scholars to various partner universities to continue their research work.

IIT Madras in partnership with the development under the African Asian Rural Development Organisation (AARDO) have 8 students from African countries enrolled in the MS Research programme this year with scholarship.

1.5. Human Resources

In the year under review, thirty staff have been promoted or have newly joined the Institute. In order to enable our staff to equip themselves with the necessary competencies, they have been provided opportunities to undergo various training programmes not only in their area of expertise, but also in ISO and in official language. 9 in-house and 11 outstation and a few official language trainings have been conducted that has benefitted nearly 600 staff members. An online training programme on POSH (Prevention of Sexual Harassment at the Workplace) and an Inclusive Education sensitisation workshop to create awareness were also arranged.

1.6. Infrastructure Development

IIT Madras has taken utmost care to follow all statutory regulations and use sustainable construction practices, energy conservation practices, use renewable energy, effectively reuse and recycle both liquid and solid wastes, safely dispose bio-medical and hazardous wastes and maintain the bio-diversity in the campus, while upgrading its infrastructure facilities to that of world-class standards.

The Thaiyur campus witnessed the inauguration of the **National Technology Centre for Ports, Waterways & Coasts** (NTCPWC) by the Honourable Union Minister Shri Sarbananda Sonowal and the Naval Facility designed by IIT Madras in it was inaugurated by Chief of Defence Staff. Phase I of the Thaiyur campus, which comprises an academic research block-cum-food court, hostel block, and various utilities and services, is expected to be completed within a year. Some start-ups and temporary facilities such as ePlane and Agnikul and specialized labs under CSR initiatives are functioning at the campus. The campus will also house: Gas Pipeline Testbed Facility; Hyperloop; Integrated Centre of Propulsion Technology (CoPT) and Centre of Ammunition (CoA); Silicon Photonic Integrated Circuit Enablement - Manufacturing Centre of Excellence (SPICE-MCoE); X2Fuels & Energy Pvt. Ltd.; and a full-scale bridge testing facility.

Several initiatives that create more access pathways, parks, lawns, and waterbodies in the campus have been taken to enhance the quality of campus environment and thus improve the overall wellness of the campus residents. A few such initiatives are creation of a hangout space for students over the first floor of the Café Coffee Day building with facilities such as seating benches, power plugs for charging, drinking water facilities, WiFi etc.; provision of seating benches at various places in the hostel and academic zones; creation of kiosks at several places to improve the availability of essential items for students; renovation of hostel buildings etc. During the year under review several projects have been completed. They are: Swarnamukhi, a new girl's hostel (G+8) by replacing the rear wing of Sarayu hostel at INR 33 crore; a new building to house the Centre for Innovation at INR 25 crore; recarpeting of minor roads at INR 6.9 crore; revamping of the Open Air Theatre; and face-lifting of Ganga, Jamuna and Godavari hostels at INR 6.5 crores.

The major ongoing projects are: New Academic Complex II at INR 187.70 crore; a state-of-the-art cryo lab facility; indoor multigame sports facility above the existing tennis court and wall practice area at INR 20.21 crore; upgradation of the water supply system at INR 37 crore; and addition and alteration of MOH and E1 type quarters.

Projects that are in the pipeline are: Research Visitors Guest House (G+8 floors) at INR 75.70 crore; provision of centralised chilled water systems to academic buildings at INR 49 crore; a new state-of-the-art hostel (Vaigai) to accommodate 2000 students; a New Academic Complex III; a new dining facility to cater to 3200 students; and a new 800-bed capacity women's hostel. A Municipal Solid Waste (MSW) Incinerator (1-2 TPD) based on rotary combustor technology that is to be commissioned by the end of this month will enable IIT Madras to achieve zero municipal solid waste disposals outside the campus by recycling the MSW generated within the campus itself.

1.7. Sustainability

IIT Madras has been leading the country through implementing several initiatives in the past including renewable energy installations, water reuse systems, waste management systems and sustainable transportation. We have several research projects and CSR projects, COE and Research Centres in energy water, waste, mobility, education, health, working towards achieving Sustainable Development Goals. The past year saw 47 Sponsored- Active projects, 71 Consultancy- Active projects, 17 Patents filed, 28 Patents granted, 3 Continuing Education Programmes, One Global Initiatives on Academic Network programme and 10 Conferences and workshops conducted in Sustainability Areas. We have also formed the Sustainable Campus Collective with faculty, staff and students as members and a student led Sustainability Committee who have organised Earth Day, Sustainability Day, and World Environment Day to raise awareness on how communities can adopt behavioural change to meet our Net Zero targets. After the success of the first two editions, we have launched Carbon Zero Challenge 3.0 that reaches out to thousands of students across the country to innovate for environment. The programme supports highly motivated students by funding prototypes and training them to become eco-entrepreneurs. 75 eco-innovations have been funded so far and 15 eco start-ups have become successful through this programme.

In order to offer special degree programmes on sustainability and bring all the above activities under one banner, we are proposing to launch a School of Sustainability.

1.8. Student Co-Curricular and Extra-Curricular Activities

Saarang, the annual cultural festival of IIT Madras was held successfully from January 11–15, 2023 witnessed more than 100+ events and a footfall of around 9000 student participants. The professional shows had performances by IndoSoul, Girish and the Chronicles, Pineapple Express, Kaaze and Sunidhi Chauhan, along with 5 world fest acts by international artists. Revathy, Singer Karthik, Palki Sharma, and Suma Kanakala were some of the major attractions in the Spotlight lineup. Three Nova fests—Korean fest, Comicals, and Media confluence—were conducted, gathering huge participation and interest. A running rally as part of Saarang's social campaign, Panacea, was conducted successfully in December. The first ever Saarang anthem, capturing the spirit of Saarang and Chennai and sung by GV Prakash Kumar was released in the last week of March.

Shaastra Juniors (Shaastra for schools) was held for the first time in campus from October 22–23, 2022, where rural school children from four villages in Tamil Nadu were brought to IIT Madras to witness various curated events, workshops and sessions in science and technology and lectures by veterans like Mr. Arun Krishnamurthy and Dr. Srimathy Kesan.

Shaastra, the technical festival was held during January 26–29, 2023 which witnessed Spotlight Lectures by Dr. A Sivathanu Pillai, Mrs. Vineeta Singh, and the Hon'ble Governor of Tamil Nadu, Thiru RN Ravi. It also presented various events like: Vastra, a social campaign on sustainability and accessibility in the garment industry; Debunk, India's first ever student-run initiative to address the growing bane of misinformation in popular media; a first ever Space-Tech Summit and Shaastra Streets, an on-ground engagement activities for maintaining a festive vibe. The team gave away about INR 30 lakh in prize money and donated about INR 1.5 lakh for charity.

For the first time, IIT Madras hosted the **Inter IIT Cultural Meet** (5th edition) during January 9–11, 2023 which comprised intensive competitive cultural events and had participants from all 23 IITs. Over 3200 students, including around 1000 women students and a few special needs students, participated in the event.

The **Sudha & Shankar Innovation Hub** was inaugurated by the Hon'ble Vice President of India, Shri Jagdeep Dhankar, in February end, the Innovation Hub custom built to host several path-breaking fora including the student-led maker space Centre for Innovation (CFI), and the campus pre-incubator Nirmaan.

The **Centre for Innovation (CFI)**, a student body that fosters student led innovation through over sixteen hobby clubs on important themes like AI & analytics, blockchain astronomy, genetics etc. It has six international competition teams and the achievements in 2022-23 include: **Team Avishkar Hyperloop** garnering significant national recognition with a remarkable funding of INR 8.3 crores from Indian Railways; **Team Raftar** which successfully developed the maiden electric Formula Racecar, leaving an indelible impression at Formula Bharat by emerging as 'Overall Winners' of Pi-EV 2022; **Team Abhiyaan** which has triumphed in the Auto-Nav Design and Cyber Challenges at IGVC USA, demonstrating their exceptional skills; **Team Abhyuday** which has achieved a ground-breaking milestone, launching their first rocket in the Spaceport America Cup USA, pushing the boundaries of ambition. CFI's clubs have achieved remarkable milestones, securing patents, and accolades—the **WebOps and Blockchain Club** orchestrated India's inaugural blockchain-based elections.

Nirmaan has housed more than 140 entrepreneurial teams since its inception, of which 23 teams have emerged as successful ventures and are valued at INR 1000 crore, and collective fund raise crossing 60 Crores. **Team DeskLamp** was selected for Y-Combinator's winter cohort 2023 and received \$500K in funding; **Team WASS** received a funding of INR 2.5 crore from the Chief Minister of Tamil Nadu through the famed Tamil Nadu Startup Innovation Mission (TANSIM); **Team Green Aadhaar** emerged as the COP 27 Award Winner organised by the United Nations International Children's Emergency Fund (UNICEF) & United Nations Development Programme (UNDP) India by addressing the issue of Plastic Waste Management through blockchain technology; **Team Subspace** was rated among the top 100 startups by Google Play Store and MEiTY App Scale; and **Team Seat of Joy** has emerged as the Winner of Best Invention at Inventory Factory India 2022 conducted by IIT Gandhinagar and received INR 2.5 lakhs funding for designing child safety seat in automobiles.

In consonance with the Institute's vision for students to move from an 'employee' to an 'employer' & to achieve the mission of producing 100 scalable startups per year, Nirmaan has come up with the pioneering Startup Nursery 'Pratham' and pre-incubation 'Akshar' programmes to strengthen the Innovation and Entrepreneurship (I&E) pipeline and ecosystem at the Institute. The Office of I&E aims to become the home to various academic programmes including courses and support for undergraduate and research degrees.

Our students have also won several competitions. Some of them are: **Alfalgo**, an IIT Madras Nirmaan incubated Startup won third place at BzzWings 2022; **Team Green Aadhaar** won second prize at Villgro's Innovators' Solver Challenge 2022 and second prize in the SERB-INAE-Hackathon 2022; **Mr. Hrishikesh** and **Mr. Satyam Prakash** (online degree students) won the India Water Pitch Pilot Scale Startup Challenge; **Team GAIA** secured the fourth position in the National Robotics Challenge; and **Team IITMOP** secured first place in the PAN-IIT ML/AI (Machine Learning/Artificial Intelligence) Hackathon.

Our Institute Sports Teams/Contingents won several accolades last year:

At the 36th Inter IIT Aquatics Meet held from October 5–9, 2022, the Madras Sharks, the IIT Madras Aquatics Contingent, clinched the men's swimming championship for the fifth time in a row and won the water polo trophy for the first time since 2011. They finished with an impressive medal tally of 13 golds, 6 silvers and 10 bronzes, and gold in water polo. Kalash Verma was adjudged the Best Swimmer (Men) and Best Water Polo Scorer.

At the 55th Inter IIT Sports Meet, held from December 15–22, 2022, the IIT Madras contingent won the Men's General Championship after a long gap of 11 years. The men's team won a Gold in Table Tennis, Silver in Athletics and Basketball, and Bronze in Badminton and Volleyball while the women's team won Bronze in Athletics and Badminton. Sajusha Ashok was adjudged the best women athlete and Nishant Vasan was adjudged the best player in men's table tennis.

1.9. Student Welfare

IIT Madras has taken several measures not only for the physical wellbeing of the students, but also for their mental, social, and economic wellbeing. We have put in place several new initiatives and taken necessary efforts to synchronise all our efforts to ensure that IIT Madras is an incident free and happy campus. A wellness session series for students has been launched with the support of the National Health Mission, Department of Health and Family Welfare, Government of Tamil Nadu, to increase awareness on mental health and various options are made available for students to reach out. We have partnered with the National Health Mission that has completed a wellness survey on nearly 80% of the students, faculty, and staff. A 'Gatekeeper Training' by M/s Kauvery Hospital has been launched to equip faculty and students with skills to identify persons who are in need of help and prevent suicide. Kushal meetings are being held to enable interaction of students with their faculty advisors or guides at regular intervals. We have launched a 'Be Happy' (<https://behappy.iitm.ac.in>) portal in this regard. MiTr and Saathi continue to provide counselling to stressed or anxious students. The Office of Hostel Management has, as always, been shouldering the arduous task of taking care of our students in the hostels with several faculty volunteering help.

1.10. Placements

In 2022-23, the Institute witnessed a successful placement season with more job offers and students placed than last year despite a bleak economic outlook. Also, more students' internships got converted into pre-placement offers (PPOs) compared to last year. Of the 1756 students registered for placements, 1683 got offers and 1427 have been placed. Efforts are ongoing to place all our students, including the differently abled, with special focus on research scholar placements.

1.11. Alumni Matters

In 2022 we honoured eleven of our alumni with the **Distinguished Alumnus Awards** for outstanding achievements in their respective fields. They are **Prof. Ram Mohan Narayan, Mr. Vijay Ullal, Prof. M. P. Paranthaman, Mr. Ram Sundaram, Prof. Rajesh Rajamani, Dr. Azeez Mohammed, Dr. Durga Malladi, Mr. Naveen Tahilyani, Mr. Karthik Sarma, Prof. Venkateshan Guruswami** and **Ms. Vidhya Srinivasan**.

I am extremely happy to share that our Office of Alumni and Corporate Relations and the Office of Institutional Advancement have in 2022–23 raised INR 231.2 crore, nearly a 75% increase over the last year. Of this, INR 98.69 crore has been received as CSR donations. I, on behalf of the Institute, wish to thank all our alumni, corporates, and well-wishers who have contributed magnanimously and made this achievable. I would also like to take this opportunity to thank the Institute Advisory Board (IAB) on guiding us on all initiatives to accelerate growth, augment and manage endowments, and implement best practices. Apart from the infrastructure projects mentioned earlier in the report, alumni have also supported nearly 645 students with scholarships and supported the institution of the following Chairs: the V Balakrishnan Chair, the CP Vendhan Institute Chair, and the Ganapathy Institute Chair. Apart from financial contributions, many alumni have mentored students in various aspects.

1.12. Acknowledgements

All these activities at scale and accomplishments of our Institute would not have been possible without the committed participation and support of all stakeholders—our faculty, students, and staff; agencies and industries sponsoring R&D and consultancy projects; professionals from other organizations who assist us in various capacities; and our alumni and corporate donors with their generous support to our various activities. In particular, I would like to thank office-bearers such as Heads of Departments, Deans, Chairpersons, Wardens, Advisors, and Professors-in-charge of various Cells and Centres, hospital and hostel staff for the selfless work they put in to keep the Institute ticking. The Institute is grateful to the Ministry of Education, Government of India, for its continued and sustained encouragement and support. I also wish to thank the Government of Tamil Nadu for all the support it continues to extend in multiple ways. Padma Vibhushan Prof. MS Valiathan, the Indian Cardiac Surgeon, former President of the Indian National Science Academy and National Research Professor of Government of India, proved to the world that our country has a great future in the area of Medical Science and Technology by successfully designing, manufacturing, and implementing the Chitra Valve, bringing in affordable indigenous heart treatment to our country. He could not be here today, but has been kind enough to record an inspiring speech motivating our students to pursue Medical Science and Engineering, which shall be played shortly. I thank him immensely for the same.

I wish to thank Dr. Pawan Goenka, our Chairman, Board of Governors, and all Board members for their wise counsel, support, and guidance, enabling us to scale new heights. I would like to express my heartfelt gratitude to our Chief Guest, Honourable Justice Dr. Dhananjaya Y Chandrachud for gracing this Convocation. We are eager to listen to his message to the graduating class of 2023.

Before I end, I would like to once again congratulate the prize-winners today and wish all our graduands happiness, professional success, and fulfillment from a life of service to their profession, family and country. God bless you all.

Jai Hind!



2

Administration

2.1. General

The Indian Institute of Technology Madras (IIT Madras) is an autonomous statutory organisation functioning within the Institutes of Technologies Act 1961, as amended by the Institute of Technology Amendment Act, 1963. The IITs are administrated centrally by the Councils of IITs, an apex body established by the Government of India (GoI) to coordinate the activities of these institutes. The Minister for Education, GoI is the Chairperson of the Council. Each IIT has a Board of Governors responsible for overall administration and control.

The Senate decides the academic policies of IIT Madras. It approves and controls the curricula, courses, examinations, and declaration of results. It appoints various committees to consider specific academic matters arising from time to time. The teaching, training, and research activities of various departments at the Institute are constantly under review to improve facilities and standards. The Director of the Institute is the Chairman of the Senate. The members of the Senate are listed in Appendix 1. The Finance Committee provides financial advice. The Buildings and Works Committee advises the institute on matters relating to buildings and works activities. The compositions of these committees and boards, together with a list of other officers, are provided in the appendix.

2.2. Faculty and Staff Position

As on 31 March 2023, 621 faculty members and 551 non-faculty members were in position.

2.2.1. Number of Faculty or Staff in Position

| Faculty Members | Visiting Faculty | Group A Officers | Scientific Officer | Technical Staff | Administrative Staff |
|-----------------|------------------|------------------|--------------------|-----------------|----------------------|
| 621 | 15 | 82 | - | 224 | 243 |

2.2.2. Number of Faculty and Employees Appointed during 2022-23

| Professors | Associate Professors | Assistant Professors | Visiting Faculty and Other Faculty | Administrative and Technical |
|------------|----------------------|----------------------|------------------------------------|------------------------------|
| - | - | 32 | 47 | 7 |

2.2.3. Visiting Faculty and Others

| S. No. | Name | Designation | Department | Date of Joining |
|--------|----------------------------------|-------------------------------|---|--------------------|
| 1 | Prof. Srinivasan Krishnamurthy | Visiting Faculty | Physics (PH) | April 29, 2022 |
| 2 | Dr. V. Subramanian | Visiting Faculty | Chemistry (CY) | May 04, 2022 |
| 3 | Prof. Shiv Kumar Sethi | Visiting Faculty | PH | June 30, 2022 |
| 4 | Dr. Khulud Alsouleman | Visiting Faculty | Chemical Engineering (CH) | August 31, 2022 |
| 5 | Dr. Daniel Jesus Rosado Alcarria | Visiting Faculty | Civil Engineering (CE) | September 05, 2022 |
| 6 | Prof. Pramoda Kumar Nayak | Visiting Faculty | PH | September 19, 2022 |
| 7 | Dr. Gabriela Garces Sanchez | Visiting Faculty | CE | November 1, 2022 |
| 8 | Dr. Shotaro Tada | Visiting Faculty (YIF Scheme) | Metallurgical and Materials Engineering (MME) | November 15, 2022 |
| 9 | Dr. R. Gopalan | Visiting Faculty | MME | December 02, 2022 |
| 10 | Dr. Saji George | Visiting Faculty | CH | January 01, 2023 |
| 11 | Dr. Venkataraman Swaminathan | Visiting Faculty | PH | January 11, 2023 |
| 12 | Dr. Mohamad Laradji | Visiting Faculty | PH | January 19, 2023 |

| Visiting Faculty on Fast Track Mode | | | | |
|-------------------------------------|-----------------------|-------------------------------------|--------------------------------------|------------------|
| S. No. | Name | Designation | Department | Date of Joining |
| 1 | Dr. Saurav Samantaray | Visiting Faculty on Fast Track Mode | Mathematics (MA) | January 02, 2023 |
| 2 | Dr. Paramesh Kumar | Visiting Faculty on Fast Track Mode | CE | January 10, 2023 |
| 3 | Dr. S Ganga Prasath | Visiting Faculty on Fast Track Mode | Department of Applied Mechanics (AM) | January 18, 2023 |

| Visiting Faculty Fellows | | | | |
|--------------------------|--|-------------------------|------------------------------------|--------------------|
| S. No. | Name | Designation | Department | Date of Joining |
| 1. | Prof. Karlo Penc | Visiting Faculty Fellow | PH | April 07, 2022 |
| 2. | Prof. Paul Robert Manger | Visiting Faculty Fellow | Computer Science Engineering (CSE) | May 02, 2022 |
| 3. | Prof. Raul Luis Zerbino | Visiting Faculty Fellow | CE | June 02, 2022 |
| 4. | Prof. S. Parashuraman | Visiting Faculty Fellow | Biotechnology (BT) | June 09, 2022 |
| 5. | Prof. Stephen Arnold (Level 2) | Visiting Faculty Fellow | PH | June 22, 2022 |
| 6. | Prof. Venkataraman Thangadurai | Visiting Faculty Fellow | CY | June 27, 2022 |
| 7. | Prof. Harald O. Jeschke | Visiting Faculty Fellow | PH | July 15, 2022 |
| 8. | Prof. Dick Henric us Julianus Thijssen | Visiting Faculty Fellow | Electrical Engineering (EE) | July 19, 2022 |
| 9. | Prof. Eric Arthur D'Asaro | Visiting Faculty Fellow | Aerospace Engineering (AE) | July 25, 2022 |
| 10. | Dr. Arnaud Ralko | Visiting Faculty Fellow | PH | July 25, 2022 |
| 11. | Dr. Ludovic DC Jaubert | Visiting Faculty Fellow | PH | August 02, 2022 |
| 13. | Prof. William H.Kinney | Visiting Faculty Fellow | PH | September 16, 2022 |
| 14. | Dr. Guillaume Faye | Visiting Faculty Fellow | PH | October 28, 2022 |
| 15. | Dr. Jose A Hoyos | Visiting Faculty Fellow | PH | November 2, 2022 |
| 16. | Dr. Venkatraman Sadanand | Visiting Faculty Fellow | AM | November 10, 2022 |
| 17. | Prof. Sundar V. Atre | Visiting Faculty Fellow | MME | November 24, 2022 |
| 18. | Dr. Mihail Bota | Visiting Faculty Fellow | EE | November 25, 2022 |
| 19. | Prof. Sakthivel Sadayappan | Visiting Faculty Fellow | BT | December 01, 2022 |
| 20. | Prof. Subhas Mukhopadhyay | Visiting Faculty Fellow | EE | December 12, 2022 |
| 21. | Prof. Steffen Leonhardt | Visiting Faculty Fellow | EE | December 12, 2022 |
| 22. | Dr. Stefan Elbel | Visiting Faculty Fellow | ME | December 12, 2022 |
| 23. | Dr. Swetaprovo Chaudhuri | Visiting Faculty Fellow | AE | December 13, 2022 |
| 24. | Prof. Ammasi Periasamy | Visiting Faculty Fellow | PH | December 15, 2022 |
| 25. | Dr. Ramazashvili Revaz | Visiting Faculty Fellow | PH | December 27, 2022 |

| Professors Emeriti | | | | |
|--------------------|--------------------------|--------------------|------------|-----------------|
| S. No. | Name | Designation | Department | Date of Joining |
| 1 | Prof. V. Jagadeesh Kumar | Professor Emeritus | EE | July 01 2022 |
| 2 | Prof. K. Mangala Sunder | Professor Emeritus | CY | July 01 2022 |
| 3 | Prof. Sampath Kumar T S | Professor Emeritus | MME | July 01 2022 |

| Professors (Re-employed) | | | | |
|--------------------------|---------------------------|-------------|--------------------------------------|-------------------|
| S. No. | Name | Designation | Department | Date of Joining |
| 1 | Dr. Prema Rajagopalan | Re-employed | Humanities and Social Sciences (HSS) | October 01, 2022 |
| 2 | Prof S Sankararaman | Re-employed | CY | November 1, 2022 |
| 3 | Prof Sujatha Chandramohan | Re-employed | ME | February 01, 2022 |
| 4 | Prof N Ramesh Babu | Re-employed | ME | February 01, 2022 |

| Professors of Practice | | | | |
|------------------------|-----------------------------|-----------------------|------------------------|--------------------|
| S. No. | Name | Designation | Department | Date of Joining |
| 1 | Dr D. Srinagesh | Professor of Practice | Civil Engineering | September 01, 2021 |
| 2 | Dr Christopher | Professor of Practice | Electrical Engineering | July 01, 2021 |
| 3 | Dr Rear Admiral A George NM | Professor of Practice | Aerospace Engineering | December 14, 2021 |

2.2.4. Internal Faculty/Employees Appointed in Higher Grades during 2022-23

| S. No. | ID No. | Name | Designation | Department | Date of Joining |
|--------|--------|---------------------------------|---------------------------|------------------------------------|-------------------|
| 1. | 8553 | Ranjith Mohan | Associate Professor (ASP) | AE | November 09, 2022 |
| 2. | 8746 | Anubhab Roy | ASP | AM | November 09, 2022 |
| 3. | 8981 | Arumugam Rajavelu | ASP | BT | November 09, 2022 |
| 4. | 8834 | Bhargava Rama Chilukuri | ASP | CE | November 09, 2022 |
| 5. | 8823 | Aravind Kumar Chandiran | ASP | CH | November 09, 2022 |
| 6. | 8607 | Meghana Nasre | ASP | CS | November 09, 2022 |
| 7. | 8841 | Prashanth L A | ASP | CS | November 09, 2022 |
| 8. | 8694 | Kartik Chandra Mondal | ASP | CY | November 09, 2022 |
| 9. | 8699 | Arnab Rit | ASP | CY | November 09, 2022 |
| 10. | 8754 | Tuhin Subhra Santra | ASP | Engineering Design (ED) | November 09, 2022 |
| 11. | 8071 | Manivasakan R | ASP | EE | November 09, 2022 |
| 12. | 8675 | Kaushik Mitra | ASP | EE | November 09, 2022 |
| 13. | 8595 | Merin Simi Raj | ASP | HSS | November 09, 2022 |
| 14. | 8676 | Hemachandran Karah | ASP | HSS | November 09, 2022 |
| 15. | 8881 | Santosh Kumar Sahu | ASP | HSS | November 09, 2022 |
| 16. | 8886 | Avishek Parui | ASP | HSS | November 09, 2022 |
| 17. | 8570 | N. Narayanan | ASP | MA | November 09, 2022 |
| 18. | 8679 | Priyanka Shukla | ASP | MA | November 09, 2022 |
| 19. | 8680 | Anoop Thazhe Veetil | ASP | MA | November 09, 2022 |
| 20. | 8771 | Soumen Sarkar | ASP | MA | November 09, 2022 |
| 21. | 8605 | Anil Kumar Meena | ASP | ME | November 09, 2022 |
| 22. | 8663 | Sourav Rakshit | ASP | ME | November 09, 2022 |
| 23. | 8678 | Sivasrinivasu Devadula | ASP | ME | November 09, 2022 |
| 24. | 8688 | Kameswararao Anupindi | ASP | ME | November 09, 2022 |
| 25. | 8770 | Piyush Shakya | ASP | ME | November 09, 2022 |
| 26. | 8846 | Pallab Sinha Mahapatra | ASP | ME | November 09, 2022 |
| 27. | 8687 | Sreeram Krishnamoorthy Kalpathy | ASP | MME | November 09, 2022 |
| 28. | 8702 | Murugaiyan Amirthalingam | ASP | MME | November 09, 2022 |
| 29. | 8662 | Tarun K Chandrayadula | ASP | Ocean Engineering Department (OED) | November 09, 2022 |
| 30. | 8868 | Suresh Rajendran | ASP | OED | November 09, 2022 |
| 31. | 8486 | Sunethra Ramanan | ASP | PH | November 09, 2022 |
| 32. | 8690 | Ashwin Joy | ASP | PH | November 09, 2022 |
| 33. | 8755 | Panchanana Khuntia | ASP | PH | November 09, 2022 |
| 34. | 8799 | Vaibhav Madhok | ASP | PH | November 09, 2022 |
| 35. | 8847 | Basudev Roy | ASP | PH | November 09, 2022 |
| 36. | 8874 | Yasir Iqbal | ASP | PH | November 09, 2022 |
| 37. | 8891 | Ayan Mukhopadhyay | ASP | PH | November 09, 2022 |

| S. No. | ID No. | Name | Designation | Department | Date of Joining |
|--------|--------|-----------------------------|------------------|-------------------------|-------------------|
| 38. | 8563 | Manikandan S. Mathur | Professor (Prof) | AE | November 09, 2022 |
| 39. | 8493 | Raghavendra Sai V V | Prof | AM | November 09, 2022 |
| 40. | 8513 | Shaikh Faruque Ali | Prof | AM | November 09, 2022 |
| 41. | 8458 | Smita Srivastava | Prof | BT | November 09, 2022 |
| 42. | 8464 | Vignesh Muthuvijayan | Prof | BT | November 09, 2022 |
| 43. | 8481 | Karthik Raman | Prof | BT | November 09, 2022 |
| 44. | 8321 | Rupen Goswami | Prof | CE | November 09, 2022 |
| 45. | 8327 | Vidya Bhushan Maji | Prof | CE | November 09, 2022 |
| 46. | 8405 | Arun Menon | Prof | CE | November 09, 2022 |
| 47. | 8432 | Gitakrishnan Ramadurai | Prof | CE | November 09, 2022 |
| 48. | 8459 | Radhakrishna G.Pillai | Prof | CE | November 09, 2022 |
| 49. | 8504 | Ethayaraja Mani | Prof | CH | November 09, 2022 |
| 50. | 8551 | Vinu R | Prof | CH | November 09, 2022 |
| 51. | 8500 | John Ebenezer Augustine | Prof | CS | November 09, 2022 |
| 52. | 8200 | Debashis Chakraborty | Prof | CY | November 09, 2022 |
| 53. | 8594 | Beeraiiah Baire | Prof | CY | November 09, 2022 |
| 54. | 8650 | Mahiuddin Baidya Md | Prof | CY | November 09, 2022 |
| 55. | 8332 | Balakrishna C. Rao | Prof | ED | November 09, 2022 |
| 56. | 8562 | Ganapathy Krishnamurthi | Prof | ED | November 09, 2022 |
| 57. | 5024 | Venkatesh T G | Prof | EE | November 09, 2022 |
| 58. | 8495 | Gaurav Raina | Prof | EE | November 09, 2022 |
| 59. | 8507 | Deleep R. Nair | Prof | EE | November 09, 2022 |
| 60. | 8514 | Ramkrishna Pasumarthy | Prof | EE | November 09, 2022 |
| 61. | 8489 | Subash S | Prof | HSS | November 09, 2022 |
| 62. | 8467 | Balaji R | Prof | MA | November 09, 2022 |
| 63. | 8573 | Kunal Krishna Mukherjee | Prof | MA | November 09, 2022 |
| 64. | 8668 | Santanu Sarkar | Prof | MA | November 09, 2022 |
| 65. | 8305 | Parag Ravindran | Prof | ME | November 09, 2022 |
| 66. | 8418 | Abhijit Sarkar | Prof | ME | November 09, 2022 |
| 67. | 8517 | Sushanta Kumar Panigrahi | Prof | ME | November 09, 2022 |
| 68. | 8519 | Narsimhan Swaminathan | Prof | ME | November 09, 2022 |
| 69. | 8576 | Kumar Annabattula V V S D R | Prof | ME | November 09, 2022 |
| 70. | 8664 | Sundararajan Natarajan | Prof | ME | November 09, 2022 |
| 71. | 8516 | Lakshman Neelakantan | Prof | MME | November 09, 2022 |
| 72. | 8591 | Parasuraman Swaminathan | Prof | MME | November 09, 2022 |
| 73. | 8475 | Rupashree Baral | Prof | Management Studies (MS) | November 09, 2022 |
| 74. | 8499 | Lata Dyaram | Prof | MS | November 09, 2022 |
| 75. | 8438 | Rajesh R Nair | Prof | OED | November 09, 2022 |
| 76. | 8608 | Sriram V | Prof | OED | November 09, 2022 |
| 77. | 8508 | Manu Jaiswal | Prof | PH | November 09, 2022 |
| 78. | 8521 | Dillip Kumar Satapathy | Prof | PH | November 09, 2022 |

2.2.5. Employees Promoted during April 2021 to March 2022

| S. No. | ID No. | Name | Designation | Department | Date of Joining |
|--------|--------|---------------|-------------------------|-------------------|-------------------|
| 1. | 1752 | K. Nataraj | Chief Driver | Transport Cell | January 13, 2023 |
| 2. | 8840 | B. Daisy | Attendant | Civil Engineering | January 13, 2023 |
| 3. | 8085 | Manavalan S | Sr .Attendant | Internal Audit | January 13, 2023 |
| 4. | 8039 | Ravi R | Sr .Attendant | Engineering Unit | January 13, 2023 |
| 5. | 2176 | Mallikam M | Office/Lab Assistant | Chemistry | January 13, 2023 |
| 6. | 2329 | Kothandan J | Office/Lab Assistant | Engineering Unit | January 13, 2023 |
| 7. | 926 | Ravi V | Office/Lab Assistant | Chemistry | January 13, 2023 |
| 8. | 1865 | B. Mohansiva | Office/Lab Assistant | Hospital | January 13, 2023 |
| 9. | 2330 | M. Jayavel | Office/Lab Assistant | Central Workshop | January 13, 2023 |
| 10. | 888 | Christuraj M | Office/Lab Assistant | Hospital | January 13, 2023 |
| 11. | 1117 | Murugammal C | Office/Lab Assistant | Civil Engineering | January 13, 2023 |
| 12. | 8866 | Scariya KC | Deputy Security Officer | Security Section | February 06, 2023 |
| 13. | 8596 | Tamil Selvi T | Sr. Hindi Translator | Hindi Cell | February 23, 2023 |
| 14. | 8601 | Aasa P.M | Jr. Hindi Translator | Hindi Cell | February 23, 2023 |
| 15. | 2860 | Lilly Prasad | Matron | Hospital | March 31, 2023 |

2.2.6. Mission Mode (MM-2)

(Special Drive for SC/ST/OBC-NCL/EWS)

Report on the status of filling up of backlog vacancies in faculty positions in Mission Mode-2

The Board at its 256th meeting held on November 24, 2022, noted the process of Special Recruitment Drive for SC/ST/OBC-NCL on Mission Mode-2. Further, the Board approved the Selection Committee and Screening & Shortlisting Proceedings for all departments and also authorized the Chairman, BoG, to approve the recommendations of the Selection Committees as and when the process was completed.

Accordingly, after approval of the Board/Chairman, BoG, offer of appointments were issued to seven selected candidates. 2 candidates have already joined and remaining 5 candidates are expected to join in another six months' time.

The consolidated statistics of entire mission mode recruitment is presented below:

| Category | No. of Vacancies | No. of Candidates Selected | No. of Vacancies (Mission Mode Advt. IITM/R/1/2022 dt. 13.07.2022) | Candidates Selected | Backlog Vacancies |
|--------------|------------------|----------------------------|--|---------------------|-------------------|
| ST | 6 | 4 | 2 | 1 | 1 |
| SC | 13 | 10 | 4 | 2 | 2 |
| OBC-NCL | 25 | 15 | 10 | 4 | 6 |
| EWS | 5 | - | - | - | - |
| Total | 49 | 29 | 16 | 7 | 9 |

In the meantime, a Rolling Advertisement No.IITM/R/1/2023 dated 27.01.2023 has been released for the post of Assistant Professor for filling approximately 50 vacancies.

The unfilled vacancies of all the previous recruitments (post CEI Act.2019) may also be included for recruitment apart from the above number of vacancies.

2.2.7. Faculty/Employees Appointed between April 1, 2022 and March 31, 2023

| S. No. | ID No. | Name | Designation | Department/Section | Date of Joining | RPN/Advt. |
|--------|--------|---------------------|--|---------------------|-------------------|-----------|
| 1 | 8873 | Karunakaran P V | Joint Registrar | Finance & Accounts | June 30, 2022 | RPN |
| 2 | 8056 | Muralidharan R | Deputy Registrar | Recruitment | February 22, 2023 | Advt. |
| 3 | 8009 | G Prabakar | Assistant Registrar | Administration I | June 30, 2022 | Advt. |
| 4 | 8050 | Roslin Gilda A | AEE (CE) | Engineering Unit | April 04, 2022 | RPN |
| 5 | 772 | Selvaraju V | Senior Technical Officer (Systems) | Computer Centre | August 24, 2022 | RPN |
| 6 | 9018 | Varsha V K | Junior Library Technician | Library | August 17, 2022 | |
| 7 | 9019 | Arpita Pal | Junior Library Technician | Library | August 17, 2022 | |
| 8 | 9020 | Alok Ranjan Sahu | Junior Library Technician | Library | August 17, 2022 | |
| 9 | 9021 | Ajit Kumar Kainchi | Junior Library Technician | Library | August 17, 2022 | |
| 10 | 9029 | Shaik Riyas | Junior Engineer | Engineering Unit | October 10, 2022 | |
| 11 | 9030 | Acharya S K | Junior Technician (Maintenance - Civil) | Engineering Unit | November 09, 2022 | |
| 12 | 9031 | T. Anand | Junior Technician (Maintenance - Electrical) | Engineering Unit | November 09, 2022 | |
| 13 | 9032 | Vishal B | Junior Technician (Telephones) | Engineering Unit | November 11, 2022 | |
| 14 | 9033 | Kishorekumar V | Junior Technician (Maintenance - Civil) | Engineering Unit | November 11, 2022 | |
| 15 | 9036 | Arokyadoss V | Junior Technician (Maintenance - Electrical) | Engineering Unit | November 28, 2022 | |
| 16 | 9038 | Althi Dhananjayarao | Junior Technician (Maintenance - Electrical) | Engineering Unit | December 01, 2022 | |
| 17 | 9043 | S Nathiya | Junior Assistant | Stores & Purchase | February 17, 2023 | |
| 18 | 9044 | V Shanthi | Junior Attendant | Academic (Courses) | February 17, 2023 | |
| 19 | 9045 | E Sumathi | Junior Attendant | Academic (Research) | February 17, 2023 | |
| 20 | 9046 | R Revathy | Junior Attendant | Engineering Unit | February 17, 2023 | |

2.2.8. Financial Upgrade under Modified Assured Career Progression Scheme (MACPS)

- Number of Group A Officers granted financial upgrade under MACPS: 4

| S. No. | ID No. | Name | Designation | Department | Date of Relief |
|--------|--------|----------------------|---------------------------------------|------------------|-------------------|
| 1 | 8982 | Vartika Srivastava | Assistant Professor Grade.I (AP Gr I) | MS | May 13, 2022 |
| 2 | 8988 | Jayant Jha | AP Gr.I | MA | June 20, 2022 |
| 3 | 9044 | T R Murali | Safety Officer | Engineering Unit | August 01, 2022 |
| 4 | 8997 | Pravendra Kumar | AP Gr.I | PH | October 31, 2022 |
| 5 | 8940 | K C Sivaramakrishnan | AP Gr.I | CS | November 30, 2022 |
| 6 | 9025 | Anurag Pandey | AP Gr II | CS | December 16, 2022 |

2.2.9. Faculty/Employees who Opted for Voluntary Retirement

| S. No. | ID No. | Name | Designation | Department/Section | Date of Relief |
|--------|--------|-------------|------------------|-----------------------|----------------|
| 1 | 1285 | W B Sivaraj | Senior Attendant | Communications Office | July 31, 2022 |

2.2.10. Faculty/Employees who Superannuated between 1 April 2022 and 31 March 2023

| S. No. | ID No. | Name | Designation | Department/Section | Date of Retirement |
|--------|--------|----------------------|---------------------------------|---------------------------------------|--------------------|
| 1 | 2604 | Thamban Nair M | Professor | MA | May 31, 2022 |
| 2 | 1003 | Viswanath K | Executive Engineer (EE) | Engineering Unit | May 31, 2022 |
| 3 | 2804 | Rajagopal K | Professor | CE | June 30, 2022 |
| 4 | 5029 | Prema Rajagopalan | Associate Professor | HSS | September 30, 2022 |
| 5 | 2503 | Sankararaman S | Professor | CY | October 31, 2022 |
| 6 | 2489 | Sujatha Chandramohan | Professor | ME | November 30, 2022 |
| 7 | 2575 | Ramesh Babu N | Professor | ME | January 31, 2023 |
| 8 | 2994 | Mani A | Professor | ME | March 31, 2023 |
| 9 | 1606 | Lakshmi Bala S | Professor | PH | March 31, 2023 |
| 10 | 8497 | Elumalai N | Chief Security Officer | Security Section | February 28, 2023 |
| 11 | 40 | Aslam Basha Z | Technical Officer | Biotechnology | February 28, 2023 |
| 12 | 616 | Srithar M | Superintendent | Recruitment | April 30, 2022 |
| 13 | 1095 | Arumugam K | Senior Security Inspector | Security Section | April 30, 2022 |
| 14 | 1213 | Vathsala Devi A | Superintendent | Electrical Engg. | May 31, 2022 |
| 15 | 2326 | Narasimhalu K | Senior Attendant | Engineering Unit | May 31, 2022 |
| 16 | 1189 | Malarvizhi Alice J E | Superintendent | Finance & Accounts | June 30, 2022 |
| 17 | 2332 | Raghavan A | Senior Attendant | Metallurgical & Materials Engineering | June 30, 2022 |
| 18 | 2334 | Krishnamoorthy D | Senior Attendant | Applied Mechanics | June 30, 2022 |
| 19 | 1186 | Ragavan R | Senior Security Inspector | Security Section | July 31, 2022 |
| 20 | 3070 | Kumar P | Junior Superintendent | Physics | August 31, 2022 |
| 21 | 959 | Dilli K | Senior Technician | Mechanical Engg. | August 31, 2022 |
| 22 | 603 | Rani D | Senior Assistant | Humanities & Social Science | October 31, 2022 |
| 23 | 2887 | Sridhar C D | Junior Superintendent | Computer Science & Engg. | December 31, 2022 |
| 24 | 2904 | Jayachandran D | Junior Superintendent | Metallurgical & Materials Engineering | December 31, 2022 |
| 25 | 305 | Subramanyam SV | Senior Technical Superintendent | Metallurgical & Materials Engineering | December 31, 2022 |
| 26 | 1675 | Gaspar Arumairaj | Junior Technician | Civil Engg. | January 31, 2022 |
| 27 | 1113 | Seliyan T | Senior Security Inspector | Security Section | February 28, 2023 |
| 28 | 1676 | Vasu M A | Senior Security Inspector | Security Section | February 28, 2023 |
| 29 | 661 | Indira Raghavan | Superintendent | Stores & Purchase | March 31, 2023 |

2.2.11. Faculty/Employees who were on Extraordinary Leave/Deputation/Lien

| S. No. | ID No. | Name | Designation | Dept. | From | To | Visit's Name & Venue |
|--------|--------|-------------------------|------------------|---------|--------------------|--------------------|--|
| 1. | 3120 | Dr. Siva Ram Murthy C | Prof. | CSE | December 24, 2021 | December 23, 2023 | Inter IIT Faculty Exchange Programme- IIT Hyderabad |
| 2. | 0351 | Dr. S R Chakravarthy | Prof. | AE | September 01, 2021 | August 31, 2023 | To take up the position of full time Chief Technical officer for Co-founded start up at IITM Research park. |
| 3. | 2786 | Dr. S Mohan | Prof. | CE | December 22, 2021 | February 28, 2024 | Vice Chancellor, Puducherry Technological University |
| 4. | 8229 | Dr. Anurag Mittal | Prof. | CSE | June 07, 2022 | July 31, 2023 | Inter IIT Faculty Exchange Programme - IIT Delhi |
| 5. | 8651 | Bhagavan Gayathri | Junior Supdt. | Physics | February 01, 2022 | January 31, 2023 | EOL on personal grounds |
| 6. | 8076 | Parameswaran A M | Junior Assistant | MM | October 06, 2022 | September 05, 2023 | EOL on medical reasons |
| 7. | 8297 | Dr. Sudhir Chella Rajan | Prof. | HS | March 29, 2022 | May 31, 2023 | Private Visit to USA |
| 8. | 8311 | Dr. Madhu Mutyam | Prof. | CSE | October 04, 2022 | October 03, 2024 | To accept the position of "Tenured Leader" (Salaried position) at Brane Enterprises Private Limited, Hyderabad |
| 9. | 8677 | Dr. Roland Wittje | ASP | HSS | October 01, 2022 | July 31, 2023 | Fellowship at the Kate Hamburger International Center for Advanced Study "Cultures of Research RWTH Aachen University, Germany |
| 10. | 2815 | Dr. Satyanarayana K N | Prof. | CE | January 18, 2017 | May 31, 2027 | Director at IIT Tirupati, Andhra Pradesh |
| 11. | 8163 | Dr. B S Murty | Prof. | MM | August 26, 2019 | August 25, 2024 | Director at IIT Hyderabad |
| 12. | 8121 | Dr. K P Sudheer | Prof. | CE | April 04, 2019 | April 03, 2025 | Executive Vice President, Kerala State Council for Science, Technology and Environment (KSCSTE) |
| 13. | 3111 | Dr. D Janakiram | Prof. | CSE | December 23, 2020 | December 22, 2023 | Director at Institute for Development and Research in Banking Technology (IDRBT), Hyderabad |
| 14. | 8166 | Dr. Umakanth Dash | Prof. | HSS | February 15, 2021 | February 14, 2026 | Director at Institute for Rural Management Anand (IRMA), Gujarat |
| 15. | 5037 | Dr. S Sundar | Prof. | MA | March 14, 2022 | March 13, 2027 | Director National Institute of Technology Mizoram |
| 16. | 8255 | Dr. Seshadri Sekhar | Prof. | ME | October 12, 2022 | August 31, 2027 | Director at IIT Palakkad, Kerala |
| 17. | 1616 | Karmalkar S | Prof. | EE | November 17, 2022 | June 30, 2026 | Director at IIT Bhubaneswar |

2.2.12. Faculty Members on Sabbatical Leave

| S. No. | ID No. | Name | Designation | Dept. | From | To | Visit's Name & Venue |
|--------|--------|-------------------------|-------------|-------|------------------|--------------------|---|
| 1 | 2502 | Dr. Mishra A K | Prof. | CY | May 02, 2022 | February 28, 2023 | Book Writing |
| 2 | 8227 | Dr. Suresh Babu M | Prof. | HSS | April 01, 2022 | March 31, 2023 | Advisor to Economic Advisory Council to the PM, NITI Bhavan |
| 3 | 2609 | Dr. R Rama | Prof. | MA | August 08, 2022 | April 28, 2023 | Book Writing |
| 4 | 8267 | Dr P Selvam | Prof. | CY | June 14, 2022 | June 13, 2023 | Book Writing and to serve as Visiting Professor at Kumamoto University, Japan |
| 5 | 8801 | Dr. Shweta Agrawal | ASP | CSE | January 15, 2023 | October 14, 2023 | Working on a book and visiting ENS de Lyon, France for research collaboration |
| 6 | 8454 | Dr. Satya Sundar Shetty | ASP | HSS | July 27, 2022 | May 30, 2023 | Lecturing and Research under FulBright Fellowship |
| 7 | 8603 | Dr. Varisha Rehman | ASP | MS | October 01, 2022 | September 30, 2023 | Book Writing |
| 8 | 8193 | Dr. Shanti Bhattacharya | Prof. | EE | January 01, 2023 | June 30, 2023 | Book Writing |
| 9 | 8587 | Dr. Solomon J Benjamin | ASP | HSS | October 01, 2022 | July 24, 2023 | To complete field work for book manuscript & visiting two prestigious French research Institutes and deliver four public talks at The EHESS and the LABEX at the Sorbonne, Paris 1 University |
| 10 | 8740 | Saurabh Saxena | AP | EE | January 01, 2023 | December 31, 2023 | Visiting Scholar in University of Illinois at Urbana-Champaign, Illinois, USA |
| 11 | 8118 | Sivakumar K C | Prof. | MA | January 01, 2023 | June 30, 2023 | Visiting Professor at University of California, Santa Barbara, USA |
| 12 | 8495 | Gaurav Raina | Prof. | EE | January 01, 2023 | December 31, 2023 | Chief Technology Officer at Okarango Data Technologies Pvt.Ltd, IITM Research Park |
| 13 | 8568 | Mathangi Krishnamoorthy | ASP | HSS | January 18, 2023 | October 24, 2023 | Fieldwork in and around Maharashtra and also in Pune Industrial belt |
| 14 | 2765 | C. Rajendran | Prof. | MS | March 11, 2023 | August 15, 2023 | Book Writing |
| 15 | 8459 | Radhakrishna G. Pillai | Prof. | CE | March 20, 2023 | December 31, 2023 | 1.Senior Resident Research at Politecnico di Milano (PoliMi), Milan, Italy. 2.Visiting Researcher at Bundesanstalt fur Materialforschung und prufung, Berlin (BAM) at Germany. 3.Visiting Faculty at University of Toronto (UoT), Toronto at Canada |

2.2.13. Faculty/Employees who Passed Away while in Service

| S. No. | ID No. | Name | Designation | Department | Date |
|--------|--------|----------|------------------|------------------|--------------------|
| 1 | 2323 | S Gopal | Senior Attendant | Engineering Unit | September 14, 2022 |
| 2 | 912 | M Palani | Senior Attendant | Chemistry | October 18, 2022 |

2.3. Staff Welfare

2.3.1. Human Resource Development

As part of human resource development (HRD) activities, the Institute plans and implements programmes for providing opportunities to technical and administrative employees to update and upgrade their knowledge and skills so that they may perform their duties effectively. The programmes are aimed at enhancing the pride and satisfaction they feel in their work, which in turn positively impacts their personal lives as well. These activities also form a part of the training requirements under the ISO dispensation.

The HRD activities were initiated in the institute in 1997 under the charge of a professor. In the period of reporting, three internal training programmes and one external training programme organised by other institutions or organisations were attended by our employees.

2.3.1.1. Details of Training Programmes Arranged for the Employees during the period April 1, 2022 to March 31, 2023

| S. No. | Training Programme | No. of Employees Benefited |
|----------------------------|---|----------------------------|
| Outstation Training | | |
| 1 | National Workshop on Physical Simulation of Thermo-Mechanical Processing of Materials | 1 |
| 2 | Electrical and Fire Safety for Distribution Utilities | 4 |
| 3 | Breast Cancer Management: A Multidisciplinary Approach | 2 |
| 4 | 2 nd DAE-BRNS Workshop on Cryogenic Facility Management | 1 |
| 5 | 11th International Library Information Professionals Summit on New and Innovative Libraries in Digital Era : Services and Practices | 1 |
| 6 | Cracks and Leakages in Concrete Structures: Causes, Prevention and Repair | 2 |
| 7 | Energy Efficiency in Electrical Utilities | 2 |
| 8 | Solar Power Generation Technology on Grid & Off Grid | 2 |
| 9 | SPV Power plant Integration with Grid and Storage Batteries | 2 |
| 10 | Digital Substation | 2 |
| 11 | Electromagnetic Interference and Compatibility Techniques for Industrial and Medical Applications | 2 |
| In-house Training | | |
| 1 | Time Management | 70 |
| 2 | Right to Information | 63 |
| 3 | Rules of Reservation & Roster Fitments | 55 |
| 4 | Your Health & Wealth | 26 |
| 5 | MS Office | 68 |
| 6 | Establishment Matters | 41 |
| 7 | Government E-Market (GeM) | 56 |
| 8 | Workflow Operations | 35 |
| 9 | Organisational Behaviour | 40 |

2.3.1.2. Ongoing Activities of Official Language, Hindi Cell

The Hindi Cell at IIT Madras is functioning under the overall administrative control of the Registrar.

a) Hindi Training

In accordance with the directives of the Department of Official Language of the Ministry of Home Affairs (MHA), Government of India (GoI), Hindi Language training classes were conducted regularly for both technical and administrative employees by Hindi Teaching Scheme. Despite the adverse situations due to COVID-19 pandemic in 2022-23, 16, 18 and 5 employees successfully completed the Prabodh, Praveen and Pragma courses, respectively, through online mode. Cash awards were given to 39 employees on passing the Hindi exams with creditable marks, and one-time increment was given to 17 employees for passing Pragma examination.

b) Hindi Workshops and Seminars

In 2022-23 four Hindi workshops were conducted online and offline, training given to 111 employees in Basic Hindi, structure of simple sentences and conversational Hindi. The employees were also apprised of the Official Language Policy, Technical Terminology and Annual Programme of MHA by the Hindi Officers of various central government offices and Public Sector Undertaking (PSU) organisations. Many activity tests and interactive sessions were conducted.

c) OLIC Meeting

The Official Language Implementation Committee (OLIC) meetings of IIT Madras were convened regularly during the year under review in which achieving the targets prescribed for various items in the annual programme of MHA were discussed in detail. Follow-up actions were taken on the decisions made.

d) Translation Work

Translation of advertisements related to students' admission, teaching and non-teaching positions, RTI letters, accounts report, and other reports sent to the ministry, invitations pertaining to Convocation and Institute Day, press releases, institute's main website, administrative website and confidential work assigned by the authorities were carried out during the year under review.

e) Preparation of Help Literatures

11 Help Literatures are being prepared on routine and essential basis for effective and progressive use of Hindi. During the year, Help Literature consisting of technical and administrative terms used in sections, centres and departments were prepared and distributed for use in files and in view of Hindi competitions.

f) Celebration of Hindi Day

The Hindi Day was celebrated on 25 October 2022 and was presided over by the Registrar and Chairman, OLIC. The Registrar announced the prize winners of competitions such as Extempore, Simple Translation, Quiz, Word Power, Identify the Picture, Say It In Hindi and Hindi Music (Solo), which were conducted during the Hindi Fortnight. As part of cultural programme, Hindi songs were rendered by IIT Madras students and spot activity was organised for the audience.

g) Grant of Annual Incentive for doing Official Work in Hindi

Twenty two employees were awarded cash incentive under the 10,000 Words Incentive Scheme during the year.

h) Other Activities for Effective Implementation of Official Language

Following activities were conducted to maintain congenial atmosphere for Hindi and to create interest in Hindi among the staff:

- 'Learn a Word in Hindi' is updated every day in three languages, viz., Tamil, Hindi and English, on the board kept in the Administration building
- World Hindi Day was celebrated on 10 January 2023. A workshop was conducted for the employees on the topic, Spoken Hindi – tips and suggestions by Dr. A Srinivasan, Hindi Officer, Southern Railway.
- A coordination meeting was convened during March 2023 with the Superintendents and Hindi coordinators of Academic Section, Office of Registrar and Director's Secretariat to increase the use of Hindi in official work.

i) Town Official Language Implementation Committee (TOLIC) Activities

IIT Madras actively participates in Town Official Language Implementation Committee (TOLIC) activities such as meetings, webinars, and competitions. The staff participated in various competitions such as Conversation, Extempore, Debate, Book Review, Noting and Drafting, Elocution and Word Power conducted by TOLIC during the year. Shri Shivasharanappa, Junior Technician, Engineering Unit and Ms B. Janani, Junior Assistant, Stores & Purchase won second prize in the Conversation competition.

2.3.2. Children Education Assistance

The institute reimbursed a sum of ₹1,50,66,000 to 556 faculty and staff members towards Children Education Allowance as per Government of India norms during April 2022 to March 2023.

2.3.3. Insurance Schemes from February 1, 2022 to January 31, 2023

Group Mediciam Insurance Scheme

| Category/Numbers of Persons Covered | Employee and Dependents | Pensioner and Dependents | Family Pensioner |
|--|-------------------------|--------------------------|------------------|
| Basic Coverage only opted | 792 | 584 | 439 |
| Basic + Additional coverage opted | 382 | 401 | 88 |
| Total dependents covered | 2941 | 902 | 00 |
| Total number of persons under coverage | 4115 | 1887 | 527 |
| Total premium paid | ₹7,88,88,758/- | | |
| Total number of claims made | 890 | | |
| Total claimed amount | ₹7,19,39,198/- | | |

Group Term Insurance Scheme

| Category | Life Insurance - Number of Persons Covered |
|-----------------------------|--|
| Basic Coverage opted | 1121 |
| Total Premium paid | ₹1,77,49,774 /- |
| Total number of claims made | Two |
| Total claimed amount | ₹60,00,000/- |

Group Fire and Burglary Insurance Scheme

| Category | Value of the Assets Covered |
|-----------------------------|-----------------------------|
| Total premium paid | ₹ 33,54,593/- |
| Total number of claims made | NIL |
| Total claimed amount | NIL |

2.4. List of Faculty Members and Officers in the Academic and General Administration

| Designation | Faculty Member/Officer's Name |
|--|-------------------------------|
| I. Administration | |
| Director | Prof. V Kamakoti |
| Deans | |
| Academic Courses | Prof. Prathap Haridoss |
| Academic Research | Prof. Shanthi Pavan |
| Administration | Prof. Koshy Varghese |
| Faculty | Prof. K Murali |
| Industrial Consultancy and Sponsored Research | Prof. Manu Santhanam |
| Students | Prof. Nilesh J Vasa |
| Planning | Prof. Ligy Philip |
| International and Alumni Relation (Alumni and Corporate Relations) | Prof. Mahesh Panchagnula |
| International and Alumni Relation (Global Engagement) | Prof. Raghunathan Rengasamy |
| II. Heads of Department | |
| Aerospace Engineering | Prof. H S N Murthy |
| Applied Mechanics | Prof. M S Sivakumar |

| Designation | Faculty Member/Officer's Name |
|---|--|
| Biotechnology | Prof. Guhan Jayaraman |
| Chemical Engineering | Prof. R Ravikrishna |
| Chemistry | Prof. Sanjay Kumar |
| Civil Engineering | Prof. R G Robinson |
| Computer Science and Engineering | Prof. Krishna Nandivada |
| Electrical Engineering | Prof. Nagendra Krishnapura |
| Engineering Design | Prof. C S Shankar Ram |
| Humanities and Social Sciences | Prof. Jyotirmaya Tripathy |
| Management Studies | Prof. Thenmozhi |
| Mathematics | Prof. V Vetrivel |
| Mechanical Engineering | Prof. Chandramouli P |
| Metallurgical and Materials Engineering | Prof. N V Ravi Kumar |
| Ocean Engineering | Prof. S Nallayarasu |
| Physics | Prof. Arul Lakshminarayan |
| III. Head of Research Centre | |
| Sophisticated Analytical and Instrumentation Facility | Dr. S S Bhattacharyya |
| IV. Head of Special Facilities for Interaction with Other Institutions | |
| Centre for Industrial Consultancy and Sponsored Research | Prof. Manu Santhanam |
| Chairman, Centre for Continuing Education | Prof. Devendra Jalihal |
| Central Electronics Centre | Prof. Bobby George |
| Chairman, CC | Prof. P Sriram |
| Chairman | |
| GATE | Prof. Suresh Rayala |
| JEE | Prof. A V Jayanthan |
| Central Workshop | Prof. Shankar Krishnapillai |
| V. Central Admin | |
| Registrar | Dr. Jane Prasad |
| Joint Registrar | |
| Internal Audit | Smt. G Chitrapavai |
| Finance and Accounts | Shri P V Karunakaran |
| Deputy Registrars | |
| Administration | Shri A Babu |
| Office of Dean (Students) | Shri Y E L Sudhakar Rao Pujari Shri Peter Ki (from 31 st March 2023) |
| Academic Research | Smt. K Vijayalakshmi |
| Academic Courses | Shri P Sarvaharna |
| IC&SR | Shri P Thangapandian |
| Recruitment, RTI & Legal Cell | Shri R Muralidharan |
| Assistant Registrars | |
| Stores & Purchase | Smt. P K Shebasabari |
| Administration – I & II | Shri G Prabakar |
| Administration – III | Smt. R Rajalakshmi |
| Communications and PR & Hindi Cell | Smt. Rashmi Uday Kumar |
| Finance and Accounts – Pay Bills | Shri Raman Kumar |
| Finance and Accounts – Bills Unit | Shri Raman Kumar |
| Academic Courses | Smt. Jayasri Sridhar |
| Academic Research | Dr. P Arul |
| Engineering Unit | Smt. Booma Sowrirajan |
| Chief Security Officer | Shri S Prakash |

| Designation | Faculty Member/Officer's Name |
|---|--|
| Central Library | |
| Librarian | Dr. Mahendra N Jadhav |
| Deputy Librarian | Dr. M Anandamurugan |
| Assistant Librarian (SS) | Dr. K Saravanan |
| VI. Head of Central Services, Facilities and Section | |
| Chief Medical Officer | Dr. Rebecca Punithavalli |
| Chairman Council of Wardens | Prof. T Thyagaraj |
| Vice Chairman Council of Wardens | Prof. J M Mallikarjuna |
| Chairman CMFGS | Prof. Somnath Chanda Roy |
| Advisor - Mitr | Prof. Nilesh J Vasa |
| Co - Advisor Mitr | Dr. Ramesh Gardas |
| Advisor – Saathi | Dr. Sunetra Sarkar |
| Advisor Cultural | Dr. Arshinder Kaur |
| Advisor Co-curricular | Dr. V V S D R Kumar Annabattula |
| Advisor Sports | Prof. Arul Prakash |
| Co Advisor Sports | Prof. Anuradha Bannerjee |
| Advisor Training & Placement | Prof. Sathyan Subbiah |
| Advisor Internship | Prof. P Murugavel |
| Advisor (Inclusive Education) | Dr. Saji K Mathew |
| Advisor (EML & T5e) | Prof. Basavaraja Madivala Gurappa |
| Advisor E-Cell | Dr. Ashwin Mahalingam |
| Advisor (IAR Affairs) | Dr. Sachin S Gunthe |
| Advisor (Career Development Cell) | Dr. Arun Menon |
| Advisor (NSS, Civil, Society Services) | Dr. Sivakumar K C |
| Centre for Innovation Faculty Head | Prof. Prabhu Rajagopal |
| Centre for Innovation Deputy Faculty Head | Dr. Satyanarayanan Seshadri |
| Chair, Mess Monitory Committee | Dr. Mallikarjuna J M |
| Advisor SECC/SLC | Dr. Anup Kumar Bhandari |
| Chief Election Officer | Prof. Anbarasu Manivannan |
| Deputy Election Officer | Prof. Sudakar Chandran |
| Co-Advisor (Social Outreach) | Dr. Pijush Ghosh |
| NCC - Coordinator | Dr. Ethayaraja Mani & Prof. P Shanmugam |
| President (Film Club) | Dr. Madhu Mutyam |
| Chairperson, Hostel Disciplinary Committee | Prof. M Ramasubba Reddy |
| VII. Engineering Unit | |
| Chairman, Engineering Unit | Prof. S A Sannasiraj |
| Co-Chairman Engineering Unit | Prof. Benny Raphel |
| Superintending Engineer | K Dharmaraj |
| Executive Engineers | M Ramachandran, Vineetha N R, Rizwan Ali |
| Senior Horticulture Officer | V Seenivasan |
| Assistant Executive Engineers | K Ravichandran, Ajay Krishnan, K Narayana Perumal, D Rajavel, V Manickavasagam, S Padmanabhan, Roslin Gilda A, Sathiya Narayanan S |

2.5. Housing Facilities

The campus of IIT Madras has 543 faculty quarters, 438 staff quarters and 262 students' quarters for accommodation. The campus also has 111 servant quarters.

3

Academic Programmes & Award of Degrees

In 2022-23, Indian Institute of Technology Madras offered the following programmes:

- Ph.D.
- M.S. (By Research)
- Interdisciplinary M.S./ Ph.D.
- Joint Degree/ Single Degree Ph.D.
- M.Tech.
- M.Sc.
- B.Tech.
- Dual Degree (B.Tech. and M.Tech.)
- Dual Degree (B.S. and M.S.) in Biological Sciences and Physics
- M.B.A.
- E.M.B.A.
- 5 year Integrated M.A. programme
- Inter-Disciplinary Dual Degree programmes
- Preparatory course for SC/ST/PwD students

3.1. Admissions 2022–23

Candidates were admitted to the following programmes during Academic Year 2022–23.

The number of students and scholars admitted to various programmes both in July 2022 and in January 2023 are given in the table. Reservation is followed as per Government of India (GoI) order for the academic year 2022-23 in all programmes (15% for SC, 7.5 for ST, 27% for OBC, 10% for EWS & PWD as applicable).

| Programme | Admission Procedure |
|---------------------------|--|
| B.Tech., Dual Degree | JEE (Advanced) |
| M.Tech. | GATE, Sponsored and User-Oriented Programmes |
| Ph.D. and M.S. | Test / Interview/ GATE/ Sponsored |
| M.Sc. | JAM |
| M.B.A. | CAT and Interview |
| M.A. Integrated Programme | HSEE |

Table 3.1. Fresh Admissions

Table 3.1.1. Details of OBC/SC/ST and Women Students under Fresh Admission (programme- and category-wise)

| Department | BTech | DD | MTech | Web-based MTech | MSc | MBA | EMBA | MA | MS | PhD | PG Diploma MEM | PG Diploma BE | Total |
|-----------------------------------|-------|----|-------|-----------------|-----|-----|------|----|----|-----|----------------|---------------|-------|
| Aeronautical Engineering (AE) | 62 | 10 | 22 | 38 | | | | | 11 | 9 | | | 152 |
| Applied Mechanics (AM) | | | 19 | | | | | | 15 | 23 | | | 57 |
| BioTechnology (BT) | | 91 | 28 | | | | | | 2 | 29 | | | 150 |
| Chemical Engineering (CH) | 116 | | 39 | 50 | | | | | 10 | 15 | | | 230 |
| Chemistry (CY) | | | | | 62 | | | | | 27 | | | 89 |
| Civil Engineering (CE) | 128 | | 105 | | | | | | 9 | 29 | | | 271 |
| Computer Science Engineering (CS) | 90 | | 94 | 27 | | | | | 10 | 5 | | 15 | 241 |
| Engineering Design (ED) | | 77 | | | | | | | 6 | 9 | | | 92 |

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| Department | BTech | DD | MTech | Web-based MTech | MSc | MBA | EMBA | MA | MS | PhD | PG Diploma MEM | PG Diploma BE | Total |
|---|------------|------------|------------|-----------------|------------|-----------|-----------|-----------|------------|------------|----------------|---------------|-------------|
| Electrical Engineering (EE) | 155 | | 79 | 82 | | | | | 42 | 20 | | | 378 |
| Geotechnical Engineering (GE) | | | 22 | | | | | | | | | | 22 |
| Humanities and Social Sciences (HSS) | - | | | | | | | 52 | | 9 | | | 61 |
| Mathematics (MA) | - | | 24 | | 48 | | | | | 6 | | | 78 |
| Management Studies (MS) | - | | - | | | 87 | 53 | | 6 | 9 | 40 | | 195 |
| Mechanical Engineering (ME) | 220 | | 87 | | | | | | 32 | 40 | | | 379 |
| Metallurgical and Materials Engineering (MME) | 68 | | 26 | | | | | | 12 | 20 | | | 126 |
| Ocean Engineering (OE) | 81 | | 46 | | | | | | 4 | 7 | | | 138 |
| Physics (PH) | 43 | 15 | 9 | | 51 | | | | | 12 | | | 130 |
| Total | 963 | 193 | 600 | 197 | 161 | 87 | 53 | 52 | 159 | 269 | 40 | 15 | 2789 |

Table 3.1.2.

| S. No. | Programme | GE | EWS | OBC | SC | ST | Total | Female | Male |
|--------------|-----------------------|-------------|------------|------------|------------|------------|-------------|------------|-------------|
| 1 | B.Tech | 377 | 105 | 262 | 141 | 78 | 963 | 199 | 764 |
| 2 | Dual Degree | 72 | 19 | 49 | 31 | 22 | 193 | 44 | 149 |
| 3 | M.Tech. | 243 | 70 | 175 | 79 | 33 | 600 | 85 | 515 |
| 4 | Online M.Tech. | 170 | - | 24 | 2 | 1 | 197 | 32 | 165 |
| 5 | M.Sc. | 67 | 16 | 44 | 23 | 11 | 161 | 40 | 121 |
| 6 | M.B.A. | 48 | 1 | 25 | 12 | 1 | 87 | 29 | 58 |
| 7 | E.M.B.A. (2023 Batch) | 40 | - | 7 | 6 | - | 53 | 20 | 33 |
| 8 | M.A. | 22 | 4 | 15 | 7 | 4 | 52 | 29 | 23 |
| 9 | M.S. | 81 | 14 | 54 | 10 | - | 159 | 25 | 134 |
| 10 | Ph.D. | 128 | 21 | 76 | 36 | 8 | 269 | 90 | 179 |
| Total | | 1248 | 250 | 731 | 347 | 158 | 2734 | 593 | 2141 |

Table 3.1.3. Total Number Of Students Admitted During The Year 2022-23

| | | | |
|------------------------|-----|--|----------|
| Foreign Nationals | 26 | Defence Officers (M.Tech.) | 31 |
| EWS | 250 | User-Oriented Programme (M.Tech.) | 30 |
| OBC | 731 | Web-based M.Tech | 197 |
| Scheduled Castes | 347 | Sponsored M.Tech | 78 |
| Scheduled Tribes | 158 | Quality Improvement Programme (Q.I.P.) | Ph.D. 22 |
| Physically Handicapped | 41 | Project | M.S. 46 |
| Women Students | 593 | | Ph.D. 21 |
| | | External Registration | M.S. 4 |
| | | | Ph.D. 19 |

3.2. Students/Scholars Enrolment

The total numbers of students on roll in various programmes of the Institute in the academic year 2022-23 are given below.

Table 3.2. Students on Roll

Table 3.2.1. Department-wise Number of Students On Roll

| Dept | BTech | DD | MTech | Web-based MTech | MSc | MBA | EMBA | MA | MS | PhD | PG Diploma MEM | PG Diploma BE | Total |
|--------------|-------------|-------------|-------------|-----------------|------------|------------|------------|------------|------------|-------------|----------------|---------------|--------------|
| AE | 230 | 82 | 37 | 58 | | | | | 68 | 168 | | | 643 |
| AM | | | 41 | | | | | | 82 | 215 | | | 338 |
| BT | 1 | 385 | 54 | | | | | | 16 | 221 | | | 677 |
| CH | 448 | 48 | 81 | 50 | | | | | 47 | 165 | | | 839 |
| CY | | | | | 127 | | | | | 269 | | | 396 |
| CE | 498 | 57 | 209 | | | | | | 52 | 332 | | 15 | 1163 |
| CS | 361 | 16 | 177 | 80 | | | | | 69 | 94 | | | 797 |
| ED | | 356 | | | | | | | 47 | 102 | | | 505 |
| EE | 610 | 112 | 146 | 377 | | | | | 251 | 321 | | | 1817 |
| GE | | | 22 | | | | | | | | | | 22 |
| HS | | | | | | | | 269 | | 158 | | | 427 |
| MA | | | 50 | | 95 | | | | - | 110 | | | 255 |
| MS | | | | | | 156 | 109 | | 36 | 143 | 40 | | 484 |
| ME | 808 | 160 | 176 | 66 | | | | | 170 | 342 | | | 1722 |
| MM | 246 | 41 | 55 | | | | | | 44 | 190 | | | 576 |
| OE | 291 | 35 | 89 | | | | | | 48 | 160 | | | 623 |
| PH | 159 | 79 | 18 | | 105 | | | | - | 228 | | | 589 |
| Total | 3652 | 1371 | 1155 | 631 | 327 | 156 | 109 | 269 | 930 | 3218 | 40 | 15 | 11873 |

Table 3.2.2. The above total includes the following:

| | | | | |
|------------------------------------|------|-------------------------------------|---------|-----|
| Foreign Nationals | 63 | Quality Improvement Programme (QIP) | Ph.D. | 74 |
| Economically Weaker Sections (EWS) | 732 | Sponsored | M.Tech. | 136 |
| OBC | 3251 | Project | M.S. | 204 |
| Scheduled Castes | 1419 | | Ph.D. | 124 |
| Scheduled Tribes | 576 | External Registration | M.S. | 41 |
| Physically Handicapped | 155 | | Ph.D. | 232 |
| Women Students | 2744 | Registration Kept Alive | M.S. | 22 |
| Defence Officers (M.Tech) | 62 | | Ph.D. | 206 |
| User-Oriented Programme (M.Tech.) | 59 | Part -Time Programme | M.S. | 37 |
| Web-based M.Tech | 631 | | Ph.D. | 84 |

Table 3.2.3. Details of OBC/SC/ST and Women Students On Roll (Programme And Category Wise):

| S. No. | Programme | GE | EWS | OBC | SC | ST | Total | PH | Female |
|--------------|----------------|-------------|------------|-------------|-------------|------------|--------------|------------|-------------|
| 1 | B.Tech. | 1422 | 329 | 1011 | 587 | 303 | 3652 | 91 | 726 |
| 2 | Dual Degree | 630 | 70 | 370 | 211 | 90 | 1371 | 18 | 255 |
| 3 | M.Tech. | 448 | 131 | 346 | 153 | 77 | 1155 | 12 | 175 |
| 4 | Online M.Tech. | 491 | - | 130 | 9 | 1 | 631 | - | 91 |
| 5 | M.Sc | 128 | 34 | 95 | 45 | 25 | 327 | 7 | 88 |
| 6 | MBA | 78 | 8 | 44 | 25 | 1 | 156 | 1 | 49 |
| 7 | EMBA | 81 | - | 15 | 13 | - | 109 | 1 | 25 |
| 8 | M.A. | 108 | 14 | 83 | 44 | 20 | 269 | 8 | 164 |
| 9 | M.S. | 522 | 64 | 271 | 67 | 6 | 930 | 3 | 153 |
| 10 | Ph.D. | 1931 | 82 | 886 | 265 | 54 | 3218 | 14 | 1018 |
| Total | | 5839 | 732 | 3251 | 1419 | 576 | 11818 | 155 | 2744 |

The branch/discipline-wise and year-wise details of students enrolled in B.Tech., Dual Degree and M.Tech. programmes are given below.

Table 3.2.4. B.Tech. Students On Roll

| S. No. | Branch | 2022 | 2021 | 2020 | 2019 | 2018 and Earlier Batch | Total |
|--------|---|------------|------------|------------|------------|------------------------|-------------|
| 1. | Aerospace Engineering | 62 | 63 | 60 | 37 | 8 | 230 |
| 2. | Biotechnology | | | | | 1 | 1 |
| 3. | Chemical Engineering | 116 | 115 | 117 | 85 | 15 | 448 |
| 4. | Civil Engineering | 128 | 128 | 124 | 100 | 18 | 498 |
| 5. | Computer Science and Engineering | 90 | 86 | 87 | 78 | 20 | 361 |
| 6. | Electrical Engineering | 155 | 154 | 155 | 122 | 24 | 610 |
| 7. | Mechanical Engineering | 220 | 218 | 207 | 149 | 14 | 808 |
| 8. | Metallurgical and Materials Engineering | 68 | 70 | 66 | 35 | 7 | 246 |
| 9. | Naval Architecture | 81 | 76 | 72 | 50 | 12 | 291 |
| 10. | Engineering Physics | 43 | 43 | 40 | 24 | 9 | 159 |
| | Total | 963 | 953 | 928 | 680 | 128 | 3652 |

Table 3.2.5. Dual Degree (B.Tech. and M.Tech.) Students On Roll

| S. No. | Branch | 2022 | 2021 | 2020 | 2019 | 2018 and Earlier Batch | Total |
|--------|--|------|------|------|------|------------------------|-------|
| 1 | Aerospace Engineering | 10 | 10 | 10 | 19 | 21 | 70 |
| 2 | Biotechnology: | | | | | | |
| | Biological Engineering | 46 | 43 | 39 | 33 | 33 | 194 |
| | Biological Sciences (B.S. and M.S.) | 45 | 47 | 34 | 28 | 26 | 190 |
| 3 | Chemical Engineering | - | - | - | 11 | 26 | 37 |
| 4 | Civil Engineering | - | - | - | 11 | 37 | 48 |
| 5 | Computer Science and Engineering | - | - | - | 3 | 5 | 8 |
| 6 | Electrical Engineering | - | - | - | 22 | 69 | 91 |
| | Electrical Engineering (B.Tech.) and Applied Mechanics (M.Tech.) | | | | | | |
| 7 | Engineering Design | 77 | 73 | 72 | 62 | 57 | 341 |
| 8 | Mechanical Engineering | - | - | - | 42 | 92 | 134 |
| 9 | Metallurgical and Materials Engineering | - | - | - | 16 | 21 | 37 |

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| S. No. | Branch | 2022 | 2021 | 2020 | 2019 | 2018 and Earlier Batch | Total |
|--------|--|------------|------------|------------|------------|------------------------|-------------|
| 10 | Naval Architecture and Ocean Engineering | - | - | - | 10 | 23 | 33 |
| | Naval Architecture (B.Tech) and Applied Mechanics (M.Tech) | | | | | | |
| 11 | Physics (B.S. and M.S.) | 15 | 12 | 13 | 17 | 17 | 74 |
| 12 | Engineering Physics (IDDD) | - | - | - | - | - | - |
| | Total | 193 | 185 | 168 | 274 | 427 | 1257 |

Table 3.2.6. M.Sc. Students On Roll

| S. No. | Branch | 2022 | 2021 | Extended | Total |
|--------|--------------|------------|------------|-----------|------------|
| 1 | Chemistry | 62 | 62 | 3 | 127 |
| 2 | Mathematics | 48 | 41 | 6 | 95 |
| 3 | Physics | 51 | 47 | 7 | 105 |
| | Total | 161 | 150 | 16 | 327 |

Table 3.2.7. M.Tech. Students On Roll

| S. No. | Department \ Discipline \ Batch | 2022 | 2021 | Extended Students | Total |
|---|--|------|------|-------------------|-------|
| 1 | Aerospace Engineering | 22 | 15 | - | 37 |
| 2 | Applied Mechanics | | | | |
| | Biomedical Engineering | 8 | 11 | | 19 |
| | Computational and Experimental Mechanics | 11 | 8 | 3 | 22 |
| 3 | Biotechnology | | | | |
| | Clinical Engineering | 24 | 9 | 4 | 37 |
| | Bioprocess Engineering | 13 | 11 | 2 | 26 |
| 4 | Chemical Engineering | 39 | 37 | 5 | 81 |
| | CA - Catalysis Technology | 6 | 7 | 1 | 14 |
| 5 | Civil Engineering | | | | |
| | CE 1 - Building Technology and Construction Management | 15 | 10 | 4 | 29 |
| | CE 2 - Environmental Engineering | 10 | 10 | - | 20 |
| | CE 3 - Geotechnical Engineering | 10 | 11 | 1 | 22 |
| | CE 4 - Hydraulic and Water Resource Engineering | 8 | 4 | 4 | 16 |
| | CE 5 - Structural Engineering | 18 | 13 | 3 | 34 |
| | CE 6 - Transportation Engineering | 14 | 13 | 2 | 29 |
| CE 7 - Construction Technology and Management | - | - | - | - | |
| 6 | Computer Science & Engineering | 94 | 72 | 11 | 177 |
| 7 | Electrical Engineering | | | | |
| | EE 1 - Communication and Signal Processing | 16 | 25 | 1 | 42 |
| | EE 2 - Power Systems and Power Electronics | 10 | 4 | 1 | 15 |
| | EE 3 - Microelectronics and VLSI Design | 13 | 9 | 1 | 23 |
| | EE-4 - Control and Instrumentation | - | 9 | - | 9 |
| | EE-5 - Microelectronics and Photonics | - | - | 2 | 2 |
| | EE 6 - Integrated Circuits and Systems | 15 | 6 | 1 | 22 |
| EE 13 - RF and Photonics | 5 | 6 | - | 11 | |
| 8 | Industrial Maths and Scientific Computing | - | - | - | - |

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| S. No. | Department \ Discipline \ Batch | 2022 | 2021 | Extended Students | Total |
|-------------------|--|------------|------------|-------------------|-------------|
| 9 | Mechanical Engineering | | | | |
| | ME 1 - Thermal Engineering | 37 | 32 | 13 | 82 |
| | ME 2 - Mechanical Design | 29 | 19 | 7 | 55 |
| | ME 3 - Manufacturing Engineering | 21 | 12 | 6 | 39 |
| 10 | Metallurgical and Materials Engineering | 26 | 25 | 4 | 55 |
| 11 | Ocean Engineering | | | | |
| | Ocean Technology | 7 | 7 | - | 14 |
| | Petroleum Engineering | 17 | 9 | - | 26 |
| | Ocean Structure | 21 | 22 | 5 | 48 |
| 12 | Physics | | | | |
| | Functional Materials and Nanotechnology | 9 | 4 | 4 | 17 |
| | Solid State Technology | - | - | 1 | 1 |
| Total | | 518 | 420 | 86 | 1024 |
| Web-Based M.Tech. | | | | | |
| 1 | M.Tech. Aerospace Engineering | 28 | 20 | - | 48 |
| 2 | CS 102 – M.Tech. Information Security (CSE) | 27 | 22 | 31 | 80 |
| 3 | EE 101 – M.Tech. Communication and Signal Processing | 18 | 34 | 89 | 141 |
| 4 | EE 102 – M.Tech. Integrated Circuits and Systems | 38 | 38 | 83 | 159 |
| 5 | EE 105 – M.Tech. Multimedia Signal Processing | - | 7 | 7 | 14 |
| 6 | EE 106 – M.Tech. Microelectronics | 26 | 4 | 20 | 50 |
| 7 | EE 107 – M.Tech. Quantum Science and Technology | - | 6 | - | 6 |
| 8 | ME 102 – Mechanical Design (Web based) | - | 19 | 21 | 40 |
| 9 | ME 103 – M.Tech. Automotive Technology | - | 7 | 19 | 26 |
| Total | | 137 | 157 | 270 | 564 |

Table 3.2.8. M.B.A. Students On Roll

| S. No. | Branch | 2022 | 2021 | 2020 | Total |
|--------|--------------------|------|------|------|-------|
| 1 | Management Studies | 87 | 68 | 1 | 156 |

Table 3.2.9. M.A. Students On Roll

| S. No. | Branch | 2022 | 2021 | 2020 | 2019 | 2018 | Total |
|--------|--------------------------------|------|------|------|------|------|-------|
| 1 | Humanities and Social Sciences | 52 | 57 | 50 | 43 | 44 | 246 |

Table 3.2.10. E.M.B.A. Students On Roll

| S. No. | Branch | 2022 | 2021 | 2020 | 2019 | Total |
|--------|--------------------|------|------|------|------|-------|
| 1 | Management Studies | 53 | 48 | 6 | 2 | 109 |

Table 3.2.11. PG Diploma in Management for Executives in Manufacturing (PGDMEM) Students On Roll

| S. No. | Branch | 2022 | Total |
|--------|--------------------|------|-------|
| 1 | Management Studies | 40 | 40 |

Table 3.2.12. M.S. Scholars On Roll

| S. No. | Branch | Year I | Year II | Year III | Year IV | Year V and Others | Total |
|--------------|---|------------|------------|------------|------------|-------------------|------------|
| 1 | Aerospace Engineering | 11 | 17 | 17 | 18 | 5 | 68 |
| 2 | Applied Mechanics | 15 | 28 | 18 | 17 | 4 | 82 |
| 3 | Biotechnology | 2 | 5 | 0 | 7 | 2 | 16 |
| 4 | Chemical Engineering | 10 | 18 | 9 | 5 | 5 | 47 |
| 5 | Civil Engineering | 9 | 11 | 15 | 14 | 3 | 52 |
| 6 | Computer Science and Engineering | 10 | 16 | 25 | 15 | 3 | 69 |
| 7 | Electrical Engineering | 42 | 71 | 70 | 53 | 15 | 251 |
| 8 | Engineering Design | 6 | 15 | 15 | 9 | 2 | 47 |
| 9 | Management Studies | 6 | 13 | 3 | 11 | 3 | 36 |
| 10 | Mechanical Engineering | 32 | 49 | 36 | 42 | 11 | 170 |
| 11 | Metallurgical and Materials Engineering | 12 | 12 | 11 | 7 | 2 | 44 |
| 12 | Ocean Engineering | 4 | 14 | 11 | 14 | 5 | 48 |
| Total | | 159 | 269 | 230 | 212 | 60 | 930 |

Table 3.2.13. Ph.D. Scholars On Roll

| S. No. | Branch | Year I | Year II | Year III | Year IV | Year V and Others | Total |
|--------------|---|------------|------------|------------|------------|-------------------|-------------|
| 1 | Aerospace Engineering | 9 | 20 | 31 | 20 | 88 | 168 |
| 2 | Applied Mechanics | 23 | 27 | 19 | 39 | 107 | 215 |
| 3 | Biotechnology | 29 | 45 | 18 | 28 | 101 | 221 |
| 4 | Chemical Engineering | 15 | 30 | 24 | 25 | 71 | 165 |
| 5 | Chemistry | 27 | 42 | 43 | 33 | 124 | 269 |
| 6 | Civil Engineering | 29 | 43 | 74 | 53 | 133 | 332 |
| 7 | Computer Science and Engineering | 5 | 20 | 19 | 8 | 42 | 94 |
| 8 | Electrical Engineering | 20 | 50 | 54 | 44 | 153 | 321 |
| 9 | Engineering Design | 9 | 20 | 16 | 16 | 41 | 102 |
| 10 | Humanities and Social Sciences | 9 | 34 | 16 | 27 | 72 | 158 |
| 11 | Management Studies | 9 | 22 | 15 | 30 | 67 | 143 |
| 12 | Mathematics | 6 | 9 | 13 | 18 | 64 | 110 |
| 13 | Mechanical Engineering | 40 | 40 | 35 | 55 | 172 | 342 |
| 14 | Metallurgical and Materials Engineering | 20 | 27 | 23 | 17 | 103 | 190 |
| 15 | Ocean Engineering | 7 | 20 | 15 | 21 | 97 | 160 |
| 16 | Physics | 12 | 22 | 43 | 46 | 105 | 228 |
| Total | | 269 | 471 | 458 | 480 | 1540 | 3218 |

3.3. Courses Offered

In the academic year 2022-23, 1759 courses were offered, of which 886 courses were offered during July–November 2022 and 873 courses were offered during January–May 2023. The department-wise details of the courses offered are given below:

Table 3.3. Number of Courses Offered

| S. No. | Department | No. of Courses Offered in July–November 2022 (Core and Elective) | No. of Courses Offered in January–May 2023 (Core and Elective) |
|--------|---|--|--|
| 1 | Aerospace Engineering | 46 | 59 |
| 2 | Applied Mechanics | 42 | 56 |
| 3 | Biotechnology | 52 | 48 |
| 4 | Civil Engineering | 88 | 77 |
| 5 | Chemical Engineering | 56 | 55 |
| 6 | Computer Science and Engineering | 45 | 49 |
| 7 | Chemistry | 28 | 32 |
| 8 | Engineering Design | 32 | 44 |
| 9 | Electrical Engineering | 86 | 68 |
| 10 | Humanities and Social Sciences | 85 | 84 |
| 11 | Mathematics | 38 | 36 |
| 12 | Mechanical Engineering | 61 | 76 |
| 13 | Metallurgical and Materials Engineering | 41 | 45 |
| 14 | Management Studies | 79 | 42 |
| 15 | Ocean Engineering | 52 | 42 |
| 16 | Physics | 55 | 60 |
| Total | | 886 | 873 |

3.4. Convocation

The 59th Convocation was held on 13th July 2022; Padma Bhushan Shri N Chandrasekaran, Chairman, Tata Sons, graced the occasion as Chief Guest. 2,315 candidates were awarded various degrees in-absentia. Following are the department-wise details of degrees awarded.

Table 3.4.1. Department-wise Number of Degrees Awarded
59th Convocation (Academic Year 2022-23), Part I (BoG July 13, 2022)

| S. No. | Dept. No. | Joint Degree | | Dual Degree | | PhD | MS | MTech | Web-based MTech | MSc | MBA | EMBA | VLM | MA | Dual Degree | | | BTech (Honours) | BTech | Total |
|--------------|-----------|--------------|----------------|--------------|-----------|------------|-----------|------------|-----------------|------------|-----------|-----------|-----------|-----------|-----------------|---------------|------------|-----------------|------------|-------------|
| | | MS/MTech | PhD | MS/MTech/MSc | MS/PhD | | | | | | | | | | BTech/BS (Hons) | MTech/MS/IDDD | BTech/BS | | | |
| 1 | AE | | | 9 | 9 | 3 | 1 | 9 | | | | | | | 1 | 1 | 16 | 16 | 34 | 99 |
| 2 | AM | | | 5 | 5 | 13 | 7 | 9 | | | | | | | | | | | | 39 |
| 3 | BT | | | 1 | 1 | 8 | 2 | 18 | | | | | | | 3 | 3 | 56 | 56 | 1 | 149 |
| 4 | CH | | | 3 | 3 | 4 | 3 | 30 | | | | | | | 4 | 4 | 18 | 18 | 2 | 143 |
| 5 | CY | | | | | 15 | | | | 51 | | | | | | | | | | 66 |
| 6 | CE | 1 | 1 ^a | 3 | 3 | 13 | 3 | 74 | | | | | | | 3 | 3 | 37 | 37 | 2 | 225 |
| 7 | CS | | | 4 | 4 | 4 | 8 | 57 | 28 | | | | | | | 18 | 18 | 2 | 201 | |
| 8 | EE | | | 9 | 9 | 11 | 11 | 54 | 44 | | | | | | 18 | 18 | 51 | 51 | 9 | 330 |
| 9 | ED | | | 5 | 5 | 1 | 3 | | | | | | | | 2 | 2 | 54 | 54 | | 126 |
| 10 | HS | | | | | 4 | | | | | | | | 38 | | | | | 42 | |
| 11 | MS | | | 1 | 1 | 7 | 2 | | | 68 | 38 | 40 | | | | | | | 158 | |
| 12 | MA | | | | | 5 | | 17 | | 28 | | | | | | | | | 50 | |
| 13 | ME | | | 6 | 6 | 19 | 13 | 58 | 18 | | | | | | 10 | 10 | 92 | 92 | 9 | 394 |
| 14 | MM | | | 3 | 3 | 6 | 4 | 17 | | | | | | | 1 | 1 | 14 | 14 | 1 | 88 |
| 15 | OE | | | | | 5 | 5 | 33 | | | | | | | 1 | 1 | 19 | 19 | 25 | 108 |
| 16 | PH | | | 1 | 1 | 7 | | 8 | | 31 | | | | | 1 | 1 | 12 | 12 | 22 | 97 |
| Total | | 1 | 3 | 50 | 50 | 125 | 62 | 384 | 90 | 110 | 68 | 38 | 40 | 38 | 44 | 44 | 387 | 25 | 369 | 2315 |

^a QUT Australia ⁿ NTU Singapore ^c Curtin University Australia

Total: 1833 students, 2315 degrees awarded

Table 3.4.2. Department wise Number of Degrees Awarded:
59th Convocation (Academic Year 2021-22), Part II (BoG December 3, 2021 & March 25, 2022)

| S. No. | Dept. No. | Joint Degree | | Dual Degree | | PhD | MS | MTech | Web-based MTech | Joint Degree MBA | MBA | EMBA | VLM | MA | Dual Degree | | BTech (Honours) | BTech | Total |
|--------------|-----------|----------------|-----------------|----------------|-----------|-----------|-----------|-----------|-----------------|------------------|-----|------|-----|----|-----------------|---------------|-----------------|------------|-------|
| | | MS/MTech | PhD | MS/MTech/MSc | PhD | | | | | | | | | | BTech/BS (Hons) | MTech/MS/IDDD | | | |
| 1 | AE | | | 4 | 4 | 4 | 3 | | | | | | | | 1 | 1 | 3 | 20 | |
| 2 | AM | | 1 ^a | 1 | 1 | 5 | 3 | 1 | | | | | | | | | | 12 | |
| 3 | BT | | | | 10 | | | | | | | | | | 3 | 3 | 1 | 17 | |
| 4 | CH | | | 2 | 2 | 3 | 2 | | | | | | | | 1 | 1 | | 11 | |
| 5 | CY | | | 1 | 1 | 3 | | | | | | | | | | | | 5 | |
| 6 | CE | | 1 ^c | 2 | 2 | 18 | 2 | | | | | | | | 4 | 4 | 12 | 45 | |
| 7 | CS | | | 1 | 1 | 1 | 6 | 5 | | | | | | | | | 2 | 16 | |
| 8 | EE | 1 ^s | 2 ^b | 4 | 4 | 8 | 6 | 4 | | | | | | | 1 | 1 | | 31 | |
| 9 | ED | | | 3 | 3 | 1 | 3 | | | | | | | | 4 | 4 | | 18 | |
| 10 | HS | | | | | 7 | | | | | | | | | | | | 7 | |
| 11 | MS | | 2 ^{og} | 2 | 2 | 4 | 3 | | | | | | | | | | | 13 | |
| 12 | MA | | | 4 | 4 | 6 | 1 | 1 | | | | | | | | | | 16 | |
| 13 | ME | | | 4 | 4 | 11 | 17 | 3 | | | | | | | 7 | 7 | 4 | 57 | |
| 14 | MM | | 2 ^{od} | 1 | 1 | 2 | 7 | | | | | | | | 1 | 1 | 3 | 18 | |
| 15 | OE | | | | | 4 | | 1 | | | | | | | 1 | 1 | 4 | 11 | |
| 16 | PH | | | 1 ^a | 1 | 3 | 2 | | | | | | | | | | | 8 | |
| Total | | 1 | 8 | 30 | 30 | 90 | 52 | 17 | | 2 | | | | | 23 | 23 | 29 | 305 | |

^a Swinburne University of Technology Australia ^b University of Bordeaux, France ^c University of Duisburg Germany
^s NUS Singapore ^c Curtin University Australia ^d Deakin University, Australia
Total: 251 students, 305 degrees awarded

With this Convocation, the total number of degrees awarded so far by the institute is 61,222, including September 2022 graduates, the details of which are given below.

| S. No. | Programme | | Awarded up to Convocation 2022 |
|--------|---|-------------------|--------------------------------|
| 1 | Joint Degree – Dual Degree | M.S. | 2 |
| | | Ph.D. | 2 |
| 2 | Joint Degree – Single Degree | | 11 |
| 3 | Dual Degree | M.S. | 65 |
| | | Ph.D. | 65 |
| 4 | Dual Degree | M.Tech. | 11 |
| | | Ph.D. | 11 |
| 5 | Dual Degree | M.Sc. | 4 |
| | | Ph.D. | 4 |
| 6 | Ph.D. | | 215 |
| 7 | M.S. | | 114 |
| 8 | M.Tech. | | 401 |
| 9 | Web-based M.Tech. | | 90 |
| 10 | M.Sc. | | 112 |
| 11 | Post Graduate Diploma in Management for Executives in Manufacturing | | 40 |
| 12 | M.B.A. | | 68 |
| 13 | Executive M.B.A. | | 38 |
| 14 | M.A. | | 38 |
| 15 | Dual Degree | B.Tech. (Honours) | 44 |
| | | M.Tech. | 44 |
| 16 | Dual Degree | B.Tech. | 363 |
| | | M.Tech. | 363 |
| 17 | Dual Degree | B.S. | 46 |
| | | M.S. | 46 |
| 18 | B.Tech (Honours) | | 25 |
| 19 | B.Tech. | | 398 |

3.5. Award of Prizes to Students

3.5.1. Convocation Prizes

The following are the details of convocation prizes awarded for the year 2022.

Table 3.5. List of Awards Awarded to Students/Scholars

| S. No. | Name of the Prize | Roll No. | Awardee Name |
|--------------------|---|----------|-----------------------------|
| 1 | President of India Prize | ME18B016 | Mohit Kumar |
| 2 | Bharat Ratna M Visvesvaraya Memorial Prize | | |
| 3 | Sri. V. Srinivasan Memorial Prize | CS17B047 | C.Gautam |
| 4 | Dr Shankar Dayal Sharma Prize | CS18B068 | Prajwal Prakash |
| 5 | Governor's Prize | BS17B002 | Sathvik A |
| B. Tech | | | |
| 6 | HAL Prize | AE18B042 | Sumanth Nethi |
| 7 | Larsen & Toubro Ecc Endowment Prize | CE18B016 | Rathi Khushal Vinod |
| 8 | Prof. C A Sastry Endowment Prize | CH18B029 | Vaidehi Mishra |
| 9 | Reliance Heat Transfer Pvt. Ltd. Prize | CH18B050 | Jugal N Anil |
| 10 | C Sivaram Murthy Best B.Tech. Project Award | CS18B003 | Arnhav Abhijit Datar |
| 11 | B Ravichandran Memorial Prize | CS18B050 | Aniswar Srivatsa Krishnan |
| 12 | C&S Electric Ltd Award | CS18B068 | Prajwal Prakash |
| 13 | Siemens Prize | EE18B001 | Abishek S |
| 14 | Sri. Jandhyala Lakshmi Kantam & Srimati Sitamahalakshmi Prize | EP18B028 | Rohan R Narayan |
| 15 | Hema Balasubramanian Excellence Award | EP18B032 | Ram Balaji S |
| 16 | Banco Foundation Prize | ME18B016 | Mohit Kumar |
| 17 | American Express Award | ME18B031 | Sneha Srikanth * |
| 18 | Vaidy Krishnan Memorial Prize | ME18B031 | Sneha Srikanth |
| 19 | Dr. Dhandapani Memorial Prize | MM18B023 | M Venkatramanan |
| 20 | B Krishnamorthy Award | MM18B023 | M Venkatramanan |
| 21 | Vijay Jagannathan Award | MM18B023 | M Venkatramanan |
| 22 | American Bureau Of Shipping Prize | NA18B003 | Karthiyalini |
| Dual Degree | | | |
| 23 | Dr. V Mohan Raman Prize | AE17B031 | Kalyan Ramakrishnan |
| 24 | Institute Merit Prize | BE17B009 | Roshni Shetty |
| 25 | Kalpathi AGS Prize | BE17B036 | Sankalpa Venkatraghavan |
| 26 | American Express Award | BE17B036 | Sankalpa Venkatraghavan * |
| 27 | Biocon Prize | BE17B036 | Sankalpa Venkatraghavan |
| 28 | The Divashri Award | BS17B002 | Sathvik A |
| 29 | Dr. N R Dave Prize | CE17B063 | Vallury Venkata Sri Lalitha |
| 30 | Prof A Ravindran Prize | CH17B062 | Peesapati S S Sreeharsha |
| 31 | B Ravichandran Memorial Prize | CH17B120 | Sampriti Chattopadhyay |
| 32 | Alumni Association Prize | CS17B047 | C.Gautam |
| 33 | Lakshmi Ravi Prize | CS17B047 | C.Gautam * |
| | | CS17B106 | Sheth Dev Yashpal * |
| 34 | Motorola Prize | CS17B116 | Suhas Pai |
| 35 | Dronnadula Nagaratnam Reddy Award | ED17B001 | Abhinav Azad |
| 36 | Dr. Susan Calvin Prize | ED17B002 | Kuncolienkar Aditya Raj |
| 37 | Prema & Nagaraja Setty Prize | ED17B002 | Kuncolienkar Aditya Raj |
| 38 | Prof. M Singaperumal Endowment Award | ED17B002 | Kuncolienkar Aditya Raj * |
| | | ME17B180 | Tanay Dwivedi * |
| 39 | Prof. T Govindaraj Prize | ED17B012 | Hari Prasad V |
| 40 | Dr. K Gopinath & Padmini Gopinath Prize | ED17B039 | Francis J Vellara |
| 41 | Prof. Achim Bopp Endowment Prize | EE17B023 | Nishant Sanjay Patil |
| 42 | American Express Top Achievement Award | EE17B029 | S Sivasubramaniyan |

* Joint Winners

continued on next page

| S. No. | Name of the Prize | Roll No. | Awardee Name |
|-----------------|---|----------|--|
| 43 | Philips India Prize | EE17B029 | S Sivasubramaniyan |
| 44 | Institute Merit Prize | EE17B033 | U Gautham |
| 45 | Prof. G V N Rayudu (IIT Madras) Prize | ME17B054 | Kaushik Surendran Chettiar |
| 46 | S Anantharamakrishnan Memorial Prize | MM17B001 | Arsh Bawa |
| 47 | Goodearth Shipbuilding Pvt. Ltd. Prize | NA17B004 | Mansi Khandelwal |
| 48 | Class Nk-100 Prize | NA17B112 | Manoranjan J |
| 49 | Prof. J Sobhanadri Prize | PH17B004 | Sayak Guha Roy |
| M.A. | | | |
| 50 | Dr. Dilip Veeraraghavan Memorial Award | HS17H007 | Varsha Gopal |
| 51 | Institute Merit Prize | HS17H007 | Varsha Gopal |
| 52 | Shri M N Ramachandran and Smt. Gowri Appadorai Ramachandran Prize | HS17H007 | Varsha Gopal |
| 53 | Prof. A V Krishna Rao Memorial Award | HS17H019 | Gowri S |
| M. Tech. | | | |
| 54 | Air India Prize | AE20M007 | Kiran Hiremath * |
| | | AE20M009 | Kotturi Sai Nikhil * |
| 55 | Prof. B V A Rao Endowment Prize | AM20M006 | Pavan Vasudev Boragunde |
| 56 | Sushruta Award | AM20M016 | Shaikh Shabina Abdulvahid |
| 57 | Institute Merit Prize | BT20M010 | Nayanika Sarkar |
| 58 | Buti Foundation Gold Medal Award | BT20M010 | Nayanika Sarkar |
| 59 | American Express Award | BT20M010 | Nayanika Sarkar |
| 60 | Institute Merit Prize | BT20M010 | Nayanika Sarkar |
| 61 | Dr. S S Srikanta Prize | BT20M017 | Akash Dhetarwal |
| 62 | Sri S V Balakrishnan Prize | CA20M007 | Yashika |
| 63 | Institute Merit Prize | CE20M001 | Vikrant Panwar |
| 64 | K Devarajan Memorial Prize | CE20M001 | Vikrant Panwar |
| 65 | Rajnikant Gandhi Memorial Award | CE20M024 | Ishank Singh |
| 66 | Valli Anantharamakrishnan Merit Prize | CE20M034 | Ashok B Jacob |
| 67 | L&T Endowment Prize | CE20M124 | Vuppala Srinija |
| 68 | Duvvuru Sarada Award | CE21M075 | Rohit Malik |
| 69 | Dr. K Subha Raju Memorial Prize | CH20M018 | Jose Peter |
| 70 | Mico-Bosch Prize | CH20M018 | Jose Peter |
| 71 | Smt. DL Saraswati Memorial Prize | CH20M018 | Jose Peter |
| 72 | CMC Prize | CS20M061 | Shivam Cholin |
| 73 | Prof. HN Mahabala Endowment Prize | CS20M061 | Shivam Cholin |
| 74 | Siemens Prize | EE20M015 | Leeshma Mathew |
| 75 | Prof. Helmut Neunzert Endowment Prize | MA20M022 | Shubham Mallik Thakur |
| 76 | Prof. Ramamohana Rao Memorial Prize | ME20M005 | A Prasanna |
| 77 | Dr. S Vaidyanathan Memorial Prize | ME20M086 | Lakshya Shukla |
| 78 | Prof. B Sengupto Prize | ME20M086 | Lakshya Shukla |
| 79 | Sudharshan Bhatt Memorial Prize | MM20M023 | Suddapalli Sai Rama Krishna Parameswar |
| 80 | American Bureau of Shipping Prize | OE20M010 | Mohammed Iqbal |
| 81 | Prof. K A V Pandalai Prize | OE20M022 | Inamdar Eshan Hemant |
| 82 | Institute Merit Prize | OE20M022 | Inamdar Eshan Hemant |
| 83 | Sri R R P Sinha & Vimla Dewi Prize | PE20M009 | Patel Mohit Bhupendrabhai |
| 84 | Sri Krishnamurthy Sundarambal Prize | PH20M014 | Vidushi Chaudhary |

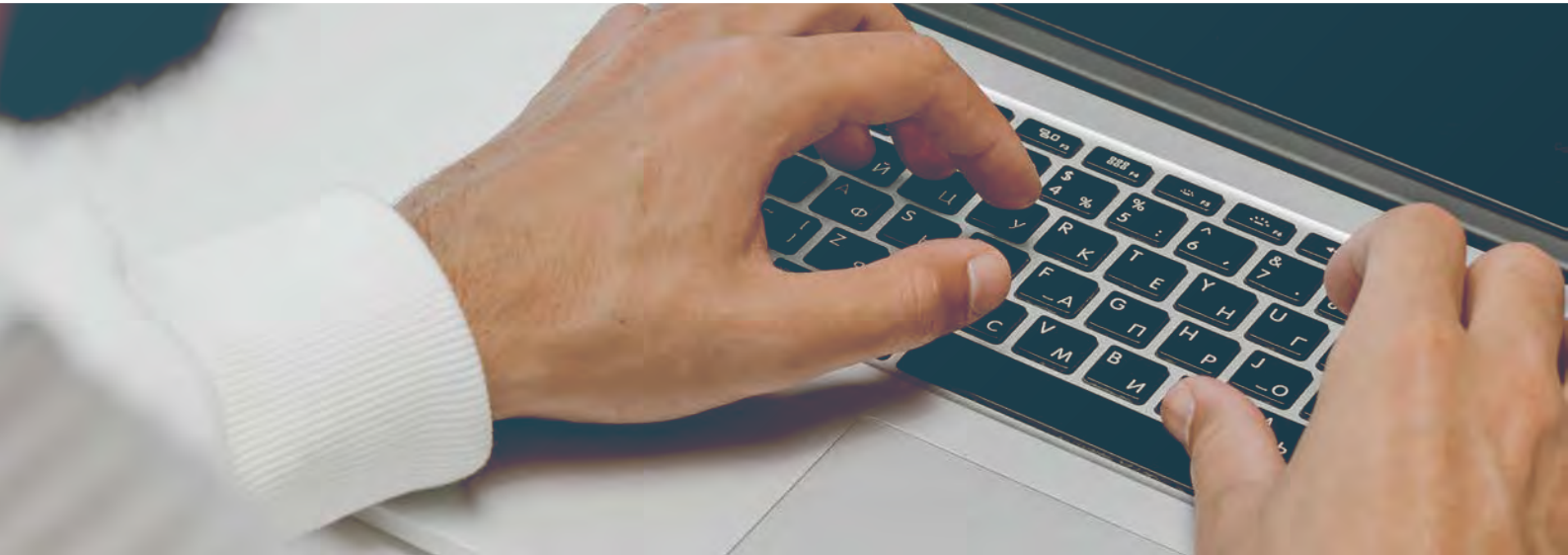
* Joint Winners

continued on next page

| S. No. | Name of the Prize | Roll No. | Awardee Name |
|--|---|----------|--------------------------|
| M. Sc. | | | |
| 85 | Dr. S R Ramadas 60 th Birthday Commemoration Award | CY20C027 | Naman Arora |
| 86 | Ratna Rao Memorial Prize | CY20C052 | Sunaina Sardana |
| 87 | Mira Paul Memorial Prize | MA20C026 | Goregaokar Neha Shailesh |
| 88 | Prof. Chilukury Rama Sastry Memorial Prize | PH20C038 | Saurav Mishra |
| 89 | Sri. Jandhyala Lakshmi Kantam & Smt. Sitamahalakshmi Prize | PH20C040 | Shashank Gandhi |
| M.B.A/ E.M.B.A. | | | |
| 90 | K V Arunkumar Memorial Prize | MS20A052 | Sanjana Kumar |
| 91 | Coka Parthasarathy Prize | MS20A061 | Tanya Gupta |
| 92 | Institute Merit Prize | MS20W002 | Anshika Bharti |
| PG Diploma In Management For Executives In Manufacturing Jointly Offered by IIMC, IITK & IITM | | | |
| 93 | PGPEX VLM Gold Medal For First Rank Holder | MS21V051 | Kishhore K |
| 94 | PGPEX VLM Gold Medal For Second Rank Holder | MS21V029 | Simi Hazra |
| 95 | IIMC Alumni Association Calcutta Chapter Gold Medal for Third Rank Holder | MS21V031 | Sumit Kumar Jha |
| 96 | Director's Merit List | MS21V051 | Kishhore K |
| 97 | Director's Merit List | MS21V029 | Simi Hazra |
| 98 | Director's Merit List | MS21V031 | Sumit Kumar Jha |
| 99 | Director's Merit List | MS21V001 | Adarsh Rai |
| M.S./Ph.D | | | |
| 100 | Sri K Sreeharsha Memorial Prize | CE19S012 | Kancharla Akhil Santhosh |
| 101 | Biswajit Sain Endowment Prize | CS17S009 | R Janani |
| 102 | Avishek Bhattacharjee Memorial Award | CS17S009 | R Janani |
| 103 | T S Vedagiri Memorial Award | EE18S046 | Rekha Yadav |
| 104 | Prof. S Radhakrishnan Award | AM15D011 | Banuvathy R |
| 105 | Prof. V Ramamurti Award | AM16D017 | Gujar Pratik Santosh |
| 106 | Batch of 1979 Award | BT14D003 | Haritha P * |
| | | BT17D302 | Divagar M * |
| 107 | Shree Gaayathree Devi Award | CE13D042 | Kavitha Madhu |
| 108 | IBM Best Thesis Award | CS15D201 | Preksha Nema |
| 109 | Bhagyalakshmi And Krishna Ayengar Award | CY14D072 | T Prabakaran |
| 110 | Prof. Werner Prize | CY14D072 | T Prabakaran * |
| | | CY15D079 | Ranjit Bag * |
| 111 | Prof. C N Pillai Prize | CY15D004 | Kirana DV |
| 112 | Prof. G Sundararajan Endowment Prize | CY15D006 | Mallu Kesava Reddy |
| 113 | Prof. Langmuir Prize | CY16D043 | Chinmaya MR |
| 114 | Dr. M Mukunda Rao Endowment Prize | EE15D213 | Peddamalla Nagachandrika |
| 115 | Smt. Lakshmikutty Amma And Shri A Krishnankutty Nair Prize | MA15D001 | Debabrata De * |
| | | MA16D031 | Vijayakumar R * |
| 116 | Prof. M S Shanmugam Endowment Prize | ME15D046 | Shirin Naresh Patil |
| 117 | Sudharshan Bhatt Memorial Prize | MM17D301 | Sourav Ghosh |
| 118 | Sri N Kannan Prize | MS16D003 | Ashwin J Baliga |
| 119 | Sri R N Rajendran Memorial Prize | MS16D027 | Abraham Cyril Issac |
| 120 | Prof. Vallam Sundar Prize | OE18D003 | Karthik Ramnarayan S |
| 121 | Mrs. Abayambal & Mr. Natarajan Award | PH16D010 | Sutapa Dey |
| 122 | Prof. AL Lashkar Prize | PH16D018 | Ragavendra HV * |
| | | PH17D023 | Rahul VR * |

* Joint Winners

4 DEPARTMENTS



4.1

Department of Aerospace Engineering

4.1.1. Introduction

The Department of Aerospace Engineering was established in 1969 and has been offering B.Tech./ M.Tech. / M.S. / Ph.D. Programmes.

The areas of teaching and research of the Department are Aerodynamics & Flight Mechanics, Propulsion & Combustion, and Aerospace Structures.

4.1.2. Academic Programmes

B.Tech. / Dual Degree (B.Tech. + M.Tech.) / M.Tech. / M.S. & Ph.D.

4.1.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|--|
| 1 | AE5510 | Security of Safety-critical Systems |
| 2 | AE5520 | Verification of Cyber-physical Systems |
| 3 | AS5720 | Introduction to Rotorcraft Acoustics |

4.1.2.2. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|-------------|--------|---------|----------|---------|-----------------|-------|
| B.Tech. | 62 | 63 | 50 | 37 | 3 | 215 |
| Dual Degree | 10 | 10 | 13 | 19 | 21+1 | 74 |
| M.Tech. | 21 | 15 | | | | 36 |
| M.S. | 15 | 12 | 19 | 1 | 3 | 50 |
| Ph.D. | 14 | 23 | 29 | 20 | 22+46 | 154 |
| Total | 122 | 123 | 111 | 77 | 96 | 529 |

4.1.2.3. No. of Post-Doctoral Fellows: 02

4.1.2.4. Students/Scholars who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Scholar/s | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance From |
|---------------|---------------------------------|-----------|--|--|---|
| Abroad | | | | | |
| 1. | Vizan Savsani | AE18D205 | American Institute of Aeronautics and Astronautics (AIAA), Scitech | June 27–July 1, 2022. | Virtual Event |
| 2. | Ananth Sivaramakrishnan Malathi | AE18D002 | American Society of Mechanical Engineers (ASME) Turbo Expo 2022 | June 13–17, 2022. Rotterdam, Netherlands | IIT Madras |
| 3. | Abhishek Khuswaha | AE18D407 | Exchange Program | January–March, 2023. Rheinisch-Westfälische Technische Hochschule Aachen (RWTH), Germany | IIT Madras |
| 4. | Samerjeet Singh | AE18D207 | Exchange Program | From January 2023. Toronto, Canada | IIT Madras & Mathematics of Information Technology and Complex Systems (MITACS) |
| 5. | Jayesh Dhadphale | AE19D751 | Exchange Program | August 1– November 29, 2022. Potsdam Institute for Climate Impact Research (PIK), Germany. | IIT Madras |
| 6. | Shruti Tandon | AE21D004 | Research Visit & Conference NDA 23 | March 1–31, 2023. PIK, Germany | Prime Minister's Research Fellow (PMRF) |
| 7. | Induja P | ICSR14628 | Conference NDA 23 | March 13–24, 2023. PIK, Germany | DST & IIT Madras |
| 8. | Gaurav Chopra | ICSR36280 | Research Visit & Conference NDA 23 | March 1–31, 2023. PIK, Germany | ONRG & POTSDAM Germany |
| 9. | Debashis Singha | AE20D402 | 17 th Vibration Engineering Technology of Machinery Conference | December 15-17, 2022. Nepal | IIT Madras |
| 10. | Sunny | AE20D017 | 2022 International Forum on Aeroelasticity and Structural Dynamics | June 13-17, 2022, and Online. Universidad Carlos III de Madrid, Spain | IIT Madras |
| 11. | Sunny | AE20D017 | AIAA Aviation Forum 2023 | June 12–16, 2023. San Diego, CA & Online | IIT Madras |
| 12. | Manoj Prabhakar | AE20D201 | ASME 2022 conference on "Smart Materials, Adaptive Structures and Intelligent Systems" SMASIS 2022 | September 12–14, 2022. Dearborn, Michigan, USA. | Institute |
| 13. | Snigdha L M | AE18B106 | AIAA Aviation Forum 2023 | June 12–16, 2023. San Diego, CA & Online | CPDA |

| S. No. | Name of the Scholar/s | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance From |
|--------|--|----------|--|--|--------------------------------|
| 14. | Rahul Sundar, Virendra Kumar, Dipanjan Majumdar, Chhote Lal Shah, and Sunetra Sarkar | AE18D200 | 8 th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2022) | July 5-9, 2022, Oslo, Norway. | IIT Madras |
| 15. | Varun HS, MS Aswathy, Sunetra Sarkar | AE16D413 | 10 th European Nonlinear Dynamics Conference (ENOC2022) | July 17-22, 2022, Lyon, France | IIT Madras |
| 16. | Chhote Lal Shah, Dipanjan Majumdar, Chandan Bose, and Sunetra Sarkar | AE17D413 | 8 th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) Congress 2022 | June 5-9, 2022, Oslo, Norway | IIT Madras |
| 17. | Rahul Sundar, Virendra Kumar, Dipanjan Majumdar, Chhote Lal Shah, and Sunetra Sarkar | AE18D200 | 8 th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) Congress 2022 | June 5-9, 2022, Oslo, Norway | IIT Madras |
| 18. | Chhote Lal Shah, Dipanjan Majumdar, Chandan Bose, and Sunetra Sarkar | AE17D413 | 14 th European Fluid Mechanics Conference (EFMC) 2022 | September 13-16, 2022, Athens, Greece | IIT Madras |
| 19. | Chhote Lal Shah, Karthick Dhileep, Sridhar Ravi, and Sunetra Sarkar | AE17D413 | 75 th Annual Meeting of the APS Division of Fluid Dynamics (APS-DFD) | November 2023. Indianapolis, Indiana, USA | Self |
| 20. | Vivek A | AE19D005 | AIAA SciTech 2023 | January 23-27, 2023. National Harbor Maryland US (Attended online) | Self |
| 21. | Shaik Shabberhussain | AE16D016 | 23 rd International Conference on Advances in Materials & Processing Technologies (AMPT2022) | October 10-14, 2022. Portorož, Slovenia, | Institute |
| 22. | Vaibhav Anuse | ME18D004 | 7 th International Symposium on Advanced Material Research (ISAMR) conference | June 16, 2023. Busan | Institute |
| 23. | Vipin Kumar | AE18D005 | 44 th Committee on Space Research (COSPAR) Scientific Assembly | July 16-24, 2022. Athens, Greece | IIT Madras |
| 24. | Manu B V | AE19D017 | 13 th Asian Microgravity Symposium (Ams) | October 24-28, 2022. Jeju, South Korea | IIT Madras |
| 25. | Arvind Bharath S R (participated online) | AE19D025 | 13 th Asian Microgravity Symposium (Ams) | October 24-28, 2022. Jeju, South Korea | IIT Madras (registration only) |

| S. No. | Name of the Scholar/s | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance From |
|--------------|--|----------------------|--|--|----------------------------|
| 26. | Ishank Jain, Alba Muixi, Chandrasekhar Annavaarapu, Shantanu Mulay | AE20S010 | 15 th World Congress on Computational Mechanics & 8 th Asian Pacific on Computational Mechanics. | July 31–August 5, 2022. (virtual Japan) | IIT Madras |
| India | | | | | |
| 1. | DiviaHarshaVardini R C | AE16D004 | 7 th National Symposium on Shock Waves (NSSW 2023) | February 2023. Physical Research Laboratory (PRL) Ahmedabad | IIT Madras |
| 2. | Prashanna Kumar K R | AE21M008 | International Conference on Materials and Manufacturing for Sustainable Developments - 2022 (ICMMS-2022) | September 15-16, 2022 | IIT Madras (CPDA) |
| 3. | Ramesh Bhavi | AE20D200 | Conference – Nonlinear Dynamics | Pune | IIT Madras |
| 4. | Atharva | AE19B030 | Conference – Nonlinear Dynamics | Pune | IIT Madras |
| 5. | Sunny | AE20D017 | 5 th Indian Conference on Applied Mechanics (INCAM) 2022 | November 11-13, 2022. NIT Jamshedpur, India | IIT Madras |
| 6. | Arjun More | AE19S006 | Industrial Problems on Machines and Mechanisms, IPROMM 2022 | December 22–23, 2022. IIT-ISM Dhanbad | Self |
| 7. | Parth Dwivedi | AE19S043 | 6 th International and 21 st National Conference on Machines and Mechanisms (iNaCoMM 2023) | December 7, 2023. NIT Raipur | (Institute/ Department) |
| 8. | Arghya Mondal | AE21S032 | 13 th International Symposium on Plasticity and Impact Mechanics (IMPLAST) | August 25, 2022. IIT Madras | (Institute/ Department) |
| 9. | Jeevan R | AE18B104 | International Conference on Intelligent Robotics, Mechatronics and Automation Systems (IRMAS) 2023. | May 4–5, 2023. Vellore Institute of Technology, Chennai. | IIT Madras |
| 10. | Balaji Gorantla | AE19S036 | Indian Control Conference 2022 | December 14-16, 2022. IIT Madras | Self |
| 11. | Chhote Lal Shah | AE17D413 | 3-day Workshop on Basics of CFD and OpenFOAM | January 11-13, 2023 | Self |
| 12. | Rahul Sundar, Dipanjan Majumdar, Chhote Lal Shah and Sunetra Sarkar. | AE18D200 AE17D413 | 9 th International and 49 th National Conference on FMFP | December 14 -16, 2022. IIT Roorkee | IIT Madras |
| 13. | Sourav Dey, Dipanjan Majumdar, Sunetra Sarkar. | AE19D015 | 9 th International and 49 th National Conference on Fluid Mechanics and Fluid Power (FMFP) 2022. | December 14-16, 2022. IIT Roorkee. | IIT Madras |

| S. No. | Name of the Scholar/s | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance From |
|--------|--|----------|---|---|---------------------------|
| 14. | Rahul Sundar, Dipanjan Majumdar, Chhote Lal Shah, and Sunetra Sarkar | AE18D200 | Fluid Mechanics and Fluid Power (FMFP) | December 14-16, 2022. IIT Roorkee | IIT Madras |
| 15. | Debashis Singha | AE20D402 | AIAA SCITECH Forum 2022 | January 3-7, 2022. San Diego, CA & Virtual | IIT Madras |
| 16. | Debashis Singha | AE20D402 | AIAA Aviation Forum 2023 | June 12-16, 2023. San Diego, CA & Online | IIT Madras |
| 17. | Niranjan YC | ME18D039 | 13 th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2022) | August 21-26, 2022. IIT Madras | IIT Madras |
| 18. | Itkankhya Mahapatra | AE20D753 | 13 th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2022) | August 21-26, 2022. IIT Madras | IIT Madras |
| 19. | Chethana Rao, Harini S, H Murthy, Shantanu Mulay | | 5 th Indian Conference on Applied Mechanics (INCAM 2022) | November 11-13, 2022. National Institute of Technology (NIT) Jamshedpur, India. | |
| 20. | Harini S, Shantanu Mulay | | 5 th Indian Conference on Applied Mechanics (INCAM 2022) | November 11-13, 2022. NIT Jamshedpur, India. | |
| 21. | Harini S, Chethana Rao | | 5 th Indian Conference on Applied Mechanics (INCAM 2022) | November 11-13, 2022. NIT Jamshedpur, India. | |
| 22. | Ishank Jain, Chandrasekhar Annavarapu, Shantanu Mulay | AE20S010 | 5 th Indian Conference On Applied Mechanics (INCAM 2022). | November 11-13, 2022. NIT Jamshedpur, India. | |
| 23. | Gobiha D | AE15D412 | International Conference on Design and Engineering of LTA Systems | June 22-24, 2022. IIT Bombay | Institute |
| 24. | Ramesh P Hun | AE14S031 | International Conference on Design and Engineering of LTA Systems | June 22-24, 2022. IIT Bombay | Institute |
| 25. | Sanketh Ailneni | AE21D027 | IFAC Symposium on Automatic Control in Aerospace (ACA) 2022 | November 21-25, 2022. IIT Bombay | Institute |
| 26. | Aniket Sharma | AE19S004 | IFAC Symposium on Automatic Control in Aerospace (ACA) 2022 | November 21-25, 2022. IIT Bombay | Institute |
| 27. | Het Joshi | AE19S014 | IFAC Symposium on Automatic Control in Aerospace (ACA) 2022 | November 21-25, 2022. IIT Bombay | |
| 28. | Aniket Sharma | AE19S004 | 6 th Joint International Conference on Multibody System Dynamics and The 10 th Asian Conference on Multibody Dynamics | October 16-20, 2022. New Delhi, India. | |

4.1.2.5. Names of Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|---------------------------------|----------|---|---|
| 1. | DiviaHarshaVardini RC | AE16D004 | Best paper | PRL, Society for Shockwave Research, India |
| 2. | Ananth Sivaramakrishnan Malathi | AE18D002 | Turbo Expo Early Career Engineer Travel Award | ASME International Gas Turbine Institute |
| 3. | Prashanna Kumaar K R | AE21M008 | Best Paper Award (In International conference on 'Materials, Mechanics and Structures (ICMMS-2022)) | Department of Mechanical Engineering, SRM University Delhi-NCR Haryana (SRMUH), Sonapat |
| 4. | Jeevan R | AE18B104 | Best paper award | VIT Chennai, Asia Pacific University of Technology & Innovation, Malaysia & COEP Technological University, Pune |
| 5. | Ramesh P Hun | AE14S031 | Best paper award | International Conference on Design and Engineering of LTA Systems |
| 6. | Manu B V | AE19D017 | Best Student | 13 th AMS Committee |

4.1.2.6. Name of Students/Scholars who won Institute Convocation/Institute Day Prizes

| S.No. | Name of the Student/Scholar | Roll No. | Name of Prize |
|-------|-----------------------------|----------|---|
| 1. | Balaji Gorantla | AE19S036 | Winner of IITM Mural Doodle Competition, Heritage Centre IITM |

4.1.3. Faculty and their Activities

4.1.3.1. Faculty and Their Specialisation

| S. No | Name and Qualifications | Major Area of Specialisation |
|-------------------|--|---|
| Professors | | |
| 1. | Prof. Murthy HSN, Ph.D. (Purdue University) HOD of Aerospace Engg. | Fatigue and Fracture, Non-destructive Evaluation, Tribology, Advanced Materials, Elasticity |
| 2. | Prof. Sriram P, Ph.D. (Institute Chair Professor) (Georgia Inst. Of Technology) | Structural Mechanics, Fatigue & Fracture, Parallel Computing |
| 3. | Prof. Bhaskar K, Ph.D. (IIT Madras) | Structural Mechanics, Plates & Shells, Composite Structures |
| 4. | Prof. Sujith RI, Ph.D. (Institute Chair Professor) (Georgia Inst. Of Technology) | Thermoacoustic Instability, Optical Flow Diagnostics |
| 5. | Prof. Chakravarthy SR, Ph.D. (Georgia Inst. Of Technology) | Propulsion, Combustion & Fluid Mechanics |
| 6. | Prof. Velmurugan R, Ph.D. (IIT Delhi) | Composite Structures Analysis and Design, Impact Mechanics, 3-D Composites |
| 7. | Prof. Luoyi Tao, Ph.D. (University of Pittsburgh) | Continuum Mechanics and its applications (fluids, solids, multiphase flows, etc.) |
| 8. | Prof. Ramakrishna M, Ph.D. (Univ. of Texas at Arlington) | Fluid Mechanics, Numerical Methods, Computer Solutions |
| 9. | Prof. Amit Kumar, Ph.D. (Case Western Reserve Univ.) | Combustion, Propulsion, Fire Research, CFD |
| 10. | Prof. Ramakrishna PA, Ph.D. (Indian Institute of Science (IISc)) | Combustion, Propulsion |

| S. No | Name and Qualifications | Major Area of Specialisation |
|-----------------------------|--|--|
| 11. | Prof. Nandan Kumar Sinha, Ph.D. (IIT Bombay) | Dynamics and Control of Aerospace Vehicles, Aerial Vehicle Autonomy |
| 12. | Prof. Sunetra Sarkar, Ph.D. (Indian Institute of Science) | Insect Aerodynamics, Fluid Structure Interaction, Uncertainty Quantification |
| 13. | Prof. Sameen A, Ph.D. (Indian Institute of Science) | Stability, Transition and Turbulence, Computational Fluid Dynamics |
| 14. | Prof. Muruganandam TM, Ph.D. (Georgia Institute of Technology) | Combustion, Blowout Dynamics, Optical Diagnostics, Spectroscopic Methods, Vortex Breakdown, Dynamics of Mode Shifting. High Speed Flows, Unsteady Gas Dynamics |
| 15. | Prof. Sivasambu Mahesh, Ph.D. (Cornell Univ.) | Structure-Property Modeling of Aerospace Materials |
| 16. | Prof. Rajesh G, Ph.D. (Andong National University, S.Korea) | Shockwave Dynamics, Ballistics, Experimental Gas Dynamics |
| 17. | Prof. KV Nagendra Gopal, Ph.D. (Indian Institute of Science) | Computational Mechanics and Multi-scale Modeling, Fracture Mechanics, Structural Dynamics and Aeroelasticity |
| 18. | Prof. Manikandan Mathur, Ph.D. (Massachusetts Institute of Technology, MIT, USA) | Instabilities & Mixing, Stratified & Rotating Flows, Low-speed Aerodynamics |
| Associate Professors | | |
| 1. | Dr. Shyam M Keralavarma, Ph.D. (Texas A&M University) | Plasticity, Ductile Fracture, Computational Materials Modeling, Multiscale Modeling |
| 2. | Dr. Santanu Ghosh, Ph.D. (North Carolina University) | Computational Fluid Dynamics, Turbulent Flows, Shock/Boundary-layer Interaction, Immersed-boundary Methods |
| 3. | Dr. Shantanu Shashikant Mulay, Ph.D. (Nanyang Tech. Univ.) | Continuum Mechanics, Large Deformation of Materials, Fracture Mechanics and Plasticity |
| 4. | Dr. Ranjith Mohan, Ph.D. (Florida Atlantic Univ.) | Helicopters, Rotorcraft MAVs |
| Assistant Professors | | |
| 1. | Dr. Shankar Ghosh, Ph.D. (University of Minnesota) | Hypersonic Flow Simulation, Non-Equilibrium Effects, Computational Fluid Dynamics, Turbulent Flows |
| 2. | Dr. Joel George, Ph.D. (IISc.) | Navigation, Guidance and Control of Aerospace Vehicles Multi-agent Systems Theory as applied to Multiple Unmanned Aerial Vehicle Missions |
| 3. | Dr. M.Senthil Murugan, Ph.D. (IISc.) | Dynamics, Aeroelasticity, Stochastic Systems |
| 4. | Dr. Satadal Ghosh, Ph.D. (IISc.) | Guidance and Control; Motion planning; Multi-agent missions |
| 5. | Dr. Sriram Rengarajan, Ph.D. (IISc) | High-speed flows, Shock wave boundary layer interaction, Experimental fluid mechanics |
| 6. | Dr. Vadlamani Nagabhushana Rao, Ph.D. University of Cambridge (Robinson College) | Computational Fluid Dynamics, Transition to Turbulence, Turbo Machinery, High order Methods, High Performance Computing |
| 7. | Dr. Bharath M.Govindarajan, Ph.D. (University of Maryland, College Park USA) | Computational Aerodynamics Of Flow Past Bodies, Mathematical And Numerical Modelling, Algorithms and their Applications , Overall Design of Aerospace Vehicles |
| 8. | Dr. Devaprakash Muniraj, Ph.D. (Aerospace Engineering, Virginia Tech, USA) | Dynamics and Control of UAS, Security and Verification of Cyber-physical Systems |
| 9. | Dr. Prashant Rawat, Ph.D. Mech. Engg., Indian Institute of Technology (Indian School of Mines) Dhanbad | Manufacturing and Experimental Analysis, Polymer Composites, Biomimetics. |
| 10. | Dr. David Kumar | Experimental Structural Mechanics, Designing Unmanned Aerial Vehicles, Nondestructive Testing Methods |

| S. No | Name and Qualifications | Major Area of Specialisation |
|------------------------|---|--|
| 11. | Dr. Pravendra Kumar Ph.D. in Aeronautics and Astronautics (The University of Tokyo, Japan) | Plasma assisted Combustion and Electric Propulsion |
| 12. | Dr. Aswathy Surendran Ph.D. in Applied Mathematics (Keele University, United Kingdom) | Aero/Thermoacoustics, Combustion/Propulsion, Heat Transfer |
| Professors Of Practice | | |
| 1. | Rear Admiral A George | October 1, 2022–September 30, 2023 |
| 2. | Lt. Gen. P Ravi Shankar | March 1, 2023–February 29, 2024 |
| 3. | Dr. T Jayachandran | April 27, 2023–February 29, 2024 |
| 4. | Dr. VR Lalithambika | April 27, 2023–February 29, 2024 |
| 5. | Major Gen. Rajiv Narayanan | April 26, 2023–February 29, 2024 |
| 6. | Dr. Lazar T Chitilappilly | March 1, 2023–February 29, 2024 |
| Visiting Faculty | | |
| 1. | Dr. Dipankar Das | February 16, 2023–February 15, 2024 |

4.1.3.2. Short-term Courses, Workshops, Seminars, Symposia, and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|---|--|-----------------------------------|
| Seminars | | | |
| 1. | Prof. R I Sujith | Critical Transitions in Complex Systems (CTCS) Webinar Series | September 2021 - Ongoing |
| Symposia | | | |
| 1. | Prof. G Rajesh, Prof. Sriram Rengarajan | 24 th International SHok Interaction symposium | October 17-20, 2022 |
| 2. | Prof. HSN Murthy, Dr. Devaprakash Muniraj, Dr. David Kumar, Dr. Pravendra Kumar | MTP-Symposium on UAV Electronics (SUAVE) | December 26, 2022–January 1, 2023 |
| 3. | Prof. G. Rajesh Dr. Sriram Rengarajan | 24 th International Shock Interaction Symposium (SIS2022) | October 17-20, 2022 |
| 4. | Prof. HSN Murthy, Dr. David Kumar, Dr. Pravendra Kumar, Dr. Devaprakash Muniraj | Aerospace and Defence Industries Summit for Advancing Key Technological Innovations (ADISAKTI) | March 13-14, 2023 |
| 5. | Prof. HSN Murthy, Dr. Devaprakash Muniraj, Dr. David Kumar, Dr. Pravendra Kumar | MTP-Symposium on UAV-Electronics (SUAVE) | December 26, 2022–January 1, 2023 |
| 6. | Prof. R Velmurugan | 13 th International Symposium on Plasticity and Impact Mechanics | August 21-26, 2022 |
| Workshops | | | |
| 1. | Prof. R I Sujith | Organizer of Workshop on the Application of Complex Networks to Fluid Mechanics (Online) | August 15-16, 2022 |
| 2. | Prof. R Velmurugan | 3D Printing of Soft and Hard Material Auxetic Structures and its High Strain Rate Studies | September 1-2, 2022 |
| Short-term Courses | | | |
| 1. | Dr. Devaprakash Muniraj, Prof. Nandan Kumar Sinha, Dr. Satadal Ghosh | Unmanned Aircraft Systems: Road to Autonomy | March 21 – 26, 2022 |

4.1.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Sessions Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------------|-----------------------|---|---|-----------------------|
| Workshops | | | | |
| 1. | Prof. Sunetra Sarkar | Implemented Physics informed neural networks in the Open FOAM framework as part of Data driven modeling | Hackathon (Virtual) | July 25-28, 2022 |
| Symposia | | | | |
| 1. | Dr. R Sriram | 7 th National Symposium on Shock Waves (NSSW2023) | Physical Research Laboratory, Ahmedabad | February 15-17, 2023 |
| 2. | Amit Kumar | Professor | IIT Madras | October 24-28, 2022 |
| Conferences | | | | |
| 1. | Prof. R I Sujith | Tipping Points in Complex Systems | ICTS-TIFR Bengaluru | September 19-30, 2022 |
| 2. | Dr.Satadal Ghosh | Institute of Electrical and Electronics Engineers (IEEE) Conference on Decision and Control 2022 | IEEE | December 6-9, 2022 |
| Training Sessions | | | | |
| 1. | Dr. Aswathy Surendran | IIT Madras -Kenyon T3 Workshop, Jan 2023 | IIT Madras and Kenyon College, US | January 3-8, 2023 |
| 2. | Dr. Aswathy Surendran | Faculty Development Programme | TLC, IIT Madras | January 11-12, 2023 |

4.1.3.4. Special Lectures Delivered by Faculty in other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-------------------------|---|---|-------------------|
| 1. | Dr. Devaprakash Muniraj | Introduction to Fly-by-wire Systems | Naval Institute of Aeronautical Technology, Kochi | July 16, 2022 |
| 2. | Dr. Devaprakash Muniraj | Security threats to and from UAS | Naval Institute of Aeronautical Technology, Kochi | July 16, 2022 |
| 3. | Dr. Devaprakash Muniraj | Challenges in enabling UAS Autonomy | Raja Lakshmi Engineering College, Chennai | March 18, 2023 |
| 4. | Dr. Devaprakash Muniraj | Challenges in enabling UAS Autonomy | Malaviya National Institute of Technology, Jaipur | March 27, 2023 |
| 5. | Dr. David Kumar | Emerging and Future Technologies of UAVs | IIT Tirupati | February 02, 2023 |
| 6. | Dr. Pravendra Kumar | Emerging and Future Technologies of UAVs | IIT Tirupati | February 02, 2023 |
| 7. | Dr.Satadal Ghosh | Guidance Laws towards Applications in Autonomous Vehicles | ZF | September 2022 |
| 8. | Dr.Satadal Ghosh | Guidance for Spacecraft Applications | Vikram Sarabhai Space Centre (VSSC), Trivandrum | February 2023 |
| 9. | Dr.Satadal Ghosh | Collision Avoidance: Offline and Online Approaches | College of Engineering Trivandrum | February 2023 |
| 10. | Dr.Satadal Ghosh | Guidance Laws for Applications in Autonomous Vehicles | IIST Shibpur | May 2023 |
| 11. | Prof. R Velmurugan | Development of Shape memory Polymer Composites for Aerospace Applications | PSG Tech | March 02, 2023 |
| 12. | Prof. R Velmurugan | High Strain studies of Composites | IIT Madras | Sep 01, 2022 |
| 13. | Prof. R Velmurugan | Composites for Impact Loading: An Overview | Hanyong University, South Korea | June 15, 2022 |
| 14. | Prof. R Velmurugan | New Developments in Nano Composites | Durban University of Technology, South Africa | November 04, 2022 |

4.1.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|--------------------------------|--|---------------------------|--|------------------|
| 1. | Dr. Nagabhushana Rao Vadlamani | ASME Turbo Expo 2022 Conference Rotterdam, Netherlands | June 13-17, 2022 | | CPDA & NFSG |
| 2. | Dr. Sriram Rengarajan | USA | January 21-25, 2023 | Attending the conference 'AIAA SciTech Forum 2023' and presenting paper | CPDA and project |
| 3. | Prof. R I Sujith | International Institute of Acoustics and Vibration (IIAV), Singapore | July 24-28, 2022 | 28 th International Congress on Sound and Vibration | |
| 4. | Prof. R I Sujith | Potsdam Institute of Climate Impact Research Germany | March 15-17, 2023 | Nonlinear Data Analysis and Modeling: Advances, Applications, Perspectives | |
| 5. | Prof. R Velmurugan | South Korea | June 04 - 25, 2022 | Sparc | PCF, ICSR, IR&GE |
| 6. | Prof. R Velmurugan | South Africa | October 29 - Nov 13, 2022 | Collaborative project | DST |
| 7. | Prof. Amit Kumar | South Korea | October 25, 2022 | To participate in 13 th AMS | IIT Madras |

4.1.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|----------------|------------------|---|-------------------------------------|---|---------------|
| Honours | | | | | |
| 1. | Prof. R I Sujith | Featured Article and Coverage in Scilight | AIP (American Institute of Physics) | Publishing Journal, 'Study of interaction and complete merging of binary cyclones using complex networks' in Chaos: An Interdisciplinary Journal of Nonlinear Science | 2023 |

4.1.3.7. Fellowships of Academic and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|---------------|--|-------------------|
| INAE | | |
| 1. | Prof. R I Sujith | 2008 |
| Others | | |
| 1. | Dr. Prashant Rawat - The Institution of Engineers (India) | October 2022 |
| 2. | Dr. Prashant Rawat- International Society for Energy, Environment and Sustainability | March, 2023 |
| 3. | Prof. R I Sujith – Indian Academy of Sciences (IASc) Bangalore | 2017 |
| 4. | Prof. R I Sujith - Fellow of the Combustion Institute | 2022 |
| 5. | Prof. R I Sujith - Fellow of the United States National Academy of Engineering (Elected as International Member) | 2023 |

4.1.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|-----------------------|--------------------------|--|
| 1. | Prof. P A Ramakrishna | | Defense Science Journal |
| 2. | Prof. P A Ramakrishna | | Journal of Aerospace Sciences and Technologies |
| 3. | Prof. G Rajesh | Associate Editor | J Mechanical Science and Technology |

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|--------------------------|--|--|
| 4. | Dr. Sriram Rengarajan | Guest Editor (for the special edition on select papers from 24 th International Shock Interactions Symposium) | Shock Waves |
| 5. | Prof. R I Sujith | Editorial Advisory Board Member | Chaos |
| 6. | Dr. Satadal Ghosh | Associate Editor | Proceedings of IEEE International Conference on Intelligent Robots and Systems (IROS) 2022- 23 |
| 7. | Prof. R Velmurugan | Managing Guest Editor | International Journal of Impact Engineering |
| 8. | Prof. R Velmurugan | Managing Guest Editor | International Journal of Thin Walled structures |
| 9. | Prof. R Velmurugan | Managing Guest Editor | International Journal of Defence Technology |
| 10. | Prof. Nandan Kumar Sinha | Critical Design Review (Advanced Multi-role Combat Aircraft (AMCA)) Committee Member, | Aeronautical Development Agency (ADA) Bangalore, first meeting on May 12-13, 2022 |
| 11. | Prof. Nandan Kumar Sinha | Committee Member | HAL Chair Professor Selection, IIT Roorkee, December 2022 |
| 12. | Prof. Nandan Kumar Sinha | Committee Member | IIST Faculty Promotion, January 2023 |

4.1.4. Design and Development Activities

4.1.4.1. Brief and Specific Details of Processes/Instruments/Equipment/ Software Designed and Developed

| | |
|----|--|
| 1. | The lab has developed multiple unmanned aerial vehicle (UAV) concepts, and has successfully flown them at various locations for various missions. The locations include 1. From a research cruise vessel in the Arabian Sea to an altitude of 1 km, 2. At Tamil Nadu Police Academy for surveillance purposes, and 3. At Navy Southern Command in Kochi for a demonstration of capability. The lab also contains a 3x3 variable RPM gust array setup that is instrumented with a high speed DAQ to study rotors under gusty wind conditions. |
| 2. | We proposed the method for manufacturing sandwich corrugated panels from plant-based fibers along with thermosetting or thermoplastic polymer for binding. We introduced the method to make the sandwich corrugation of the fabric due to which its strength-to-weight ratio has been increased and panels can be used in various applications such as furniture, decking panels, packaging, etc. |
| 3. | Co-founded a company Daloft Aerospace Ltd. at IITM Research Park, September 2022. |

4.1.4.2. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|---|--|
| 1. | 76 mm Aero-ballistic range | 24 |
| 2. | Supersonic wind tunnel | 16 |
| 3. | Gust facility | 20 |
| 4. | UAV development | 25 |
| 5. | High Speed Camera (DST Project) – PHANTOM VEO 710L, MONO 72GB MEMORY 12-BIT | 35.83 (USD 43,400 @ 82.57 – Conversion rate as on May 18, 2023) |
| 6. | 4 Axes CNC Filament Winding Machine | 54.7 |

4.1.5. Patents

4.1.5.1. Patents Filed

| S. No. | Name of the Faculty | Topic of Patent |
|--------|-----------------------|--|
| 1. | Prof. P A Ramakrishna | Process for surface coating of burn rate modifiers on ammonium per-chlorate and uses thereof |
| 2. | Prof. P A Ramakrishna | Method for improving the mechanical properties of paraffin wax |
| 3. | Prof. P A Ramakrishna | Hybrid rocket engine having high regression rate |
| 4. | Prof. P A Ramakrishna | Wax based disposable mandrel for solid propellant grain design |
| 5. | Prof. P A Ramakrishna | The patent on "Wax based disposable mandrel for solid propellant grain design" has been transferred to Rathi Aerospace Limited, an IIT Madras incubated company. |
| 6. | Prof. Rajesh G | Concept for the development of a Flow switching suddenly expanding mixing (FSSEM) nozzle |
| 7. | Dr. Prashant Rawat | Manufacturing Technique For Fiber Reinforced Corrugated Sandwich Composite Panels |

4.1.5.2. Patents Awarded

| S. No. | Name of the Faculty | Topic of Patent |
|--------|--|---|
| 1. | Prof. R I Sujith (Joint Filing with IIT Bombay) | System and method for optimizing passive control strategies of oscillatory instabilities using finite-time Lyapunov exponents – US Publication date: July 5, 2022 |
| 2. | Prof. R I Sujith | System and method for determining the amplitude of oscillatory instabilities in fluid mechanical devices – US Publication date: February 7, 2023 |

4.1.6. Research and Consultancy

4.1.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|-----------|--|----------------------|---|
| 1. | Solid Propellant Combustion Mechanisms and Modeling | 5 years | Defence Research and Development Organisation (DRDO) | 2501 | Prof. S R Chakravarthy AE Prof. Amit Kumar AE Dr. T Jayachandran |
| 2. | Development of Extended Range Ammunition using Ramjet Technology with Precision Guidance in Artillery Shells | | ATB, Army | 995.0 | Prof. M Ramakrishna Prof. H S N Murthy Lt. Gen. P R Shankar Prof. G Rajesh Dr. Abhishek, IITK Dr. Mangal Kothari, IITK |
| 3. | IC Engine Driven Quadrotor Biplane Tailsitter | 3 years | Department of Science and Technology (DST) | 383.4 | Dr. Joel George, AE Dr. M G Bharath, AE |
| 4. | Design of 80 mm rocket | 1.5 years | Bharat Electronics Limited (BEL) | 370.5 | Prof. Murthy H S N, Dr. Lazar Chitilappilly, AE Dr. Dipankar Das, AE Dr. Sriram Rengarajan Dr. T Jayachandran, AE |
| 5. | Development of low temperature Gas Generator for filling CMUS inflatable Floats | 1 year | Indian Space Research Organisation (ISRO) | 76.7 | Dr. Lazar Chitilappilly AE |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|------------------------------------|--|----------------------|--|
| 6. | Capacity Building for Human Resource Development in Unmanned Aircraft Systems (Drone and related Technology) | December 2022–December 2027 | Ministry of Electronics and Information Technology | 260.91 | Prof. H S N Murthy, Dr. Devaprakash Muniraj, Dr. David Kumar, Dr. Pravendra Kumar |
| 7. | Geophysical Flows Lab - COE | February 2023 - January 2026 | Ministry of Education | 2321.35 | Prof. Manikandan Mathur |
| 8. | Towards Large Scale Conceptual Analysis and Design of Rotorcraft | September 2022 – September 2025 | US Army ITC | 120.69 | Dr. Bharath Govindarajan M |
| 9. | Effects of Gust on Rotorcraft Aerodynamics | March 2022 – March 2025 | IIT Madras | 30 | Dr. Bharath Govindarajan M |
| 10. | Effect of Gust on Aerodynamic Interference of Coaxial Rotors: Numerical and Experimental Studies | December 2020 – June 2023 | SERB-SRG | 23.18 | Dr. Bharath Govindarajan M |
| 11. | Geophysical Flows Lab | February 2023 – January 2026 | IIT Madras (CoE) Phase I and II | 963 | Prof. Manikandan Mathur (PI), Dr. Bharath Govindarajan M (Co-PI) |
| 12. | IC Engine Driven Quadrotor Biplane Tailsitter | March 2021–March 2024 | DST-DDP | 261.94 | Prof. PA Ramakrishna (PI), Dr. Bharath Govindarajan. M (Co-PI) |
| 13. | Aeroacoustic Load Prediction on Hypersonic Vehicles | September 2022–September 2025 | DRDO (CoPT) | 26.79 | Dr. Vadlamani Nagabhushana Rao |
| 14. | Models to quantify and correct precision related errors in CFD Simulations of Turbulent flows | January 2022–January 2026 | DST (MATRICS) | 6.6 | Dr. Vadlamani Nagabhushana Rao |
| 15. | Uncertainty Quantification of Turbulence Models through Eigenspace Perturbations of Reynolds Stresses | July 2022–July 2024 | ISRO (VSSC) | 15.12 | Dr. Vadlamani Nagabhushana Rao |
| 16. | Experimental Investigations on Unsteady separated Flow at High-Speeds | March 4, 2021–March 3, 2024 | IIT Madras (NFSG) | 30 | Dr. Sriram Rengarajan |
| 17. | Investigations on the effect of back pressure fluctuations on shock boundary layer interactions in isolator | July 23, 2021–July 22, 2023 | ISRO STC | 25.93 | Dr. Sriram Rengarajan |
| 18. | Experimental and Numerical Analysis of Metallic and Non-Metallic Nano Particles in CFRP and GFRP Composites | June 1, 2022 - May 31, 2024 | IC&SR, IIT Madras | 5 | Dr. Prashant Rawat |
| 19. | Technologies for Low Carbon and Lean Construction | February 1, 2023 –January 21, 2026 | Ministry of Education | 1500 | Dr. Manu Santhanam – (PI) Co-PI(s) - Dr. Ashwin Mahalingam, Dr. Nikhil Bugalia, Dr. Piyush Chaunsali, Dr. Benny Raphael, Dr. Radhakrishna G Pillai, Dr. K Ramamurthy, Dr. Ravindra Gettu, Dr. Keerthana Kirupakaran, Dr. Sivakumar Palaniappan, Dr. Koshy Varghese, Dr. Surender Singh, Dr. Ramesh Kannan, Dr. Prashant Rawat, Dr. R Vinu. |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|----------------------------------|--|-----------------------|--|
| 20. | Effect of Ground on Fixed and Rotary Wing Aircraft Dynamics | September 3, 2022–August 8, 2026 | Science and Engineering Research Board (SERB) | 23.93 | Dr. Ranjith Mohan |
| 21. | Design and Development of an Autonomous Dynamic Soaring Aircraft for Maritime Data Acquisition and Surveillance | July 13, 2022 - December 1, 2024 | TiHAN (DST-IITH hub) | 24.85 | Dr. Ranjith Mohan |
| 22. | Rotorcraft for Scout Operation at High Altitudes and Low Air Density Region | March 3 2021 - February 3 2024 | DST | 126.45 | Dr. Ranjith Mohan |
| 23. | Accelerated Ageing Studies on Composite Solid Propellants | January 2021–December 2024 | DRDO | 97.96 | Dr. David Kumar (Co-PI), Prof. H S N Murthy (PI) |
| 24. | DST | December 2022–December 2027 | Ministry of Electronics and Information Technology (MeitY) | 260.91 | Prof. H S N Murthy (PI), Dr. David Kumar (Co-PI), Dr. Devaprakash Muniraj (Co-PI), Dr. Pravendra Kumar (Co-PI) |
| 25. | Extension of ISRO flow solver PRAVAHA to flows involving Chemical and Vibrational Nonequilibrium | 1 year | ISRO | 13.73 | Dr. Shankar Ghosh, AE Dr. Ankur Nagpal (from ISRO) Dr. Sharan M. Rai (from ISRO) |
| 26. | Variable Camber Morphing Wing | 2017–2022 | DRDO | 1286.1 | Dr. Sameen A 7 others |
| 27. | Network Structure of Transitions in Thermo Fluid Systems in Nature and Engineering | January 2022–January 2024 | ONRG | 178.52 (USD 2,16,206) | Dr. R I Sujith (PI) |
| 28. | Nonlinear Dynamics and Aero Elasticity of Span Morphing UAV Wing SP20210623A ESERB008739 | December 2020–December 2023 | Science and Engineering Research Board | 33.56 | Dr. Senthil Murugan M (PI) |
| 29. | Rotorcraft for Scout Operation at High Altitudes and Low Air Density Region | March 2021–March 2024 | DST | 126.46 | Dr. Ranjith Mohan (PI) and Dr. Satadal Ghosh (Co-PI) |
| 30. | Natural Fiber Sandwich Composites with NanoFillers | 2022–2025 | DST | 31.20 | Prof. Velmurugan R (PI) |
| 31. | Extra Terrestrial Manufacturing | | COE, IIT Madras | 500 | Prof. Velmurugan R (Co-Inv.) |
| 32. | Additive Manufacturing | | COE, IIT Madras | 500 | Prof. Velmurugan R (Co-Inv.) |
| 33. | Design and Development of Morphing Wing with Hingeless Control Surface | May 30, 2017–June 30, 2024 | DRDO | 514.54 | Prof. KV Nagendra Gopal, Prof. R Velmurugan, Dr. Ranjith Mohan |
| 34. | Experimental Study of Flame Spread Under Convection In Micro-Gravity | July 2021 – June 2023 | Indian Space Research Organisation | 30.5 | Nil |
| 35. | Comprehensive Experimental and Simulation Study on Wildfire of BRICS Countries: Fire Occurrence, Spread and Suppression | August 2020 - August 2023 | Department of Science & Technology | 46.6 | Nil |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|-----------------------------|----------------|----------------------|--|
| 36. | Thermo-mechanical response of polymer matrix composites under high heating rates | 2022-2025 (RESPOND project) | ISRO | 23.53 | Shantanu Mulya (PI) Chandrashekhara Annavarapu (civil dept, IITM), T. Jaychandran (Aerospace dept) (CO-PI) |

4.1.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of the Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------|---|--|----------------------|
| 1. | Dr. David Kumar | Indigenous design and development of FOD barrier for Indian Air Force | Indian Air Force | 25.96 |
| 2. | Prof. R I Sujith | Educational Service | Honeywell Technology Solutions Lab Private Limited | 2.80 |
| 3. | Prof. R Velmurugan | Failure Analysis of Filament Wind Pipes | Pentair | 5.20 |
| 4. | Prof. R Velmurugan | Analysis and Testing of Composites | Common Code | 10.0 |

4.1.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of the Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|--|--|----------------------|
| 1. | Prof. Rajesh G (Co-PI) | Hypervelocity Impact Simulation | Armament Research & Development Establishment (ARDE) | 40.92 |
| 2. | Prof. Ramakrishna. P. A (PI) (Co-PIs) Prof. HSN Murthy Dr. Sriram Rengarajan Dr. T Jayachandran | Design of the 80 mm Rocket | BEL | 314 |
| 3. | Dr. Ranjith Mohan | Experimental and Computational Characterisation of EDF | Defence Bioengineering and Electromedical Laboratory | 8.45 |
| 4. | Prof. R Velmurugan | Bio-reinforced Sandwich Composites | Tata Steel | 25.20 |
| 5. | Prof. R Velmurugan | Aging Studies of Adhesives and Sealants | Defence Research and Development Laboratory (DRDL) | 37.50 |

4.1.6.4. Exchange Programme with Other Universities including Institutions/ Universities under MoU:

| S. No. | Name of Faculty | Programme Details | Name of University/Institution which has MOU |
|--------|-------------------|---|--|
| 1. | Dr. Santanu Ghosh | SPARC project (SPARC/2018-2019/P1039/SL) involving exchange of faculty and researcher | North Carolina State University, USA. |

4.1.6.5. Faculty Members' Participation with Other Institutions under MoU:

| S. No. | Name of Faculty | Programme Details | Name of University/Institution which has MOU |
|--------|-----------------------|--|--|
| 1. | Prof. P A Ramakrishna | Instrumental in IIT Madras signing a broad-based MOU with defense Major Bharat Electronics Ltd. for collaboration in the areas of Propellants, Explosives and Related Technologies | BEL |
| 2. | Prof. Amit Kumar | Student Exchange | Hokkaido University |

4.1.7. Distinguished Visitors to the Department

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|---|---|--|
| 1. | Dr. Suvash Saha (Senior Lecturer, School of Mechanical and Mechatronic Engineering Faculty of Engineering & Information Technology University of Technology Sydney) | November 9, 2022– November 14, 2022 | Presentation & explore the possibility of research collaboration |
| 2. | Dr. Marcus Tapaske – Office of Naval Research Global (USA Embassy Singapore) | October 10, 2022 | General Lab |
| 3. | Dr. Swetaprovo Chaudhuri - Associate Professor at the University of Toronto | December 12 2022 – December 27, 2022 | Collaborator |
| 4. | Dr. -Ing. Cameron Tropea – Professor at TU Darmstadt | March 3, 2023 | General Lab |
| 5. | Prof. Florian Holzapfel from TU Munich (TUM) Germany | February 16, 2023 | Flight Dynamics and Control Lab |

4.1.8. Other Activities of the Department/Centre

4.1.8.1. International Collaboration/Achievements by the Department

1. Faculty Visits

| S. No. | Name of the Faculty | Purpose of Visit | Date & Venue |
|--------|---------------------|------------------------------|----------------------------------|
| 1. | Dr. Philippe Odier | Visiting Faculty Under SPARC | Aerospace Department, IIT Madras |

2. Student Visits

| S. No | Name of the Students | Purpose of Visit | Date & Venue |
|-------|--------------------------------|-----------------------|---|
| 1. | 225 Government School Students | Visit to Laboratories | July 2, 2022, Department of Aerospace Engineering |
| 2. | Vaibhav Somaji Anuse | SPARC research work | May 25, 2022. Seoul, Korea |

4.2

Department of Applied Mechanics

4.2.1. Introduction

The Department of Applied Mechanics has been in existence since 1962 and has become a full-fledged interdisciplinary graduate research department over the years. The Department focuses on academic activities in three broad areas: Bio-medical Engineering, Fluid Mechanics and Solid Mechanics. The Department also offers minor streams for undergraduate students.

4.2.2. Academic Programmes

Ph.D., Direct Ph.D., M.S. (by Research), M.Tech. (Computational and Experimental Mechanics), M.Tech. (Biomedical Engineering), M.Tech. (Clinical Engineering) and Inter-Disciplinary Dual Degrees in Biomedical Engineering and Computational Engineering.

4.2.2.1 New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|----------------------------------|
| 1 | AM5560 | Surgical Data Science |
| 2 | AM5535 | Bioinspired Engineering |
| 3 | AM5525 | Nano-Biophysics |
| 4 | AM5545 | Introduction to Multiphase Flows |
| 5 | AM5565 | Physiological Control Systems |
| 6 | GN6120 | The Competition Mindset |
| 7 | GN6130 | Systems Thinking for Engineers |

4.2.2.2. Students on Roll as of September 2022 + M.S. & Ph.D. Admission in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|-----------|-----------|-----------|-----------|-----------------|------------|
| M.Tech. | 32 | 39 | 1 | - | - | 72 |
| M.S. | 27 | 27 | 22 | 8 | 2 | 86 |
| Ph.D. | 32 | 27 | 18 | 43 | 102 | 222 |
| Total | 91 | 93 | 41 | 51 | 104 | 380 |

4.2.2.3. Students/Scholars who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|---------------|----------------------|----------|---|---|---------------------------|
| Abroad | | | | | |
| 1 | Vishnu M | AM15D027 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 2 | Sainath H | AM15D206 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 3 | Mahima Sharma B S | AM16D002 | 2022 OSA Biophotonics Congress: Biomedical Optics | April 24-27, 2022. Florida, USA | IIT Madras |
| 4 | Jishnu M | AM16D011 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 5 | Shashi Kumar J | AM16D031 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 6 | Vysakh V | AM16D034 | SPIE Photonics Europe, 2022 | May 17-20, 2022. France (online) | IIT Madras |
| 7 | Vysakh V | AM16D034 | IEECON 2023 | March 8-10, 2023 Thailand | IIT Madras |
| 8 | Shib Sundar Banerjee | AM16D206 | IEEE International Symposium on Medical Measurements & Applications | May 21-23, 2022 Italy | IIT Madras |
| 9 | Surya Ramakrishnan | AM16D303 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 10 | Saranya Biswas | AM16D401 | The 10 th European Nonlinear Dynamics Conference (ENOC 2020) | July 16-21, 2022. Lyon, France | IIT Madras |
| 11 | Amith K | AM17D016 | 14 th European Fluid Mechanics Conference- EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 12 | Lakshmi M Hari | AM17D024 | XXII International Conference on Mechanics in Medicine and Biology | September 12-15, 2022. Bologna, Italy (virtual) | IIT Madras |
| 13 | Swetha S Menon | AM17D028 | 8 th International Conference on Metal-Organic Frameworks & Open Framework Compounds | September 3-6, 2022. Dresden | IIT Madras |
| 14 | Binu Varghese | AM17D032 | International Conference on Nano Bubbles, Nanodroplets & their Applications | September 17-20, 2022. Magdeburg, Germany | IIT Madras |
| 15 | Nehal Dash | AM17D033 | 11 th European Solid Mechanics Conference | July 3-7, 2022. Galway, Ireland | IIT Madras |
| 16 | Jipson Johnson | AM17D035 | FILTECH-2023 | February 13-15, 2022. Koeln, Germany | IIT Madras |
| 17 | Mukesh K | AM17D038 | American Physical Society Division of Fluid Dynamics (APS DFD), 2022 | November 19-21, 2022. Indianapolis, USA | IIT Madras |
| 18 | Rajanya Chatterjee | AM17D200 | 10 th European Nonlinear Oscillations Conference, ENOC 2022 | July 17-22, 2022. Lyon, France | IIT Madras |
| 19 | Amritesh Kumar | AM17D203 | 9 th Forum on New Materials, Cimtec 2022 | June 20-July 3, 2022. Italy | IIT Madras |
| 20 | Prabhash Kumar | AM17D205 | 14 th European Fluid Mechanics Conference - EFMC14 | September 12-15, 2022. Athens, Greece | IIT Madras |
| 21 | Pijush Patra | AM17D700 | 14 th European Fluid Mechanics Conference - EFMC14 | September 12-15, 2022. Athens, Greece | Project |
| 22 | Rakhi | AM18D004 | RehabWeek - International Consortium for Rehabilitation Robotics (ICORR) | July 24-27, 2022. Rotterdam | IIT Madras |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|--------------------------|----------|--|--|---------------------------|
| 23 | Vinothini S | AM18D005 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (Virtual) | IIT Madras |
| 24 | Vinothini S | AM18D005 | IEEE International Symposium on Medical Measurements & Applications | May 21-23, 2022. Italy | IIT Madras |
| 25 | Juturu Swetha | AM18D023 | SMASIS 2022- Smart Materials, Adaptive Structures, & Intelligent Systems | September 11-13, 2022. Michigan, USA (Online) | IIT Madras |
| 26 | Priya Krishnamurthy | AM18D025 | Frontiers in Optics + Laser Science | October 17-20, 2022. (Online) | Nil |
| 27 | Himanshu Kumar | AM18D027 | 44 th International Engineering in Medicine & Biology Conference (EMBC 2022) | July 10-14, 2022. United Kingdom (UK) | IIT Madras |
| 28 | Yedukondala Rao Veeranki | AM18D030 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (Virtual) | IIT Madras |
| 29 | Yedukondala Rao Veeranki | AM18D030 | 32 nd Medical Informatics Europe Conference | May 26-29, 2022. Acropolis, France | IIT Madras |
| 30 | Sandeep Koundinya | AM18D033 | GL2022 - 15th IIR Gustav Lorentzen conference on Natural Refrigerants | June 21-14, 2022. NTNU, Norway | IIT Madras |
| 31 | Sukanta Kumar Tulo | AM18D300 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (virtual) | IIT Madras |
| 32 | Subitcha J | AM19D004 | Society of Photographic Instrumentation Engineers (SPIE) Photonics Europe | May 25, 2022. (Online) | IIT Madras |
| 33 | Subitcha J | AM19D004 | Frontiers in Optics & Laser Science | October 19, 2022. (Online) | Self |
| 34 | Allwyn S | AM19D011 | 44 th IEEE Annual International Conference of the IEEE Engg in Medicine & Biology Society | July 10-14, 2022. UK | IIT Madras |
| 35 | Sreelakshmi S | AM19D200 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (virtual) | IIT Madras |
| 36 | Harikrishna M | AM19S040 | 44 th IEEE Annual International Conference of the IEEE Engg in Medicine & Biology Society | July 10-14, 2022. UK | IIT Madras |
| 37 | K B Jagan | AM19S048 | 11 th International Workshop on Haptic & Audio Interaction Design | August 23-25, 2022. London, UK | IIT Madras |
| 38 | R Janaki | AM20D014 | FiO LS (Frontiers in Optics & Laser Science) | October 17-19, 2022. United States (online) | Nil |
| 39 | Auronil Mukherjee | AM20S013 | Herrick Conference | July 9-13, 2022. USA | IIT Madras |
| 40 | Omkar Pande | AM20S038 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (Virtual) | IIT Madras |
| 41 | Omkar Pande | AM20S038 | 44 th IEEE Annual International Conference of the IEEE Engg in Medicine & Biology Society | July 10-14, 2022. UK | IIT Madras |
| 42 | Kumar Nandan Sinha | AM20S050 | 44 th IEEE Engineering in Medicine & Biology Conference (EMBC) | July, 10-14, 2022. UK | IIT Madras |
| 43 | Kumar Nandan Sinha | AM20S050 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (Virtual)) | IIT Madras |
| 44 | Sreelekshmi P S | AM21D042 | 32 nd Medical Informatics Europe Conference | May 26-29, 2022. France | IIT Madras |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------------|-------------------------|----------|--|--|---------------------------|
| 45 | Dikshitha C M | AM21S025 | XXII International Conference on Mechanics in Medicine & Biology | September 18-20, 2022. Bologna, Italy (virtual) | IIT Madras |
| India | | | | | |
| 46 | K S K Sudhamsu | AM15D200 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras National Institute of Technology (NIT), Jamshedpur | IIT Madras |
| 47 | K S K Sudhamsu | AM15D200 | 13 th International Symposium on Plasticity & Impact Mechanics | August 22-25, 2022. IIT Madras | IIT Madras |
| 48 | Sainath H | AM15D206 | ME@75 Research Frontiers Conference | June 28-30, 2022. Indian Institute of Science (IISc) Bangalore | IIT Madras |
| 49 | Jishnu M | AM16D011 | ME@75 Research Frontiers Conference | June 28-30, 2022. IISc, Bangalore | IIT Madras |
| 50 | Prince Victor Jenies C | AM16D020 | ME@75 Research Frontiers Conference | June 28-30, 2022. IISc, Bangalore | IIT Madras |
| 51 | Darish Jeswin Dhas S | AM16D022 | COMPFLU 2022 | December 18-20, 2022. IIT Kharagpur | Project |
| 52 | Noushad Bin Jamal | AM17D003 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras June 2-4, 2022. NIT Jamshedpur | IIT Madras |
| 53 | Karthikeyan J | AM17D009 | ME@75 Research Frontiers Conference | June 28-30, 2022. IISc Bangalore | IIT Madras |
| 54 | Sanghamitra Debta | AM17D027 | Materials Research Society fall meeting | October 05-07, 2022 (Virtual) | IIT Madras |
| 55 | Sanghamitra Debta | AM17D027 | 4 th Structural Integrity Conference & Exhibition | December 13-15, 2022. IIT Hyderabad | IIT Madras |
| 56 | Sanghamitra Debta | AM17D027 | 8 th Asian Conference on Mechanics of functional Materials & Structures | November 10-13, 2022. IIT Guwahati | IIT Madras |
| 57 | Swetha S Menon | AM17D028 | 2023 IEEE Applied Sensing Conference | January 22-24, 2023. Bengaluru | IIT Madras |
| 58 | Swetha S Menon | AM17D028 | Water for Life | December 14-16, 2022. IIT Madras | IIT Madras |
| 59 | Ahmed Syed | AM17D030 | Traffic & Granular Flow 2022 | October 14-16, 2022. IIT Delhi | IIT Madras |
| 60 | Ashish Pandey | AM17D031 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras June 2-4, 2022. NIT Jamshedpur | IIT Madras |
| 61 | Ashish Pandey | AM17D031 | Collaborative Innovation for Promoting Rural Abundance | July 22-23, 2022. BD College of Engg. Sevagram | IIT Madras |
| 62 | Ashish Pandey | AM17D031 | 13 th International Symposium on Plasticity & Impact Mechanics | August 22-25, 2022. IIT Madras | IIT Madras |
| 63 | Ashish Pandey | AM17D031 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022 NIT Jamshedpur | IIT Madras |
| 64 | Ravindra Arjun Shirsath | AM17D034 | Fluid Mechanics & Fluid Power (FMFP) Conference 2022 | December 13-15, 2022. IIT Roorkee | IIT Madras |
| 65 | Jipson Johnson | AM17D035 | International Conference on Nanotechnology: Opportunities & challenges | November 27-29, 2022. Delhi | IIT Madras |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|-------------------------|----------|---|--|---------------------------|
| 66 | Nidhi Murali | AM17D039 | India EMBO Lecture Course on Structure, dynamics & interactions in biomolecular systems | December 10-15, 2022. IISER Berhampur | IIT Madras |
| 67 | Rajanya Chatterjee | AM17D200 | Fluid Mechanics & Fluid Power (FMFP 2022) | December 13-15, 2022 IIT Roorkee | IIT Madras |
| 68 | Rajanya Chatterjee | AM17D200 | NSM Workshop on High Performance Computing (HPC) for Computational Fluid Dynamics (CFD) Applications | May 17-20, 2022. IIT Bombay | IIT Madras |
| 69 | Rajanya Chatterjee | AM17D200 | 49 th National Conference on Fluid Mechanics & Fluid Power, FMFP 2022 | December 14-16, 2022. IIT Roorkee | IIT Madras |
| 70 | Prabhash Kumar | AM17D205 | GIAN Course | February 20-24, 2022. IIT Madras | IIT Madras |
| 71 | Prabhash Kumar | AM17D205 | Complex Fluid Symposium 2022 (CompFlu -2022) | December 18-20, 2022. IIT Kharagpur | IIT Madras |
| 72 | Pijush Patra | AM17D700 | Complex Fluid Symposium 2022 (CompFlu -2022) | December 18-20, 2022. IIT Kharagpur | Project |
| 73 | Amrutha V | AM18D002 | 55 th DGBMT Annual Conference on Biomedical Engineering | October 4-6 , 2022. Chennai | IIT Madras |
| 74 | Vinothini S | AM18D005 | Rocky Mountain Bioengineering Symposium | April 7-8, 2022. (Virtual) | IIT Madras |
| 75 | Vasanth Kumar G | AM18D007 | 9 th International & 49 th National Conference of FMFP (FMFP-2022) | December 13-15, 2022. IIT Roorkee | IIT Madras |
| 76 | Patibandla B L V Ramana | AM18D008 | Complex Fluid Symposium 2022 | December 18-20, 2022. IIT Kharagpur | IIT Madras |
| 77 | Pranav Kumar | AM18D011 | 4 th Structural Integrity Conference & Exhibition | December 13-15, 2022 IIT Hyderabad | IIT Madras |
| 78 | Pranav Kumar | AM18D011 | 2 nd International Conference on Material Science & Engineering | June 11-12, 2022. NIT Jalandhar (online) | IIT Madras |
| 79 | Pranav Kumar | AM18D011 | 2 nd International Conference on Advancement in Mmaterial Science & Technology | November 2-4, 2022. Chennai (online) | IIT Madras |
| 80 | Pranav Kumar | AM18D011 | 4 th Structural Integrity & Conference & Exhibition | December 14-16, 2022. IIT Hyderabad | IIT Madras |
| 81 | Priya Krishnamurthy | AM18D025 | WOPI (Women in Optics & Photonics in India) | December 6-7, 2022. Bengaluru | Nil |
| 82 | Himanshu Kumar | AM18D027 | International Biomedical Sciences Instrumentation Symposium & Rocky Mountain Bioengineering Symposium | April 7-9 , 2022. Chennai (Virtual) | IIT Madras |
| 83 | Sandeep Koundinya | AM18D033 | Centre - State Science Conclave | September 9-12 , 2022. Ahmedabad | Project |
| 84 | Swarnab Dutta | AM18D201 | NIBS EMBO Lecture Course Non-invasive Brain Stimulation: Advances in Research & Clinical Practice | December 11-1 , 2022. IIT Gandhinagar | IIT Madras |
| 85 | Anu V S Nath | AM18D701 | Complex Fluid Symposium 2022 | December 18-20, 2022. IIT Kharagpur | Project |
| 86 | Ambrish Biredar | AM18S029 | 5 th Indian Conference on Applied Mechanics | November 11-13 , 2022. NIT Jamshedpur | IIT Madras |
| 87 | Yogeshwar Dasari | AM18S034 | 5 th Indian Conference on Applied Mechanics | November 11-13 , 2022. NIT Jamshedpur | IIT Madras |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|-----------------------|----------|--|--|---------------------------|
| 88 | Subitcha J | AM19D004 | WOPI (Women in Optics & Photonics in India) | December 6-7 , 2022. Bengaluru | Self |
| 89 | Nilojendu Banerjee | AM19D005 | ILASS ASIA (2022) | October 27-29 , 2022. IIT Indore | IIT Madras |
| 90 | Allwyn S | AM19D011 | IEEE APSCON 2023 | January 22-24 , 2023. Bangalore | IIT Madras |
| 91 | Ratan Kumar Chaudhary | AM19D013 | Conference on Optics, Photonics & Quantum Optics | November 9-12 , 2022. IIT Roorkee | IIT Madras |
| 92 | Brahmadathan V B | AM19D024 | Recent Advances in the Modelling of Materials Part 2 | 25-28 May, 2022. IIT Madras 2-4 June, 2022. NITJamshedpur | IIT Madras |
| 93 | Brahmadathan V B | AM19D024 | 13 th International Symposium on Plasticity & Impact Mechanics | 22-25 August, 2022. IIT Madras | IIT Madras |
| 94 | Brahmadathan V B | AM19D024 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | IIT Madras |
| 95 | Mohd Meraj Khan | AM19D041 | Complex Fluid Symposium 2022 | December 18-20, 2022. IIT Kharagpur | IIT Madras |
| 96 | Shafin Sharaf | AM19D042 | The role of AI in Transforming Healthcare | June 10-11, 2022. Goa | IIT Madras |
| 97 | Sreelakshmi S | AM19D200 | 21st International Conference on Informatics, Management & Technology in Healthcare | June 30-July 2, 2022. Chennai (Virtual) | IIT Madras |
| 98 | Aaditya C Iyer | AM19D205 | 5th Indian National Conference on Applied Mechanics (INCAM-2022) | November 10-12, 2022. NIT Jamshedpur | Project |
| 99 | Eswari B | AM19D600 | NIBS EMBO Lecture Course Noninvasive Brain Stimulation: Advances in Research & Clinical Practice | December 11-16 2022. IIT Gandhinagar | IIT Madras |
| 100 | Pragyandiya Mishra | AM19D751 | 4 th Structural Integrity Conference & Exhibition | December 13-15, 2022. IIT Hyderabad | Project |
| 101 | Nikhil Chitnavis | AM20D005 | 9 th International & 49 th National Conference of FMFP (FMFP-2022) | December 13-15, 2022. IIT Roorkee | IIT Madras |
| 102 | Nikhil Chitnavis | AM20D005 | 5 th Indian National Conference on Applied Mechanics (INCAM-2022) | November 10-12, 2022. NIT Jamshedpur | IIT Madras |
| 103 | Valeti Chanikya | AM20D010 | 5 th Indian National Conference on Applied Mechanics (INCAM-2022) | November 10-12, 2022. NIT Jamshedpur | Project |
| 104 | Ankani Sunil Varma | AM20D013 | 9 th International & 49 th National Conference of FMFP (FMFP-2022) | December 13-15 , 2022. IIT Roorkee | IIT Madras |
| 105 | R Janaki | AM20D014 | WOPI (Women in Optics & Photonics in India) | December 6-7, 2022. Bengaluru | |
| 106 | Himanshu Mishra | AM20D021 | Complex Fluids Symposium (Complflu) -2022 | December 18-20, 2022. IIT Kharagpur | Project |
| 107 | Paulomi Mukherjee | AM20D030 | 67 th Congress of the Indian Society of Theoretical & Applied Mechanics (ISTAM) | December 13-15, 2022. IIT Mandi | IIT Madras |
| 108 | Shubhanshu Maheshwari | AM20D031 | 67 th Congress of the Indian Society of Theoretical & Applied Mechanics (ISTAM) | December 13-15, 2022. IIT Mandi | IIT Madras |
| 109 | Nisanth Kumar P | AM20D601 | 5 th Indian National Conference on Applied Mechanics (INCAM-2022) | November 10-12, 2022. NIT Jamshedpur | IIT Madras |
| 110 | Jay Bhanushali | AM20S011 | (AIVR) 2022 IEEE International Conference on Artificial Intelligence & Virtual Reality | December 11-13 , 2022. Netherlands (virtual) | IIT Madras |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|--------------------------|----------|---|---|---------------------------|
| 111 | Naman Verma | AM20S017 | CFD with OpenFOAM 20-hours hands-on training under “Paanduv Applications Advanced Academic Program” | October 12-13 , 2022. IIT Madras | IIT Madras |
| 112 | Naman Verma | AM20S017 | 4 th Structural Integrity Conference & Exhibition (SICE) 2022 | December 13-15 , 2022. IIT Hyderabad | IIT Madras |
| 113 | Lokeshwaran S | AM20S041 | Metaverse Developers Day | November 9, 2022. Bengaluru | Project |
| 114 | Pochinapeddi Sai Bhargav | AM20S044 | 9 th International & 49 th National Conference of FMFP (FMFP-2022) | December 13-15, 2022. IIT Roorkee | IIT Madras |
| 115 | Deepthy Rose Jose | AM20S052 | Post Graduate Institute of Medical Education & Research (PGIMER) Chandigarh Visit | February 14-17, 2023. Chandigarh | |
| 116 | Sreelekshmi P S | AM21D042 | The Joint Annual Conference of the Austrian, German & Swiss Societies for Biomedical Engineering | September 27-29 , 2022. Chennai | IIT Madras |
| 117 | Sreelekshmi P S | AM21D042 | 21 st International Conference on Informatics, Management & Technology in Healthcare | June 30 – July 02, 2022. Chennai (Virtual) | IIT Madras |
| 118 | Pundan Kumar Singh | AM21D043 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras June 2-4, 2022. NIT Jamshedpur | IIT Madras |
| 119 | Pundan Kumar Singh | AM21D043 | 13 th International Symposium on Plasticity & Impact Mechanics | August 22-25, 2022. IIT Madras | Tata Steel |
| 120 | Pundan Kumar Singh | AM21D043 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | Tata Steel |
| 121 | Sourav Dutta | AM21D350 | Water for Life | December 14-16, 2022. IIT Madras | IIT Madras |
| 122 | Udiptya Saha | AM21D404 | International Conference on Advanced Biomedical Imaging | January 8-10, 2023. IIT Madras | Project |
| 123 | Zambare Anand Sanjeev | AM21S004 | 67 th Congress of the Indian Society of Theoretical & Applied Mechanics (ISTAM) | December 13-15, 2022. IIT Mandi | IIT Madras |
| 124 | Rishabh | AM21S009 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras June 2-4, 2022. NIT Jamshedpur | IIT Madras |
| 125 | Rishabh | AM21S009 | Collaborative Innovation for Promoting Rural Abundance | July 22-23, 2022. Sevagram | IIT Madras |
| 126 | Rishabh | AM21S009 | 13 th International Symposium on Plasticity & Impact Mechanics | August 22-25 , 2022. IIT Madras | IIT Madras |
| 127 | Rishabh | AM21S009 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | IIT Madras |
| 128 | Sadbhawna Kushwaha | AM21S014 | WOPI (Women in Optics & Photonics in India) | December 6-7, 2022. Bengaluru | |
| 129 | Dikshitha C M | AM21S025 | 5 th Indian National Conference on Applied Mechanics (INCAM-2022) | November 10-12 , 2022. NIT Jamshedpur | IIT Madras |
| 130 | Nitish Kumar Tripathi | AM21S088 | International Conference in Fluid, Thermal and Energy Systems (ICFTES)- 22 | June 9-11 , 2022. NIT Calicut | Project |
| 131 | Nitish Kumar Tripathi | AM21S088 | Fluid Mechanics and Fluid Power (FMFP 2023) | December 14-16, , 2022. IIT Roorkee | Project |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|----------------------|----------|--|---|---------------------------|
| 132 | Saurabh Mangal | AM21S090 | Recent Advances in the Modelling of Materials Part 2 | May 25-28, 2022. IIT Madras June 2-4, 2022. NIT Jamshedpur | IIT Madras |
| 133 | Saurabh Mangal | AM21S090 | Collaborative Innovation for Promoting Rural Abundance | July 22-23, 2022. Sevagram | IIT Madras |
| 134 | Saurabh Mangal | AM21S090 | 13 th International Symposium on Plasticity & Impact Mechanics | August 22-25, 2022. IIT Madras | IIT Madras |
| 135 | Saurabh Mangal | AM21S090 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | IIT Madras |
| 136 | Deepak Somasundaram | AM21S402 | IITR&D Fair (InvenTiv 2022) | October 13-14, 2022. IIT Delhi | IIT Madras |
| 137 | Parvathy Neelakandan | AM22D003 | NIBS EMBO Lecture course Noninvasive brain stimulation: Advances in research & clinical practice | December 11-16, 2022. IIT Gandhinagar | IIT Madras |
| 138 | Richa Bisht | AM22D035 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | IIT Madras |
| 139 | Smit Bhor | AM22S042 | 5 th Indian Conference on Applied Mechanics | November 11-13, 2022. NIT Jamshedpur | IIT Madras |

4.2.2.4. Students/Scholars who Won Outside Prizes and Awards

| S. No. | Name of Student/Scholar | Roll No. | Name of Prize | Prize Awarded by |
|--------|-------------------------|----------|---|--|
| 1 | Priya Krishnamurthy | AM18D025 | Third Place in Poster Presentation | Women in Optics & Photonics in India Conference organisers |
| 2 | Vysakh V | AM16D034 | Best Paper Award | IEECON 2023 8-10 March, 2023. Thailand |
| 3 | Swetha Menon | AM17D028 | Best Research Work towards Thesis in the area of Sensors Metal-organic Framework Coated Optical Fiber Heavy Metal Ion Sensors | Applied Sensing Conference (APSCON-2023) |
| 4 | Pijush Patra | AM17D700 | Best Poster Award | MRF Annual Symposium 2023 |
| 5 | Amritesh Kumar | AM17D023 | Innovative Student Project Award in the doctoral category | Indian National Academy of Engineering (INAE 2022) |
| 6 | Udiptya Saha | AM21D404 | PRMF Fellowship Award | Prime Minister's Research Fellows (PMRF) |
| 7 | S Allwyn | AM19D011 | Research in 2 Minutes & Research Soft Art | |
| 8 | Sourav Dutta | AM21D350 | Power of Three | |
| 9 | Elamanchili Revathi Sri | AM20S019 | Prathibha -The Eaton Excellence Award | |

4.2.2.5. Students/Scholars who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|--|----------------------|
| 1 | V Anudeep | AM16D203 | Institute Research Award (Ph.D.) | IIT Madras |
| 2 | Sachin Sasikumar | AM17D402 | Institute Research Award (Ph.D.) | IIT Madras |
| 3 | Pranav Kumar | AM18D011 | Institute Research Award (Ph.D.) | IIT Madras |
| 4 | Mohammed Aatif Shahab | AM18D404 | Institute Research Award (Ph.D.) | IIT Madras |
| 5 | Auronil Mukherjee | AM20S013 | Institute Research Award (M.S.) | IIT Madras |
| 6 | Rahul Madbhavi | AM18D405 | Keshav Ranganath Award | Keshav Ranganath |
| 7 | Shaikh Shabina Abdulvahid | AM20M016 | Sushruta Award - Student with the Best Academic Record in M.Tech. Applied Mechanics in Biomedical stream | IIT Madras |
| 8 | Gujar Pratik Santosh | AM16D017 | Prof. V Ramamurti Award - Scholar with the Best Thesis in Ph.D. Applied Mechanics | Prof. V Ramamurti |
| 9 | Banuvathy R | AM15D011 | Prof S Radhakrishnan Award - Scholar with the best Ph.D. Thesis in Biomedical Engg. | Prof S Radhakrishnan |
| 10 | Pavan Vasudev Boragunde | AM20M006 | Prof. B V A Rao Endowment Prize - M.Tech. student with the Best Academic Record in Applied Mechanics | Prof. B V A Rao |

4.2.3. Faculty and their Activities

4.2.3.1. Faculty

| Name and Qualifications | Major Area of Specialisation |
|---------------------------------|--|
| Professors | |
| Dr. M S Sivakumar, Ph.D. [Head] | Smart Materials and Structures, Inelasticity/Plasticity, Fatigue of Materials |
| Dr. S Ramakrishnan, Ph.D. | Biomedical Instrumentation, Machine Learning and Informatics, Medical Device Regulations and Standards |
| Dr. Anuradha Banerjee, Ph.D. | Fracture and Fatigue Analysis in Metals, Composites, Bio-materials, Brittle Materials |
| Dr. A Arockiarajan, Ph.D. | Smart Materials, Composites, Material Modelling, Computational Mechanics and Experimental Mechanics |
| Dr. K Arul Prakash, Ph.D. | CFD and Heat Transfer, LES and related techniques, Thermal Hydraulics, Cooling Technologies, Biofluid Dynamics |
| Dr. Arun Kumar Thittai, Ph.D. | Ultrasound Imaging, HIFU application in Therapy, Acoustic Radiation force application in Mechanics, Photoacoustics |
| Dr. A P Baburaj, Ph.D. | Coherent Structures in Turbulent Convection, Interfacial Phenomena and Transport across Membranes |
| Dr. C Lakshmana Rao, Ph.D. | Impact Mechanics, Fracture Mechanics, Modelling of Smart Materials, Numerical Approach |
| Dr. Mahesh V Panchagnula, Ph.D. | Spray Combustion and Atomization, Surface Tension Phenomena, Multiphase Flows, Active Particles and Systems |
| Dr. M Manivannan, Ph.D. | Haptics, Medical Simulation, Biomechanics, Virtual Reality, Computational Geometry and Physiology |
| Dr. B S V Prasad Patnaik, Ph.D. | Computational Fluid Dynamics, CFD tools for FSI, Micro, Bio-fluid Flow Systems |
| Dr. M Ramasubba Reddy, Ph.D. | Bio-signal Processing, Bio-instrumentation |
| Dr. K Ramesh, Ph.D. | Digital Photomechanics, Fracture Mechanics, Computer Applications in Experimental Mechanics |
| Dr. Sarith P Sathian, Ph.D. | Rarefied Gas Flows and Nanofluidics |
| Dr. Sayan Gupta, Ph.D. | Vibrations, Nonlinear Dynamics, Probabilistic Mechanics, Structural Reliability |

| Name and Qualifications | Major Area of Specialisation |
|-------------------------------------|---|
| Dr. N Sujatha, Ph.D. | Biomedical Imaging, Non-invasive characterization of tissues and microorganisms, Laser based Diagnostics, Modeling light tissue interaction, Optical Signal and Image Processing, Data Analytics, Photonics for Agriculture |
| Dr. S Vengadesan, Ph.D. | CFD and Turbulence Modelling - Basics, Advanced topics and applications to Engineering Problems, FSI, Biofluid Flows |
| Dr. Abhijit Chaudhuri, Ph.D. | Modelling Hydrothermal Systems, Water Waves, Mass transfer in Heterogeneous Systems |
| Dr. Pijush Ghosh, Ph.D. | Nanomechanics, Biomaterials, Mechanics of Thin Films, Molecular Dynamics Simulation |
| Dr. V V Raghavendra Sai, Ph.D. | Biosensor for Healthcare, Fibre Optic Sensor and Instrumentation, Nano Technology |
| Dr. Shaikh Faruque Ali, Ph.D. | Vibration and its Controls, Smart Structures and Energy Harvesting |
| Associate Professors | |
| Dr. Babji Srinivasan, Ph.D. | Cognitive Systems Engineering, Neuroergonomics, Human Cyber Physical Systems, Physiological Cyber Physical Systems |
| Dr. Rinku Mukherjee, Ph.D. | Applied Aerodynamics—flow modelling, Unsteady Wake Phenomenon, Dynamic Stall and Formation Flight, CFD |
| Dr. Satyanarayanan Seshadri, Ph.D. | Aerosol Mechanics, Air Quality – Sensors, Control Equipment, Renewable Thermal Energy – WHR/Solar |
| Dr. Vagesh D Narasimhamurthy, Ph.D. | CFD, DNS, Turbulence, Transition, Bluff Body Flows, Premixed Combustion, Multiphase Flows |
| Dr. S K M Varadhan, Ph.D. | Neural control of Human Movement, Neuro Mechanics and Biomechanics |
| Dr. Anubhab Roy, Ph.D. | Hydrodynamic Stability, Microhydrodynamics, Geophysical Flows, Living Fluids |
| Assistant Professors | |
| Dr. Saumendra Kumar Bajpai, Ph.D. | Cell Mechanics, Tissue Mechanics, Biophysics of Tumours, Vascular Mechanics |
| Dr. Ganesh Tamadapu, Ph.D. | Mechanics of Elastomers, Encapsulated Microbubbles, Tensegrity Structures |
| Dr. Ilaksh Adlakha, Ph.D. | Mechanical Behavior of Advanced Materials, Development of Structure-Property Relationships, Computational Material Science, Data Science for Mechanics of Materials |
| Dr. Swathi Sudhakar, Ph.D. | Nanomechanics, Nanotherapeutics, Nanomaterials, Bio-sensors, Bio-Instrumentation, Colloids and Surfaces, Surface Chemistry of Biomolecules. |
| Dr. Lakshminath Kundanati, Ph.D. | Structure and Mechanics of Biological Materials : Bioinspired Engineering |
| Dr. Kiran Raj M, Ph.D. | Experimental Fluid Dynamics, Microfluidics, Soft Matter |
| Adjunct Faculty | |
| Dr. André Bénard | Sustainable Manufacturing & Materials Processing, Multiphase flow & Heat Transfer |
| Dr. Aranyak Chakravarty | Nuclear Reactor Safety, Heat Transfer Multiphase Flow, Computational Fluid Dynamics, Pulmonary Fluid Mechanics |
| Dr. Arun R Srinivasa | Plasticity of Metals & Polymers, Thermomechanics of Dissipative Processes, Dynamics, Cosserat Continua, Design & Dynamics of Compliant Mechanisms, Computational Modeling of Defects, Fracture & Fatigue Processes |
| Dr. B Jayanand Sudhir | Brain Bypass Surgery, Computational Fluid Dynamics, Moyamoya Disease, Arteriovenous Malformations, Aneurysm surgery, Skullbase Surgery, Pediatric Neuro-oncology |
| Dr. Santosh Kapuria | Structural Mechanics, Smart Composite and Sandwich Structures, Functionally Graded Materials & Structures, Structural Health Monitoring, Active Vibration Control of Structures, Computational Mechanics |
| Dr. Billy Todd | Statistical mechanics of non-equilibrium systems, Non-equilibrium Molecular Dynamics and Computational Nanofluidics |
| Dr. Cemal Basaran | Unified Mechanic Theory & Atomistic Simulation |
| Dr. Danesh K Tafti | Computational Fluid Dynamics Dynamic Geometries, High Performance Parallel Computing, Fluid-Structure Interaction, Dense Particulate Flows and Impact Modeling, Discrete Element Method |

| Name and Qualifications | Major Area of Specialisation |
|---------------------------------|--|
| Dr. Trygve Skjold | Computational Fluid Dynamics (CFD) tool FLACSTM / Advanced Modelling of Complex Physical Phenomena in the commercial software product FLACSTM |
| Dr. Steven M LaValle | Robotics, Sensing, Motion Planning, Cyber-physical Systems, Control Theory, Computational Geometry, Artificial Intelligence, Computational Biology, Computer Vision, Computer Graphics, Virtual Reality, Filtering, Sensor Fusion, Planning Algorithms |
| Dr. Pothukuchi Harish | Thermal Hydraulics of Nuclear Systems, Multiphase Flows, Fluid Structure Interaction |
| Dr. Rajesh Raveendran | Statistical Physics |
| Dr. Thangarajan Rajkumar | Medical Oncology and Molecular Oncology Research |
| Dr. Nikhil Subhashchandra Tambe | Renewable Energy Systems, and Computational and Experimental Methods related to Tribology and Nano materials |
| Visiting Faculty | |
| Dr. S Pandian | Experimental Aerodynamics |
| Dr. Balasubramaniam Natarajan | Cyber Physical Systems |
| Dr. S Ganga Prasath | Theory and Numerics to investigate phenomena in Robotics, Animal behavior Smart-material design, Elastic instabilities |
| Dr. Praneeth Chakravarthula | Research Assistant Professor at Univ of North Carolina, USA |
| Dr. Anna M LaValle | Lecturer, University of Oulu, Finland |
| Dr. Venkatraman Sadanand | Pediatric Neurosurgeon, Loma Linda University Health System, California, USA (Distinguished Alumnus Awardee) |

4.2.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|-------------|---------------------|---|--------------------|
| Conferences | | | |
| 1 | Dr. C Lakshmana Rao | Recent Advances in the Modelling of Materials Part 2, IIT Madras | May 25-28, 2022 |
| 2 | Dr. N Sujatha | Women in Optics and Photonics in India 2022 | December 6-7, 2022 |
| 3 | Dr. N Sujatha | SPIE-OSA event, IIT Madras | November 30, 2022 |
| Seminars | | | |
| 1 | Dr. Sayan Gupta | This Wondrous and Complex World Prof. Ram Ramaswamy, Visiting Professor, IIT Delhi | March 9, 2023 |
| 2 | Dr. Sayan Gupta | Weighted Socio-Ecological Multiplex Systems Prof. Arnaud Z Dragicovic, Visiting Professor in Economics Chulalongkorn University, Thailand | February 9, 2023 |
| 3 | Dr. Sayan Gupta | Study of Interactions in Complex Systems Dr. Subhradeep Roy, Embry-Riddle Aeronautical University, Daytona Beach Campus, USA | October 21, 2022 |
| 4 | Dr. Sayan Gupta | Speed limits on the local stability of Classical Dynamical System Dr. Swetamber Das, University of Massachusetts, USA | September 13, 2022 |
| 5 | Dr. Sayan Gupta | The Science of Modelling Infectious Disease Outbreaks Dr. Rachel Slayton, Center for Disease Control & Prevention (CDC), USA | August 5, 2022 |
| 6 | Dr. Sayan Gupta | Complexity Science Approach to Social Progress & Sustainability Development Prof. Anirban Chakraborti, BML Munjal University | July 8, 2022 |
| 7 | Dr. Sayan Gupta | Analysis of Models of Superfluidity Dr. Pranav Chaitanya Jayanti, University of Maryland, USA | July 6, 2022 |
| 8 | Dr. Sayan Gupta | Synchrony as Constraint Prof. Ramakrishna Ramaswamy, IIT Delhi | March 21, 2022 |

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|---|--|----------------------|
| 9 | Dr. M Manivannan | Toward the Foundations of Perception Engg - Guest Lecture Dr. Steven M. LaValle, University of Oulu, Finland | February 2, 2023 |
| 10 | Dr. Anubhab Roy | Transitions between Turbulent Flows & Extreme Events Dr. Kannabiran Seshasayanan, Department of Physics, IIT Kharagpur | February 2, 2023 |
| 11 | Dr. Anubhab Roy | Aerosols and Regional Climate over India Dr. Chandan Sarangi, Dept. of Civil Engineering, IIT Madras | February 3, 2023 |
| 12 | Dr. M Manivannan | Internet on Medical things for Assistive Technologies in Rural Smart Cities Prof. Prabha Sundravadivel, Texas University, USA | May 13, 2022 |
| 13 | Dr. Anubhab Roy | Problems on nonlinear dynamics of filaments in viscous fluids Dr. Brato Chakrabarti, Simons Foundation, New York | October 18, 2022 |
| 14 | Dr. Anubhab Roy | Study of Interactions in Complex Systems Dr. Subhradeep Roy, Daytona Beach Campus, USA | October 21, 2022 |
| 15 | Dr. Anubhab Roy | Lattice Boltzmann Method for High-Fidelity Simulations Dr. Sunil Sherlekar, Co-Founder & Director at SankhyaSutra Labs | November 10, 2022 |
| 16 | Dr. Anubhab Roy | Dr. Chakradhar Thantanapally, Technical Manager, Aerospace & Automotive at SankhyaSutra Labs | November 10, 2022 |
| 17 | Dr. M Manivannan | Dr. R K Narayanan, CSHL, New York, USA Perspectives on the Biomedical Innovation Ecosystem at Cold Spring Harbor Laboratory | November 21, 2022 |
| Symposia | | | |
| 1 | Dr. Sayan Gupta Dr. Anubhab Roy Dr. B Ravindran (CS) Dr. Neelima Gupte (PH) | Symposium on Epidemic Modeling | December 14, 2022 |
| Workshops | | | |
| 1 | Dr. Sayan Gupta (AM) Dr. Neelima Gupte (PH) Dr. V Srinivasa Chakravarthy (BT) | International Workshop on Reservoir Computing & Neural Networks | November 23-24, 2022 |
| 2 | Dr. S. Ramakrishnan | Two Days Hands On Training Workshop on “Signal Processing & Deep Learning Algorithms Using Arduino and Raspberry Pi Computing Platforms for AI-Edge and Wearable Monitoring Devices, IIT Madras | February 10-11, 2023 |
| Short-term Courses | | | |
| 1 | Dr. C Lakshmana Rao | Recent Advances in the Modelling of Materials Part 2 IIT Madras | May 25-28, 2022 |

4.2.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences, and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|------------------|------------------------|--|------------------------------|----------------------|
| Workshops | | | | |
| 1 | Dr. C Lakshmana Rao | Recent Advances in the Modelling of Materials Part 2 | NIT Jamshedpur | June 2-4, 2022 |
| 2 | Dr. C Lakshmana Rao | Collaborative Innovation for Promoting Rural Abundance | BD College of Engg. Sevagram | July 22-23, 2022 |
| 3 | Dr. Arun Kumar Thittai | Workshop on Artificial Intelligence in Medical Diagnostics | JIPMER, Puducherry | November 25-26, 2022 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|------------------------------|--|--|-----------------------|
| 4 | Dr. M Manivannan | Indo-US Workshop on Digital Wellness & Health: Development & Dissemination | IIT Madras | September 13-14, 2022 |
| 5 | Dr. S Ramakrishnan | Inter IIT Consortium for the Development of Country Specific Normative Biomedical Database | IIT Madras | December 27-29, 2022 |
| Symposia | | | | |
| 1 | Dr. Swathi Sudhakar | Translational Research & Future Pharmaceuticals | JSS College of Pharmacy, Ooty | November 5, 2022 |
| 2 | Dr. Arun Kumar Thittai | Symposium cum Hands-on Workshop on Medical Imaging | IISER Trivandrum | October 20-22, 2022 |
| 3 | Dr. Arun Kumar Thittai | Chair for The IEEE International Symposium on Biomedical Imaging | Kolkata | March 28-31, 2022 |
| 4 | Dr. Arun Kumar Thittai | International Ultrasonics Symposium (IEEE) | Venice, Italy (Virtual) | October 13, 2022 |
| Conferences | | | | |
| 1 | Dr. S Ramakrishnan | CII Hospital TECH 2022, "Future of Healthcare – A Road Ahead" | Mumbai | November 14-15, 2022 |
| 2 | Dr. S Ramakrishnan | 3 rd CII Public Health Summit | New Delhi | October 19, 2022 |
| 3 | Dr. S Ramakrishnan | Inter IIT Consortium: Brain Aging Profile | IIT-BHU | November 11-12, 2022 |
| 4 | Dr. S Ramakrishnan | Biomedical Engineering & Technology Innovation Centre | IIT Bombay | November 14-15, 2022 |
| 5 | Dr. B S V Prasad Patnaik | Computational Fluid Dynamics (CFD) aided Clinical Decision Making Tools for Circulatory Systems | IIT Bhilai | February 5, 2023 |
| 6 | Dr. B S V Prasad Patnaik | Computational Fluid Dynamics (CFD) Modelling of Mechanical Circulatory Support Systems for the Human Body | VR Sidhartha Engg. College, Vijayawada | February 10, 2023 |
| 7 | Dr. B S V Prasad Patnaik | Invitation to CFD & Higher Studies | Kumaraguru College of Technology, Coimbatore | February 16, 2023 |
| 8 | Dr. Babji Srinivasan | IEEE PES POWERCON Conference | Kuala Lumpur, Malaysia | September 10-15, 2022 |
| 9 | Dr. Vagesh D Narasimhamurthy | 14 th European Fluid Mechanics Conference- EFMC14 | Athens, Greece | September 12-15, 2022 |
| 10 | Dr. A P Baburaj | 9 th International & 49 th National Conference on Fluid Mechanics & Fluid Power (FMFP) | IIT Roorkee | December 14-16, 2022 |

4.2.3.4. Special Lectures Delivered by Faculty in other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------------|--|--|--------------------|
| 1 | Dr. Sayan Gupta | Random Vibrations and Failure Analysis | VNIT Nagpur | July 11-12, 2022 |
| 2 | Dr. C Lakshmana Rao | Mechanics of Shirodhara Treatment | NIT Jaipur | December 21, 2022 |
| 3 | Dr. C Lakshmana Rao | Mechanics of Shirodhara Treatment | Kumaraguru College of Tech, Coimbatore | February 3, 2023 |
| 4 | Dr. M Manivannan | Industrial Talk to Accenture - Global Audience - Haptics - Research Challenges | Virginia Tech, USA | May 12, 2022 |
| 5 | Dr. S Vengadesan | Motivational Talk on joining IIT Madras | Velammal College of Engg & Tech, Madurai | September 28, 2022 |
| 6 | Dr. M Ramasubba Reddy | Chaired a Session in Internal workshop of Defence Bioengineering and Electromedical Laboratory (DEBEL) | DEBEL, Bengaluru | November 29, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|------------------|---|--|-------------------|
| 7 | Dr. SKM Varadhan | 'The Ph.D. Journey' on Research Scholar Day | IIITDM, Kancheepuram | February 28, 2023 |
| 8 | Dr. N Sujatha | Trends in Non-invasive Disease Diagnostics: The Story of light-based Techniques | IIITDM, Kancheepuram | February 16, 2023 |
| 9 | Dr. N Sujatha | Bringing Light from Bench to Bedside: Towards Clinically viable Photonic Technologies | Sri Sivasubramaniya Nadar (SSN) College, Chennai | February 16, 2023 |
| 10 | Dr. N Sujatha | Photonics in medical diagnostics | IIT-BHU, Varanasi | March 13, 2023 |

4.2.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|----------------------|------------------------|-----------------------------|---|--------------|
| 1 | Dr. S Ramakrishnan | Amsterdam, Netherlands | May 10-12, 2022 | Medical Device Regulatory Affairs Professional Society (RAPS) EURO convergence 2022 | IIT Madras |
| 2 | Dr. S Ramakrishnan | Edinburgh, Scotland | September 14–16, 2022 | SPARK Research Interaction | IIT Madras |
| 3 | Dr. S Ramakrishnan | Arizona, USA | September 11-13, 2022 | Medical Device Regulatory Affairs Professional Society (RAPS) convergence 2022 | IIT Madras |
| 4 | Dr. S Ramakrishnan | Dubai, UAE | January 30–February 2, 2023 | Arab Health 2023 | IIT Madras |
| 5 | Dr. Anubhab Roy | Lyon, France | May 2–June 4, 2022 | ENS de Lyon, Laboratoires de Physique Colloquium | IIT Madras |
| 6 | Dr. Anubhab Roy | Stockholm, Sweden | May 16-17, 2022 | Nordic Institute of Theoretical Physics (NORDITA) | IIT Madras |
| 7 | Dr. Babji Srinivasan | Kuala Lumpur, Malaysia | September 10-15, 2022 | IEEE PES POWERCON conference | IIT Madras |

4.2.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|----------------|----------------------|--|--|--------------------------------------|---------------|
| Honours | | | | | |
| 1 | Dr. K Ramesh | Member in Search-cum-Selection committee-for the post of Director CSIR-CMERI | Durgapur & Optical & Lasers in Engineering | Highly valued Editorial Board Member | October 2022 |
| 2 | Dr. K Ramesh | Highly Valued Editorial Board Member - May 2007 - October 2022 | Elsevier Reviewer Recognition | Optical & Lasers in Engineering | October 2022 |
| 3 | Dr. Sarith P Sathian | Member of Aerodynamics Panel | Aeronautics Research and Development Board (AR&DB), Defence Research and Development Organisation (DRDO) | | |
| 4 | Dr. A. Arockiarajan | Member of Structures Panel | AR&DB, DRDO | | |

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|---------------|------------------------|--|---|---|---------------------|
| Awards | | | | | |
| 1 | Dr. Anubhab Roy | Srimathi Marti Annapurna Guru Nath Award | Prof. Marti Subrahmanyam, Stern School of Business, New York University | Excellence in Teaching 2022 | April 26, 2022 |
| 2 | Dr. K Ramesh | Best Teaching Award - 2023 M.M. Frocht Award | The Society for Experimental Mechanics (SEM), USA | First Indian to receive the Award in the last sixty year in recognition of Outstanding Achievements as an Educator in the field of Experimental Mechanics | November 24, 2022 |
| 3 | Dr. VV Raghavendra Sai | Science and Engineering Research Board (SERB)- American Chemical Society (ACS) Online Poster competition | SERB-National Post Doctoral Fellowship (N-PDF) | Top 17.5% of candidates for Merit Certificate under Engg. Sciences Chemical & Environmental category | December 7, 2022 |
| 4 | Dr. S Ramakrishnan | Best Paper Award | IEEE Applied Sensing Conference, Bengaluru | Best paper | January 23-25, 2023 |

4.2.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|------------------------------|--------------------------|---|
| 1 | Dr. Vagesh D Narasimhamurthy | Lead Guest Editor | International Journal of Advances in Engineering Sciences and Applied Mathematics |
| 2 | Dr. Sayan Gupta | Associate Editor | Sadhana |

4.2.4. Design and Development Activities

4.2.4.1. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value |
|--------|------------------------------------|-----------------------------|
| 1. | High Performance Computing Cluster | Approximately INR 1.7 crore |

4.2.5. Patents

4.2.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|--|
| 1 | Dr. Rinku Mukherjee | External Attachment to increase Aerodynamic Efficiency of a Wing applicable for Aeroplanes, Turbines and Fans. |
| 2 | Dr. Arun Kumar Thittai | A Hybrid high-frequency Ultrasound Imaging System and a method thereof |
| 3 | Dr. Shaikh Faruque Ali / Dr. A Arockiarajan | A Skin for Aerodynamic Wings |
| 4 | Dr. A Arockiarajan | Solar Driven Photocatalyst for Water Purification |
| 5 | Dr. N Sujatha | Smart Device for Detection of Toxic Analytes and Methods thereof |
| 6 | Dr. Mahesh V Panchagnula | Exhaled Breath based User Authentication and Diagnosis |
| 7 | Dr. Shaikh Faruque Ali | A Multi-source Energy Harvester Device and a Method thereof |

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------------------------|--|
| 8 | Dr. A Arockiarajan | An Apparatus for Testing Magnetic Characteristics of a Sample and a System thereof |
| 9 | Dr. T Asokan / Dr. S K M Varadhan | Artificial Hand for Prosthetic Applications |
| 10 | Dr. V V Raghavendra Sai | Optical Sensor for Hexavalent Chromium |
| 11 | Dr. V V Raghavendra Sai | Fiber Optic Biosensor for Ultra-low Trace Analyte Detection |
| 12 | Dr. Mahesh V Panchagnula | Design of a walk-in Lab Test for Lung Morphometry Characterization |
| 13 | Dr. V V Raghavendra Sai | Fiber Optic Measurement Device |
| 14 | Dr. V V Raghavendra Sai | Apparatus to fabricate Fiber Optic Sensor Probes and Method of Fabrication thereof |
| 15 | Dr. V V Raghavendra Sai | Systems and methods for Detection of Severe Acute Respiratory Syndrome Coronavirus 2 |
| 16 | Dr. Babji Srinivasan | Device and Method for Multi-user Eye-tracking |

4.2.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------------------|--|
| 1 | Dr. M Manivannan | A five degree-of-freedom haptic interface device for Laparoscopic simulation |
| 2 | Dr. M Manivannan | A non-linear, tunable mechanism for simulating chest stiffness in hi-fidelity mannequins and methods thereof |
| 3 | Dr. M Manivannan | Poroelastic sheet deformation based tactile pressure sensor |
| 4 | Dr. A Arockiarajan | Biopolymer based sustained release floating bead for drug delivery method for preparation thereof |
| 5 | Dr. A Arockiarajan | Magneto-electric based magnetic sensor and method thereof |
| 6 | Dr. Rinku Mukherjee | External Attachment to increase Aerodynamic Efficiency of a Wing applicable for Aeroplanes, Turbines and Fans. |
| 7 | Dr. Arun Kumar Thittai | Method and device for ultrasound imaging using 11 compressed sensing approach |
| 8 | Dr. Sayan Gupta | System and method for generating precursors for early detection of impending aeroelastic instabilities |
| 9 | Dr. Babji Srinivasan | Device and Method for multi-user eye-tracking |
| 10 | Dr. Satyanarayanan Seshadri | Controlling admission volume of inlet gas for fixed RPM operation of rotary or reciprocating expander |

4.2.6. Research and Consultancy

4.2.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|----------------|--|---------------------------------------|--|----------------------|--|
| Ongoing | | | | | |
| 1 | 1 Lab - 1 School: Taking STEM to Rural Schools in India | June 27, 2019 - December 31, 2023 | Department of Science and Technology (DST) | 32.31 | Dr. Pijush Ghosh |
| 2 | A Non-Linear Constitutive Model Based Finite Element Method for Magneto-Electro-Elastic-Thermal (MEET) Based Functional Composites | February 21, 2022 - February 20, 2025 | Science and Engineering Research Board (SERB) | 6.60 | Dr. A Arockiarajan |
| 3 | Airblast Injector Development for Next gen Engine | May 30, 2017 - June 30, 2024 | Defence Research and Development Organisation (DRDO) | 243.17 | Dr. Mahesh Panchagnula Dr. Srikrishna Sahu (ME) Dr. Satyanarayanan Dr. Vagesh D Seshadri (AM) Narasimhamurthy (AM) |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---------------------------------------|---|----------------------|---|
| 4 | AMPP Academic Scholarship Program | March 01, 2022 - February 29, 2024 | NACE Foundation | 1.50 | Dr. Ilaksh Adlakha |
| 5 | Complex Systems & Dynamics | February 01, 2021 - March 31, 2023 | Ministry of Education | 255 | Dr. Sayan Gupta Dr. Anubhab Roy Dr. Mahesh Panchagnula Dr. Neelima Gupte (PH) Dr. Sunetra Sarkar (AE) Dr. V Srinivasa Chakravarthy (BT) Dr. Arun Tangirala (CH) Dr. Sumesh Thampi (CH) |
| 6 | Computational Fluid Dynamics based Tools to the aid of Clinical decision making in the management of Intracranial Aneurysms | October 22, 2023 - October 22, 2024 | SERB | 34.65 | Dr. B S V Prasad Patnaik |
| 7 | Developing Interface between Clay & Concrete Applying Polymers | March 06, 2020 - August 08, 2023 | SERB | 46.00 | Dr. Pijush Ghosh |
| 8 | Development & Applications of (i) Spatially Resolved NMR & (ii) Overhauser DNP & Low Field relaxometry | November 25, 2021 - November 24, 2024 | Indian National Science Academy (INSA) | 13.80 | Dr. Arun Kumar Thittai |
| 9 | Development of a Diagnostic Device for Affordable & Early Detection of Pre-Eclampsia | November 15, 2021 - November 14, 2024 | Indian Council of Medical Research (ICMR) | 40.56 | Dr. V V Raghavendra Sai |
| 10 | Development of affordable & portable fNIRS functional near Infrared Spectroscopy device for Cognitive Studies | March 31, 2022 - March 30, 2025 | DST | 70.21 | Dr. M Manivannan |
| 11 | Development of an Improved Multivariate Machine Learning Solution with Additional Features for Non- Invasive Anemia Detection | December 13, 2021 - December 12, 2024 | SERB | 10.05 | Dr. V V Raghavendra Sai |
| 12 | Development of Assessment Protocols for Aspiring Athletes using Surface Electromyography Signals | February 11, 2020 - August 10, 2023 | SERB | 20.28 | Dr. S Ramakrishnan |
| 13 | Development of Novel SMA Bearing Supports & Retrofit for Enhanced Performance & Durability of Rotating Machinery | October 6, 2018 - April 05, 2023 | Uchhatar Avishkar Yojana - IIT Madras | 79.40 | Dr. M S Sivakumar Dr. A Arockiarajan Dr. Srikanth Vedantam (ED) |
| 14 | Development of Smart Nano-kit for Rapid, Automated & Ultra-sensitive Detection of Pesticide Traces in Agricultural Samples | February 01, 2021 - July 31, 2023 | DST | 11.10 | Dr. Sujatha N |
| 15 | Explosive resonant interactions with singular eigenfunctions | February 21, 2022 - February 20, 2025 | SERB | 6.60 | Dr. Anubhab Roy |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|---------------------------------------|--|----------------------|--|
| 16 | Fatigue Life Characterization of Hybrid Composites Under Various Processing Conditions | October 01, 2020 - September 30, 2023 | Council of Scientific & Industrial Research (CSIR) | 19.50 | Dr. Arockiarajan A |
| 17 | Fatigue Studies on Influence of Hybridization & Patch lay-up Configuration of Post-Impact Response on Repaired Composites for Defence Applications | January 17, 2022 - 16 January, 2025 | Armament Research Board | 65.10 | Dr. Arockiarajan A Dr. Shaikh Faruque Ali |
| 18 | Field Deployment & Scale-up of Volumetrically Controlled Wankel Steam Expander for Use with Low-Pressure Solar & Process Steam | February 01, 2021 - January 31, 2024 | DST | 203.97 | Dr. Satyanarayanan Seshadri Dr. Krishna Vasudevan (EE) |
| 19 | Investigation of dust free regions near interfaces in Turbulent Convection | December 27, 2021 - December 26, 2024 | SERB | 45.48 | Dr. Baburaj A P Dr. Anubhab Roy |
| 20 | Investigation of Nanoscale Heat Transport at Solid-liquid Interfaces for Engineering Tailored Nanostructures in Thermal Interface Systems | May 15, 2020 - June 9, 2024 | Ministry of Education | 48.44 | Dr. Sarith P Sathian |
| 21 | Modeling Hydrogen Explosions for improving HydrogeS safety | January 01, 2022 - December 31, 2023 | American Express India Pvt Ltd (CSR-DART) | 7.36 | Dr. Vagesh D Narasimhamurthy Dr. Trygve Skjold, UiB, Norway |
| 22 | Nirmaan - Enabling Entrepreneurship | September 01, 2019 - August 31, 2023 | Alumni Association | 300.25 | Dr. Satyanarayanan Seshadri Dr. Ashwin Mahalingam (CE) Dr. Bobby George (EE) Dr. Mahesh Panchagnula |
| 23 | Prediction of Interfacial Thermal Resistance at solid-Liquid interfaces using Molecular Dynamics simulations & Machine learning | January 28, 2022 - January 27, 2025 | SERB | 28.59 | Dr. Sarith P Sathian Dr. Pallab Sinha Mahapatra (ME) |
| 24 | Studying the role of Pulmonary Endothelial Micro-vesicles in Ventilator-induced Lung Injury under Antihypertension Therapy. | December 31, 2021 - December 30, 2024 | SERB | 60.98 | Dr. Saumendra Kumar Bajpai |
| 25 | Teach in 10: Discovering Talents in Rural School Students | February 25, 2021 - February 24, 2024 | DST | 46.55 | Dr. Pijush Ghosh |
| 26 | Transition to turbulence in rough Couette flows | April 01, 2019 - March 31, 2023 | SERB | 26.77 | Dr. Vagesh D Narasimhamurthy |
| 27 | VAJRA Visiting Faculty - Dr. Perumal Nithiarasu | April 02, 2018 - April 01, 2023 | DST | 32.81 | Dr. Arul Prakash K |
| 28 | VAJRA Visiting Faculty - Dr. Ranjith Pathegama Gamage | April 16, 2018 - April 15, 2023 | DST | 16.67 | Dr. Abhijit Chaudhuri |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|------------|--|---|--|----------------------|---|
| New | | | | | |
| 29 | Development of Therapeutic Strategies to mitigate Oxidative Stress & Cytoskeletal Damage in Astronauts for the Gaganyaan Space Mission | January 09, 2023 - January 08, 2025 | ISRO | 38.56 | Dr. Swathi Sudhakar Dr. Shantanu Pradhan (BT) |
| 30 | Exploration of the use to Model Degradation of Batteries used in Electric Vehicles using the Unified Mechanics Theory | July 01, 2022 - June 30, 2027 | UB (University at Buffalo) Electronic Packaging Laboratory | 29.14 | Dr. C Lakshmana Rao |
| 31 | Frequency Modulated Press-fit Magneto-Electric (ME) Composite: Configuration to Application | February 17, 2023 - February 16, 2026 | SERB | 60.68 | Dr. A Arockiarajan |
| 32 | IOE Projects Phase 2 | February 01, 2023 - March 31, 2026 | Ministry of Education (MoE) | 200 | Dr. Sayan Gupta Dr. Anubhab Roy Dr. Mahesh Panchagnula Dr. Neelima Gupte (PH) Dr. Sunetra Sarkar (AE) Dr. V Srinivasa Chakravarthy (BT) Dr. Arun Tangirala (CH) Dr. Sumesh Thampi (CH) Dr. B Ravindran (CS) |
| 33 | Joint Annual Conference of the Austrian, German & Swiss Societies for Biomedical Engineering (BMT) | November 14, 2022 - May 13, 2023 | SERB | 1.20 | Dr. S Ramakrishnan |
| 34 | Magnetostriction based Magneto-Electric (Me) High Temperature 3d-Pressure Sensor for Defence Applications | September 02, 2022 - September 01, 2025 | DRDO | 81.23 | Dr. A Arockiarajan Dr. Shaikh Faruque Ali |
| 35 | Parkinson's Therapeutics lab | January 01, 2023 - January 31, 2028 | IIT Madras | 100 | Dr. V Srinivasa Chakravarthy (BT) Dr. Sayan Gupta |
| 36 | Prostate Imaging: Indigenous Technology platform with Advanced Elastography Modes using Trans-rectal Ultrasound (TRUS) | February 03, 2023 - February 02, 2026 | SERB | 37.57 | Dr. Arun Kumar Thittai |
| 37 | Solvent Responsive Expandable Soft Structures: A 4D Printing Approach | March 28, 2023 - March 27, 2025 | SERB | 16.99 | Dr. Pijush Ghosh |
| 38 | Study of Nuclear Reactor Safety in the Context of Fast Breeder Reactors ((FBRs) : Sub-channel Analysis vis-a-vis CFD Simulations) | November 02, 2022 - November 1, 2025 | SERB | 10.05 | Dr. B S V Prasad Patnaik |
| 39 | Theoretical Investigation of Magnetic Microbubbles for Biomedical Applications | February 22, 2023 - February 21, 2026 | SERB | 25.15 | Dr. Ganesh Tamadapu |
| 40 | Wind Generation of Ocean Waves: from Primary Instabilities to Cyclogenesis | June 28, 2022 - June 27, 2025 | SERB | 18.29 | Dr. Anubhab Roy |

4.2.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|----------------|--|--|--|----------------------|
| Ongoing | | | | |
| 1 | Dr. A Arockiarajan | Novarius Global (India) Private Limited | Design and vetting of water storage tank | 2.50 |
| 2 | Dr. A Arockiarajan | National Assessment and Accreditation Council | DVV Partner | 3.54 |
| 3 | Dr. Arun Kumar Thittai | Indigenous State-of-the-art Ultrasound Scanner for Maternal and fetal Healthcare | Cholamandalam Investment and Finance Company LTd | 406.88 |
| 4 | Dr. C Lakshmana Rao | Monitoring and Improving Health of Rural SC communities using IT Tools | Tide Water Oil Company (India) Limited | 38.51 |
| 5 | Dr. M Manivannan | Novel Technology for Training in Reduction of Infant Mortality Rate in Rural India | India Ideas Com Limited | 350.05 |
| 6 | Dr. M Manivannan | Skill Training in Virtual Reality | Tides Foundation | 37.06 |
| 7 | Dr. M S Sivakumar Dr. A Arockiarajan Dr. G Balaganesan (CWS) | Design and development of a Geriatric Chair | APA engineering Private Limited | |
| 8 | Dr. Pijush Ghosh | 1 Lab - 1 School | Verizon Data Services India Pvt. Ltd. | 82.53 |
| 9 | Dr. Pijush Ghosh | STEM in Rural Schools | Vertiv Energy Private Limited | 26.38 |
| 10 | Dr. Satyanarayanan Seshadri Dr. Mahesh Panchagnula | Environment and Sustainable Development | Kotak Mahindra Bank Limited | 2000.00 |
| 11 | Dr. Satyanarayanan Seshadri Dr. Mahesh Panchagnula | Environment and Sustainable Development (Phase-II) | Kotak Mahindra Bank Limited | 1344.00 |
| 12 | Dr. V V Raghavendra Sai Dr. Vani Janakiraman (BT) | Development of Urine-based Tuberculosis Diagnosis or Screening Kit | General Insurance Corporation of India | 75.83 |
| 13 | Dr. Mahesh Panchagnula | Faurecia | Urea spray nozzle design | 2.65 |
| 14 | Dr. Shaikh Faruque Ali Dr. A Arockiarajan | Promac Engineering Industries Ltd. | Finite Element Analysis (FEA) of Stacker Cum Reclaimer (SCR) | 3.54 |

4.2.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|----------------|-----------------------------|--|---|----------------------|
| Ongoing | | | | |
| 1 | Dr. Satyanarayanan Seshadri | Founding Member of the Energy Consortium | Aditya Birla Science and Technology Company Pvt Ltd | 88.50 |
| 2 | Dr. K Arul Prakash | BMS for LTO Battery | Centre for Development of Advanced Computing | 4.00 |
| 3 | Dr. A Arockiarajan | Experimental Study of Self-Loosening of Bolted Joints | Caterpillar India Engineering Solutions Private Limited | 13.03 |
| 4 | Dr. Satyanarayanan Seshadri | Energy Consortium - Saipem | Saipem India Projects Pvt Ltd | 88.50 |
| New | | | | |
| 1 | Dr. M Manivannan | Techniques to improve learning in Metaverse | Facebook India Online Services Private Limited | 34.69 |
| 2 | Dr. M Manivannan | AR-VR Experience Center for short term and long-term new age trainings | Steel Authority of India Limited | 48.44 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|----------------------|---|---------------------------------|----------------------|
| 3 | Dr. M S Sivakumar | AgniRath | Reliance New Solar Energy Ltd. | 150.00 |
| 4 | Dr. A Arockiarajan | Structural analysis of various Capacity Tanks | Novarius Global (India) Pvt Ltd | 3.54 |
| 5 | Dr. M Manivannan | VR and AR Based Healthcare Skills Training | Healthcare Skill Sector Council | 11.80 |
| 6 | Dr. Babji Srinivasan | Explainable Transfer learning for Condition Monitoring of Electrical Machines | Viking Analytics AB | 18.00 |
| 7 | Dr. Babji Srinivasan | SmartBoxer: An Integrated Cost-Effective IoT and Vision-based System to Advance Boxing Training and Fight Analytics | Inspire Institute of Sport | 35.00 |

4.2.6.4. Retainer Consultancies (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|----------------|---|---|---|----------------------|
| Ongoing | | | | |
| 1 | Dr. A Arockiarajan Dr. Sayan Gupta Dr. Shaikh Faruque Ali | Numerical studies on Automotive Steering System | RANE NSK Steering Systems Pvt. Ltd. | 51.17 |
| 2 | Dr. K Arul Prakash | Skill Development Training Program | IITM Pravartak Technologies Foundation | 2.83 |
| 3 | Dr. Satyanarayanan Seshadri | IITM Research Park Consultancy on Renewable energy | IIT Madras Research Park | 14.16 |
| 4 | Dr. Babji Srinivasan | Training in Advanced Analytics | Gnanam Institute for Training in Advanced Analytics Pvt. Ltd. | 32.45 |
| 5 | Dr. K Arul Prakash | Energy Efficient Tyre Curing Process | Apollo Tyres Ltd. | 47.38 |
| 6 | Dr. Satyanarayanan Seshadri | Design of Barometric Condenser for CE20 Engine high altitude Test Facility | Indian Space Research Organisation | 29.45 |
| 7 | Dr. VV Raghavendra Sai | Plasmonic Fiberoptic Competitive Immunosensor for Tetrahydrocannabinol - A Proof of concept study | Ricovr Healthcare Inc | 40.50 |
| 8 | Dr. C Lakshmana Rao Dr. Kanjarla Anand Krishna (MM) | Life Prediction of Aeroengine Alloys under Creep and Fatigue loading conditions using Damage Mechanics Approach | Defence Metallurgical Research Laboratory | 59.08 |
| New | | | | |
| 1 | Dr. Babji Srinivasan | Freelance work | Jaro Institute of Technology Management & Research Ltd. | 11.80 |

4.2.6.5. Faculty Members' Participation with other Institutions under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/Institution which has MoU |
|--------|------------------|-----------------------|--|
| 1 | Dr. M Manivannan | January 17, 2023 | SAIL Ranchi |

4.2.7. Distinguished Visitors to the Department

| S. No. | Visitor's Name and Designation | Date of Visit | Purpose of Visit |
|--------|--|--|-------------------------------|
| 1 | Dr. Cemal Basaran (Univ of Buffalo New York) | May 23, 2022–June 6, 2022 | Visiting Fulbright Specialist |
| 2 | Prof. Venkatraman Sadanand, Pediatric neurosurgeon, Loma Linda University Health System, California, USA | November 16, 2022–December 8, 2022 January 6, 2023–March 31, 2023 March 6–30, 2023 | Visiting Faculty Fellow |
| 3 | Dr. Steven M LaValle, Professor, University of Oulu, Finland | January 30, 2022–February 2, 2022 | Adjunct Faculty |
| 4 | Dr. Balasubramaniam Natarajan, Professor, Kansas State University, USA | June 1–30, 2022 | Visiting Faculty |
| 5 | Dr. Anita Mahadevan Jansen, President of SPIE, Vanderbilt University, USA | November 29–30, 2022 | SPIE-OSA Event |

4.2.8. Other Activities of the Department/Centre

4.2.8.1. Faculty Visit

| S. No. | Name of Faculty Member | Purpose of Visit | Date & Venue |
|--------|------------------------|---|--|
| 1 | Dr. Arun Kumar Thittai | Team meet to discuss on proposal submission to DBT-Wellcome Trust on Ultrasound Brain Imaging | April 6, 2022. NCBS-TIFR, Bengaluru |

4.2.8.2. Student Visits

| S. No. | Name of Student | Purpose of Visit | Date & Venue |
|--------|-------------------------------|---|--|
| 1 | R Janaki (AM20D014) | SPIE – Industrial Visit | December 21, 2022. Prisms India Pvt Ltd, Pondicherry |
| 2 | Sadbhawna Kushwaha (AM21S014) | SPIE – Industrial Visit | December 21, 2022. Prisms India Pvt Ltd, Pondicherry |
| 3 | Richa Bisht (AM22D035) | Exploration of the Use to model Degradation of Batteries used in Electric Vehicles using the Unified Mechanics Theory | With Prof Cemal Basaran at State University of New York, Buffalo |
| 4 | Yogeshwar Dasari AM18S034 | Monitoring and Improving Health of Rural SC Communities using IT tools | Built a Health Monitoring Website, which is reliable and easy to use by Clinics After medical surveys in village, collected information on the health conditions of villagers and accordingly prescribed Ayurvedic medications at discounted rates. |

4.3

Department of Biotechnology

4.3.1. Introduction

The Department of Biotechnology at IIT Madras was founded in 2004 with a vision to be recognised as a department of international repute with a strong interdisciplinary research and teaching base in biological sciences and engineering involving an active collaboration with industries and health care institutions. The Department is housed in the Bhupat and Jyoti Mehta School of Biosciences. The thrust areas of research are Bioprocess Engineering, Computational Biology, Chemical Biology and Medical Biotechnology related to cancer and cardiovascular aspects. Faculty members of the Department hold several patents and are involved in active industrial consultancy. Several collaborative and technology transfer projects are currently running with many industries and the Department has collaborative research projects with hospitals. We have set up a Centre of Excellence in Bioprocess Engineering to develop knowledge and expertise in this domain and Department of Science and Technology (DST)-funded National Facility to identify Potential Drug Targets through Cellular Dynamics and Fund for Improvement of S&T Infrastructure (FIST) facility for infrastructure facilities. Department of Biotechnology (DBT) funded for a programme support on Cancer Biology earlier and now DST is supporting a National Cancer Tissue Biobank. A Bioinformatics Centre has also been set up with funding from DBT. IIT Madras Bio-incubator initiated by our department (funded by Biotechnology Industry Research Assistance Council (BIRAC)) offers lab and office space, including equipment, technical support and centralised utilities for process and product development.

4.3.2. Academic Programmes

Dual Degree B. Tech. and M. Tech. in Biological Engineering (5 years), Dual Degree B.S. and M.S. in Biological Sciences (5 years), M.S. (by research) and Ph.D. are the academic programmes offered currently by the Department. In addition, the Department offers M.Tech. (Clinical Engineering) and Ph.D. (Major: Biomedical Devices and Technology) programmes, jointly with SreeChitraTirunal Institute of Medical Sciences and Technology, Trivandrum and Christian Medical College, Vellore.

4.3.2.1. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|-----------|-----------|-----------------|------------|
| B.Tech. | - | - | - | - | - | - |
| Dual Degree | 85 | 80 | 73 | 61 | 78 | 377 |
| M.A. | - | - | - | - | - | - |
| M.Sc. | - | - | - | - | - | - |
| M.Tech. | 13 | 11 | 2 | 1 | 1 | 28 |
| M.B.A. | - | - | - | - | - | - |
| M.S. | 2 | 4 | | 1 | 1 | 8 |
| Ph.D. | 41 | 44 | 18 | 28 | 77 | 208 |
| Total | 141 | 139 | 93 | 91 | 157 | 621 |

4.3.2.2. Students/Scholars who Attended Conferences, Seminar and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|---------------|--|--|---|--|--|
| Abroad | | | | | |
| 1 | M Abhiram CharanTej | BT11D016 | Translational Immunometabolism | June 26–28, 2022. University of Basel, Switzerland | IIT Madras |
| 2 | Vidya Muthulakshmi M | BT18D701 | 15 th International Conference on Gas-Liquid and Gas-Liquid-Solid Reactor Engineering (GLS-15) | August 7-10, 2022. University of Ottawa, Canada | Prime Minister's Research Fellows (PMRF) |
| 3 | Medha Pandey | BT17D027 | European Conference on Computational Biology 2022 (ECCB 2022) | September 18-21, 2022. Barcelona (Spain) | IIT Madras, Travel Contingency |
| 4 | Divya Sharma | BT19D752 | European Conference on Computational Biology 2022 (ECCB 2022) | September 18-21, 2022. Barcelona, Spain | PMRF |
| 5 | Lavanya Raajaraam | BT17D401 | International Study Group for Systems Biology (ISGSB) 2022 | September 19-23, 2022. Austria | IIT Madras |
| 6 | Kanniyappan H Chakraborty S Manoj Kumar S Akhil R | BT15D030 BT13S011 BT19D009 BT18D302 | Mesoporous Silica Nanoparticles (MSNs)-based Nanocomposite Scaffolds for Bone Tissue Engineering – An in vivo Study | September 20-23, 2022. Venice Italy | IIT Madras |
| 7 | Lavanya Raajaraam | BT17D401 | 8 th Conference on Constraint Based Reconstruction and Analysis (COBRA) 2022 | September 28-30, 2022. Ireland | IIT Madras |
| 8 | Subasree S | BT17D201 | 8 th Conference on Constraint Based Reconstruction and Analysis (COBRA) 2022 | September 28-30, 2022. Ireland | IIT Madras |
| 9 | Sarayu M | BT16D001 | 8 th Conference on Constraint Based Reconstruction and Analysis (COBRA) 2022 | September 28-30, 2022. Ireland | IITM /DST Science and Engineering Research Board (SERB) Funded Project |
| 10 | Vaishnavi S | BT16D030 | Asian Congress on Biotechnology | October 2-6, 2022. Bali, Indonesia | Alumni Fund |
| 11 | Purnima KVK | BT17D022 | EMBO Molecular Mechanisms in Evolution and Ecology | October 5-8, 2022. Heidelberg, Germany | IIT Madras |
| 12 | Divya Sharma | BT19D752 | Tokyo Tech Academy for Convergence of Materials and Informatics (TAC-MI) | December 5-9, 2022 | PMRF |
| 13 | Pratyay Sengupta | BT20D700 | 30 th Microbial Genomics and Metagenomics Workshop | January 30, 2023 – February 03, 2023. Berkeley, USA, | PMRF |
| 14 | Rajani K | BT16D300 | ACS Publications Symposium: Biological and Medicinal Chemistry | March 6-8, 2023. Germany | IIT Madras |
| 15 | Sruthi Krishna K P | BT17D304 | SPIE Smart Structures + Nondestructive Evaluation 2023 | March 12-16, 2023. Long Beach, California, USA | IIT Madras |
| India | | | | | |
| 1 | Aadinath W | BT16D037 | High Internal Phase Pickering Emulsion (HIPE)-Templated Porous Scaffolds loaded with Polyunsaturated Fatty Acids (PUFA) for Bone Tissue Engineering | April 27-30, 2022 Virtual | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------------------|--|--|---|
| 2 | Vasudha TK Mitra K | BT18D203 | Isabgol (Psyllium) Nanoparticles functionalized with Hyaluronic Acid from Engineered Lactococcuslactis for Drug Delivery | April 27-30, 2022. Virtual | IIT Madras |
| 3 | Surya Prakash Tiwari | BT21D147 | Cactus' Comprehensive Research Training Programme | May 3-17, 2022 Online | Department of Biotechnology (DBT), Govt. of India |
| 4 | Vidhya G | BT16D022 | ACS Fall 2022 | August 2022 Hybrid (online) | IIT Madras |
| 5 | Prashanta Swain | BT19D030 | ICTS Programme on Statistical Biological Physics: from Single Molecule to Cell | October 11-22, 2022. International Centre for Theoretical Sciences (ICTS) Bengaluru | ICTS |
| 6 | Pratyay Sengupta | BT20D700 | 4 th IBSE International Symposium on Microbiome in Environment, Space and in Human Health | October 31, 2022- November 2, 2022. Chennai | IIT Madras |
| 7 | Pratibha M | BT21D130 | EMBO Lecture Course on 'Microphysiological systems : Advances and Applications in Human Relevant Research' | October 31- November 4, 2022 Center for Cellular and Molecular Biology, Hyderabad | Travel grant from European Molecular Biology Organization (EMBO) and PMRF |
| 8 | Babu R | BT17D023 | 4 th Biological Engineering Society Conference – 2022 | November 04- 06, 2022. Bose Institute, Kolkata | IIT Madras |
| 9 | Samyuktha Srinivasan | BT18D205 | 4 th Biological Engineering Society Conference – 2022 | 04-06 November 2022, Bose Institute, Kolkata | IIT Madras |
| 10 | Vaishnavi S | BT16D030 | Biological Engineering Society Conference BESCON | November 2022. Kolkata | IIT Madras |
| 11 | Surya Prakash Tiwari | BT21D147 | Short Term Training programme on Bioethics | December 5-9, 2022 IIT Madras | DBT, Govt of India |
| 12 | Babu R | BT17D023 | International Conference on Biotechnology for Sustainable Bioresources and Bioeconomy (BSBB-2022), | December 7-11, 2022. Indian Institute of Technology, Guwahati, India | IIT Madras |
| 13 | Aadinath W Manoj Kumar S | BT16D037 BT19D009 | BIO-Remedi (International conference on Biomaterials, Regenerative Medicine and Devices) | December 14-18, 2022. IIT Guwahati | IIT Madras |
| 14 | Babu R | BT17D023 | 8 th International Bioprocessing India Conference Recent Advancements & Applications in Bioprocessing for Biosimilars, Vaccines, And Bioenergy. | December 16-18, 2022. National Chemical Laboratory (NCL) Pune | IIT Madras |
| 15 | Vidya Muthulakshmi M | BT18D701 | 8 th International Bioprocessing India Conference Recent Advancements & Applications in Bioprocessing for Biosimilars, Vaccines, And Bioenergy. | December 16-18, 2022. NCL Pune | PMRF |
| 16 | Bhanu Priya | BT21D012 | COMPFLU 2022 | December 19-21, 2022. Kolkata | IIT Madras |
| 17 | Vidya Muthulakshmi M | BT18D701 | 8 th International Bioprocessing India Conference | December 2022. Pune | PMRF |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|--|---------------------------|
| 18 | Sruthi RJ | BT19D029 | International Conference on Advanced Biomedical Imaging | January 9-11, 2023 IIT Madras | IIT Madras |
| 19 | Surya Prakash Tiwari | BT21D147 | International Conference on Advanced Biomedical Imaging | January 9-11, 2023 IIT Madras | DBT, Govt of India |
| 20 | Seemanti Aditya | BT21D751 | International Conference on Advanced Biomedical Imaging | January 9-11, 2023 IIT Madras | IIT Madras |
| 21 | Srivarshini Ganesan | BE18B020 | Molecular Biophysics Unit (MBU) @50 Symposium | January 23-25, 2023. Indian Institute of Science (IISc), Bengaluru | Self funded |
| 22 | Vidhya Ganesan | BT16D022 | MBU@50 Symposium | January 23-25, 2023. IISc Bengaluru | IIT Madras |
| 23 | Seemanti Aditya | BT21D751 | PMRF Annual Symposium 2023 | February 17-18, 2023. | PMRF |
| 24 | Purnima KVK | BT17D022 | Yeast India 2023 | March 10-13, 2023. Mohali, Punjab, India | IIT Madras |

4.3.2.3. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--|--|
| 1 | Ankur Sood | BT15D035 | The Excellent Shotgun Communication Prize | International conference in Antibiotic resistance in Caparica Portugal |
| 2 | Manoj Kumar S | BT16D011 | Keshav Ranganath and Institute Research Awards | IIT Madras |
| 3 | Vidhya Ganesan | BT16D022 | Women Leading IITM Grant | IIT Madras Alumni |
| 4 | Vaishnavi Sivapuratharasan | BT16D030 | Best Presentation Award | Biological Engineering Society Conference (BESCON) |
| 5 | Vaishnavi Sivapuratharasan | BT16D030 | First Prize for Oral Presentation | BESCON |
| 6 | Shankha Banerjee | BT17D014 | Institute Research (IR) Award for Ph.D. | IIT Madras |
| 7 | Babu R | BT17D023 | IIInd Prize in Poster Presentation | 8 th International Bioprocessing India Conference Recent Advancements & Applications in Bioprocessing for Biosimilars, Vaccines, And Bioenergy. |
| 8 | Keerthana Chandrasekaran | BT19D019 | Best Experimental Paper Award | IIT Madras |
| 9 | Sruthi R.J | BT19D029 | Second Prize in Poster Presentation | IIT Madras |
| 10 | Divya Sharma | BT19D752 | Social Impact Award | TAC-MI Conference Authorities |
| 11 | Aditi G Muddebihalkar | BT20D025 | SERB-FICCI PM Fellowship | SERB & Unilever |
| 12 | PratyaySengupta | BT20D700 | 3 rd Prize (Modeling and Simulation Category) | International Sci-Art Image Competition 2022, INYAS |
| 13 | Pratibha M | BT21D130 | Prime Minister Research Fellowship | MoE |
| 14 | Seemanti Aditya | BT21D751 | 3 rd Prize Best Poster Award | IIT Madras |
| 15 | Bhavna Chaudhary | BT22D110 | Prime Minister Research Fellowship | MoE |
| 16 | Kamkashi Chandrasekaran | BT18S007 | Best Experimental Paper Award | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|-----------------------|-------------------------------|
| 17 | Akhilesh Kumar Kashyap | BT20M018 | Best Poster Award | IEEE Bombay |
| 18 | Prahalaad Vijay Varahaswami | BE20B024 | Mridangam Competition | The Music Academy Competition |

4.3.2.4. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|----------------------------------|---------------|
| 1 | Sathvik A | BS17B002 | Governor's Prize | IIT Madras |
| | | | The Divashri Award | |
| 2 | Sankalpa Venkatraghavan | BE17B036 | Kalpathi AGS Prize | IIT Madras |
| | | | American Express Award | |
| | | | Biocon Prize | |
| 3 | Nayanika Sarkar | BT20M010 | Institute Merit Prize | IIT Madras |
| | | | Buti Foundation Gold Medal Award | |
| | | | American Express Award | |
| | | | Institute Merit Prize | |
| 4 | Roshni Shetty | BE17B009 | Institute Merit Prize | IIT Madras |
| 5 | Akash Dhetarwal | BT20M017 | Dr S S Srikanta Prize | IIT Madras |
| 6 | Haritha P | BT14D003 | Batch of 1979 Award | IIT Madras |
| 7 | Divagar M | BT17D302 | Batch of 1979 Award | IIT Madras |

4.3.3. Faculty and their Activities

4.3.3.1. Faculty

| Name and Qualifications | Major Area of Specialisation |
|------------------------------|--|
| Professors | |
| Dr. Guhan Jayaraman [Head] | Metabolic Engineering, Synthetic Biology, Downstream Processing |
| Dr. G K Suraishkumar | Understanding and Manipulation of Biological Systems, Reactive Species and their Applications – Cancer Therapy, Nanotoxicology, Bio-energy |
| Dr. S Mahalingam | Molecular Virology and Cell Biology |
| Dr. Rama Shanker Verma | Stem Cell Biology and Tissue Regeneration, Cancer Therapeutics |
| Dr. V Srinivasa Chakravarthy | Computational Neuroscience |
| Dr. N Satyanarayana Gummadi | Bioprocess Engineering |
| Dr. K Subramaniam | Developmental Biology |
| Dr. Amal Kanti Bera | Ion Channels and Signaling |
| Dr. Sanjib Senapati | Computational Biophysics |
| Dr. Nitish R Mahapatra | Cardiovascular Genetics, Molecular Medicine |
| Dr. A Gopala Krishna | Signal Transduction and Protein Biochemistry |
| Dr. M Michael Gromiha | Bioinformatics, Computational Biology, Biophysics |
| Dr. K Chandraraj | Biomass Conversion, Bio-remediation, Functional Foods |
| Dr. Rayala Suresh Kumar | Cancer Biology |
| Dr. V Kesavan | Chemical Biology |
| Dr. R Baskar | Developmental Genetics |
| Dr. Madhulika Dixit | Vascular Biology |

| Name and Qualifications | Major Area of Specialisation |
|--|--|
| Dr. Karthik Raman | Computational Systems Biology |
| Dr. Vignesh Muthuvijayan | Biomaterials and Tissue Engineering |
| Dr. Smita Srivastava | Plant Biotechnology and Bioprocess Engineering |
| Dr. N Manoj | Structural Biology |
| Associate Professors | |
| Dr. Himanshu Sinha | Systems Genetics, Clinical Data Analysis |
| Dr. Athi Narayanan | Experimental/Computational Protein Folding |
| Dr. Arumugam Rajavelu | Epigenetics, Plasmodium, Host-Pathogen Interactions. |
| Dr. R Murugan | Theoretical Biology and Biophysics |
| Assistant Professors | |
| Dr. Hamsapriya Mohanasundaram | Biomolecular Simulations, Self-assembly & Aggregation |
| Dr. Vani Janakiraman | Infection Biology/Infectious Diseases |
| Dr. Nirav Pravinbhai Bhatt | Modeling, Control, and Optimisation of Biochemical Reaction Systems, Systems Biology, Integrated Bio-process Manufacturing |
| Dr. Shantanu Pradhan | Biomaterials, Tissue Engineering, Cancer and Vascular Diseases |
| Dr. Ninitha A J | Cardiovascular Biology, Treatment Strategies for Hypertension and Heart Failure, Metabolic Syndrome, Obesity, Diabetes, and Diabetic Retinopathy. |
| Dr. Nathiya Muthalagu | Cancer Biology, Mouse Models of Cancer |
| Dr. Santhosh Sethuramanujam | Visual Information encoded by Neuronal Circuits, Neuronal Communication, Information Processing in Dendrites |
| Dr. Greeshma Thirvikraman | Engineered Tissue & Organ Equivalents, Stem Cell based Regenerative Medicine, Microenvironment Manipulation for Morphogenesis & Disease Modeling |
| Dr. Krithik Ravi | Biochemical Engineering, Lignin Valorization, Biorefineries, Waste to Value. |
| Dr. Richa Karmakar | Prokaryotic and Eukaryotic Chemotaxis, Microfluidics based Lab-on-chip technologies, Biophysical aspect of Cell-cell and Cell-material Interaction |
| Visiting Faculty | |
| Dr. M S Narayanan | |
| Emerita Scientists/Emerita Professors | |
| Dr. D Karunakaran | Cancer Biology, Signal Transduction, Apoptosis |

4.3.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|--|---|--------------------------------------|
| Conferences | | | |
| 1 | Dr. Shantanu Pradhan | Advanced Biomedical Imaging Organized by IIT Madras pCoE, Biosensing, & pCoE Molecular Medicine, Biosensing, & pCoE Molecular Medicine, and IIT Madras Biocubator | January 9-11, 2023 |
| 2 | Dr. Nirav Pravinbhai Bhatt | 8 th Indian Control Conference by IIT Madras and Control Society India | December 14-16, 2023 |
| Symposia | | | |
| 1 | Dr. Karthik Raman, Dr. Himanshu Sinha | 4 th International IBSE Symposium on Microbiomes in Environment Space and in Human Health | October 31, 2022 – November 02, 2022 |
| Workshops | | | |
| 1 | Dr. Smitha Srivastava | AYURTECH 2022 Ministry of Ayush (Technological Interventions to Standardize the Indigenous System of Medicine in India) | June 20 – 25, 2022 |
| 2 | Dr. M Michael Gromiha | National Programme on Technology Enhanced Learning (NPTEL) Workshop on Applications of Machine Learning Techniques in Biology using Weka | September 3-4, 2022 |

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|--|---|--|
| 3 | Dr. Anshu Bhardwaj, Dr. Karthik Raman | Data Science Applications in Genomics and Drug Discovery at NPTEL, IITM in Hybrid Mode | November 28, 2022 –December 9, 2022 |
| 4 | Dr. K. Subramaniam | Experimental Models for Understanding Animal Development and Disease. This was a 2-day lecture Workshop Sponsored by the three Science Academies at the National College, Trichy convened by K. Subramaniam | January 5-6, 2023 |
| 5 | Dr. Himanshu Sinha, Dr. Ramachandran T | Data Science-driven Solutions to Improve Maternal and Child Health | February 22, 2023 |
| 6 | Dr. Karthik Raman | Introduction to Synthetic Biology (Hybrid Mode) | March 2-17, 2023 |
| 7 | Dr. M. Michael Gromiha | 2 nd NPTEL Workshop on Applications of Machine Learning Techniques in Biology using Weka | March 5-6, 2023 |
| 8 | Dr. Narayanan MS, Dr. Hema Chandra Kotamarth | EMBO | March 1, 2023 |
| Short-term Courses | | | |
| 1 | Dr. Madhulika Dixit | Bioethics | December 5-9, 2022 |

4.3.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences, and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|---------------------------|---|---|--|-------------------------------------|
| Workshops | | | | |
| 1 | Dr. Ninitha, Dr. Prasad Patnaik BSV, Dr. Jayanand Sudhir B | Circulatory Physiology, Mechanics and Design (CPMD) | IIT Madras | March 18-20 & 25-27, 2023 |
| Symposia | | | | |
| 1 | Dr. Richa Karmakar | CompFlu-2022 | IIT Kharagpur | December 19- 21, 2022 |
| Conferences | | | | |
| 1 | Dr. K Subramaniam | Germ Cells | Cold Spring Harbor Laboratory, New York, USA | October, 3-9, 2022 |
| 2 | Dr. Greeshma Thrivikraman | 15 th Young Investigators' Meeting – Organized by IndiaBioscience | IIT Gandhinagar & Ahmedabad University, Gujarat | February 13-15, 2023 |
| 3 | Dr. Greeshma Thrivikraman | Soft Matter Young Investigator Meet 2022 | Mysore, India | June 15-17, 2022 |
| 4 | Dr. Vignesh Muthuvijayan | International Conference on Functional Materials for Next-Gen Applications 2023 | Chennai, India | January 9-10, 2023 |
| 5 | Dr. Vignesh Muthuvijayan | BIO-Remedi 2022 (International conference on Biomaterials, Regenerative Medicine and Devices) | IIT Guwahati, India | December 14-18, 2022 |
| 6 | Dr. Vignesh Muthuvijayan | International Conference on Nanobiosensors 2022 | Chennai, India | September 29- 30, 2022 |
| 7 | Dr. Vignesh Muthuvijayan | Annual meeting and exposition, 2022 | Society for Biomaterials (SFB) + Japanese Society for Biomaterials (JSB), Virtual, Honolulu, HI | April 27-30, 2022 |
| Short-term Courses | | | | |
| 1 | Dr. Richa Karmakar | EMBO Lecture Course Microphysiological Systems: Advances and Applications in Humanrelevant Research | Centre for Cellular & Molecular Biology (CCMB) Hyderabad | October 31 - November 4, 2022 |

4.3.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|----------------------------|--|--|-------------------|
| 1 | Dr. Madhulika Dixit | Role of Protein Tyrosine Phosphatase-PEST in Endothelial Function. | IIT Indore | April 8, 2022 |
| 2 | Dr. GK Suraishkumar | Engineering in Biology | VIT Vellore | April 12, 2022 |
| 3 | Dr. Madhulika Dixit | Effect of Glucose Feeding and Pre-diabetes on Circulating Leukocytes | Saveetha Dental College, Chennai | April 22, 2022 |
| 4 | Dr. M Michael Gromiha | Development of Databases and Tools for Identifying Disease Causing Mutations in Membrane Proteins and Specific Cancer Genes: Applications to Identify Potential Drug Targets | JSS Academy of Higher Education and Research, Ooty | April 2022 |
| 5 | Dr. M Michael Gromiha | Introduction to Bioinformatics | Anna University, Trichy | May 2022 |
| 6 | Dr. GK Suraishkumar | Better Engaged Learners | Kumaraguru College of Technology, Coimbatore | May 4, 2022 |
| 7 | Dr. M Michael Gromiha | Integrating Computational Approaches and Experimental Data to Understand the Binding Affinity of Protein-protein Complexes | Purdue University, USA | June 2022 |
| 8 | Dr. G K Suraishkumar | Cognitive Development Theories | Kamaraj Engineering College, SPGC Nagar, Virudhunagar | July 9, 2022 |
| 9 | Dr. M Michael Gromiha | Development of Databases and Tools for Identifying Disease Causing Mutations in Specific Cancer Genes and membrane proteins | National University of Singapore | September 2022 |
| 10 | Dr. M Michael Gromiha | Mutational Effects on Protein Structure and Function: Implications to Diseases | AMET University, Chennai | October 2022 |
| 11 | Dr. M Michael Gromiha | Artificial Intelligence (Machine Learning) in Drug Design | Alpha Arts and Science College, Chennai | October 2022 |
| 12 | Dr. Greeshma Thirivikraman | Career Guidance Session - My Academic Journey in Tissue Engineering | Amrita Centre for Nano Science & Molecular Medicine, Kochi, India | November 9, 2022 |
| 13 | Dr. Smita Srivastava | Microbial and Plant Bio-factories for Sustainable Production of High-value Low-volume Phytochemicals: Need for a Rational and Integrated Approach. | The Institute of Mathematics (IMSc) Chennai on 15 th November 2022 as part of AzadiKa Amrit Mahotsav and IMSc60 | November 15, 2022 |
| 14 | Dr. M Michael Gromiha | Bioinformatics Approaches for Identifying Disease Causing Mutations in Membrane Proteins and Specific Cancer Genes | Vinayaka Missions Kirupananda Variyar Medical College and Hospital, Salem | November 2022 |
| 15 | Dr. M Michael Gromiha | Binding Affinity of Protein-Carbohydrate Complexes: Database Development, Analysis and Prediction | Alagappa University, Karaikudi | November 2022 |
| 16 | Dr. Smita Srivastava | An Optimized Batch Process of Viola odorataplant Cells for Sustainable Production of its Key Bioactive Principles | International Conference on Biotechnology for Sustainable Bioresources and Bioeconomy (BSBB-2022) at IITG | December 9, 2022 |
| 17 | Dr. M Michael Gromiha | Mutational Effects on Protein Structure and Function: Implications to Diseases | Tokyo Institute of Technology, Japan | December 2022 |
| 18 | Dr. M Michael Gromiha | Computational Approaches for Understanding Mutational Effects on Protein Structure and Function: Implications to Diseases | Sungkyunkwan University, Korea | December 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------------|---|--|------------------|
| 19 | Dr. Greeshma Thrivikraman | Engineered in-vitro Models Mimicking Soft & Hard Tissue Calcification | Sri Ramachandra Institute for Higher Education & Research | January 19, 2023 |
| 20 | Dr. M Michael Gromiha | Bioinformatics Approaches for Understanding the Binding Affinity of Protein-Carbohydrate Complexes: Database Development, Analysis and Prediction | Chuo University, Tokyo, Japan | January 2023 |
| 21 | Dr. M Michael Gromiha | Computational Approaches for Identifying Disease Causing Mutations in Proteins: Applications to Drug Design | Loyola College, Chennai | February 2023 |
| 22 | Dr. M Michael Gromiha | Bioinformatics Approaches for Understanding Mutational Effects on Protein Structure and Function: Implications to Diseases | University of Witwatersrand, Johannesburg, South Africa | March 2023. |
| 23 | Dr. M Michael Gromiha | Importance of Molecular Docking and Simulations in Drug Discovery: Comparison with Experiments | Vels Institute of Science, Technology and Advanced Studies | March 2023 |
| 24 | Dr. M Michael Gromiha | Machine Learning and AI-based Methods for Identifying Disease Causing Mutations in Proteins: Applications to Drug Design | Jaipur National University, Jaipur | March 2023 |

4.3.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|------------------------|--|----------------------------|--|-------------------------------|
| 1 | Dr. M. Michael Gromiha | USA | June-July 2022 | Lab Visit and Invited Talk; Collobarative Research | DST (OVDF) |
| 2 | Dr. M. Michael Gromiha | Singapore | September 2022 | Lab Visit and Invited Talk | NUS |
| 3 | Dr. K. Subramaniam | Cold Spring Harbor Laboratory, New York, USA | October 03-09, 2022 | Germ Cells | CPDA and PCF |
| 4 | Dr. M. Michael Gromiha | Japan | December 2022-January 2023 | Lab Visit and Invited Talk | Tokyo Institute of Technology |
| 5 | Dr. M. Michael Gromiha | South Africa | March 2023 | Lab Visit and Invited Talk; Project Discussion | BRICS project |

4.3.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date of Award |
|---------------|---------------------------|---|---|---|-------------------|
| Awards | | | | | |
| 1 | Dr. M. Hamsa Priya | Distinguished Alumni Award | BV Raju Institute of Technology, Telangana | Excellence in Academics | October 2022 |
| 2 | Dr. M. Michael Gromiha | ASC-Masila Vijaya | Chennai Academy of Sciences | Excellence in Scientific Research and Publications | March 24, 2022 |
| 3 | Dr. M. Michael Gromiha | Academy of Sciences Fellowship | Academy of Science, Chennai | Scientific Contribution | March 15, 2023 |
| 4 | Dr. Greeshma Thrivikraman | NASI-Young Scientist Award 2022 | National Academy of Sciences India, Allahabad | Young Scientist Recognition for work carried out in India | February 28, 2023 |
| 5 | Dr. A. Gopala Krishna | Fellow of the Academy of Science, Chennai | Academy of Science, Chennai | Scientific Contribution | March 15, 2023 |

4.3.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|-------------|------------------------|-------------------|
| INSA | | |
| 1 | Dr. M. Michael Gromiha | 2023 |

4.3.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|--------------------------|--------------------------|---|
| 1 | Dr. Karthik Raman | Editorial Board Member | PLoS ONE |
| 2 | Dr. Karthik Raman | Editorial Board Member | Scientific Reports |
| 3 | Dr. Karthik Raman | Editorial Advisory Board | ACS Synthetic Biology |
| 4 | Dr. Karthik Raman | Editorial Board Member | Microbial Biotechnology |
| 5 | Dr. M Michael Gromiha | Associate Editor | BMC Bioinformatics |
| 6 | Dr. M Michael Gromiha | Associate Editor | Frontiers in Bioinformatics |
| 7 | Dr. M Michael Gromiha | Associate Editor | Bioinformatics Advances |
| 8 | Dr. M Michael Gromiha | Associate Editor | Biomed Informatics |
| 9 | Dr. M Michael Gromiha | Associate Editor | Biologia |
| 10 | Dr. M Michael Gromiha | Section Editor | Current Protein and Peptide Science |
| 11 | Dr. M Michael Gromiha | Editorial Board Member | Scientific Reports |
| 12 | Dr. M Michael Gromiha | Editorial Board Member | Biology Direct |
| 13 | Dr. M Michael Gromiha | Editorial Board Member | Genes |
| 14 | Dr. M Michael Gromiha | Editorial Board Member | Journal of Bioinformatics and Computational Biology |
| 15 | Dr. M Michael Gromiha | Editorial Board Member | Current Computer Aided Drug Design |
| 16 | Dr. A Gopala Krishna | Volume Editor | Biophysical Reviews |
| 17 | Dr. Vignesh Muthuvijayan | Associate Editor | Biomaterials, Frontiers in Bioengineering and Biotechnology |

4.3.4. Design and Development Activities

4.3.4.1. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|--|---------------------|
| 1 | IVIS Spectrum In Vivo Imaging system | 4,47,39,675 |
| 2 | Non Invasive Blood Pressure System with 8 channels | 15,68,000 |
| 3 | Lieca Tissue Embedder Histocore Arcadia H&C | 13,86,000 |
| 4 | Lieca TP1020 | 16,38,000 |
| 5 | LiecaHistocoreMulticut Semi Motorized Microtome | 12,28,500 |

4.3.5. Patents

4.3.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|---|
| 1 | Dr. Mukesh Doble | Encapsulation of herbal extracts Filed Jurisdiction: India |
| 2 | Dr. Rama S Verma Dr. Rayala Suresh Kumar | Method For The Fabrication Of A Green Bone Cell Sheet Matrix For Skeletal Repair And Regeneration Filed Jurisdiction: India |

| S. No. | Name of Faculty | Topic of Patent |
|--------|------------------------------|---|
| 3 | Dr. Chandraraj K | Thermoset plastic from waste liquor obtained from ammoniacal glycerol pretreatment of lignocellulosic biomass. |
| 4 | Dr. Srinivasa Chakravarthy V | A method and system for automated assessment of upper-limb motor impairment Filed Jurisdiction: India |
| 5 | Dr. Sanjib Senapati | Salts and combinations comprising choline and isobutylphenylpropanoic acid Filed Jurisdiction: India |
| 6 | Dr. Sanjib Senapati | Salts and combinations comprising tetramethylguanidine and para acetamidophenol Filed Jurisdiction: India |
| 7 | Dr. Sanjib Senapati | Salts and combinations comprising tetramethylguanidine and isobutylphenylpropanoic acid Filed Jurisdiction: India |
| 8 | Dr. Sanjib Senapati | Salts and combinations comprising tetramethylguanidine and acetylsalicylic acid Filed Jurisdiction: India |
| 9 | Dr. Sanjib Senapati | Salts and combinations comprising tetramethylguanidine and dichloroanilinophenylacetic acid Filed Jurisdiction: India |
| 10 | Dr. Sanjib Senapati | Salts and combinations comprising choline and para acetamidophenol Filed Jurisdiction: India |
| 11 | Dr. Smita Srivastava | A method for overproduction of camptothecin in engineered cell lines of nothapodytesnimmoniana Filed Jurisdiction: India |
| 12 | Dr. Smita Srivastava | A bioprocess to produce camptothecin from in vitro cultures of nothapodytesnimmoniana Filed Jurisdiction: India |
| 13 | Dr. Smita Srivastava | A process for production of active biomass of Viola odorata in bioreactors Filed Jurisdiction: India |
| 14 | Dr. Srinivasa Chakravarthy V | Apparatus for soft attention based saliency map generation for object detection and method thereof Filed Jurisdiction: PCT |

4.3.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|--|
| 1 | Dr. Chandra TS | Method for synthesis of nanocomposites by microbes Granted Jurisdiction: India |
| 2 | Dr. Chandra T S | Process for preparation of stable, colloidal suspension of micronized water insoluble β -glucan and its application thereof. Granted Jurisdiction: India |
| 3 | Dr. Chandraraj K Dr. Rayala Suresh Kumar | Method for processing waste cotton microdust into a cellulose membrane material Granted Jurisdiction: India |
| 4 | Dr. Guhan Jayaraman | Process for production of constant molecular weight hyaluronic acid by recombinant microbial fermentations Granted Jurisdiction: India |
| 5 | Dr. Guhan Jayaraman | Process for production of high molecular weight hyaluronan in a recombinant lactococcuslactis using acetate co-utilization fed-batch strategy Granted Jurisdiction: India |
| 6 | Dr. Guhan Jayaraman | Method for direct quantification of nucleic acids in real time qPCR Granted Jurisdiction: United States |
| 7 | Dr. Madhulika Dixit | Indigenous cone plate device for applying laminar shear to cultured Granted Jurisdiction: India |
| 8 | Dr. Mukesh Doble | Improved Method for measuring permeability of drugs/toxic chemical compounds Granted Jurisdiction: India |

| S. No. | Name of Faculty | Topic of Patent |
|--------|------------------------|---|
| 9 | Dr. Mukesh Doble | Cross-linked pH-responsive cyclic glucan- carrageenan compositiveflim for biomedical applications Granted Jurisdiction: India |
| 10 | Dr. Mukesh Doble | An antibacterial, biodegradable polymeric blend formable as food wrap material and methods thereof Granted Jurisdiction: India |
| 11 | Dr. Rama S Verma | Cardiac nanomatrixbioscaffold and method of developing and characterizing the same Granted Jurisdiction: India |
| 12 | Dr. Rama S Verma | Cancer chemopreventive formulation of PM 002 / Broad spectrum anticancer formulation of PM 002 Granted Jurisdiction: India |
| 13 | Dr. Rama S Verma | Self-labeled fusion proteins for ex vivo immunophenotyping of c-kit receptor Granted Jurisdiction: India |
| 14 | Dr. Rama S Verma | A method to derive functional hepatocytes Granted Jurisdiction: India |
| 15 | Nirav Pravinbhai Bhatt | Continuous Flow Process and Apparatus for Manufacture of dl-2-nitro-1-butanol Granted Jurisdiction: India |

4.3.6. Research and Consultancy

4.3.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|-----------|---|----------------------|------------------------|
| 1 | Elucidation of Mechanism of Drug Resistance Associated With Breast Cancer and Ovarian Cancer Through Network Biology Approach | 2019-2022 | Science and Engineering Research Board (SERB) | 18.20 | Dr. M. Michael Gromiha |
| 2 | Integrated Approach for Understanding the Binding Affinity of Protein-nucleic Acid Complexes: Development of Database, Tools and Applications to Diseases | 2020-2023 | SERB | 38.47 | Dr. M. Michael Gromiha |
| 3 | Identification of Therapeutic Targets for Glioblastoma by Single-Cell RNA-Seq Analysis. | 2020-2023 | DHR | 42.52 | Dr. M. Michael Gromiha |
| 4 | Structure Based Drug Design and Mechanistic Studies for COVID19 | 2020-2023 | SERB | 18.20 | Dr. M. Michael Gromiha |
| 5 | Shear Stress Effects on Metastasizing Cancer Cells – Toward Better Cancer Therapies | 2000-2023 | SERB | 52.48 | Dr. G. K. Suraishkumar |
| 6 | Identification of Genes that Promote Proliferation of Germline Stem Cells in Caenorhabditis Elegans | 2021-2023 | DBT-Wellcome Trust India Alliance | 45.68 | Dr. K. Subramaniam |
| 7 | An Integrative Approach for Understanding the Structure, Function and Dynamics of HIV Protease: Applications to Design Novel Inhibitors | 2021-2024 | Department of Science & Technology (DST) | 34.55 | Dr. M. Michael Gromiha |
| 8 | Efficacy of HSP90 mitochondrial targeting of Withanolide A & Withaferin A in Hepatocellular carcinoma | 2021-2024 | SERB | 18.20 | Dr. M. Michael Gromiha |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|-----------|---|----------------------|--|
| 9 | Decoding the Genetic Program that Regulates Stress-induced Quiescence in <i>C. Elegans</i> Germline Stem Cells | 2021-2028 | DBT | 169.9 | Early career fellowship awarded to Dr. Subashika Govindan hosted in Dr. K. Subramaniam's lab with KS as the supervisor |
| 10 | Poly ADP Ribose Polymerase Expression in Hypertension | 2022-2022 | SERB | 0.60 | Dr. Ninitha A J |
| 11 | A Method to Improve Modelling of Protein-Protein Complexes Using AlphaFold2 and Filtered Coevolutionary Signals | 2022-2024 | DBT | 14.98 | Dr. M. Michael Gromiha |
| 12 | Towards Designing Photocurable Hyaluronic Acid-Based Disc Closure System for Lumbar Disc Herniation and Sciatica | 2022-2024 | SERB | 28.71 | Dr. Greeshma Thrivikraman |
| 13 | Development of a Comprehensive Computational Model of Multisensory Integration in the Hippocampal Spatial Cell Network | 2022-2024 | SERB | 27.55 | Dr. Srinivasa Chakravarthy V |
| 14 | Unraveling the Mechanism of Mutant p53-p73 Interactions: Useful Insights for Rational Drug Design Against Cancer Using Computational Tools | 2022-2024 | SERB | 22.37 | Dr. Sanjib Senapati |
| 15 | Development of Novel Phage nanoparticle Hybrid Therapy (PNPHT) for Nosocomial Multidrug Resistant Biofilm Eradication From Animate and Inanimate Surfaces | 2022-2024 | Indian Council of Medical Research (ICMR) | 7.36 | Dr. Sathyanarayana N Gummadi |
| 16 | Characterization of Novel Mutants of Human Protein Z-dependent Protease Inhibitor (ZPI):Potential Therapeutics for Hemophilia | 2022-2025 | SERB | 28.53 | Dr. Manoj N |
| 17 | Rational Metabolic Engineering Strategies for Enhanced Production of Camptothecin in <i>Nothapodytes Nimmoniana</i> Plant Cells | 2022-2025 | SERB | 53.13 | Dr. Smita Srivastava |
| 18 | A Study to Identify Prognostic Biochemical and Cellular Markers of Placental Endothelial Dysfunction in Gestational Diabetes | 2022-2025 | ICMR | 17.87 | Dr. Madhulika Dixit |
| 19 | Effect of SARS-COV-2 Proteins on Calcium Signaling, Vesicle Dynamics and Secretion in Neuron and Astrocytes | 2022-2025 | DST | 13.50 | Dr. Amal Kanti |
| 20 | Designing Macromolecular Assemblies with Ordered and High-Complexity Disordered Proteins | 2022-2025 | Department of Biotechnology | 37.89 | Dr. Athi Narayanan N |
| 21 | Regulatory Influence of Renin-Angiotensin Aldosterone System on Renal Expression of Renalase | 2022-2025 | DST | 37.63 | Dr. Nitish R Mahapatra |
| 22 | A Study to Identify Prognostic Biochemical and Cellular Markers of Placental Endothelial Dysfunction in Gestational Diabetes | 2022-2025 | ICMR | 17.87 | Dr. Madhulika Dixit |
| 23 | Estimating Differential Metabolic Functionality in Antibiotic-resistant <i>Helicobacter Pylori</i> Through Integrated Experimental and Computational Analysis | 2022-2025 | SERB | 10.05 | Dr. Karthik Raman |
| 24 | Low Cost, Rapid Detection for Antibiotic Susceptibility of Bacteria Using Lab-on-a-chip Designs that Exploit Chemotactic Responses | 2022-2025 | Wellcome Trust | 170.00 | Dr. Richa Karmakar |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|-----------|-----------------------------------|----------------------|---------------------------------|
| 25 | Prime Minister's Fellowship for Doctoral Research to Ms. Aditi G Muddebihalkar (Government Part) | 2022-2026 | SERB | 19.64 | Dr. Hamsa Priya Mohana Sundaram |
| 26 | 4 th European Conference on Infectious Diseases, France (November 10-11, 2022.) held in "Paris, France | 2023-2023 | SERB | 1.18 | Dr. Arumugam |
| 27 | Identification and Functional Studies on the Unconventional Epigenetic Modifications in Human Malaria Parasite: Exploring New Drug Targets | 2023-2024 | ICMR | 3.68 | Dr. Arumugam |
| 28 | Development of Rapid and High Sensitivity Electrochemical Covid-19 Diagnosis Platform | 2023-2024 | ICMR | 2.57 | Dr. Guhan Jayaraman |
| 29 | Effect of Ghee from Indigenous Cow milk on Cognition and Neuro-protection Against Alzheimer's Disease | 2023-2024 | Ministry of AYUSH | 41.49 | Dr. Amal Kanti |
| 30 | Multienzymatic Process for Delignification and Valorization of Lignin from Agroresidues to Value Added Products | 2023-2026 | SERB | 10.05 | Dr. Sathyanarayana N Gummadi |
| 31 | Investigate the Role of Somatostatin in Facilitating Excitation-Inhibition Balance in Retinal Circuits | 2023-2028 | Wellcome Trust | 361.16 | Dr. Santhosh Sethuramanujam |
| 32 | Genome Informatics Networks to Understand Plant Stress Management (National Network Project of National Centre for Biological Sciences) | 2023-2028 | DBT-Wellcome Trust India Alliance | 55.68 | Dr. M Michael Gromiha |

4.3.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|----------------------|--|-------------------------------|----------------------|
| 1 | Dr. Smita Srivastava | GTBL - IITM MOA for IITM Bioincubator Facility Usage | Gujarat Themis Biosyn Limited | 52.68 |

4.3.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--------------------------------|--|-------------------------------------|----------------------|
| 1 | Dr. Karthik Raman | Skin Microbiome Systems Biology: Unravelling Metabolic Capabilities of Microbes in Communities | Unilever Industries Private Limited | 45.54 |
| 2 | Dr. Mahalingam S | Cancer Tissue Biobanking and Identification of Comprehensive Genomic Landscape of Cancers that are prevalent in Indian Population | Karkinos Healthcare Private Limited | 645.63 |
| 3 | Dr. HamsaPriya Mohana Sundaram | Developing Strategies for Viral Deactivation using Molecular Modelling | Unilever Industries Private Limited | 48.16 |
| 4 | Dr. HamsaPriya Mohana Sundaram | Prime Minister's Fellowship for Doctoral Research to Ms. Aditi G Muddebihalkar (Industry Part) | Unilever Industries Private Limited | 23.18 |
| 5 | Dr. Karthik Raman | Microbiome Systems Biology: Understanding Microbial Interactions and Identifying Optimal Intervention Strategies in Home Microbiomes | Hindustan Unilever Limited | 70.99 |
| 6 | Dr. G K Suraishkumar | Generation of Energy From Photosynthesis Through the Use of Quinones | Vayuneer Science Pvt. Ltd. | 17.64 |

4.3.6.4. Retainer Consultancies (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|------------------------------|---|---|----------------------|
| 1 | Dr. Srinivasa Chakravarthy V | LKQ funded Science Popularization and Career Guidance for School Children | LKQ India Private Limited | 5.04 |
| 2 | Dr. Smita Srivastava | Plant Cell and Tissue Culture Facility for Natural Product Research in Cancer and Cardiovascular Disease Management | Hyclone Life Sciences Solutions India Private Limited | 37.00 |
| 3 | Dr. Himanshu Sinha | MOOCs on Biological Big Data Analysis | Excelra Knowledge Solutions Private Limited | 96.80 |
| 4 | Dr. Mahalingam S | Cancer Tissue Biobanking and Identification of Comprehensive Genomic Landscape of Cancers that are prevalent in Indian Population (Grant) | Karkinos Healthcare Private Limited | 2973.08 |
| 5 | Dr. Smita Srivastava | GTBL - Prof Smita Srivastava Consultancy Agreement | Gujarat Themis Biosyn Limited | 63.72 |
| 6 | Dr. Srinivasa Chakravarthy V | Career Guidance and Science Popularization in Vernacular Languages | Chamundi Die Cast Private Limited | 44.83 |
| 7 | Dr. Srinivasa Chakravarthy V | Career Guidance and Science Popularization in Vernacular Languages | Vertiv energy Pvt Ltd | 25.20 |
| 8 | Dr. Karthik Raman | Genome-scale Metabolic Modeling of Microalgae | Yokogawa Technology Solutions India Private Limited | 4.60 |

4.3.7. Exchange Programme With Other Universities Including Institutions, Universities Under MoU

4.3.7.1. Faculty Members' Participation With Other Institution Under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/Institution Which has MoU |
|--------|---------------------------------------|-----------------------|--|
| 1. | Dr.Karthik Raman Dr.Himanshu Sinha | Faculty Champion | National University of Singapore, Singapore (Cancer Science Institute) |
| 2. | Dr.Smita Srivastava | Faculty Champion | Parul University, Gujarat |
| 3. | Dr.Baskar. R | Faculty Champion | Czech Academy of Sciences, Czech Republic |

4.3.9. Distinguished Visitors to the Department

| S. No. | Visitor's Name and Designation | Date of Visit | Purpose of Visit |
|--------|--|------------------|------------------|
| 1 | Dr. Balaji Panchapakesan | April 26, 2022. | Seminar |
| 2 | Dr. B N Nishanth | April 20, 2022. | Seminar |
| 3 | Dr. Srikrishnan Sankaran INM-Leibniz Institute for New Materials, Saarbrücken, Germany | May 17, 2022. | Seminar (Online) |
| 4 | Prof. Radhakrishnan Mahadevan University of Toronto, Canada. | June 14, 2022. | Seminar |
| 5 | Dr. Jayasubba Reddy Yarava (Leibniz-Institut für Molekulare Pharmakologie, Germany) | June 14, 2022. | Seminar (Online) |
| 6 | Dr. Muthiah Manoharan Alnylam Pharmaceuticals, Cambridge, Massachusetts | July 13, 2022. | Seminar |
| 7 | Dr. Manoj Nesari, Advisor AYUSH Ministry. | August 06, 2022. | Department Visit |

| S. No. | Visitor's Name and Designation | Date of Visit | Purpose of Visit |
|--------|---|---|---------------------------------------|
| 8 | Prof. Krishna Rajarathnam (The Univ. of Texas Medical Branch, USA) | August 19, 2022. | Seminar |
| 9 | Dr. Kalyan Chakrabarti (Dept. of Biological Sciences/Chemistry, Krea University) | August 25, 2022. | Seminar |
| 10 | Dr. Gabriel Ichim, Group Leader, Cancer cell death lab,INSERM/ Cancer Research center of Lyon, Lyon, France. | August 26, 2022. | Seminar (Online) |
| 11 | Prof. S. Parashuraman (Institute of Endocrinology and Experimental Oncology Second unit (IEOS-SS), National Research Council of Italy (CNR), Napoli, Italy. Coordinator, Italian Advanced Light Microscopy node, EuroBioimaging). | August 02, 2022. August 16, 2022. August 23, 2022. August 30, 2022. September 13, 2022. | Seminar: Microscopy lecture series |
| 12 | Dr. S Siva Kumar Scientist D and Head, Bacteriology Division, ICMR-National Institute For Research in Tuberculosis, Chennai | September 14, 2022. | Seminar |
| 13 | Prof. Sylviane Muller, CNRS-University of Strasbourg | October 10, 2022. | Special lecture |
| 14 | Prof. Malý Petr, Institute of Biotechnology, Czech Republic | November 17, 2022. | Short presentation |
| 15 | Dr. Jernej Jorgačevski, Associate Professor, Institute of Pathophysiology, University of Ljubljana, Slovenia. He is also the Head of Super-resolution Microscopy Facility: Celica Biomedical d.o.o. /Ljubljana/Slovenia | November 24, 2022. | Seminar |
| 16 | Satoshi Murakami (Tokyo Institute of Technology, Japan) | December 13, 2022. | Seminar |
| 17 | Dr. Sakthivel Sadayappan, PhD, MBA, FAHA, FCVS, FISHR | December 15, 2022 & December 23, 2022. | Seminar |
| 18 | Shriya S Srinivasan, Assistant Professor of Bioengineering, Harvard School of Engineering and Applied Sciences) | December 27, 2022. | Seminar |
| 19 | Dr. Christopher Hine, Assistant Professor, Cleveland clinic | January 27, 2023. | Seminar (Online) |
| 20 | Dr. Amit Singh, Associate Professor Center for Infectious Disease and Research IISc, Bangalore | February 21, 2023. | Dr. Joseph Thomas Memorial Lecture |
| 21 | Dr. Bayu Jayawardhana, Professor, the University of Groningen, the Netherlands | February 28, 2023. | Seminar |
| 22 | Dr. Suresh Sudarsan, Senior Program Manager, Novo Nordisk Foundation Center for Biosustainability | March 03, 2023. | Seminar |
| 23 | Mr. Rahul Mehta & Prof. Shankar Subramaniam | March 11, 2023. | Department Visit |

4.3.10. Other Activities of the Department/Centre

4.3.10.1. Outreach Programmes

Lab Visit for She-ViL STEM: An Initiative by IViL (IIT for Villages)

- Participants: 16 students from government school
- Organized by: Dr. Arumugam & Dr. Nathiya

4.3.11. International Collaboration Achievements by the Department

4.3.11.1. Student Visits

| S. No. | Name of the Student | Purpose of Visit | Date & Venue |
|--------|--------------------------|--|--|
| 1 | R Dhanya (BT17D001) | Research Work | August 16–November 16, 2022. USA |
| 2 | Shakunthala N (BT21M012) | DAAD KOSPIE Programme for Indian IITs Exchange Program for Master's Thesis | September 2022–March 2023. Technical University of Braunschweig |

4.4

Department of Chemical Engineering

4.4.1. Introduction

The Department of Chemical Engineering was established in 1959. It has a rich pool of permanent faculty members, who are not only dedicated teachers, but also researchers carrying out cutting-edge research in frontier areas of Chemical Engineering and inter/multi-disciplinary subjects. The focus of the research is on reaction and transport processes, energy, materials and environment. The faculty work towards analysing these systems at multiple scales by understanding their behaviour from the molecular to macroscopic levels as well as using a system-based approach.

4.4.2. Academic Programmes

4.4.2.1. Students on Roll as of September 2022 + M.S. & Ph.D. Admission in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|-----------|--------|---------|----------|---------|-----------------|-------|
| B.Tech. | 115 | 115 | 83 | 85 | 07 | 405 |
| M.Tech. | 35 | 32 | 0 | 0 | 0 | 67 |
| M.S. | 13 | 18 | 08 | 0 | 0 | 39 |
| Ph.D. | 26 | 29 | 24 | 24 | 36 | 139 |
| Total | 189 | 194 | 115 | 109 | 43 | 650 |

4.4.2.2. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/ Scholar | Roll No. | Name of the Conference/ Seminar/ Symposium/Workshop | Date and Venue |
|---------------|------------------------------|----------|--|--------------------|
| Abroad | | | | |
| 1 | C. Karthikeyan | CH21D033 | International Virtual Conference On, Advances In Chemical, Biochemical And Microbial Technology For Sustainable Development (ACBMT - 2022) Best Paper Award | May 06, 2022. |
| 2 | Shubhan Kumar Pal | CH19D015 | International Conference on Analytical and Applied Pyrolysis | May 15-20, 2022. |
| India | | | | |
| 1 | C. Karthikeyan | CH21D033 | Advances In Chemical And Material Sciences (ACMS 2022) | April 14-16, 2022. |
| 2 | Kota Sampath Bharadwaj | CH18D020 | 7 th Thermal and Fluids Engineering Conference (TFEC) 2022 | May 16-18, 2022. |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/ Seminar/ Symposium/Workshop | Date and Venue |
|--------|-----------------------------|----------|---|-----------------------|
| 3 | Puneet Siwach | CH17D013 | 2022-MRS-Spring Meeting and Exhibit | May 23-25, 2022. |
| 4 | Poonam Sikarwar | CH17D412 | 2022-MRS-Spring Meeting and Exhibit | May 23-25, 2022. |
| 5 | Ch Devivaraprasad | CH21D024 | HEMCE 2022 at Chandigarh | May 27, 2022. |
| 6 | Rajahmundry Ganesh Kumar | CH20D408 | Compflu - 2022, Complex Fluids Symposium, Research Park - IIT Kharagpur, Kolkata. | December 19-21, 2022. |
| 7 | Anoop N | CH20D021 | Investigation of Electrochemical CO ₂ Reduction to Formate on Sn Foil and Mechanistic Analysis | January 18-20, 2023. |
| 8 | M. Sai Maruti Prasoon Rani | CH21D002 | Compflu - 2022, Complex Fluids Symposium, Research Park - IIT Kharagpur, Kolkata | December 18-21, 2022. |
| 9 | Himanshu | CH21S007 | Compflu - 2022, Complex Fluids Symposium, Research Park - IIT Kharagpur, Kolkata | December 19-21, 2022. |
| 10 | Rajput Shubham Ajaykumar | CH20D753 | Perovskite Society of India Meet PSIM - 2023, IIT Roorkee | March 01-03, 2023. |
| 11 | Bhavikkumar Mahant | CH19D752 | 75 th Annual Session of Indian Institute of Chemical Engineers CHEMCON - 2022 | December 26-30, 2022. |

4.4.2.3. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--|---|
| 1 | C Karthikeyan | CH21D033 | Best Paper Award for the Paper Titled Model Order Reduction Of Detailed Kinetics Using Chemkin | International Virtual Conference On, Advances In Chemical, Biochemical And Microbial Technology For Sustainable Development (ACBMT - 2022) on May 06, 2022. |
| 2 | Preetika Rastogi | CH16D203 | Institute Research Award | |
| 3 | Sriram K | CH17D012 | Institute Research Award | |
| 4 | Rajahmundry Ganesh Kumar | CH20D408 | Understanding the Structure and Phase Behaviour of Polymer Electrolyte Using Molecular Simulation and Machine Learning | Soft Matter Conference, IIT Kharagpur |

4.4.2.4. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|--|---------------|
| 1 | Jugal N Anil | CH18B050 | Reliance Heat Transfer Pvt. Ltd. Prize | |
| 2 | Sampriti Chattopadhyay | CH17B120 | B Ravichandran Memorial Prize | |
| 3 | Jose Peter | CH20M018 | Dr. K Subha Raju Memorial Prize | |
| 4 | Vaidehi Mishra | CH18B029 | Prof. C A Sastry Endowment Prize | |
| 5 | Peesapati S S Sreeharsha | CH17B062 | Prof A Ravindran Prize | |
| 6 | Yashika | CA20M007 | Sri S V Balakrishnan Prize | |
| 7 | Jose Peter | CH20M018 | Mico-Bosch Prize Smt. DL Saraswati Memorial Prize | |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|-------------------|------------------|--|
| 8 | Dr. Anusha Thampi IPDF | CH20S006 | Best Paper Award | National Symposium on Electrochemical Science and Technology, June 24-25, 2022. Bengaluru Organized by ECSI and the Department of Inorganic and Physical Chemistry, IISC, Bangalore. |
| 9 | Anoop N | CH20D021 | Best Paper Award | National Symposium on Electrochemical Science and Technology, June 24-25, 2022. Bengaluru Organized by ECSI and the Department of Inorganic and Physical Chemistry, IISC, Bangalore. |
| 10 | Sampath Bharadwaj K | CH18D020 External | Second Runner Up | 8 th International Conference on Advances in Energy Research (ICAER-2022), hosted by IIT Bombay (Virtually) |

4.4.3. Faculty and Their Activities

4.4.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|----------------------------|--|
| Professors | |
| Dr. Ravikrishna R (Head) | Contaminated Sediment Remediation, Contaminant Fate and Transport, Air Pollution Process and Control |
| Dr. Nagarajan R | Ultrasonic and Megasonic Fields, Cleanroom and Contamination Control, Nano-particle Synthesis and Nano-composite Formulation |
| Dr. Abhijit P Deshpande | Rheology of Complex Fluids, Polymers and Polymeric Composites, Processing Flow Visualisation |
| Dr. Arun K Tangirala | Process Systems Engineering, Control, Identification and Monitoring, Applied Signal Processing |
| Dr. Jitendra Sangwai | Enhanced Oil Recovery, Flow Assurance, Nanotech Applications for O&G, Gas Hydrates in Bulk and Porous Media, Rheology of Complex Fluids, Drilling Fluids, Polymer Science, PVT Studies |
| Dr. Basavaraja M Gurappa | Directed Assembly of Colloids, Microstructure and Rheology of Colloids, Surfactants, Polymer and Their Mixtures, Interfacial Rheology, Ionic Liquids, Particulate Gels |
| Dr. Ethayaraja Mani | Molecular Simulations, Self-assembly, Mathematical Modeling |
| Dr. Kannan A | Mathematical Modeling, Simulation and Optimisation of Chemical Processes |
| Dr. Niket S Kaisare | Catalytic Combustion, Micro-reactors, Advanced Process Control, Energy and Fuel Processing |
| Dr. Preeti Aghalayam | Underground Coal Gasification, Reduction of Automotive NO _x , Reduction of Large Reaction Mechanisms, Reactor Modeling |
| Dr. Pushpavanam S | Modeling and Simulation, Non-linear Dynamics, Flow Visualisation |
| Dr. Raghunathan Rengasamy | Process Systems Engineering, Fuel Cells, Computational Discrete Microfluidics |
| Dr. Raghuram Chetty | Electrocatalysis, Fuel Cells, Wastewater Treatment, CO ₂ Reduction |
| Dr. Rajagopalan Srinivasan | Safety, Sustainability and Resilience of Complex Systems, Cognitive Engineering, Supply Chain Management and Enterprise Optimisation |
| Dr. Rajnish Kumar | Gas Hydrates (Formation, Inhibition and Recovery), Carbon Dioxide Capture, Storage and Utilisation Methane and Hydrogen Storage Hydrothermal Liquefaction at Sub-critical and Supercritical Conditions |
| Dr. Ramanathan S | Electrochemistry, Chemical Mechanical Planarisation for Semiconductor Processing |

| Name and Qualifications | Major Areas of Specialisation |
|------------------------------|--|
| Dr. Ravi R | Applied Statistical Mechanics, Foundations of Thermodynamics and Mechanics, Process Dynamics and Control |
| Dr. Renganathan T | Multiphase Systems, Gasification, Capture of CO ₂ |
| Dr. Shankar Narasimhan | Process Design, Data Mining, Fault Diagnosis |
| Dr. Sreenivas Jayanti | Fuel Cells, Combustion, Energy Systems |
| Dr. Sridharakumar Narasimhan | Process System Engineering, Optimisation, Process Control, Fault Diagnosis |
| Dr. Susy Varughese | Physics and Mechanics of Polymeric Materials, Polymeric Nano Composites |
| Dr. Tanmay Basak | Microware Application, Mathematical Modeling and Simulation |
| Dr. Upendra Natarajan | Polymer Science and Engineering, Molecular Simulation, Statistical Thermodynamics of Complex Fluids, Nanostructured Hybrid Composite Materials |
| Dr. Vinu R | Thermo-Catalytic Conversion of Biomass to Useful Intermediates, Photocatalysis for Environmental Decontamination, Microkinetic Modeling of Complex Reactions |
| Associate Professors | |
| Dr. Aravind Kumar Chandiran | Solar Cells, Solar Water Splitting, Carbon Dioxide Reduction, Photoconductivity, Oxide Semiconductors and Solar Energy Research |
| Dr. Sumesh P Thampi | Hydrodynamics of Complex Fluids, Interfacial Flows, Active Matter |
| Assistant Professors | |
| Dr. Himanshu Goyal | Clean Energy (Biofuels and Carbon Dioxide Capture), Process Intensification, Multiphase Reactors, Multiscale Modeling, Computational Fluid Dynamics (CFD), Uncertainty Quantification (UQ), High Performance Computing (HPC) |
| Dr. Jithin John Varghese | Atomistic and Computational Modelling of Catalytic Reactions: Catalytic Conversion of Light Alkanes, Biomass Derivatives and Carbon Dioxide to Fuels and Chemicals |
| Dr. Ramnarayanan R | Applying Physical Chemistry Concepts to Biology, Light and State of Matter Interaction, Solid State Materials |
| Dr. Tarak Patra | High Throughput Materials Design, Soft and Nano Materials, Molecular Simulations and Machine Learning, HPC and AI |

4.4.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|----------|--|---|----------------------|
| Symposia | | | |
| 1 | Dr. Rajagopalan Srinivasan Dr. Karim, NUS | 10 th Asian Symposium on Process Systems Engineering: Systems Engineering for the Digitalization Era | December 10-14, 2022 |

4.4.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences, Training Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Period |
|-------------|------------------|--|---------------------|
| Conferences | | | |
| 1 | Dr. R. Nagarajan | Attended Board of Directors Meeting of Coromandel International Limited | July 27, 2022. |
| 2 | Dr. R. Nagarajan | Attended Board of Directors Meeting of Coromandel International Limited | September 06, 2022. |
| 3 | Dr. R. Nagarajan | Online Review of NEP Autonomous Scheme and Syllabus of Chemical Engineering Board of UG program of MVJ College of Engineering, Bengaluru | October 2022. |

| S. No. | Name of Faculty | Title | Period |
|--------|-----------------------|---|---------------------|
| 4 | Dr. Upendra Natarajan | Simulations of Polymer-Surfactant Complexes in Aqueous Solution, in International Conference of the Society of Polymer Science India. Science and Technology of Polymers and Advanced Materials through Innovation, Entrepreneurship and Industry: SPSI-MACRO-2022, Pune | November 2-4, 2022. |
| 5 | Dr. R. Nagarajan | Online Meeting of Board of Directors of Coromandel International Limited | November 3, 2022. |
| 6 | Dr. R. Nagarajan | Online Faculty Selection Committee Meeting for the BITS Pilani Department of Chemical Engineering | November 22, 2022. |

4.4.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------|--|---|------------------|
| 1 | Dr. Niket S Kaisare | Invited Talk Titled Microreactors with Internal Heat Recirculation: Autothermal Concepts for Energy Applications at Lehigh | University, Bethlehem PA, USA | April 07, 2022. |
| | | Invited Talk Titled Multiscale Modeling & Control in Energy Applications Perspectives From Academia and Industry | Texas A&M University, College Station TX, USA | April 25, 2022. |
| | | Invited Talk Titled Microreactors with Internal Heat Recirculation: Autothermal Concepts for Energy Applications | University of Houston, Houston TX, USA | April 27, 2022. |
| 2 | Dr. R Nagarajan | Conducted Seminar Series on Contamination Control in High-Purity Manufacturing | Purdue University | May 01-20, 2022. |
| | | Presented a Talk Titled Sono-Processing of Coal for Removal of Ash and Other Impurities | World of Coal Ash (WOCA-2022) Conference in Covington, Kentucky | |

4.4.3.5. Visits Abroad By Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit |
|--------|---------------------------|--------------------|-----------------------|---|
| 1 | Dr. Raghunathan Rengasamy | Nepal / Kathmandu | April 04-08, 2022. | Nepal Satellite Campus Visit |
| 2 | Dr. Preeti Aghalayam | Nepal | April 05-08, 2022. | Office of Global Engagement |
| 3 | Dr. Rajagoplan Srinivasan | Vadodara | April 25-26, 2022. | Conducting a Session for CCE Short Course on Process Safety |
| 4 | Dr. Raghunathan Rengasamy | Sweden / Stockholm | April 23-30, 2022. | THE Innovation & Impact summit, Stockholm and Visit various UK Universities |
| 5 | Dr. Preeti Aghalayam | Nepal | May 16-19, 2022. | Discussions with Kathmandu University |
| 6 | Dr. Raghunathan Rengasamy | Nepal / Kathmandu | May 16-19, 2022. | Visit KU to Discuss Joint M.Tech. Program |
| 7 | Dr. Rajagoplan Srinivasan | Kochi | May 29-June 05, 2022. | Visit to Petronet LNG & NPOL (DRDO) for Project Meetings |
| 8 | Dr. Ethayaraja Mani | Norway / Trondheim | June 01-30, 2022. | Erasmus Mundus Faculty Mobility |
| 9 | Dr. Tarak K Patra | Mysore | June 14-18, 2022. | Soft Matter Young Investigators Meet |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit |
|--------|------------------------------|--|--------------------------------|---|
| 10 | Dr. Rajagopalan Srinivasan | Ahmedabad | June 26-28, 2022. | Meetings at ISRO & BARC |
| 11 | Dr. Tarak K Patra | USA / Delavan, WI & South Hadley, MA | July 16-30, 2022. | Foundation of Molecular Modeling and Simulation Conference and Gordon Polymer Physics Conference |
| 12 | Dr. R. Vinu | Germany / Aachen | July 17-30, 2022. | Indo German Centre for Sustainability (IGCS) Summer School 2022 and IGCS Steering Committee Meeting |
| 13 | Dr. Preeti Aghalayam | New Delhi | August 02, 2022. | Gati Project Mid Term Review |
| 14 | Dr. R. Vinu | USA / Chicago | August 20-24, 2022. | American Chemical Society (ACS) Fall Meeting 2022, Division of Catalysis Science and Technology |
| 15 | Dr. Sumesh P Thampi | Sweden / Stockholm | August 07-14, 2022. | Current and Future Themes in Soft & Biological Active Matter |
| 16 | Dr. Rajagopalan Srinivasan | Singapore | August 26-29, 2020. | Alumni Event in Singapore |
| 17 | Dr. Sridharakumar Narasimhan | Germany/Bayreuth | September 08-18, 2022. | 25th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2022) |
| 18 | Dr. Rajagopalan Srinivasan | South Africa & Zambia/ Johannesburg & Lusaka | September 18-October 02, 2022. | 1. Visit to University of the Witwatersrand, Johannesburg re Ongoing SPARC Project 2. Visit to Zambia to Conduct Workshop at Zambia Medicines Regulatory Authority |

4.4.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Date of Award |
|---------------|------------------------------|----------------------------------|-----------------------------|-------------------|
| Awards | | | | |
| 1 | Dr. Jitendra S Sangwai | National Geoscience Award 2019 | Ministry of Mines, GOI | June 2022 |
| 2 | Dr. Sridharakumar Narasimhan | Prof. Y B G Varma Award | Prof. Y B G Varma Award | 2021-2022 |
| 3 | Dr. Jitendra Sangwai | SPE & Regional Technical Award | APOGCE, Adelaide, Australia | October 17, 2022. |
| 4 | Dr. Jitendra Sangwai | ACS Authors from India 2019-2020 | ACS | August 2022 |

4.4.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|--------------------------|--------------------------|---|
| 1 | Dr. Basavaraj M Gurrappa | Advisor | Extra Mural Lecture from July 12, 2022. |
| 2 | Dr. Jitendra Sangwai | Editor | Practical Aspects of Flow Assurance in the Petroleum Industry (ISBN 9780367490744). CRC Press |

4.4.4. Patents

4.4.4.1. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|--|
| 1 | Dr. A. Kannan Mr. Bharathi Ganesan (India, Patent No.:412625) | Acid Modified And Microwave Irradiated Enhanced Adsorbent Optimised For Removal Of Multicomponent Organic Compounds From Aqueous Streams Using Mixture Design - 2022 |
| 2 | Dr. Sreenivas Jayanti Mr. K. Srinivasan (India, Patent No.:415391) | Efficient And Optimal Linkage Of Fluid Flow Ducts Using Beizure Curves - 2022 |
| 3 | Dr. Abhijit Deshpande, Dr. Susy Varughese and Others (India, Patent No.:413008) | Carbon di-oxide Separator Membrane Structure – Method Of Manufacturing The Same And Carbon di-oxide Separator Including The Same - 2022 |
| 4 | Dr. S. Pushpavanam Mr. Avinash Sahu (India, Patent No.:412212) | Integrated Microfluidic Device For Continuous Concentration Of a Dilute Solution Of a Solute - 2022 |

4.4.5. Research and Consultancy

4.4.5.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Co-ordinators | Title | Agency Name | Date | Total Value (in INR lakh) |
|--------|--|--|---|--|---------------------------|
| 1 | Sridharakumar Narasimhan, Shankar Narasimhan S-002635,CH Murty BS-005017, CE Ravindra Gettu-008190, CE | Water Distribution and Sewer Networks | Department of Science & Technology | October 23, 2018 - October 22, 2023. | 33.08072 |
| 2 | Aravind Kumar Chandiran, Raghunathan Rengaswamy-008482,CH Swagatika Sahoo-I005, CH | Genetic Engineering of Microbes and Regulation of Charge Transfer Dynamics for High Performance Biophotovoltaics | Department of Biotechnology | June 21, 2019- June 02, 2023. | 183.3684 |
| 3 | Raghunathan Rengaswamy, | Extreme Learning Machine based Pitch Angle Prediction for Uniform Power Generation and Load Mitigation using HIL Simulator of Digital Hydraulic Pitch System in Wind Turbine | Science and Engineering Research Board | Ocyober 25, 2019 - May 24, 2023. | 10.05 |
| 4 | Niket Kaisare, Basavaraja Madivala Gurappa-008476,CH Anand K-008598,ME | Fundamental Studies on Water-in-Diesel Emulsions as Alternative Fuels | Science and Engineering Research Board | February 11, 2020 - May 31, 2023. | 67.13696 |
| 5 | Rajagopalan Srinivasan | Advanced Optimization Strategies for Efficient Water and Energy Utilization in Batch Processes: Case Studies in Pharmaceutical and Textile Industries | Scheme for Promotion of Academic and Research collaboration | November 05, 2021 | 42.64825 |
| 6 | Pushpavanam S, Nirav Pravinbhai Bhatt-008947, BT | Setting up a zero discharge pilot plant to process 100 kg of PCB to recover lead, tin and copper | Department of Science & Technology | September 28, 2020 – September 27, 2023. | 308.70178 |

| S. No. | Co-ordinators | Title | Agency Name | Date | Total Value (in INR lakh) |
|--------|---|--|---|---|---------------------------|
| 7 | Ethayaraja Mani, Raghavendra Sai VV-008493, AM | High-throughput Synthesis of Non-spherical Plasmonic Nanoparticles for Applications in Sensing | Department of Science & Technology | February 05, 2021 - February 04, 2024. | 41.73828 |
| 8 | Sreenivas Jayanti | Modelling of Flow, Electrochemical and Thermal Phenomena in High Temperature PEM Fuel Cells | Defence Research and Development Organisation | June 22, 2021 - June 21, 2023. | 26.8544 |
| 9 | Basavaraja Madivala Gurappa, Sumesh P Thampi-008684, CH | Investigation of the Role of Evaporation Driven Flows in the Self-Assembly of Nanoparticles | Science and Engineering Research Board | December 25, 2020 - December 24, 2023. | 43.46712 |
| 10 | Susy Varughese, Abhijit Deshpande P-000354, CH | Understanding the Microstructure and Rheology of Root Derived Mucilage and its Interactions with Soil in the Context of Plant Physiology | Science and Engineering Research Board | December 30, 2020 - December 29, 2023. | 72.0866 |
| 11 | Basavaraja Madivala Gurappa | Dynamics of patterns in Belousov-Zhabotinsky reaction tailored by graphene-based nanocomposites | Science and Engineering Research Board | December 15, 2020 - December 14, 2023. | 10.05 |
| 12 | Ramanathan S | Synthesis of a novel, highly hydrophobic and antimicrobial organic inhibitors for corrosion protection applications of mild steel in acidic medium | Science and Engineering Research Board | December 21, 2020 - December 20, 2023. | 10.05 |
| 13 | Ethayaraja Mani, Basavaraja Madivala Gurappa-008476, CH | Engineering of Interfaces to Destabilize Pickering Emulsions | Science and Engineering Research Board | March 08, 2021 - March 07, 2024. | 67.26299 |
| 14 | Himanshu Goyal | Application of high-performance computing and machine learning to design multiphase reactors for clean energy applications | National Supercomputing Mission | March 12, 2021 - March 11, 2024. | 47.51224 |
| 15 | Tarak Kumar Patra | Molecular Design of Polymeric Ionic Liquid for Energy Storage Materials | National Supercomputing Mission | March 24, 2021 - March 31, 2024. | 59.4744 |
| 16 | Vinu R, Chakravarthy SR-000351, AE | Process Demonstration of Continuous Hydrothermal Liquefaction for Conversion of Agri and Municipal Solid Wastes to High Value Bio-Crude and Bio-Char | Department of Science & Technology | June 29, 2021 - June 28, 2024. | 150.4296 |
| 17 | Vinu R | Catalytic Hydrodeoxygenation of Pyrolytic-oil produced from copyrolysis of agricultural residue and plastic waste | Department of Science & Technology | September 07, 2021- September 06, 2024. | 32.32527 |
| 18 | Rajagopalan Srinivasan, Babji Srinivasan-008965, AM | Evaluating and Enhancing the Overall Reliability of a Submarine Sonar System using RBD, FMCA and Eye-tracking | Defence Research and Development Organisation | November 15, 2021 - November 14, 2023. | 132.48 |
| 19 | Himanshu Goyal, | Data-assisted Strategies to Integrate Detailed Chemical Mechanisms with Reacting Multiphase Flow Simulations | Science and Engineering Research Board | January 28, 2022 - January 27, 2024. | 27.308 |

| S. No. | Co-ordinators | Title | Agency Name | Date | Total Value (in INR lakh) |
|--------|--|--|--|--|---------------------------|
| 20 | Aravind Kumar Chandiran | Non-Toxic Perovskites Based Photorechargeable Redox Flow Battery | Science and Engineering Research Board | February 09, 2022 - February 08, 2024. | 22.368 |
| 21 | Jithin John Varghese, Selvam P-008267, CY Niket Kaisare-008669, CH | Bridging the gap between surface science studies and catalytic reaction engineering for oxidative dehydrogenation of light alkanes | Science and Engineering Research Board | April 05, 2021- April 04, 2024. | 77.9405 |
| 22 | Abhijit Deshpande P, Susy Varughese-000047, CH | Drop Spreading and Imbibition of Structured Fluids: Development of a Diagnostic and Screening Tool | Science and Engineering Research Board | April 05, 2021- April 04, 2024. | 93.0373 |
| 23 | Preeti Aghalayam | Development of a Techno-Economic Model for the in-situ (underground) Gasification of Indian Lignites | Science and Engineering Research Board | June 28, 2021- June 27, 2024. | 53.46 |
| 24 | Rajagopalan Srinivasan | Endowing Explanation Abilities to Artificial Intelligence (AI) Methodologies for Process Monitoring and Fault Diagnosis | Science And Engineering Research Board | December 28, 2021 - December 27, 2024. | 33.5502 |
| 25 | Pushpavanam S, Richa Karmakar-008999, BT | Low cost, Rapid Detection for Antibiotic Susceptibility of Bacteria Using Lab-on-a-chip Designs that Exploit Chemotactic Responses | Wellcome Trust | January 01, 2022 - December 31, 2026. | 148.434 |
| 26 | Arun K Tangirala | Physics-based AI-ML Models for Predicting Crop Yield at Different Space-Time Scales | Indian Space Research Organisation | January 06, 2022 - July 05, 2024. | 27.35232 |
| 27 | Ramanathan S | MOF Integrated Smart Textiles (Sweat pads) for Stress Hormone Monitoring | Science and Engineering Research Board | December 12, 2022 - December 11, 2024. | 22.368 |
| 28 | Ravi Krishna R, Baburaj A P-008214, AM | Investigation of the Mechanism of Passive Release of Fungal Spores From Solid Substrates | Science And Engineering Research Board | February 07, 2023 - February 06, 2026. | 52.3966 |
| 29 | Sridharakumar Narasimhan | Pravartak Research Grant for Dr. Sridharakumar Narasimhan | IITM Pravartak Technologies Foundation | November 01, 2022 - October 31, 2023. | 6 |

4.4.5.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Co-ordinator | Agency Name | Title | Date | Total Value (INR lakh) |
|--------|--|-------------------------------------|--|-----------------------------------|------------------------|
| 1 | Raghunathan Rengaswamy, Shankar Narasimhan S-002635, CH Ravindran B-008156, CS | GE India Technology Centre Pvt Ltd. | Data Analytics for Aluminum Smelters | June 01, 2016-July 01, 2023. | 48 |
| 2 | Shankar Narasimhan S | Gyan Data Pvt Ltd | Technical Advice for Data Analytics Projects | December 07, 2016-March 31, 2024. | 70 |

| S. No. | Co-ordinator | Agency Name | Title | Date | Total Value (INR lakh) |
|--------|--|--|--|--------------------------------------|------------------------|
| 3 | Raghunathan Rengaswamy | Robert Bosch Engg & Business Solutions | Fundamental Methods to Incorporate Domain Knowledge Into Selected Machine Learning Techniques | May 08, 2018– August 03, 2023. | 10 |
| 4 | Arun K Tangirala, Shankar Narasimhan S-002635, CH | Robert Bosch Engg & Business Solutions | Comprehensive Errors-Invariables -Based Model Identification | October 25, 2018– October 03, 2023. | 17.2 |
| 5 | Abhijit Deshpande P, Susy Varughese-000047, CH Basavaraja Madivala Gurappa-008476, CH Ethayaraja Mani-008504, CH Sumesh P Thampi-008684, CH | Common Code | Testing for Equipment in Polymer Engineering and Colloid Science Group | October 27, 2018– October 26, 2023. | 45.9 |
| 6 | Abhijit Deshpande P, Susy Varughese-000047, CH Basavaraja Madivala Gurappa-008476, CH Ethayaraja Mani-008504, CH Sumesh P Thampi-008684, CH | Common Code | Testing for Polymer Engineering and Colloid Science Group | October 27, 2018– October 26, 2023. | 5 |
| 7 | Sridharakumar Narasimhan, Shankar Narasimhan S-002635, CH Ravindran B-008156, CS | Robert Bosch Centre for Data Science and Artificial Intelligence | Data Driven Monitoring of Water Distribution Networks. | February 24, 2020–December 31, 2023. | 22.2 |
| 8 | Vinu R, Chakravarthy SR-000351, AE Nagarajan R-008158, CH Raghavan V-008293, ME | Sukhbir Agro Energy Limited | Technology Development for Biomass based Thermal Power Plants | November 18, 2019–November 17, 2024. | 188.092 |
| 9 | Ramanathan S, Srirama Srinivas-008331, EE | GAIL India Limited | Quantification of AC Induced Corrosion Rate in Buried Pipelines – Measurement and Physical Process Model | March 09, 2020– April 30, 2023. | 111.7384 |
| 10 | Sreenivas Jayanti | Engineers India Limited | Expert Consultancy Services For Development Of 3d Cfd Gasifier | February 10, 2020–June 30, 2023. | 33.04 |
| 11 | Sreenivas Jayanti | Hindustan Petroleum Corporation Limited | Technology Development & Demonstration of Vanadium Redox Flow Battery for Solar PV Applications | February 01, 2021– June 30, 2023. | 35.4 |
| 12 | Raghunathan Rengaswamy | Dassault Aviation | New AI-based Methods for Bizjets Prognostic/Predictive Maintenance | July 01, 2020– June 30, 2023. | 64.97799 |
| 13 | Raghunathan Rengaswamy | Saint Gobain India Private Limited (Research & Development) | Digital Twin for Induction Furnace | August 15, 2020– September 30, 2023. | 49.9848 |

| S. No. | Co-ordinator | Agency Name | Title | Date | Total Value (INR lakh) |
|--------|--|---|--|--------------------------------------|------------------------|
| 14 | Rajnish Kumar, Niket Kaisare-008669, CH | Gail India Limited | R&D Project on Waste Water Purifications and Recycle by GAS Hydrate Process | January 11, 2021–July 10, 2023. | 53.808 |
| 15 | Renganathan T, Pushpavanam S-000132, CH | Hindustan Petroleum Corporation Limited | Hydrodynamic and Liquid Phase Mixing Studies in a Slurry Bubble Column | May 11, 2021–May 10, 2023. | 97.35 |
| 16 | Sridharakumar Narasimhan | IITM Pravartak Technologies Foundation | Retainer Consultant on Cyber Physical Systems | July 01, 2021–June 30, 2024. | 1.18 |
| 17 | Raghunathan Rengaswamy | National Stock Exchange of India Limited | Hyperlocal Air Pollution Monitoring Using Mobile Monitoring for Gurugram and Mumbai | July 01, 2021–June 30, 2024. | 370.755 |
| 18 | Nagarajan R, Suresh Kumar Rayala-008357, BT | Pratiksha Trust | Indian Spice-derived Cancer Nanomedicine: An Effective Strategy in Drug Development | December 01, 2021–November 30, 2023. | 55 |
| 19 | Vinu R | Manali Petrochemicals Limited | Conversion of Dichloropropane into Propylene Glycol via Propylene Glycol Diacetate Route: Optimization of Reaction Conditions and Catalysis | November 01, 2021–June 30, 2023. | 24.072 |
| 20 | Himanshu Goyal, Swapna Singha Rabha-008978, CH | Unilever Industries Private Limited | Engineering Design of Large Silo using CFD | October 01, 2022 – October 30, 2023. | 6.500006 |
| 21 | Pushpavanam S, Renganathan T-008369, CH | Coromandel International Ltd. | Development of Paper Based Microfluidic Sensor for Detection of Azadaracthjin Compounds in Neem seed | October 25, 2021–June 26, 2023. | 15.8592 |
| 22 | Vinu R, Chakravarthy S R-000351, AE | Valmet Technologies Private Limited | Process Demonstration of Continuous Hydrothermal Liquefaction (HTL) for Conversion of Agri and Municipal Solid Wastes to High Value Bio-crude and Bio-char | January 11, 2022–January 11, 2025. | 20.9568 |
| 23 | Raghuram Chetty | Common Code | HR - SEM Analysis CH -Phase II | May 31, 2022–May 30, 2027. | 10.9 |
| 24 | Raghuram Chetty | Common Code | HR -SEM Analysis CH - Phase II | May 31, 2022–May 30, 2027. | 10 |
| 25 | Sridharakumar Narasimhan | GYAN DATA PRIVATE LIMITED | Retainership for data analytics projects | October 01, 2022–March 31, 2024. | 21.24 |
| 26 | Renganathan T, Pushpavanam S-000132, CH | Hindustan Petroleum Corporation Limited | CFD Simulation of Ebullated Bed Reactor | May 09, 2022–November 08, 2023. | 74.34 |
| 27 | Vinu R | Shell India Markets Private Limited | Pyrolysis Kinetics of Biomass, Pretreated Biomass and Solid Waste Mixtures. | August 29, 2022–December 31, 2025. | 33.984 |
| 28 | Vinu R, Raghavan V-008293, ME | Saint Gobain India Private Limited (Research & Development) | Biomass Fuel Characterisation and Optimization of Biomass Pelletization, Pellet Combustion and its Performance for Coal-Biomass Fuel Blends | March 24, 2022–September 30, 2024. | 93.7392 |
| 29 | Vinu R, Sarathi R-000032, EE | SEID AS | Development of a Novel Multi-Swirl Plasma Reactor For Producing Hydrogen, Carbon and Ammonia | May 02, 2022–May 31, 2024. | 104.1 |

| S. No. | Co-ordinator | Agency Name | Title | Date | Total Value (INR lakh) |
|--------|---|---|---|---------------------------------------|------------------------|
| 30 | Raghuram Chetty | Schaeffler India Limited | Development of a 250 W Compact Polymer Electrolyte Membrane (PEM) Fuel Cell Stack | June 15, 2022–June 14, 2024. | 50 |
| 31 | Basavaraja Madivala Gurappa, Abhijit Deshpande P-000354, CH | Saint Gobain India Private Limited (Research and Development) | Design of Alternative Strategies for the Development of Moisture Resistant Gypsum Board | July 01, 2022–June 30, 2023. | 36.344 |
| 32 | Vinu R | SIA Terrawaste | Valorization of Waste Plastics to Valuable Crude/ Chemicals through Catalytic Hydrothermal Liquefaction | July 01, 2022–June 30, 2023. | 70 |
| 33 | Vinu R | Hindustan Petroleum Corporation Limited | Catalytic Hydrodeoxygenation of Pyrolytic Oil Produced From Copyrolysis of Agricultural Residue and Plastic Waste | July 01, 2022–June 30, 2025. | 12.98 |
| 34 | Sreenivas Jayanti | Vimano Ewa Private Limited | Testing of Membranes for Vanadium Redox Flow Battery Applications | July 25, 2022–June 30, 2023. | 2.832 |
| 35 | Rajnish Kumar, Niket Kaisare-008669, CH Swapna Singha Rabha-008978, CH | Larsen & Toubro Limited-Construction-Heavy Civil Infrastructure | Development of CO2 Scrubbing System at IITM | November 15, 2022 –November 14, 2023. | 60.77 |
| 36 | Rajnish Kumar, Niket Kaisare-008669, CH | GAS AUTHORITY OF INDIA LIMITED | Continuous Process for Waste Water Purification and Recycle by Gas Hydrate Process (Bench scale study-phase-II) | October 01, 2022 - April 30, 2024. | 94.4 |
| 37 | Aravind Kumar Chandiran | Indus Towers Limited | Research Lab on Hydrogen with Solar Integration | November 01, 2022 - March 31, 2024. | 200 |
| 38 | Raghunathan Rengaswamy | Elicius Energy Private Limited | Development of tubular PEM hydrogen fuel cell stack of 500 W power | February 01, 2023–January 31, 2024. | 15 |
| 39 | Vinu R | Shell India Markets Private Limited | Understanding of Bio-char Passivation for Safe Storage & Scale-up: Characterization, Chemistry & Kinetics | February 22, 2023–December 31, 2024. | 52.038 |

4.4.5.3 Other Projects (ongoing and new)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|---|---|----------------------|
| 1 | Dr. Vinu R, PI Dr. Raghavan R, Co-PI | Biomass Fuel Characterization and Optimization of Biomass Pelletization, Pellet Combustion and its Performance for Coal-Biomass Fuel Blends | Saint Gobain India Private Limited (Research & Development) | 21.52 |

4.4.6. Distinguished Visitors to the Department

| S. No. | Visitor's Name and Designation | Date of Visit | Purpose of Visit |
|--------|---|---------------|---|
| 1 | Dr. Venkat Ganesan, University of Texas at Austin | October 2022 | Distinguished Alumnus Award Winner |
| 2 | Dr. Karimi, NUS, Singapore | October 2022 | 2 weeks, as part of ongoing SPARC project |
| 3 | Dr. Karimi, Columbia University | October 2022 | 5 weeks, Chevron Visiting Chair |
| 4 | Dr. S Lakshminarayanan, NUS, Singapore | October 2022 | 3 months, IoE |

4.5

Department of Chemistry

4.5.1. Introduction

The Department of Chemistry was a part of the Department of Chemical Engineering from 1959-1961 and became an independent Department in 1961 with Prof. V Srinivasan as the Head-in-Charge. Prof. MVC Sastri assumed charge as the first Head of the Department in November 1961. He was instrumental in building the Department as well as the Applied Chemistry Building (completed in 1973). The Department offers M.Sc. and Ph.D. programmes in Chemistry. As on date, 1,020 students have graduated with the M.Sc. degree and 773 students with the Ph.D. degree. Various aspects of chemistry are also taught at the preparatory level (for weaker section students) and in the B.Tech. programme (core as well as minor stream courses in chemistry). The Department is well equipped with modern instrumentation facilities and actively engaged in performing quality teaching and research in frontier areas.

4.5.2. Academic Programmes

4.5.2.1. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|-----------|-----------|-----------------|------------|
| M.Sc. | 62 | 62 | | | | 124 |
| Ph.D. | 42 | 41 | 42 | 31 | 124 | 280 |
| Total | 104 | 103 | 42 | 31 | 124 | 404 |

4.5.2.2. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|---------------|-----------------------------|----------|--|---|---------------------------|
| Abroad | | | | | |
| 1 | Harun Khan | CY18D088 | Canadian Chemistry Congress and Exhibition | June 13-17, 2022. Alberta, Canada | IIT Madras |
| 2 | Sourav Singh Roy | CY17D008 | European Polymer Federation (EPF) European Polymer Congress 2022 | June 26-July 01, 2022. Pragua, Czech Republic | IIT Madras |
| 3 | Asif Ahmad | CY18D067 | 29 th International Conference on Organometallic Chemistry | July 17-27, 2022. Prague, Czech Republic | IIT Madras |
| 4 | Urminder Kaur | CY18D008 | 29 th International Conference on Organometallic Chemistry | July 17-27, 2022. Prague, Czech Republic | IIT Madras |
| 5 | Richa Sharma | CY18D032 | International e-Conference on BiopolymersAsian Polymer Association (APA) BIOFORUM 2022 | July 14-16, 2022. Online | IIT Madras |
| 6 | Gaurav Vishwakarma | CY18D030 | International Conference on Chemistry and Physics at Low Temperature | July 03-07, 2022. Hungary (Online) | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------------|-----------------------------|-----------|--|---|---------------------------|
| 7 | Kandregula Ganapathi Rao | CY17D038 | 23 rd International Conference on Photochemical Conversion and Storage of Solar Energy | August 02-05, 2022. Swiss Tech Center, Switzerland | IIT Madras |
| 8 | Vivekananda Mahanta | CY17D037 | 23 rd International Conference on Photochemical Conversion and Storage of Solar Energy | August 02-05, 2022. Swiss Tech Center, Switzerland | IIT Madras |
| 9 | Anagha H | CY17D011 | International Conference on Phosphorus, Boron and Silicon (PBSi 2023) | March 22-24, 2023. Freie University Berlin, Germany | |
| 10 | Alaka Nanda Pradhan | CY18D065 | International Conference on Phosphorus, Boron and Silicon (PBSi 2023) | March 22-24, 2023. Freie University Berlin, Germany | IIT Madras |
| 11 | Chandan Nandi | CY17D068 | International Conference on Phosphorus, Boron and Silicon (PBSi 2023) | March 22-24, 2023. Freie University Berlin, Germany | IIT Madras |
| 12 | Deep Lata Singh | CAY18D070 | International Conference on Sustainable Nitrogen Activation Faraday Discussion | March 26-28, 2023. London, UK | |
| 13 | Vineet Mishra | CY18D027 | International Conference on Sustainable Nitrogen Activation Faraday Discussion | March 26-28, 2023. London, UK | |
| India | | | | | |
| 1 | Ankit Nagar | CY17D301 | 28 th Chemical Research Society of India (CRSI) National Symposium in Chemistry & CRSI Royal Society of Chemistry (RSC)-15 Joint Symposium & American Chemical Society (ACS) Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | |
| 2 | Tanvi Gupte | CY16D301 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 3 | Swatilekha Pratihari | CY17D043 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 4 | Jayasree K | CY17D004 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 5 | Jayoti Roy | CY18D024 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 6 | Spoorthi B K | CY18D090 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 7 | Pragyansmurti Sunani | CY18D069 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 8 | Soumi Roy | CY18D033 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|-----------|--|---|---------------------------|
| 9 | Subhangi Devadarshini Sahoo | CY17D050 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | |
| 10 | Deboki Reja | CY18D021 | 28 th CRSI National Symposium in Chemistry & CRSI RSC-15 Joint Symposium & ACS Spring 2022 (Online) | March 25-30, 2022. IIT Guwahati, India | IIT Madras |
| 11 | Urminder Kaur | CY18D008 | ACS Spring 2022 | March 24-27, 2022. IIT Guwahati, India | |
| 12 | Swatilekha Pratihar | CY17D043 | ACS Spring 2022 | March 24-27, 2022. IIT Guwahati, India | |
| 13 | Subhangi Devadarshini Sahoo | CY17D050 | ACS Spring 2022 | March 24-27, 2022. IIT Guwahati, India | |
| 14 | Anjana E | CY19D751 | 29 th CRSI National Symposium in Chemistry | July 5-10, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 15 | Athira K K | CY18D085 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 16 | Priyanka V P | CY17D040 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 17 | Leena Sushmita Barla | CY18D0121 | 29 th CRSI National Symposium in Chemistry | July 5-10, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 18 | Jisha K J | CY17D048 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 19 | Baiju C | CY18D118 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | |
| 20 | Subhangi Devadarshini Sahoo | CY17D050 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 21 | Subhadeep Banerjee | CY16D038 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 22 | Tapan Kumar Ghosh | CY17D015 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 23 | Priya V | CY18D106 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 24 | Kandregula Ganapathi Rao | CY17D038 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 25 | Sandeep Kumar Mohapatra | CY18D105 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 26 | Koushik Patra | CY20D142 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 27 | Chandan Kumar Giri | CY18D114 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 28 | Pinki Sihag | CY17D026 | 29 th CRSI National Symposium in Chemistry | July 7-9, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 29 | Sif Kumar Pradhan | CY18D127 | 29 th CRSI National Symposium in Chemistry | July 5-10, 2022. IISER Mohali, Punjab, India | IIT Madras |
| 30 | Gaurav Vishwakarma | CY18D030 | Spectroscopy and dynamics of molecules and clusters (SDMC 2022) | November 10-12, 2022. Malpe, Karnataka, India | IIT Madras |
| 31 | Prathap R | CY20D0144 | 2 nd Asian Conference on Molecules Magnetism (ACMII) | December 6-9, 2022. IISER Bhopal, India | |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|--|---|---------------------------|
| 32 | Saurav Ghosh | CY20D144 | 2 nd Asian Conference on Molecules Magnetism (ACMII) | December 6-9, 2022. IISER Bhopa, India | IIT Madras |
| 33 | Chandan Kumar Giri | CY18D114 | 2 nd National Conference on Contemporary Facts in Organic Synthesis (CFOS-2022) | December 1-4, 2022. IIT Roorkee, India | IIT Madras |
| 34 | Nityananda Ballav | CY20D036 | 2 nd National Conference on Contemporary Facts in Organic Synthesis (CFOS-2022) | December 1-4, 2022. IIT Roorkee, India | IIT Madras |
| 35 | Harsha K Sasidharan | CY20D073 | An International conference on Molecular Materials & Functions 2022 | December 5-7, 2022. IIT Madras, India | IIT Madras |
| 36 | Manaswini Ray | CY17D002 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 37 | Shruti Sharma | CY17D003 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 38 | Sourav Singha Roy | CY17D008 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 39 | Sivanagendra Reddy D | CY17D019 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 40 | Subhash Bairagi | CY17D200 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 41 | Sriparna Sarkar | CY18D006 | 19 th International Modern Trends in Inorganic Chemistry | Dec 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 42 | Suvam Saha | CY18D009 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 43 | Prathap R | CY19D006 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 44 | Sourav Gayen | CY19D056 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 45 | Ashish Kumar | CY20D001 | 19 th International Modern Trends in Inorganic Chemistry | December 14-17, 2022. Banaras Hindu University, Varanasi, India | IIT Madras |
| 46 | Chandra Shekar Tiwari | CY18D005 | Recent Trends in Chemical Science – 2022 (RTCS 2022) | December 16-18, 2022. IIT Dhanbad, India | IIT Madras |
| 47 | Shashi Kumar | CY18D061 | Recent Trends in Chemical Science – 2022 (RTCS 2022) | December 16-18, 2022. IIT Dhanbad, India | IIT Madras |
| 48 | Moumita Sarkar | CY18D064 | Recent Trends in Chemical Science – 2022 (RTCS 2022) | December 16-18, 2022. IIT Dhanbad, India | IIT Madras |
| 49 | Sangita Sahoo | CY20D015 | Recent Trends in Chemical Science – 2022 (RTCS 2022) | December 16-18, 2022. IIT Dhanbad, India | IIT Madras |
| 50 | Amit Debnath | CY19D041 | 15 th National Symposium on Radiation & Photochemistry (NSRP-2023) | January 05-07, 2023. Birla Institute of Technology and Science (BITS), Goa, India | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|-----------|---|---|---------------------------|
| 51 | Bishnupriya Kar | CY19D029 | 15 th National Symposium on Radiation & Photochemistry (NSRP-2023) | BITS, Goa, India | IIT Madras |
| 52 | Fredy Joy | CY18D037 | 15 th National Symposium on Radiation & Photochemistry (NSRP-2023) | January 5-7, 2023. BITS, Goa, India | IIT Madras |
| 53 | Prasanna Kumar Bej | CY18D098 | 15 th National Symposium on Radiation & Photochemistry (NSRP-2023) | January 5-7, 2023. BITS, Goa, India | IIT Madras |
| 54 | Gopika S Madhu | CY19D070 | 15 th National Symposium on Radiation & Photochemistry (NSRP-2023) | January 5-7, 2023. BITS, Goa, India | IIT Madras |
| 55 | Subhadeep Banerjee | CY16D038 | International Conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | IIT Madras |
| 56 | Samir Kumar Nayak | CY20D0148 | International Conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 57 | Khushboo | CY21D042 | International Conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 58 | Sumit Kumar | CY21D079 | International Conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 59 | Sumit Kumar | CY21D079 | International Conference on "Progress in Quantum Science and Technologies", organized by the Centre for Quantum Information, Communication and Computing (CQulCC) of IIT Madras | January 23-27, 2023. IIT Madras, India | |
| 60 | Sumit Kumar | CY21D079 | Association for Computing Machinery (ACM) Winter School | December 5-16, 2022. IIT Madras, India | |
| 61 | Kalpak Ghosh | CY20C023 | ACM Winter school | December 5-16, 2022. IIT Madras, India | |
| 62 | Kalpak Ghosh | CY20C023 | International Conference on "Progress in Quantum Science and Technologies", organized by the CQulCC of IIT Madras | January 23-27, 2023. IIT Madras, India | |
| 63 | Babuji Dandigunta | PH21D300 | International conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 64 | Asif Ahmad | CY18D067 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 65 | Chandan Nandi | CY17D068 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 66 | Alaka Nanda Pradhan | CY18D065 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|--|
| 67 | Anagha H | CY17D011 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 68 | Urminder Kaur | CY18D008 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 69 | Sourav Gayen | CY19D056 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 70 | Subhash Bairagi | CY17D200 | International Conference on Main Group Synthesis and Catalysis (ICMGSC-2023) | February 8-11, 2023. IISER-Thiruvananthapuram, India | |
| 71 | Tapan Kumar Ghosh | CY17D015 | Recent Advances in Inorganic and Organometallic Chemistry | February 23-24, 2023. NIT Warangal, Telangana, India | |
| 72 | Madhurja Buragohain | CY22D015 | International conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | March 3-11, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 73 | Kandregula Ganapathi Rao | CY17D038 | Emergent Materials for Energy and Environment (EMEE-2023) | March 3-04, 2023. IIT Roorkee, India | |
| 74 | Krateeka | CY18D001 | International Conference on Green Hydrogen for Global De-carbonization | March 16-17, 2023. Pandit Deendayal Energy University, Gandhinagar, India | |
| 75 | Bignya Rani Dash | CY20D126 | Online Workshop on DFT Calculations using Gaussian Software | March 17-24, 2023. Spark Institute of Advance Science, Kerala, India | |
| 76 | Anjana E | CY19D751 | Online Workshop on DFT Calculations using Gaussian Software | March 17-24, 2023. Spark Institute of Advance Science, Kerala, India | |
| 77 | Jayasree K | CY17D004 | Online Workshop on DFT Calculations using Gaussian Software | March 17-24, 2023. Spark Institute of Advance Science, Kerala, India | |
| 78 | Sweta Thangriyal | CY17D045 | International Conference on Nanomaterials for Electro-Catalytic Technologies (I-CONNECT 2023) | March 19-21, 2023. IIT Delhi, India | |
| 79 | Krateeka | CY18D001 | International Conference on Nanomaterials for Electro-Catalytic Technologies (I-CONNECT 2023) | March 19-21, 2023. IIT Delhi, India | |
| 80 | Sweta Thangriyal | CY17D045 | Recent Trends in Chemical Sciences & Sustainable Energy | March 23-24, 2023. NIT Delhi | |
| 81 | Pushpkant Sahu | CY21D083 | FCS-XIII: 13 th National Workshop on Fluorescence and Raman Spectroscopy | January 6-11, 2023. IISER Thiruvananthapuram, India | Prime Minister's Research Fellowship Scheme (PMRF) |
| 82 | Jijith Mepperi | CY21D301 | Workshop and Hands-on Training on Biological Atomic Force Microscopy | September 22-28, 2022. IIT Gandhinagar, India | Organisers |
| 83 | Jijith Mepperi | CY21D301 | 45 th Indian Biophysical Society Meeting | March 25-29, 2023. NCBS, Bengaluru | PMRF |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|---------------------------|
| 84 | Jogeswar Chhatria | CY22D017 | International conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |
| 85 | Ankita | CY21D082 | International conference on Evolution of Electronic Structure Theory and Experimental Realization (EESTER-2023) | January 4-12, 2023. SRM Institute of Science and Technology & IIT Madras, India | |

4.5.2.3. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--------------------------------|--|
| 1 | Deepan Chowdhury | CY17D030 | Best Oral Presentation | XVII National Organic Symposium Trust Conference for Young Researchers (J-NOST) 2022 |
| 2 | Jambu S | CY16D095 | Best Thesis Award | SALIFE-NOST Best Thesis Award-2021 |
| 3 | Potham Sravani | CY18D131 | Best Paper Presentation Award | National Symposium on Electrochemical Science and Technology (NSEST-2021) |
| 4 | Shuchi Sarma | CY18D109 | Best Oral Presentation Award | 1 st International Conference on Green Hydrogen for Global De-Carbonization (ICGHGD-23), Pandit Deendayal Energy University, Gujarat |
| 5 | Potham Sravani | CY18D131 | Best Oral Presentation Award | International Conference on Electrochemistry in Industry, Health & Environment" (EIHE-2023), BARC & ISEAC Mumbai |
| 6 | Ganapathi Rao Kandregula | CY17D038 | Best Paper Presentation Award | Emergent Materials for Energy and Environment (EMEE-2023), IIT Roorkee |
| 7 | Shashi Kumar | CY18D061 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 8 | Sangita Sahoo | CY20D015 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 9 | Chandra Shekhar Tiwari | CY18D005 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 10 | Chandra Shekhar Tiwari | CY18D005 | Best Poster Presentation Award | ChemSci - 2023: Leaders in the Field Symposium, The Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore |
| 11 | Tapan Kumar Ghosh | CY17D015 | Best Poster Presentation Award | International Conference on Molecular Materials and Functions 2022, IIT Madras |
| 12 | Tapan Kumar Ghosh | CY17D015 | Best Oral Presentation Award | National Conference on "Recent Advances in Inorganic and Organometallic Chemistry 2023 (RADIOC-2023), NIT Warangal |
| 13 | Deep Lata Singh | CY18D070 | Best Poster Presentation Award | National Conference on Recent Trends in Green Energy Technologies (NCRTGET 2022), Pondicherry University |
| 14 | Alaka Nanda Pradhan | CY18D065 | Best Poster Presentation Award | International Conference on Main Group Synthesis and Catalysis (ICMGSC), IISER Thiruvananthapuram |
| 15 | Shuchi Sarma | CY18D109 | Best Oral Presentation Award | 1 st International Conference on Green Hydrogen for Global De-Carbonization (ICGHGD-23), Pandit Deendayal Energy University, Gujarat |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--------------------------------|--|
| 16 | Potham Sravani | CY18D131 | Best Oral Presentation Award | International Conference on Electrochemistry in Industry, Health & Environment" (EIHE-2023), Bhabha Atomic Research Centre (BARC) & Indian Society for Electro Analytical Chemistry (ISEAC) Mumbai |
| 17 | Ganapathi Rao Kandregula | CY17D038 | Best Paper Presentation Award | Emergent Materials for Energy and Environment (EMEE-2023), IIT Roorkee |
| 18 | Shashi Kumar | CY18D061 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 19 | Sangita Sahoo | CY20D015 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 20 | Chandra Shekhar Tiwari | CY18D005 | RSC Best Poster Award | 59 th Annual Convention of Chemists 2022 and International Conference on Recent Trends in Chemical Sciences (RTCS), IIT (ISM) Dhanbad |
| 21 | Chandra Shekhar Tiwari | CY18D005 | Best Poster Presentation Award | ChemSci - 2023: Leaders in the Field Symposium, JNCASR, Bangalore |
| 22 | Tapan Kumar Ghosh | CY17D015 | Best Poster Presentation Award | International Conference on Molecular Materials and Functions 2022, IIT Madras |
| 23 | Tapan Kumar Ghosh | CY17D015 | Best Oral Presentation Award | National Conference on "Recent Advances in Inorganic and Organometallic Chemistry 2023 (RADIOC-2023), NIT Warangal |
| 24 | Deep Lata Singh | CY18D070 | Best Poster Presentation Award | National Conference on Recent Trends in Green Energy Technologies, Pondicherry University |
| 25 | Alaka Nanda Pradhan | CY18D065 | Best Poster Presentation Award | International Conference on Main Group Synthesis and Catalysis (ICMGSC), IISER Thiruvananthapuram |

4.5.2.4. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|---|----------------------|---|------------------------|
| 1 | Dr. Kirana DV | CY15D004 | Prof. C.N. Pillai Prize (Organic & Bio-Chemistry) | Prof. C.N. Pillai |
| 2 | Dr. Mallu Kesava Reddy | CY15D006 | Prof. G. Sundarajan Endowment Prize (Organic Chemistry) | Prof. G. Sundarajan |
| 3 | Dr. Prabakaran T Dr. Ranjit Bag (Joint Winners) | CY14D072 CY15D079 | Prof. Werner Prize (Inorganic & Analytical Chemistry) | Prof. Werner Prize |
| 4 | Dr. Chinmaya MR | CY16D043 | Prof. Langmur Prize (Physical & Theoretical Chemistry) | Prof. Langmur Prize |
| 5 | Dr. Pallab Basuri | CY14D202 | Prof. Ramamurthy Prize & Award (Dept. Prize) | Prof. Ramamurthy Prize |

4.5.3. Faculty and their Activities

4.5.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|--|--|
| Professors | |
| Sankararaman S, Ph.D. (Victoria, Canada) | Synthetic and Mechanistic Organic Chemistry |
| Dhamodharan R, Ph.D. (U. Mass, USA) | Chemistry of Macromolecules |
| Mishra AK, Ph.D. (IIT Kanpur) | Physical Photochemistry, Fluorescence Spectroscopy |

| Name and Qualifications | Major Areas of Specialisation |
|---|--|
| Pradeep T, Ph.D. (IISc. Bangalore) | Solid State Chemistry, Materials Science |
| Sangaranarayanan MV, Ph.D. (IISc, Bangalore) | Electrochemistry |
| Selvam P, Ph.D. (IIT Madras) | Catalysis, Solid State Chemistry |
| Archita Patnaik, Ph.D. (BHU) | Physical Chemistry, Colloid and Interface Science, Nanoscience and Nanotechnology |
| Baskaran S, Ph.D. (IIT Kanpur) | Organic Synthesis and Asymmetric Synthesis |
| Indrapal Singh Aidhen, Ph.D. (University of Pune) | Synthetic Organic Chemistry, Synthetic Carbohydrate Chemistry and Synthesis of Biologically and Medicinally Important Targets |
| Mangala Sunder K, Ph.D. (Head) (McGill, Canada) | Theoretical Spectroscopy, Magnetic Resonance and Molecular Spectra, Quantum Chemistry and Quantum Information Processing, Online Digital Content Development and Online Teaching; Technology Enhanced Learning |
| Vidyasagar K, Ph.D. (IISc, Bangalore) | Solid State Chemistry |
| Bhyrappa P, Ph.D. (IISc, Bangalore) | Bioinorganic, Supramolecular and Materials Chemistry of Porphyrinoids |
| Ranga Rao G, Ph.D. (IISc, Bangalore) | Materials Chemistry, Solid State Electrochemistry, Surface Chemistry and Heterogeneous Catalysis |
| Sanjay Kumar, Ph.D. (IIT Kanpur) | Theoretical Chemistry, Quantum Chemistry |
| Narasimha Murthy N, Ph.D. (IISc, Bangalore) | Bio-inorganic Chemistry, Inorganic Chemistry, Spectroscopy |
| Dillip Kumar Chand, Ph.D. (IIT Kanpur) | Supramolecular Chemistry, inorganic Chemistry |
| Sekar G, Ph.D. (IIT Kanpur) | Enantioselective Organic Synthesis |
| Sundaragopal Ghosh, Ph.D. (IIT Bombay) | Organometallic and Metalloborane Chemistry |
| Rajakumar B, Ph.D. (IISc. Bangalore) | Atmospheric Chemistry, Gas-phase Kinetic and High Resolution Cavity Ring Down Spectroscopy, Computational Chemistry |
| Muraleedharan KM, Ph.D. (RRL, Trivandrum) | Bioorganic Chemistry, Medicinal Chemistry |
| Prasad Edamana, Ph.D. (RRL, Trivandrum) | Divalent Lanthanide and Dendrimer Chemistry |
| Arti Dua, Ph.D. (IISc. Bangalore) | Theoretical Physical Chemistry; Stochastic Reaction Dynamics; Statistical Mechanics of Complex Fluids |
| Ramesh Gardas, Ph.D. (South Gujarat University) | Solution Thermodynamics, Ionic Liquids |
| Debashis Chakraborty, Ph.D. (University of Gottingen, Germany) | Organometallic Chemistry |
| Pazhamalai Anbarasan, Ph.D. (IISc. Bangalore) | Design and Development of New Synthetic Methodologies based on Carbenes Trifluoromethylation and Trifluoromethylthiolation Synthesis of Therapeutically Important Natural Products |
| Kothandaraman R, Ph.D. (IISc. Bangalore) | Electrochemical Systems and Electrocatalysis |
| Jeganmohan M, Ph.D. (NTHU, Taiwan) | Metalcatalyzed Organic Reactions, Total Synthesis and Asymmetric Synthesis |
| Beeraiah Baire, Ph.D. (IISc. Bangalore) | Organic Synthesis |
| Md Mahinddin Baidya, Ph.D. (LMU, Munich, Germany) | Designer Catalysis for Organic Synthesis Asymmetric Synthesis, Photoredox Catalysis, C-H bond Activation, Synthesis of Natural Products |
| Associate Professors | |
| Venkatakrisnan P, Ph.D. (IIT Kanpur) | Organic Functional Materials |
| Kartik Chandra Mondal, Ph.D. (Karlsruhe Institute of Technology, Germany) | Inorganic Chemistry |
| Arnab Rit, Ph.D. (University of Muenster, Germany) | Organometallic Chemistry and Catalysis, Main-group Chemistry |
| Assistant Professors | |
| Hema Chandra Kotamarthi | Molecular Biophysics/ Biophysical Chemistry |
| Yamijala S R K Chitanya Shrama | Application of Nonadiabatic Molecular Dynamics (NAMD) Methods, Electronic Structure (DFT) and ab initio Molecular Dynamics Methods |

| Name and Qualifications | Major Areas of Specialisation |
|-------------------------|---|
| Sooraj K | Computational Chemistry and Material Science |
| Palani Selvam T | Physical Chemistry – Electrochemistry High Performance Electrode Materials for all Solid-state Battery Applications |
| Dawande Sudam Ganpat | Synthetic Organic Chemistry, C-H bond Functionalization, Metal Carbene Chemistry |

4.5.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by the Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|---|---|--|
| Conferences | | | |
| 1 | Prof. K Mangala Sunder | IIT Madras' contribution to Science and Engineering Online Education to the Society, Invited Lecture in Vigyan Utsav, Organized Jointly by Department of Science and Technology and Tamil Nadu State Council for Science and Technology | April 28, 2022 |
| 2 | Prof. G Sekar | RSC-CRSI's "Policy Lab Discussion" | August 10, 2022 |
| 3 | Prof. Kothandaraman R | "ECS Indian Institute of Technology Madras Student Chapter" | December 10, 2022 |
| 4 | Prof. Kothandarama, Dr. Venkatakrishnan, and Dr. Satyanarayanan Seshadri | "International Conference on Electrochemical Energy Conversion and Storage (IECS-2023)" | January 18-20, 2023 |
| 5 | Dr. Hema Chandra Kotamarthi (co-organiser) | "International Conference on Advanced Bioimaging" at IIT Madras Research Park as a part of pCoE activities of Biosensing | November 2022–January 2023 |
| 6 | Dr. Yamijala Chaitanya Sharma & Dr. Sooraj K (co-organisers) | "Evolution of Electronic Structure Theory & Experimental Realization (EESTER- 2023)" Conference Organized by SRMIST KTR and IIT Madras India | January 4–7, 2023, SRM Institute of Science and Technology, Chennai, January 9-12, 2023, Indian Institute of Technology Madras, Chennai, India |
| 7 | Dr. Yamijala Chaitanya Sharma (co-organiser) | "Progress in Quantum Science and Technologies" Conference, organized by the CQuICC center of IIT Madras | January 23-27, 2023 |
| 8 | Prof. T Pradeep | International Conference on Molecular Materials and Functions | December 5-7, 2022 |
| 9 | Prof. T Pradeep | International Conference on Water for Life | December 15-17, 2022 |
| Seminars | | | |
| 1 | Prof. G Sekar | Dr. P T Manoharan Distinguished Lecture | June 29, 2022 |
| 2 | Prof. P Selvam | Prof. B Viswanathan Endowment Lecture | December 28, 2023 |
| Symposia | | | |
| 1 | Prof. Edamana Prasad, Prof. Arti Dua, Prof. Kartik Chandra Mondal, Prof. Muraleedharan KM | Chemistry In-house Symposium 2022 (CiHS-2022) | September 14, 2022 |
| 2 | Dr. Hema Chandra Kotamarthi | European Molecular Biology Organization (EMBO)-India Research Partnership Program | March 1, 2023 |

4.5.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|-------------------------------|---|---|---|
| Workshops | | | | |
| 1 | Dr. Yamijala Chaitanya Sharma | Mumbai Workshop on Quantum Chemistry (MWQC) | IIT Bombay | July 5-11, 2022 |
| 2 | Dr. Yamijala Chaitanya Sharma | Grant Writing Workshop | ICSR | August 5, 2022 |
| 3 | Dr. Yamijala Chaitanya Sharma | SERB Project Writing Workshop | IIT Madras | July 14, 2022 |
| 4 | Dr. Sooraj K | SERB Project Writing Workshop | IIT Madras | July 14, 2022 |
| 5 | Prof. T Pradeep | International Workshop on Water Purification Technologies, Arsenic Removal from Groundwater and Integrated Water Management (IWWPT 2022), | Council of Scientific & Industrial Research (CSIR)- Central salt and marine chemical research Institute (CSMCRI), Bhavnagar, Gujarat, India | June 28, 2022 |
| 6 | Prof. T Pradeep | Online Workshop on 'Thin Film Nanostructured Membranes on Gas Separation, Storage and Water Desalination' | Indian Institute of Science Bangalore, India | January 20, 2022 |
| 7 | Prof. T Pradeep | Indo-German Workshop 2022 Indo-German Workshop-Complex Chemical Systems (IGW-CCS) 2022 | IIT Madras | October 5, 2022 |
| Symposia | | | | |
| 1 | Prof. T Pradeep | Frontier Symposium-Chemistry 2022 (FSCHM) | IISER Thiruvananthapuram | April 8-10, 2022 |
| 2 | Prof. T Pradeep | Indo-UK Symposium Under SUNRISE Network | Online | February 10, 2022 |
| Conferences | | | | |
| 1 | Prof. K Mangala Sunder | Inaugural Address in the International Conference on Service Learning and Science Communication | Madras Christian College, Chennai | April 22, 2022 |
| 2 | Dr. Hema Chandra Kotamarthi | Invited talk at Future Oriented Research Conferences and Exhibitions (FORCE)-Interdisciplinary Initiatives in Chemical Sciences (IICS) | Agra | July 28-31, 2022 |
| 3 | Prof. G Sekar | FORCE IICS Conference 2022 | Jaypee Palace, Agra | July 28-31, 2022 |
| 4 | Dr. Yamijala Chaitanya Sharma | How Teachers Can Make a Difference | IIT Madras | July 21-23, 2022 |
| 5 | Prof. Arti Dua | Statistical Biological Physics: From Single-Molecule to Cell | International Centre for Theoretical Sciences (ICTS), Bangalore | October 11-22, 2022 |
| 6 | Dr. Yamijala Chaitanya Sharma | Computing Energies and Gradients of Small Molecules on a Quantum Computer Using Variational Quantum Eigensolver | MCQUICC, IIT Madras | October 21, 2022 |
| 7 | Dr. Palani Selvam | Molecular Materials and Functions 2022, International Conference on Energy Conversion and Storage 2023, IIT Madras | IIT Madras | December 7, 2022 January 18-20, 2023 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|-----------------------------|--|---|-----------------------------|
| 8 | Dr. Palani Selvam | International Conference on Energy Conversion and Storage 2023 | IIT Madras | January 18-20, 2023 |
| 9 | Dr. Sooraj K | Invited Talk titled Development of High-Performance Electrodes and Electrolytes for Li and Post-Li Ion Batteries | International Conference on Molecular Materials and Functions, IIT Madras Research Park | December 5-7, 2022 |
| 10 | Dr. Hema Chandra Kotamarthi | Invited Talk at FCS-XIII: 13 th National Workshop on Fluorescence and Raman Spectroscopy | IISER Thiruvananthapuram | January 9-11, 2023 |
| 11 | Dr. Hema Chandra Kotamarthi | Invited Talk at 45 th Indian Biophysical Society Meeting | NCBS, Bengaluru | March 27-29, 2023 |
| 12 | Prof. Archita Patnaik | International Scientific Advisory Committee Member and Invited Speaker at 17 th International Association of Colloid and Interface Science (IACIS) Conference | Brisbane, Australia | June 26 -29, 2022 |
| 13 | Prof. Archita Patnaik | DST's Karyashala Workshop on Frontiers in Spectroscopy | IIT Gandhinagar | February 27 – March 5, 2023 |
| 14 | Prof. Archita Patnaik | Invited Speaker: Chennai Soft Matter Day | IIT Madras | April 16, 2022 |
| 15 | Prof. Indrapal Singh | Invited Lecture Titled Natural Product Inspired Synthesis Interfaced with Carbohydrates, The International Carbohydrate Conference (CARBO XXXVI 2022) | IIT Bombay, Mumbai | December 5-7, 2022 |
| 16 | Prof. T Pradeep | Chemical Reactions and Dynamics in Nanoparticles at Association of European Research Libraries (LIBER) Symposium 2022 | Helsinki, Finland | May 12-13, 2022 |
| 17 | Prof. T Pradeep | Complexity in the Chemistry of Atomically Precise Clusters AsiaNANO 2022, Asian Conference on Nanoscience & Nanotechnology, Busan | Busan, South Korea | November 9-11, 2022 |
| 18 | Prof. T Pradeep | Atomically Precise Clusters for Applications at Molecular Materials and Functions Conference | IIT Madras | December 5-7, 2022 |
| 19 | Prof. T Pradeep | Affordable Clean Water Using Advanced Materials at Water for Life Conference | IIT Madras | December 15-17, 2022. |
| 20 | Prof. T Pradeep | Affordable Clean Water Using Advanced Materials, International Conference on Water Resources and Arid Environments | Online | December 26-28, 2022 |
| 21 | Prof. T Pradeep | Affordable Clean Water Using Advanced Materials | MAHE | December 28-20, 2022 |
| 22 | Prof. T Pradeep | Chemistry of Atomically Precise Clusters, International Conference on Chemistry and Applications of Soft Materials (CASM 2022) | CSIR-NIIST, Thiruvananthapuram | July 25, 2022 |
| 23 | Prof. T Pradeep | Advanced Materials for Affordable Clean Water, NANOicon 2022, Inter University Centre for Nanomaterials and Devices (IUCND) | Cochin University of Science and Technology, Kerala | January 11-15, 2022 |

4.5.3.4 Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-------------------------------|--|--|----------------------|
| 1 | Prof. Sundargopal Ghosh | “Structural Paradigms in Metallaborane Chemistry”: International Symposium Exploring Molecules, Materials, and Bio-materials for Sustainable Society | Midnapore College | April 13, 2022 |
| 2 | Prof. Sangaranarayanan M V | Phase Transitions at Electrochemical Interfaces | CSIR-CECRI on the Occasion of 75 th Year of Independence | April 28, 2022 |
| 3 | Prof. Arti Dua | Molecular Noise, Non-Stationarity and Memory in Single Enzyme Kinetics | International Centre for Theoretical Sciences (ICTS), Bangalore | October 17, 2022 |
| 4 | Prof. Prasad Edamana | Supramolecular Gel Systems for Practical Applications (Online mode) | NIT Andhra Pradesh | October 13, 2022 |
| 5 | Dr. Yamijala Chaitanya Sharma | An Introduction to the Applications of Quantum Computational Chemistry (online mode) | TCS Research Team | October 14, 2022 |
| 6 | Prof. Ramesh L Gardas | Environmental Benign Solvents for Sustainable Developments (CSCS 2022) | Khandesh College Education Society’s Moolji Jaitha College, Jalgaon, Maharashtra | September 16, 2022 |
| 7 | Prof. Ramesh L Gardas | Phase Equilibria and Chemical Thermodynamics” at Short Term Course – Chemical Sciences(online mode) | SNIST Hyderabad & NIT Warangal | October 14, 2022 |
| 8 | Prof. Ramesh L Gardas | (Basic Sciences Webinar Series) on How Chemistry Will Be Useful In Engineering Caree” at B.E./ B.Tech. Students Induction Program | R.M.D. Engineering College | October 20, 2022 |
| 9 | Prof. Ramesh L Gardas | Benign Solvents for Enhancing the Extraction of Micropollutants from Industrial Waste Water, Environment and Sustainability Event 2022 | INSA, IISc, and ACS India | November 06-08, 2022 |
| 10 | Prof. Kothandaraman R | International Conference on Recent Trends in Materials and Magnetism (RTMM-22) | Department of Chemistry, Loyola College (Autonomous), Chennai | December 15-16, 2022 |
| 11 | Prof. Kothandaraman R | International Conference on Future of Energy with Science and Technology (FEST 2022) | Department of Chemistry, University of Delhi, New Delhi | December 29-30, 2022 |
| 12 | Prof. Bhyrappa P | Transition Metal ions in Biology: Concepts, Innovation and Perspectives | Rajalakshmi Engineering College, Thandalam. | February 24, 2023 |
| 13 | Dr. Palaniselvam T | Invited Talk on Sn-based Composites for Post-Li-ion Batteries, National Conference on Advances in Mathematics and Physical Science (AMPS) 2023 | Vivekananda College for Women, Tiruchengode | |
| 14 | Dr. Palaniselvam T | Invited Talk on Heteroatom-doped Carbons and Its Composites for Fuel Cell and Battery Applications, Recent Trends in Chemistry | The American College, Madurai | |
| 15 | Dr. Hema Chandra Kotamarthi | Invited Talk at the 45 th Indian Biophysical Society Meeting. | NCBS, Bengaluru | March 27-29, 2023 |
| 16 | Prof. Ramesh Gardas | Guest Lecture on Inculcating Research Interest in Young Minds at Faculty Empowerment Programme. | Anna Administrative Staff College, Chennai | |
| 17 | Prof. Ramesh Gardas | Invited Talk on Benign Solvents for Sustainable Chemical & Technological Developments at International Conference on Recent Advances in Chemistry (CRAC 2023). | Punjabi University, Patiala | February 24, 2023 |
| 18 | Prof. Kothandaraman R | Invited Speaker at the 30 th CRSI National Symposium in Chemistry (CRSI-NSC 30) | Jawaharlal Nehru University, New Delhi | February 3-5, 2023 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------------|--|---|---------------------|
| 19 | Prof. Kothandaraman R | Delivered a Lecture at the International Workshop on Electrochemical Techniques for Next-generation Batteries. | IIT Madras | March 29-30, 2023 |
| 20 | Prof. Archita Patnaik | Invited Speaker at Asima Chatterjee Lecture Series on Chemistry at Structured Interfaces: Molecular Recognition and Orientation Dependent Electron Transport | IIT Indore | September 19, 2022 |
| 21 | Prof. Archita Patnaik | National Conference on Gender Equality in S&T for Sustainable Future | NASI, Nagpur Chapter and Rashtrasant Tukadoji Maharaj Nagpur University | March 14, 2023 |
| 22 | Prof. P Selvam | Keynote at International Conference on Contemporary Catalysis, Energy and Sustainability | Kottayam, India | June 21-23, 2022 |
| 23 | Prof. P Selvam | Keynote at 5 th International Conference on Nanospace Materials | Pattaya, Thailand | December 2022 |
| 24 | Prof. P Selvam | Keynote at 9 th World Congress on Oxidation Catalysis - Oxidation for a Sustainable Future and Clean Environment | Cardiff, United Kingdom | September 4-8, 2022 |
| 25 | Prof. P Selvam | Invited Lecture at 8 th UK Catalysis Conference | Loughborough, United Kingdom | January 5-7, 2022 |
| 26 | Prof. P Selvam | Plenary on Advances in Chemistry with Specific Reference to Catalysis, Sensors, Drug Delivery, Energy Materials and Anti-Cancer Studies | Chennai, India | March 28-29, 2022 |
| 27 | Prof. P Selvam | Plenary at International Conference on Novel Nanomaterials Synthesis, Fabrication and Application | Chennai, India | September 22, 2022. |
| 28 | Prof. T Pradeep | Online Lecture at Inter University Centre for Nanomaterials and Devices (IUCND) | Cochin University of Science and Technology, Kerala (Online) | January 11, 2022 |
| 29 | Prof. T Pradeep | Online Lecture on Mission to Save 1000 Crores Litres | Wow Chennai (Online) | January 13, 2022 |
| 30 | Prof. T Pradeep | Online Lecture on Water at Jigyasa Vigyan Mahotsav Bootcamp 1 on Water Conservation | Online | February 14, 2022 |
| 31 | Prof. T Pradeep | Online Lecture at IIT Alumni Industry Interaction Centre | IIT Madras (Online) | February 5, 2022 |
| 32 | Prof. T Pradeep | CoE Lecture Series on Molecular Materials and Functions | IIT Madras (Online) | February 11, 2022 |
| 33 | Prof. T Pradeep | Online Lecture | NIT Uttarakhand (Online) | February 28, 2022 |
| 34 | Prof. T Pradeep | Online Lecture | Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore, Madhya Pradesh (Online) | February 28, 2022 |
| 35 | Prof. T Pradeep | Online lecture on Science, Technology, and Innovation for Sustainable Clean Water | IIT Roorkee (Online) | February 28, 2022 |
| 36 | Prof. T Pradeep | Online lecture | Indian Academy of Sciences, Raman Research Institute, Bangalore (Online) | February 28, 2022 |
| 37 | Prof. T Pradeep | Online Lecture on Water@2047: A Glimpse Into the Challenges and Opportunities, Imagining India@2047 Through Innovation | Online | March 7-9, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------|--|---|-------------------|
| 38 | Prof. T Pradeep | Building clean water technologies from a Chemistry Laboratory Environmental Sciences and Engineering (EnSE) Seminar Series, Water Desalination and Reuse Research Center | King Abdullah University of Science and Technology (KAUST), Saudi Arabia (Online) | March 17, 2022 |
| 39 | Prof. T Pradeep | Affordable Clean Water Using Advanced Materials, Water Sustainability: Challenges, Technologies, and Opportunities | (IWSS 2022) Vishwa Vidyapeetham (Online) | March 24, 2022 |
| 40 | Prof. T Pradeep | Technological Advancements for Achieving Water Sufficient Gram Panchayats | Azadi ka amrit mahotsav celebration of ICONIC week, Government of India Ministry of Panchayati Raj, Vigyan Bhawan, New Delhi (Online) | April 11-17, 2022 |
| 41 | Prof. T Pradeep | Online Lecture on Research Ethics and Intellectual Property Rights | Stella Maris College, Chennai (Online) | May 4, 2022 |
| 42 | Prof. T Pradeep | Online ACS seminars on Affordable Clean Water Using Advanced Materials: Basic Science to Industry | IIT Mandi (Online) | May 5, 2022 |
| 43 | Prof. T Pradeep | Online Lecture on Beyond Dimensions: Reactions Between Clusters, Nanoparticles and Bulk Matter | Institute of Nanotechnology, KIT, Karlsruhe | May 16, 2021 |
| 44 | Prof. T Pradeep | Online lecture at The Maharaja Sayajirao University of Baroda, Vadodara | Online | June 5, 2022 |
| 45 | Prof. T Pradeep | Frontier Lecture on From molecular acrons to Institutional Oaks | University of Calicut , Kerala | June 20, 2022 |
| 46 | Prof. T Pradeep | 33 rd Mid-Year Meeting, Indian Academy of Sciences on Water: Gaps and opportunities | | July 8-9, 2022 |
| 47 | Prof. T Pradeep | Lecture on Affordable clean water using advanced materials | Kannur University, Kerala | July 12, 2022 |
| 48 | Prof. T Pradeep | Lecture on Chemistry of atomically precise clusters | CSIR NIIST, Kerala | July 25, 2022 |
| 49 | Prof. T Pradeep | Water technology particularly for drinking water and Atmanirbharata, Atmanirbarata & Industry, Tamilnadu State Council for Science & Technology | Online | July 27, 2022 |
| 50 | Prof. T Pradeep | Online Seminar on Environmental Sciences, RSC-IITM Desktop | Online | October 11, 2022 |
| 51 | Prof. T Pradeep | Virtual Lecture Series No. 100, ACS Science Talks | Online | November 30, 2022 |
| 52 | Prof. T Pradeep | Lecture on Affordable Clean Water Using Advanced Materials | Technische Universität Wien | December 12, 2022 |

4.5.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|-----------------|--|--------------------------------|--------------------|--|
| 1 | Prof. P Selvam | International Research Organization for Advanced Science and Technology (IROAST), Kumamoto University, Japan | April 1, 2022 – March 31, 2023 | Visiting Professor | Other Sources |
| 2 | Prof. P Selvam | Cardiff University, Leeds University, University of Edinburgh, Queen's University Belfast, UK | September 2022 | Visiting Academic | Cumulative Professional Development Allowance (CPDA) |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|-----------------|--|-----------------------|---|--------------|
| 3 | Prof. P Selvam | Thailand Vidyasirimedhi Institute of Science and Technology | December 2022 | Visiting Academic | CPDA |
| 4 | Prof. T Pradeep | Helinski, Finland Life Inspired Hybrid Materials (LIBER) Symposium | May 11-13, 2022 | Symposium | |
| 5 | Prof. T Pradeep | Finland, Tempere University | May 14, 2022 | Lecture | |
| 6 | Prof. T Pradeep | Germany, Karlsruhe Institute of Technology, Germany | May 15-17, 2022 | Lecture | |
| 7 | Prof. T Pradeep | Israel | September 14-22, 2022 | Course on the Management of Wastewater and Sustainable Reuse for Irrigation | |
| 8 | Prof. T Pradeep | California, USA | October 16-21, 2022 | Atomically Precise Nanochemistry, Vice Chair of the Gordon Research Conference | |
| 9 | Prof. T Pradeep | Osaka University, Japan | November 7-9, 2022 | Under Status of Cryo-EM at Osaka University | |
| 10 | Prof. T Pradeep | Busan | November 9-11, 2022 | Asian Conference on Nanoscience and Nanotechnology, AsiaNANO 2022 | |
| 11 | Prof. T Pradeep | Vienna | December 9-14, 2022 | To receive the Prince Sultan Bin Abdulaziz Internantional Prize for Water (PSIPW) | |
| 12 | Prof. T Pradeep | Hanoi, Vietnam | December 18-24, 2022 | To receive VinFuture Prize | |

4.5.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|--------|----------------------------|---|------------------------|---|------------------------------|
| 1 | Prof. Dilip Kumar Chand | | Chemical Communication | Research work on Configurational Ligand Isomerism in Conjoined-cages. Published as a Cover Page Art in the Chemical Communication | |
| 2 | Prof. M V Sangaranarayanan | | | Invitation to continue serving as an Associate Editor of The Bulletin of Materials Science | January 2023–December 2025 |
| 3 | Prof. Mahiuddin Baidya Md | Member for Special Selection Board (SSB) | SSB | Review and select Pool Scientists (SRAs) in the domain of Chemical Sciences, CSIR New Delhi | (November 2022–January 2023) |
| 4 | Prof. T Pradeep | Nominated as for the National Representative for the Analytical Chemistry Division of the International Union of Pure and Applied Chemistry (IUPAC) | IUPAC | | 2022-23 |

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|---------------|-------------------------------|--|---|--|--------------------|
| 5 | Prof. T Pradeep | Fellow of the African Academy of Sciences | African Academy of Sciences | Elected as Fellow of the African Academy of Sciences | 2022 |
| Awards | | | | | |
| 1 | Dr. Md Mahiuddin Baidya | AVRA Young Scientist Award 2021 | CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad | Contributions to research in Chemistry, along with Dr. Modhu Sudan Maji, Associate Professor, Department of Chemistry, IIT - Kharagpur. | May 11, 2022 |
| 2 | Prof. T Pradeep | Creativity Prize | Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW). | For developing environmental friendly "water positive" nanoscale materials for the affordable, sustainable and rapid removal of arsenic from drinking water. | September 12, 2022 |
| 3 | Prof. R Kothandaraman | Amara Raja Award 2021 | Electrochemical Society of India (ECSI) | | June 24, 2022 |
| 4 | Prof. R Kothandaraman | Bronze Medal | CRSI | Presented to young researchers in Chemistry. | 2023 |
| 5 | Prof. Ramesh Gardas | The ATPC Significant Contribution Award 2022 | International Organizing Committee and the International Scientific Committee of the Asian Thermophysical Properties Conference (ATPC 2022) | Research Contributions in the field of Thermophysical Properties | 2022 |
| 6 | Prof. Jeganmohan M | Bronze medal | Recipient of Chemical Research Society of India (CRSI) – 2023 | This is given to young researchers who have done well in any area of Chemistry. This is presented during the NSC held in the month of February and July every year, where the medalists are invited to give a lecture (20 min) | 2023 |
| 7 | Prof. Debashis Chakraborty | Diamond Jubilee Award | The International Association of Advanced Materials (Sweden) at the International Conclave on Materials, Energy & Climate (ICMEC 2022) | | December 12, 2022 |
| 8 | Prof. T Pradeep | SASTRA-CNR Rao Award in Chemistry & Materials Science 2023 | SASTRA Deemed University | Tribute to Prof. CNR Rao | February 28, 2023 |
| 9 | Dr. Arnab Rit | Institute Research and Development Award (IRDA) | Early Career Level by IIT Madras | Excellence in Research and Development | April 26, 2022 |
| 10 | Dr. Yamijala Chaitanya Sharma | MPHASIS Faculty Fellow | IIT Madras | | March 2023 |
| 11 | Prof. P. Selvam | Inspirational Committee Award | Royal Society of Chemistry, London | | June 2022 |

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|--------|-----------------|--|----------------------|-------------|---------------|
| 12 | Prof. P Selvam | Professor T Balakrishnan Endowment Lecture Award, | University of Madras | | March 2022 |
| 13 | Prof. T Pradeep | VinFuture Special Prize for Innovators from developing countries | VinFuture Prize | | December 2022 |

4.5.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|-------------|---|-------------------|
| IAAM | | |
| 1 | Dr. Debashis Chakraborty Fellow of the International Association of Advanced Materials (FIAAM) | 2022 |
| AAS | | |
| 2 | Prof. Pradeep T Fellow of the African Academy of Science (FAAS) | 2022 |

4.5.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|----------------------------|---------------------------------|---|
| 1 | Prof. Ramesh Gardas | Editorial Board Member | Chemical Thermodynamics and Thermal Analysis, an Elsevier Journal |
| 2 | Prof. R Kothandaraman | Guest Editor | Special Issue (2022) on Energy Storage and Photovoltaics from J. Photochemistry and Photobiology |
| 3 | Prof. M V Sangaranarayanan | Co-editor | Elsevier Journal 'Current Opinion in Electrochemistry' titled Fundamental and Theoretical Electrochemistry as a Tool for Developing Electrochemical Science and Technology. Impact Factor of Journal: 7.271 |
| 4 | Prof. G Sekar | Board Member | Editorial Board of the Journal of Chemical Sciences to serve as a Board Member for a period of three years (Jan 2023 - Dec 2025) |
| 5 | Prof. Archita Patnaik | Editorial Advisory Board member | J. Chemical Sciences (IAS Springer) (2020 onwards) |
| 6 | Prof. Archita Patnaik | Editorial Board Member | J. Chemical Thermodynamics |
| 7 | Prof. P Selvam | Editorial Board | Frontiers in Chemical Engineering Materials Today Sustainability Catalysis in Green Chemistry and Engineering |
| 8 | Prof. T Pradeep | Associate Editor | Associate Editor of the Journal, ACS Sustainable Chemistry & Engineering, 2014 |
| 9 | Prof. T Pradeep | Editorial Board | Environmental Science: Water Research & Technology, 2023 |
| 10 | Prof. T Pradeep | Editorial Board | Environmental Science & Technology, 2023 |

4.5.4. Design and Development Activities

4.5.4.1. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|-----------------------------|---------------------|
| 1 | FPLC- Liquid Chromatography | 34,00,000 |
| 2 | Refrigerated Centrifuge | 8,00,000 |

4.5.5. Patents

4.5.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|-------------------------------|--|
| 1 | Dr. Yamijala Chaitanya Sharma | A method for degradation of Harmful Perfluoroalkyl substances |
| 2 | Prof. Kothandaraman R | Catholyte material for aqueous acidic flow battery |
| 3 | Prof. P Sevlam | Application of metal-free ordered mesoporous nitrogenous carbons as electrocatalysts for oxygen reduction reaction and thereof |
| 4 | Prof. P Selvam | Selective catalytic hydrogenation of reducing and keto sugars into sugar alcohols using silica supported nano-nickel catalyst at low hydrogen pressure and thereof |
| 5 | Prof. T Pradeep | Method of fabricating a conducting cloth based breath humidity sensor and applications thereof |
| 6 | Prof. T Pradeep | A selective and efficient process for the extraction of noble metals |
| 7 | Prof. T Pradeep | A method to transform crystalline minerals to nanoparticles by microdroplets |
| 8 | Prof. T Pradeep | A method of cultivating rice without soil for its complete life cycle using nanotechnology |
| 9 | Prof. T Pradeep | A method for environmental arsenic detection and public awareness using human cells |
| 10 | Prof. T Pradeep | Material and method for sustainable and affordable atmospheric water harvesting |
| 11 | Prof. T Pradeep | Vertically aligned nanoplates of atomically precise Co_6S_8 cluster for practical arsenic sensing |

4.5.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------------|--|
| 1 | Prof. Kothandaraman R | Solvent filled multiwalled carbon nanotubes for enhanced electrochemical sensing applications |
| 2 | Prof. Kothandaraman R | Organic materials capable of suppressing H_2 evolution and oxidizable by V^{5+} (VO_2^+) for redox balancing in vanadium redox flow battery |
| 3 | Prof. P Selvam | Process for preparing a defect induced coloured titania |
| 4 | Prof. P Selvam | Process for preparing metal free nitrogenous ordered mesoporous carbon material and its product thereof |
| 5 | Prof. P Selvam | Method for surfactant-assisted hydrothermal synthesis of nanosized LiFePO_4 /Carbon composite |
| 6 | Prof. P Selvam | Process for synthesis of well-ordered mesoporous titania having monoclinic and anatase phases |
| 7 | Prof. T Pradeep | Synthesis of highly anisotropic metallic mesostructures |
| 8 | Prof. T Pradeep | A method for the preparation of immobilized graphene-based composite from asphalt and its application in water purification |
| 9 | Prof. T Pradeep | Method for generating different phases of copper sulphide nanostructures using electrospray deposition (ESD) under ambient conditions |

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------|--|
| 10 | Prof. T Pradeep | Visible detection of quantity of water flow using quantum clusters |
| 11 | Prof. T Pradeep | Structure and topology conserving transformations between two archetypal nanoparticles |

4.5.6. Research and Consultancy

4.5.6.1. Sponsored Research Projects: (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---------------------------------------|---|----------------------|-------------------------------|
| 1 | Design and Synthesis of Chiral Lewis Bases for the Enantioselective Trifluoromethylthiolative Functionalization of Alkenes and Polyenes | November 05, 2022 – November 04, 2025 | SERB | 67.79 | Prof. Anbarasan P |
| 2 | Pravartak Research Grant | November 1, 2022 - October 31, 2023 | Indian Institute of Planning and Technology (IIPT) | 6.00 | Prof. Mangala Sunder K |
| 3 | Towards Low-Symmetry Cages/ Conjoined-Cages | December 30, 2022 – December 29, 2025 | SERB | 49.21 | Prof. Dilip Kumar Chand |
| 4 | Boron-doped Diamond Coated Corrosion-resistant Carbon Materials for Electro-organic Synthesis, Energy, and Clean Water Applications | | National Technical Textiles Mission (NTTM), Ministry of Textiles, India | | Prof. Kothandaraman R |
| 5 | Low surface area carbon composite anodes for all-solid-state Li-ion battery systems | March 7, 2023 - March 6, 2026 | SERB- Empowerment and Equity Opportunities for Excellence in Science (EMEQ) | 50.80 | Dr. Palani Selvam |
| 6 | Centre of Excellence on Molecular Materials and Functions Atomistic Modelling and Materials Design Centre for Quantum Information, Communication and Computing | | | 4100 | Dr. Yamijala Chaitanya Sharma |
| 7 | Simultaneous reaction kinetics of RO radicals with OH radicals using an integrated Cavity Ring Down Spectroscopy (CRDS) and Laser Induced Fluorescence (LIF) method | February 02, 2023 – February 01, 2026 | SERB | 79.86 | Prof. Rajakumar B |
| 8 | Computational Studies on the Chemical Reactions at the Liquid-Liquid Interface: Applications to Cellulose-based Biofuel Production | February 08, 2023 – February 07, 2026 | SERB-Core Research Grant (CRG) Scheme | 44.48 | Dr. Sooraj K |
| 9 | Design and Synthesis of Novel Axial Chiral Phase Transfer Catalysts for Asymmetric Synthesis | March 17, 2023 – March 16, 2026 | SERB-CRG Scheme | 69.03 | Prof. Sekar G |
| 10 | 1kW/5kWh Redox Flow Battery with Anthraquinone Based Anolyte and Iron Catholyte: A Commercial Worthy India-Centric Solution for Grid-Scale Energy Storage | 2023 - 2025 | DST under Technology Development Programme (TDP) | 2.46 | Prof. Kothandaraman R |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|---------------------------------------|--|----------------------|-------------------------------|
| 11 | Upscaling of the Zn-Chromium Oxynitride Photo Flow or Thin Film Supercapattery | 2023 - 2024 | ARCI Hyderabad | 15,00,000 | Prof. Kothandaraman R |
| 12 | Soluble Lead Acid Redox Flow Battery | 2023 - 2024 | ARCI Hyderabad | 15,00,000 | Prof. Kothandaraman R |
| 13 | Probing the in singulo Mechanisms of Mycobacterium Tuberculosis's Novel Drug Targets, Molecular Motors of the Proteostasis Network using Custom-built Optical-Tweezers | | Department of Biotechnology, India | 84.8 | Dr. Hema Chandra Kotamarthi |
| 14 | Integrated Platform for Recycling of Textile Dyeing Wastewater Using Aqueous Biphasic Systems - A Circular Economy Approach: CirRe-Dyeing | February 20, 2023 – February 19, 2026 | Department of Science and Technology (DST) | 52.82 | Prof. Ramesh Gardas |
| 15 | Developing High - performance Cathode Materials for Li-ion Batteries by Modulating Electrode - electrolyte Interface | August 18, 2022 - August 17, 2025 | IIT Madras-New Faculty Seed Grant (NFSG) | 46.51 | Dr. Sooraj K |
| 16 | Computational Studies on the Mechanism and Properties of Electrode-Electrolyte Interface in Li-ion and Post-Li-ion Batteries | August 13, 2020 - August 12, 2025 | DST- Innovation in Science Pursuit for Inspired Research (INSPIRE) | 39.06 | Dr. Sooraj K |
| 17 | Exploring Sn/Carbon Composites as High Capacity Electrode Materials for all Solid-state Battery Systems | | | 49.95 | Dr. T. Palaniselvam |
| 18 | High-Performance Electrode Materials for All-Solid-State sodium-ion Battery Application (HEMASS)" | | | 5.00 | Dr. T. Palaniselvam |
| 19 | Biomimetic Nanotheranostics: A Novel Weapon Towards Chronic Myeloid Leukemia Management | | | 10.05 | Prof. Ashok Kumar Mishra |
| 20 | Institute Research and Development Early Career Level Award 2021-22 | | | 12.50 | Dr. Arnab Rit |
| 21 | Green and Recyclable Covalent Organic Framework (COF) for Photoorganocatalytic C-H Activation: An Investigation of Novel Drug Leads | | | 10.05 | Prof. Sekar G |
| 22 | Exploration of Semiconductor Materials as New Photocatalysts for Organic Synthesis | | Teachers Associateship for Research Excellence (TARE) scheme from SERB | 10.05 | Dr. Md Mahiuddin Baidya |
| 23 | Borophene: A Novel Two-Dimensional Graphene-Like Material for Future Energy Storage Applications | | | 22.37 | Prof. Kothandaraman Ramanujam |
| 24 | DST-SERB Organic Chemistry PAC Meeting and Project Writing Workshop | June 24, 2022-September 23, 2022 | DST - SERB | 11.50 | Prof. Sekar G |
| 25 | The Role of Ion-solvent Interactions in Determining the Mechanism of Formation and Structure of Solid-electrolyte Interface in Li-ion Batteries | June 22, 2022 - June 21, 2024 | IITM-NFIG | 5,00,000 | Dr Sooraj K |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---|---|----------------------|-----------------------------|
| 26 | Measurement of Reactivity of Hydroxyl Radicals with Model Biofuel Alternatives | May 09, 2022– May 08, 2025 | Board of Research in Nuclear Sciences (BRNS) | 31.11 | Prof. Rajakumar Balla |
| 27 | Atomically Precise Materials for Sustainable Water and Energy Harvesting | June 27, 2022 - June 26, 2025 | SERB | 75.33 | Prof. Pradeep T |
| 28 | Transition-Metal-Catalyzed Asymmetric C-H Functionalization of Organic Molecules | January 13, 2023 - January 12, 2026 | SERB | 58.52 | Prof. Jeganmohan M |
| 29 | Chiral Metal Catalysts Towards the Synthesis of Biodegradable Polymers and Co-polymers | December 23, 2022 – December 22, 2025 | SERB | 42.02 | Prof. Debashis Chakraborty |
| 30 | Anatomize Degradation Kinetics of Different Structural Proteins by ATP-dependent Proteasomal Activator from Mycobacterium Tuberculosis | March 1, 2022 – March 29, 2024 | DBT | 14.99 | Dr. Hema Chandra Kotamarthi |
| 31 | Untangling the Unfolding and Translocation Mechanisms of Knotted Proteins by ATP-dependent Proteases Using Biophysical Tools and Single-molecule Force Spectroscopy | December 20, 2021 - December 19, 2023 | SERB | 32.94 | Dr. Hema Chandra Kotamarthi |
| 32 | Structure and Interaction in Membrane Mimetic Lipid Mono/Bilayers with DNA/ DNA Origami Structures | January 3, 2020 - July 2, 2022 | SERB | 26.46 | Prof. Archita Patnaik |
| 33 | Pre-N-Heterocyclic Carbene Functionalized Covalent Organic Frameworks: Syntheses and Applications as Heterogeneous Metal-Free Catalysts for the Catalytic Reductions and Reductive Functionalizations of Greenhouse Gas CO ₂ into Fine Chemicals | August 8, 2022 – August 8, 2023 | | 9 | Dr. Arnab Rit |
| 34 | Bridging the Gap Between Surface Science Studies and Catalytic Reaction Engineering for Oxidative Dehydrogenation of Light Alkanes | July 05, 2022– July 04, 2023 | SERB | 68.23 | Prof. P. Selvam |
| 35 | National Facility of Cryo-electron Microscopy: Remotely Operable, 24x7 for Academia and Industry | | SERB | | Prof. T. Pradeep |
| 36 | Carborane-protected Metal Nanoclusters: A new Family of Materials With Atomic Precision | | DST/Czech | 37 | Prof. T. Pradeep |
| 37 | Understanding Surface Properties of Atomically Engineered Cluster-assembled Solids | | Scheme for Promotion of Academic and Research Collaboration (SPARC) | 66.3 | Prof. T. Pradeep |
| 38 | Fingerprinting Authenticity of Ayurvedic Preparations Using Ambient Electrospray Deposition Raman Spectroscopy (AERS), a home-grown method for rapid analysis | | DST | 93 | Prof. T. Pradeep |
| 39 | Sustainable Ion Exchange Resin-based Technology for Rare Earth Extraction | | Ministry of Mines | 52 | Prof. T. Pradeep |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|--------|----------------|----------------------|------------------|
| 40 | Atomically Precise Naked Clusters Assemblies From Ligand-stabilized Clusters New Materials for Catalysis | | DST-DFG | 72 | Prof. T. Pradeep |
| 41 | pCOE on Molecular Materials and Functions | | IIT Madras | | Prof. T. Pradeep |

4.5.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------------------------|--|--|----------------------|
| 1 | Prof. Kothandaraman R | Exploration on use of Efficient Phenazine Based Molecules as Redox-Active Material in Redox Flow Battery (RFB) system, in both domain of Aqueous Organic RFB (AORFB) & Non Aqueous RFB (NORFB) for Industrial Application. | NOCIL Limited | 6.45 |
| 2 | Prof. Jeganmohan M | Synthesis of S-Chloromethyl-S'-Hexylcyanodithiocarbamate (CHED) | Buckman Laboratories India Private Limited | 7.93 |
| 3 | Prof. Selvam P | HR - TEM -Phase II | Common Code | 5.00 |
| 4 | Prof. Dhamodharan R | Biodegradable Rubber and Surface Modification of Natural Fibres | J K Fenner (India) Limited | 42.00 |
| 5 | Prof. Kothandaraman Ramanujam | Redox Flow Battery with Anthraquinone Based Anolyte | Omega Farma | 35.73 |
| 6 | Prof. Jeganmohan M | Activation of Zinc and Exploring Catalytic Amount of Zinc for Cycloaddition Reaction | Pfizer Healthcare India Private Limited | 45.04 |
| 7 | Prof. Jeganmohan M | Synthesis of Promazine Hydrochloride, Chlorpromazine Hydrochloride and Irbesartan | Axxelent Pharma Science Private Limited | 19.66 |
| 8 | Prof. Jeganmohan M | Process Development of (E)-Chloromethyl Hexyl Cyanocarbonimidodithioate (CHED) | Buckman Laboratories India Private Limited | 59.97 |
| 9 | Prof. Edamana Prasad | Dynamic Light Scattering -External Testing | Common Code - Consultancy | 5.00 |
| 10 | Prof. Baskaran S | Molecular Weight Reduction of Biopolymer-Phase-2 | Apex Laboratories Private Limited | 33.04 |
| 11 | Prof. Jeganmohan M | Synthesis of Di-Cyclohexyl Disulfide (DCDS) | NOCIL Limited | 18.30 |
| 12 | Dr. Yamijala S R K Chaitanya Sharma | Research Advisor will be providing Services on Quantum Computing for Quantum for Research Programs / Project Executed by/ through TCS Innovation Lab, Computing. | Tata Consultancy Service Limited | 33.98 |
| 13 | Prof. Pradeep T | Exploring the Ullman cyclization Reaction in Micro Droplets | Ambarnath Organics Pvt Ltd | 10.00 |
| 14 | Prof. Kothandaraman Ramanujam | Development of 1 kW/10 kWh Zinc-Bromine Redox Flow Battery | Archean Chemical Industries Limited | 129.02 |
| 15 | Prof. Kothandaraman Ramanujam | Electrolyte Evaluation | D. J. Irvin Company LLC | 4.00 |

4.5.7. Distinguished Visitors to the Department

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|---|--------------------|----------------------------|
| 1 | Prof. Sankaran Subramanian FNA FASc FIES FISMAR | June 29, 2022 | Guest Lecture |
| 2 | Prof. F. Ekkehardt Hahn, Chair of Inorganic Chemistry at the University of Münster, Germany | June 27, 2022 | Guest Lecture |
| 3 | Prof. Venkataraman Thangadurai FRSC (UK), FIAAM, FECS, University of Calgary, Alberta, Canada | June 30, 2022 | Guest Lecture |
| 4 | Prof. K P Bhabak from IITG | September 23, 2022 | Guest Lecture |
| 5 | Prof. Dr. Philipp Adelhelm, Humboldt-Universität zu Berlin and Helmholtz-Zentrum Berlin, Berlin/GER | October 07, 2022 | Guest Lecture |
| 6 | Dr. Veerabhadra Rao Kaligineedi, Assistant Professor at the Department of Inorganic and Physical Chemistry, IISc Bangalore | October 29, 2022 | Guest Lecture (Online) |
| 7 | Dr. Nimai Mishra, Dept of Chemistry, SRM University AP, India | November 04, 2022 | Guest Lecture |
| 8 | Dr. Eric Borguet, Department of Chemistry, Temple University, Philadelphia, Pennsylvania 19122, USA | November 07, 2022 | Invited Talk |
| 9 | Dr. Jayaraman Sivaguru (Siva), Distinguished University Professor, Antonia and Marshall Wilson Professor of Chemistry. Associate Director, Center for Photochemical Sciences, Department of Chemistry, Bowling Green State University | November 16, 2022 | Seminar Talk |
| 10 | Dr. Aparajeo Chattopadhyay, Research Scientist I, NOAA Chemical Sciences Laboratory, R/CSL5 Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado Boulder & National Oceanic and Atmospheric Administration (NOAA), 325 Broadway, Boulder, CO 80305, USA | November 28, 2022 | Guest Lecture |
| 11 | Prof. David Mills, Department of Chemistry, The University of Manchester, Oxford Road, Manchester, M13 9PL, UK | December 12, 2022 | Guest Lecture |
| 12 | Prof. Mario Ruben, INT, IQMT, Karlsruhe Institute of Technology (KIT), Karlsruhe/D ISIS, CESQ, University of Strasbourg, Strasbourg/F | December 14, 2022 | Guest Lecture |
| 13 | Prof.K. Seshan ,Faculty of Science & Technology, University of Twente, The Netherlands | December 28, 2022 | Prof. BV Endowment Lecture |
| 14 | Prof. Jonathan De Roo from Basel University, Switzerland | January 18, 2023 | Guest Lecture |
| 15 | Prof. Michael Gozin, Ph.D. School of Chemistry Faculty of Exact Science Tel Aviv University Tel Aviv 69978, Israel | January 30, 2023 | Guest Lecture |
| 16 | Prof. Uday Maitra, The Department of Organic Chemistry, Indian Institute of Science Bangalore | February 08, 2023 | Guest Lecture |
| 17 | Prof. Yujiro Hayashi, Department of Chemistry, Graduate School of Science, Tohoku University, Japan | February 14, 2023 | Guest Lecture |
| 18 | 1. Chanukya Nanduru, General Manager & Head of Computational Chemistry Practice. 2. Dr. Antariip Halder, Lead Scientist, Computational Chemistry Practice | March 06, 2023 | Special Seminar |
| 19 | Dr. SoumyabrataRoy, Research Scientist, Rice University, TX, USA | March 10, 2023 | Guest Lecture |
| 20 | Prof. Rene M. Koenigs, RWTH Aachen University, Institute of Organic Chemistry, Germany | March 15, 2023 | Guest Lecture |
| 21 | Dr. Nagappan Ramaswamy, General Motors Corporation, Global Fuel Cell Business, Pontiac, MI USA | March 16, 2023 | Special Seminar |
| 22 | Dr. Subinoy Rana ,Materials research Centre, Indian Institute of Science, Bangalore | March 23, 2023 | Guest Lecture |
| 23 | Prof. Charl FJ Faul, School of Chemistry, University of Bristol, Bristol, UK | March 29, 2023 | Guest Lecture |
| 24 | Prof. Radha Boya, Condensed Matter Physics Group and National Graphene Institute The University of Manchester, Manchester M13 9PL, United Kingdom | March 31, 2023 | Guest Lecture |

4.5.8. Other Activities of the Department/Centre

CiHS (Chemistry In-House Symposium)

Organised by the Department of Chemistry on September 14th (Wednesday), 2022 at IC&SR Auditorium.

4.5.8.1. Interdisciplinary Group Achievements of the Departments

The Department of Chemistry organized the 2022 edition of the interdisciplinary Indo-German Workshop-2022, titled "Complex Chemical Systems (IGW-CCS-2022)", focusing on various aspects of Chemistry, Biology, and Material Science. (Oct 5, 2022 - Prof. G. Sekar Convener, IGW-CCS-2022)

4.5.9. Faculty Visits

| S. No. | Faculty Member | Purpose of Visit | Date & Venue |
|--------|---|---|--|
| 1 | Prof. G Sekar | Chaired a Session | July 7-9, 2022, 29 th CRSI-NSC and CRSI-ACS Symposium Series in Chemistry, IISER Mohali |
| 2 | Prof. Sangaranarayanan M V (Emeritus Professor) | Ph.D. Viva Voce | May 5, 2022 & NIT Jalandar |
| 3 | Prof. Ranga Rao G | Ph.D. Thesis Viva Voce Examination | October 31, 2022 & Ravenshaw University, Cuttack |
| 4 | Prof. Sanjay Kumar | Perspective Talk, "Nonadiabatic Collisions in Ion-Molecule Systems: Inelastic and Charge Transfer Processes," DAE-BRNS Symposium on Current Trends in Theoretical Chemistry (CTTC-2022) | September 22-24, 2022 & BARC, Mumbai |
| 5 | Prof. Kothandaraman R | Invited Speaker at the National Convention of Electrochemist (NCE) conference | July 26-27, 2022 & PSG college of Technology, Coimbatore |
| 6 | Prof. Kothandaraman R | Invited Speaker at the conference Low-dimensional materials-2022 | May 19-20, 2022 & IISER-Pune |
| 7 | Prof. Ramesh L Gardas | Invited Talk at Indo-German Workshop-2022 (IGW-CCS-2022) on 'Benign Solvents as Performance Additives for Extraction of Micropollutants from Water and Heavy Metals from e-Waste' | October 7, 2022 & Mahabalipuram, Chennai |
| 8 | Prof. Ramesh L Gardas | Expert Talk on "Tuning the Properties of Benign Solvents for Sustainable Developments" at Manak Mahotsav - Celebrating "World Standards Day", Organized by | October 14, 2022 & Bureau of Indian Standards, Chennai |
| 9 | Prof. M V Sangaranarayanan | National Mission Projects | November 10, 2022 & CSIR New Delhi |
| 10 | Prof. M V Sangaranarayanan | Ph D Viva Voce | November 17, 2022 & II Sc Bangalore |
| 11 | Prof. M V Sangaranarayanan | Editorial Board Meeting | January 6, 2023 & Indian Academy of Sciences |
| 12 | Prof. M V Sangaranarayanan | Invited Talk International Conference on Functional Materials for Next Generation Applications | January 09, 2023 & SSN College of Engineering |
| 13 | Prof. Bhyrappa P | Dr. R. Gopalan Endowment lecture | January 10, 2023, Madras Christian College (MCC), Tambaram |
| 14 | Dr. Yamijala Chaitanya Sharma | Invited Talk at the "Winter School on Advanced Quantum Computing," | December 8, 2022, Mphasis Center for Quantum Information, Communication and Computing in collaboration (MCQuICC) with IIT Madras Pravartak Foundations and Association for Computing Machinery (ACM) |

| S. No. | Faculty Member | Purpose of Visit | Date & Venue |
|--------|-------------------------------|---|--|
| 15 | Dr. Yamijala Chaitanya Sharma | Invited Talk at the International Conference, Molecular Materials and Functions, organized by Prof. Pradeep, at IIT-Madras. | December 5, 2022 & IIT-Madras |
| 16 | Prof. Mahiuddin Baidya Md | Invited Talk at Conference RTC-OBC,, Shared Current Research Activities on Visible-light Photo-redox Catalysis with Pfizer Company. | December 16-18, 2022 & ISM(IIT) Dhanbad |
| 17 | Prof. Kothandaraman R | Invited talk "Two's Company or Crowd?: The Importance of Being Single for Energy Delivery" | December 20, 2022 & Department of Chemistry, IISER Thiruvananthapuram, India. |
| 18 | Dr. Hema Chandra Kotamarthi | Invited Speaker at FCS XIII Organized by Fluorescence Society of India | January 9-11, 2023 & IISER TVM |
| 19 | Prof. Sekar G | 30 th CRSI-NSC and 16 th CRSI-RSC Joint Symposium Series in Chemistry at e Special Center for Molecular Medicine. | February 2-4, 2023 & JNU, New Delhi |
| 20 | Prof. Sundargopal Ghosh | International Conference on Main Group Synthesis and Catalysis | February 9-12, 2023 & IISER, Thiruvananthapuram |
| 21 | Prof. Sekar G | INDO-GERMAN Conference on Sustainable Chemistry-2023. | February 22-23, 2023 & IIT Indore |
| 22 | Prof. Debashis Chakraborty | Polymers for Advanced Technology | February 22-24, 2023 & Goa |
| 23 | Prof. Ranga Rao G | Recent Advances in Inorganic and Organometallic Chemistry (RAdIOC-2023), | February 24-25, 2023 & NIT, Warangal |
| 24 | Prof. Ranga Rao G | National Conference on Chalcogenide Compounds- and Applied Chemistry (NC3-2023) | March 15-18, 2023 & DIAT, Pune |
| 25 | Prof. Ranga Rao G | National Conference on Recent Advances in Functional Materials | March 22-26, 2023 & Vadlamudi, Guntur |
| 26 | Dr. Hema Chandra Kotamarthi | 45 th Indian Biophysical Meeting | March 27- 30, 2023 & NCBS, Bengaluru |
| 27 | Dr. Hema Chandra Kotamarthi | External DC Member for Ph.D candidate | CLRI |
| 28 | Prof. Archita Patnaik | Selection Committee Member for Faculty Recruitment | December 2022, IIT Delhi |
| 29 | Prof. Archita Patnaik | Selection Committee Member for Faculty Recruitment | July 16, 2022, VIT-AP University, |
| 30 | Prof. Archita Patnaik | SERB-TARE Meeting | August 2022, KIIT, Bhubaneswar, |
| 31 | Prof. Archita Patnaik | SERB-POWER Meeting | Feb. 2023, Jamia-Hamdard University, New Delhi, |
| 32 | Prof. Archita Patnaik | SERB-Special Invitee to CRG Committee | Jan 5-6, 2023, JSS Academy of Higher Education & Research, Mysuru, |
| 33 | Prof. Archita Patnaik | PMRC) Member : SERB-AMAT FIRE (Fund for Industrial Research Engagement) Program, | April 2022, SERB, New Delhi |
| 34 | Prof. Archita Patnaik | Chairperson, SERB-SIRE (SERB International Research Experience) Program | March 2022, SERB, New Delhi |
| 35 | Prof. Archita Patnaik | Expert Committee Member: SERB – SRS | March 2022, SERB, New Delhi, |
| 36 | Prof. Archita Patnaik | Ph.D Thesis Evaluation: | IIT (BHU), IIT Guwahati, NIT Nagpur, SRM University, Banaras Hindu University |
| 37 | Prof. P. Selvam | Ph.D Thesis Evaluation | IIT-Roorkee, IIT-BHU, NIT-Karnataka, BITS Pilani, IISER Mohali, University of Madras |

4.6

Department of Civil Engineering

4.6.1. Introduction

The Department of Civil Engineering has been in existence since the inception of IIT Madras in 1959. Since then, it has contributed to the nation's infrastructure, development, and human resource generation. The departmental activities include teaching, research, consultancy, and training. These activities are carried out under different disciplines, administratively organized into six divisions, namely Building Technology and Construction Management (BTCM), Environmental Engineering (EE), Hydraulics and Water Resources Engineering (HWRE), Geotechnical Engineering (GT), Structural Engineering (ST) and Transportation Engineering (TR). There are 14 well-equipped laboratories attached to these divisions.

4.6.2. Academic Programmes

The Department has postgraduate programmes leading to Dual Degree, M.Tech., M.S., and Ph.D. degrees in various disciplines of Civil Engineering in addition to the undergraduate B.Tech. programme in Civil Engineering. Also, the Department offers a user-oriented industry sponsored Post-graduate Diploma in Bridge Engineering.

4.6.2.1. New Disciplines/Branches Introduced

Environmental and Water Resource Engineering (EWRE) has been split into two technical divisions as Environmental Engineering (EE) & Hydraulics and Water Resource Engineering (HWRE).

4.6.2.2. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|--|
| 1 | CE6515 | Airfield Pavement Design and Evaluation |
| 2 | CE5825 | System Dynamics Modelling for Circular Economy |

4.6.2.3. New Lab(s) Established

1. Simulator Lab TR
2. Aqua Lab
3. Sutram Lab
4. Laboratories for Micro Analytical Characterization of Civil Engineering Materials (MACCEM)

4.6.2.4. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|------------|------------|-----------------|-------------|
| B.Tech. | 128 | 128 | 105 | 100 | 15 | 476 |
| Dual Degree | 0 | 0 | 16 | 11 | 45 | 72 |
| M.A. | 0 | 0 | 0 | 0 | 0 | 0 |
| M.Sc. | 0 | 0 | 0 | 0 | 0 | 0 |
| M.Tech. | 102 | 89 | 6 | 2 | 6 | 205 |
| M.B.A. | 0 | 0 | 0 | 0 | 0 | 0 |
| M.S. | 11 | 11 | 14 | 6 | 2 | 44 |
| Ph.D. | 35 | 42 | 74 | 51 | 82 | 284 |
| Total | 276 | 270 | 215 | 170 | 150 | 1081 |

4.6.2.5. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|---------------|-------------------------|----------|--|--|---|
| Abroad | | | | | |
| 1. | Gaurav Chandra Bridhani | CE19D761 | 11 th European Solid Mechanics Conference | July 4-8, 2022. Galway, Ireland | Prime Minister's Research Fellowship (PMRF) Contingency Fund |
| 2. | Manimaran L | CE17D021 | 11 th European Solid Mechanics Conference | July 4-8, 2022. Galway, Ireland | IIT Madras |
| 3. | Thitta Rashmi Mallick | CE20D069 | 11 th European Solid Mechanics Conference | July 4-8, 2022. Galway, Ireland | IIT Madras |
| 4. | Pratyush Kumar | CE18D017 | 11 th European Solid Mechanics Conference | July 4-8, 2022. Galway, Ireland | IIT Madras |
| 5. | Reshma R | CE19D758 | 7 th International Association for Hydro-environment Engineering and Research (IAHR) Europe Congress 2022 | September 7-9, 2022. Athens, Greece | PMRF Contingency Fund |
| 6. | Mary Williams P | CE17D020 | 6 th International Conference on Structural and Civil Engineering | September 15-17, 2022. Barcelona, Spain | IIT Madras |
| 7. | Anupama VA | CE19D760 | 6 th Heritage Mortar Conference 2022, Technologies for Low Carbon and Lean Construction - Young Researcher's Symposium (India) | September 21-23, 2022. Ljubljana, Slovenia and January 30-February 03, 2023. | International Immersion Experience Travel Award and PMRF Contingency Fund |
| 8. | M Selvam | CE19D759 | 76 th International Union of Laboratories and experts in Construction Materials, Systems and Structures (RILEM) Annual Week and International Conference on Regeneration and Conservation of Structures | September 3-9, 2022, Kyoto, Japan | PMRF Contingency Fund |
| 9. | Angel Jessieleena A | CE20D034 | Indo-German Centre for Sustainability (IGCS) Summer School 2022 - "Sustainable Waste Management in the nexus of Climate Change and Low Carbon Economy" | July 18-29, 2022. RWTH Aachen University, Germany | German Academic Exchange Service (DAAD)-IGCS |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------------|----------------------|----------|--|---|---|
| 10. | Sandeep IJS | CE19D756 | 4th International Congress on Materials and Structural Stability & RILEM Spring Convention Rabat 2023 | March 6-11, 2023. Rabat, Morocco | PMRF Contingency Fund |
| 11. | Antareep Kumar Sarma | CE21S004 | 15th World Congress on Computational Mechanics | July 31-August 5, 2022. Yokohama, Japan (Online) | IIT Madras |
| 12. | Keerthi V T | CE20D082 | International Conference on Concrete Repair, Rehabilitation and Retrofitting (ICRRR) 2024 | October 3-5, 2022. Cape Town, South Africa | IIT Madras |
| 13. | Sreenath Vemula | CE18D013 | European Geosciences Union, EGU-23, Vienna, Austria | April 23-28, 2023. Vienna, Austria | IIT Madras |
| 14. | Anilkumar PM | CE18D755 | Advanced Structured Materials 2022: Towards A Circular Economy | April 2022, University of Limerick, Ireland | International Immersion Experience Travel Award and PMRF Contingency Fund |
| 15. | Rohit Sinha | CE21S007 | International Conference on Advanced Topics in Mechanics of Materials, Structures and Construction | March 12, 2023. Prince Mohammad Bin Fahd University, Al Khobar, Saudi Arabia (Online) | IIT Madras |
| 16. | Varun Kumar Reja | CE18D750 | 39th International Symposium for Automation and Robotics in Construction (ISARC 2022) | July 11-15, 2022. Bogota, Colombia | PMRF Contingency Fund |
| 17. | Varun Kumar Reja | CE18D750 | 10th World Construction Symposium (WCS 2022) | June 24-25, 2022. Sri Lanka | IIT Madras |
| 18. | Sruthi T K | CE15D037 | Experimental Data Challenge, 2nd IAHR Young Professionals Hydro-Environment Challenge, 39th IAHR World Congress | June 19-24, 2022. Spain | Online |
| India | | | | | |
| 1 | Vishnu T Unni | CE20D025 | Symposium on Earthquake Engineering | November 14-17, 2022. IIT Roorkee, India | IIT Madras |
| 2. | Reshma R | CE19D758 | International Conference on Climate and Weather-Related Extremes, ICCWE 2022 | September 19-20, 2022. IIT Roorkee, India | PMRF Contingency Fund |
| 3. | Mary Williams P | CE17D020 | Structural Engineering Convention 2022 | December 19-22, 2022. MNIT Jaipur, India | IIT Madras |
| 4. | Reshma R | CE19D758 | IAHR Asian and Pacific Division (APD) 2022 | December 14-17, 2022. IIT Madras India | PMRF Contingency Fund |
| 5. | M Selvam | CE19D759 | 2nd International Conference on Transportation Infrastructure Projects: Conception to Execution. | September 14-17, 2022. IIT Roorkee, India | PMRF Contingency Fund |
| 6. | M Selvam | CE19D759 | 14th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC) | December 19-22, 2022. IIT Bombay, India | PMRF Contingency Fund |
| 7. | M Selvam | CE19D759 | PMRF Annual Symposium 2023 | February 17, 2022-February 18, 2023. IIT Madras, India | PMRF Contingency Fund |
| 8. | M Selvam | CE19D759 | Technologies for Low-Carbon and Lean Construction (TLC2) | January 31-February 3, 2023. IIT Madras, India | PMRF Contingency Fund |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|------------------------|----------|---|---|---------------------------|
| 9. | Angel Jessieleena A | CE20D034 | International Symposium on Circular Economy Solutions for Plastics and Microplastics: Addressing the Grand Challenge, CESP 2022 | November 29, 2022. IIT Delhi, India | IIT Madras |
| 10. | Angel Jessieleena A | CE20D034 | Water for Life - An International Conference 2022 | December 15-17, 2022. IIT Madras, India | IIT Madras |
| 11. | Prashant Bansode | CE21D020 | 17th Symposium on Earthquake Engineering | November 14-17, 2022. IIT Roorkee | IIT Madras |
| 12. | Sandeep IJS | CE19D756 | 14th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC) | December 19-21, 2022. IIT Bombay, India | PMRF Contingency Fund |
| 13. | Aniket Kumar Patel | CE22S001 | Technologies for Low-Carbon and Lean Construction (TLC2) | January 30-February 3, 2023. IIT Madras, India | IIT Madras |
| 14. | Aniket Kumar Patel | CE22S001 | Workshop on Advances in Concrete 3D Printing | March 17-18, 2023. IIT Madras | IIT Madras |
| 15. | Sunny Mishra | CE20D027 | 12th Structural Engineering Convention | March 19-22, 2022. MNIT Jaipur | IIT Madras |
| 16. | Aswin Giri J | CE19D039 | 7th Indian International Conference on Air Quality Management | November 27-December 1, 2022. IIT Madras, India | IIT Madras |
| 17. | Aswin Giri J | CE19D039 | Institute of Electrical and Electronics Engineers - Applied Sensing Conference (IEEE-AP-SCON) | January 23-25, 2023. Bengaluru, India | IIT Madras |
| 18. | Keerthi V T | CE20D082 | CORCON - International Conference & Expo On Corrosion | September 19-22, 2022. Udaipur, India | IIT Madras |
| 19. | Keerthi V T | CE20D082 | Technologies for Low-Carbon and Lean Construction (TLC2) | January 31-February 03, 2023. IIT Madras, India | IIT Madras |
| 20. | Mrinal Bhaumik | CE19D757 | Symposium on Earthquake Engineering | November 14, 2022. IIT Roorkee | PMRF Contingency |
| 21. | Mrinal Bhaumik | CE19D757 | Indian Geotechnical Conference | December 15-17, 2022. Kochi | PMRF Contingency |
| 22. | Sreelakshmi Srinivasan | CE20D077 | CORCON - International Conference & Expo On Corrosion | September 19-22, 2022. Udaipur, India | IIT Madras |
| 23. | Lakshmi Pradeep | CE19D041 | 7th Indian International Conference on Air Quality Management | November 27-December 1, 2022. IIT Madras, India | IIT Madras |
| 24. | Lakshmi Pradeep | CE19D041 | IEEE - Applied Sensing Conference | January 23-25, 2023. Bengaluru, India | IIT Madras |
| 25. | Anilkumar P M | CE18D755 | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS 2022) | December 11-14, 2022. IIT Guwahati, India | IIT Madras |
| 26. | Anilkumar P M | CE18D755 | International Conference on 12th Structural Engineering Convention (SEC 2022) | December 19-22, 2022. MNIT Jaipur, India | IIT Madras |
| 27. | Arun Nair | CE20D010 | International Union of Radio Science - Regional Conference | December 1-4, 2022. IIT Indore | IIT Madras |
| 28. | Arun Nair | CE20D010 | International Symposium on Secondary Aerosol Formation and Growth | March 13-14, 2022. University of Hyderabad | Conference Fund |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|-------------------------|----------|---|---|---------------------------|
| 29. | Varun Kumar Reja | CE18D750 | Indian Lean Construction Conference 2022 (ILCC 2022) | December 15-16, 2022. Hyderabad | IIT Madras |
| 30. | Kumaresan Panneerselvam | CE21M117 | Indian Lean Construction Conference 2022 (ILCC 2022) | December 13-17, 2022. NICMAR, Hyderabad | IIT Madras |
| 31. | Kaviarasu K | CE19D023 | 2nd International Conference on Materials, Mechanics & Structures 2022 (ICMMS 2022) | March 10-12, 2022. NIT Calicut | IIT Madras |
| 32. | Kaviarasu K | CE19D023 | The 13th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2022) | August 21-26, 2022. IIT Madras | IIT Madras |
| 33. | Mansi Thakur | CE22D047 | Technologies for Low-Carbon and Lean Construction (TLC2) | January 30-February 3, 2023. IIT Madras | IIT Madras |
| 34. | Amit Singh Chandel | CE20D035 | International Union of Radio Science - Regional Conference | December 1-4, 2022. IIT Indore | IIT Madras |

4.6.2.6. Students/Scholars who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|---|----------|--|---|
| 1. | Sana Nivedita (Research Scholar under the Guidance of Prof. Dali Naidu Arnepalli, CE & Chandraraj Krishnan, BT) | CE16D304 | Best Oral Presentation at the 15th International Conference on the Challenges in Environmental Science and Engineering (ICCESE), Dubai | Organised by 15 th International Conference on the Challenges in Environmental Science and Engineering, Dubai |
| 2. | Angel Jessieleena A (Research scholar under the guidance of Prof. Indumathi M Nambi) | CE20D034 | Best Oral Presentation Award | International Symposium Organized by Centre for Rural Development & Technology, IIT Delhi in Collaboration With University of Eastern Finland |
| 3. | Asif Jeelani Bhat Guided by Prof Vidya Bhushan Maji | CE19D704 | The Best Paper Presentation Competition at IGC 2022. | The Award carries a gift voucher of EUR150 (sponsored by Springer). |
| 4. | S. Krishnachandran guided by Dr. Arun Menon | CE17D024 | Journal of Institution of Engineers India – Series A, Springer | Sir Arthur Cotton Memorial Prize of The Institution of Engineers (India) at the 37 th Indian Engineering Congress, Dec16, 2022. Chennai, India |
| 5. | Tom Damion guided by Dr. Piyush Chaunsali | CE18D016 | Best Paper Award | Second International Conference on Construction Materials and Structures (ICCMS-2022). |
| 6. | B Sridharan guided by Dr. Soumendra Nath Kuiry | CE14D023 | Best Paper Award | 23 rd Congress of the International Association for Hydro-Environment Engineering and Research - Asia and Pacific Regional Division (IAHR-APD) December 13-16, 2022. IIT Madras, India |
| 7. | Mary Williams P | CE17D020 | Best Presentation Award | ICSCE 2022 |
| 8. | M. Selvam | CE19D759 | Best Paper Award | 14 th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC) |
| 9. | M Selvam | CE19D759 | Best Poster Award | PMRF Annual Symposium 2023 |
| 10. | Arun Nair | CE20D010 | Best Poster Award | International Symposium on Secondary Aerosol Formation and Growth |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|---|--|
| 11. | Kumaresan Panneerselvam | CE21M117 | Runner-up Lean Project Competition 2022 | Indian Lean Construction Conference 2022 |
| 12. | Varun Kumar Reja | CE18D750 | | |
| 13. | Megha S Pradeep | CE21M007 | | |

4.6.2.7. Students/Scholars who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|---------------------------------------|-------------------------------|
| 1. | Rathi Khushal Vinod | CE18D016 | L&T, ECC Endowment Prize | Larsen & Toubro Ltd. |
| 2. | Vallury Venkata Sri Lalitha | CE17B063 | Dr. N R Dave Prize | Dr. N R Dave |
| 3. | Vikrant Panwar | CE20M001 | Institute Merit Prize | IIT Madras |
| 4. | Vikrant Panwar | CE20M001 | K Devarajan Memorial Prize | K Devarajan |
| 5. | Ishank Singh | CE20M024 | Rajanikant Gandhi Memorial Award | Prof. S R Gandhi, IIT Madras |
| 6. | Ashok B Jacob | CE20M034 | Valli Anantharamakrishnan Merit Prize | Mallika Srinivasan, TAFE |
| 7. | Vuppala Srinja | CE20M124 | L&T Endowment Prize | Larsen & Toubro Ltd |
| 8. | Rohith Mallik | CE21M075 | Duvvuru Sarada Award | Ram D Sriram |
| 9. | Kancharla Akhil Santhosh | CE19S012 | Sri K Sreeharsha Memorial Prize | Shri K Prabhakar Rao, ISS, AP |
| 10. | Kavitha Madhu | CE13D042 | Shree Gayathree Devi Award | Prof. H Achyutha |

4.6.3. Faculty and their Activities

4.6.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|--|---|
| Professors | |
| Dr. Robinson RG, Ph.D. (Indian Institute of Science (IISc.), Bangalore) (Head) | Geotechnical Engineering |
| Dr. Alagusundaramoorthy P, Ph.D. (IIT Madras) | Composite Technology |
| Dr. Amlan Kumar Sengupta, Ph.D. (University of Missouri) | Structural Engineering |
| Dr. Appa Rao G, Ph.D. (IISc. Bangalore) | Structural Engineering |
| Dr. Arul Jayachandran, Ph.D. (IIT Madras) | Structural Engineering |
| Dr. Arun Menon, Ph.D. (University of Pavia, Italy) | Structural Engineering |
| Dr. Ashwin Mahalingam, Ph.D. (Stanford University) | Building Technology and Construction Management |
| Dr. Balaji Narasimhan, Ph.D. (Texas A&M University) | Water Resources Engineering |
| Dr. Benny Raphael, Ph.D. (University of Strathclyde, UK) | Building Technology and Construction Management |
| Dr. Dali Naidu Arnepalli, Ph.D. (IIT Bombay) | Geotechnical Engineering |
| Dr. Devdas Menon, Ph.D. (IIT Madras) | Structural Engineering |
| Dr. Dodagoudar GR, Ph.D. (IIT Bombay) | Geotechnical Engineering |
| Dr. Gitakrishnan Ramadurai, Ph.D. (Rensselaer Polytechnic Institute) | Transportation Engineering |
| Dr. Indumathi M Nambi, Ph.D. (Clarkson University) | Environmental Engineering |
| Dr. Karthik K Srinivasan, Ph.D. (Texas, Austin) | Transportation Engineering |
| Dr. Koshy Varghese, Ph.D. (Texas, Austin) | Building Technology and Construction Management |
| Dr. Lelitha Devi, Ph.D. (Texas A&M) | Transportation Engineering |

| Name and Qualifications | Major Areas of Specialisation |
|--|---|
| Dr. Ligy Philip, Ph.D. (IIT Kanpur) | Environmental Engineering |
| Dr. Manu Santhanam, Ph.D. (Purdue University) | Building Technology and Construction Management |
| Dr. Meher Prasad A, Ph.D. (RICE) | Structural Engineering |
| Dr. Mohan S, Ph.D. (IISc., Bangalore) | Water Resources Engineering |
| Dr. Murali Krishnan J, Ph.D. (IIT Madras) | Transportation Engineering |
| Dr. Murty B.S, Ph.D. (Washington State University) | Water Resources Engineering |
| Dr. Murty CVR, Ph.D. (California Institute of Technology) | Structural Engineering |
| Dr. Nageswara Rao B, Ph.D. (Iowa University) | Structural Engineering |
| Dr. Radhakrishna G Pillai, Ph.D. (Texas A&M University) | Building Technology and Construction Management |
| Dr. Raghukanth STG, Ph.D. (IISc Bangalore) | Structural Engineering |
| Dr. Ramamurthy K, Ph.D. (IIT Madras) | Building Technology and Construction Management |
| Dr. Ravindra Gettu, Ph.D. (Northwestern) | Building Technology and Construction Management |
| Dr. Rupen Goswami, Ph.D. (IIT Kanpur) | Structural Engineering |
| Dr. Sachin S. Gunthe, Ph.D. (IITM Pune) | Atmospheric Chemistry and Physics |
| Dr. Saravanan U, Ph.D. (Texas A&M) | Structural Engineering |
| Dr. Satish Kumar SR, D. Engg. (Nagoya University) | Structural Engineering |
| Dr. Satyanarayana KN, Ph.D. (Director, IIT Tirupati) | Building Technology and Construction Management |
| Dr. Shiva Nagendra SM, Ph.D. (IIT Delhi) | Environmental Engineering |
| Dr. Sivanandan R, Ph.D. (Virginia Tech.) | Transportation Engineering |
| Dr. Subhadeep Banerjee, Ph.D. (NUS, Singapore) | Geotechnical Engineering |
| Dr. Sudheer KP, Ph.D. (IIT Delhi) | Water Resources Engineering |
| Dr. Thyagaraj T, Ph.D. (IISc Bangalore) | Geotechnical Engineering |
| Dr. Vidya Bhushan Maji, Ph.D. (IISc Bangalore) | Geotechnical Engineering |
| Associate Professors | |
| Dr. Atul Narayanan, Ph.D. (Texas A&M) | Transportation Engineering |
| Dr. Bhargava Rama Chilikuri, Ph.D. (Georgia Institute of Technology, Atlanta, Georgia, USA) | Transportation Engineering |
| Dr. S Mathava Kumar, Ph.D. (IIT Madras) | Environmental Engineering |
| Dr. Sivakumar Palaniappan, Ph.D. (Arizona State University) | Building Technology and Construction Management |
| Dr. Soumendra Nath Kuiry, Ph.D. (IIT Kharagpur) | Hydraulics and Water Resources Engineering |
| Dr. Venu Chandra, Ph.D. (IIT Kanpur) | Hydraulics and Water Resources Engineering |
| Assistant Professors | |
| Dr. P Alagappan, Ph.D. (Texas A&M University, USA) | Structural Engineering |
| Dr. Aslam Kunhi Mohamed, Ph.D. (EPFL, Switzerland) | Building Technology and Construction Management |
| Dr. Chandrasekhar Annavarapu, Ph.D. (Duke University, USA) | Geotechnical Engineering |
| Dr. Chandan Sarangi, Ph.D. (IIT Kanpur) | Environmental Engineering |
| Dr. Keerthana K, Ph.D. (IISc. Bangalore) | Building Technology and Construction Management |
| Dr. Lakshmi Priya, Ph.D. (Georgia Institute of Technology) | Structural Engineering |
| Dr. Nikhil Bughalia, Ph.D. (University of Tokyo, Japan) | Building Technology and Construction Management |
| Dr. Phanaisri Pradeep Pratapa, Ph.D. (Georgia Institute of Technology, Atlanta, USA) | Structural Engineering |
| Dr. Piyush Chaunsali, Ph.D. (University of Illinois at Urbana-Champaign, USA) | Building Technology and Construction Management |
| Dr. Ramesh Kannan K, Ph.D., IISc. Bangalore | Geotechnical Engineering |
| Dr. Subbarao Pichuka, Ph.D. IIT Kharagpur | Hydraulics and Water Resources Engineering |
| Dr. Surender Singh, Ph.D., IIT Roorkee | Transport Engineering |
| Dr. Tarun Naskar, Ph.D., IISc. Bangalore | Geotechnical Engineering |
| Dr. Venkatraman Srinivasan, University of Illinois Urbana Cham- paign, USA | Environmental Engineering |

| Name and Qualifications | Major Areas of Specialisation |
|------------------------------------|---|
| Adjunct Faculty | |
| Dr. N Kumar Pitchumani | Geotechnical Engineering |
| Dr. Parama Roy | Building Technology and Construction Management |
| Prof. Kalanithy Vairavamoorthy | Environmental & Water Resource Engineering |
| Dr. Uwe Schlink | Environmental Engineering |
| Prof. Krishna R Reddy | Environmental & Water Resource /Geotechnical Engineering |
| Dr. Ashish Bhaskar | school of Civil Engineering and Built Environment |
| Dr. Abhijit Mukherjee | Sustainable Engineering |
| Prof.Hemanta Hazarika | Geotechnical Engineering |
| Dr.P Senthil Kumar | Planetary Geology, Remote Sensing & GIS Group |
| Dr. Oh-Sung Kwon | Advanced Simulation Method for the Seismic Performance Assessment of Structural Systems |
| Dr. Sanjay Nimbalkar | Geotechnical Engineering |
| Dr. Quang Ha | Construction Automation |
| Dr. Kalidas Ashok | Building Technology and Construction Management |
| Dr. Esther Malini | Building Technology and Construction Management |
| Dr. Pengfei Liu | Environmental Engineering |
| Dr. Santosh Prasannan | Building Technology and Construction Management |
| Prof. Juval Portugali | Geography and the Human Environment |
| Prof. Praveen Kumar | Civil and Environmental Engineering |
| Prof. T Prabhakar Clement | Civil and Environmental Engineering |
| Prof. Kuruvilla John | Atmospheric Sciences and Air Quality |
| Dr. Sanjay Kumar Shukla | Geotechnical Engineering |
| Dr. Taehwan Kim | Civil Engineering (Materials) |
| Prof. Dr.Ing. Thomas Bock | Building Realization and Robotics |
| Guest Faculty | |
| Mr. K. Ganesan | Building Technology and Construction Management |
| Prof. K. Srinivasan | Hydraulics and Water Resources Engineering |
| Visiting Faculty | |
| Dr. Gabriela Garces Sanchez | Environmental Engineering |
| Dr. Chakradhar Iyyunni | Transportation/Civil Infrastructure |
| Dr. Kalyan R Piratla | Sustainable and Resilient Infrastructure Systems |
| Dr. Aparna Lal | Human Health, Environment and Climate Change |
| Dr. Pramesh Kumar | Transport Engineering |
| Dr. Ing Thomas Bock | Building Technology and Construction Management |
| Dr. Daniel Jesus Rosado Alcarria | Hydraulics and Water Resources Engineering |
| Dr. Tachwan Kim | Building Technology and Construction Management |
| IoE Visiting Faculty Fellow | |
| Prof. Anuradha Ramaswami | Civil & Environmental Engineering |
| Prof. Raúl Luis Zerbino | Building Technology and Construction Management |
| Prof. Emmanuel Detournay | Civil Environmental and Geo- Engineering |
| Prof. Carlos Armando Duarte | Geotechnical Engineering |
| Prof. Antonio Rodríguez-Ferran | Geotechnical Engineering |
| Vajra Visiting Faculty | |
| Prof. R. Srinivasan | Hydraulics and Water Resources Engineering |
| Dr. Raghavan Srinivasan | Hydraulics and Water Resources Engineering |
| Prof. Narayanan Neithalath | Sustainable Engineering and Built Environment |

| Name and Qualifications | Major Areas of Specialisation |
|-------------------------------|--|
| SPARC Visiting Faculty | |
| Prof. Darcy Bullock | Transportation and Infrastructure System |
| Dr. Anuj Sharma | Center for Transportation Research and Education |
| Prof. Ashutosh Bagchi | Structural Dynamics and Earthquake Engineering |
| Dr. Bruno Lee | Building, Civil, and Environmental Engineering |
| Dr. Elsa A Olivetti | Materials Science and Engineering |
| Dr. Farshad Rajabipour | Sustainable infrastructure, concrete materials |
| Prof. Huu Hao NGO | Civil and Environmental Engineering |
| Dr. Wenshan GUO | Civil and Environmental Engineering |
| Prof. George Tchobanoglous | Civil and Environmental Engineering |
| Dr. Harold L Leverenz | Civil and Environmental Engineering |
| Prof. Yunus Ballim | Civil and Environmental Engineering |
| Prof. Mark Gavin Alexander | Concrete Materials & Structural Integrity |
| Prof. Indrajeet Chaubey | Biosystems Engineering |
| Dr. Cibir Raj | Agricultural and Biological Engineering |
| Dr. David Trejo | Civil Engineering (Materials) |
| Dr. Jason W Weiss | Civil & Construction Engineering |
| Dr. Burkan O Isgor | Civil & Construction Engineering |
| Dr. Jason H Ideker | Civil & Construction Engineering |
| Professors of Practice | |
| Prof. D Srinagesh | Structural Engineering |
| Prof. N Raghavan | Building Technology and Construction Management |
| Mr. PG Venkatram | Structural Engineering |

4.6.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organized by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|--|--|-----------------------|
| Conferences | | | |
| 1. | Dr. B Nageswara Rao | International Conference on Innovations in Engineering and Technology (ICIET-2022) at JNTUH Golden Jubilee Celebrations, Hyderabad | September 15-17, 2022 |
| 2. | Dr. Phanisri Pradeep Pratapa | 5th National Conference on Multidisciplinary Design, Analysis, and Optimization, IIT Bombay (Online) | September 15-17, 2022 |
| 3. | Dr. Surender Singh | International Conference on Resource Sustainability ICSR 2022 (Online) | August 03, 2022 |
| Seminars | | | |
| 1. | Dr. T Thyagaraj & Dr. Dali Naidu Arnepalli | One-day Seminar on Advances in Geo Environmental Engineering | July 28, 2022 |
| 2. | Dr. Mathava Kumar | Online Seminar on Advanced Technologies for Wastewater Management with Focus on Advanced Oxidation, Membrane and Algal Methodologies (ATWM-2022), Sponsored by Indo-Canadian Institute & Scheme for Promotion of Academic and Research Collaboration (SPARC) | November 10-15, 2022 |
| 3. | Dr. VB Maji & Dr. Dali Naidu Arnepalli | Lecture Jointly Organized by the Department of Civil Engineering and Indian Geotechnical Society (IGS), Chennai Chapter,, IIT Madras | October 07, 2022 |
| 4. | Dr. Chandrasekhar Annavarapu | pCoE on Subsurface Mechanics and Geo-Energy Organized Seminar on Continuum Damage Mechanics Modeling of Fracture, IIT Madras | January 11, 2023 |

| S. No. | Coordinator(s) | Title | Period |
|--------------------------|---|--|-------------------------------|
| 5. | Dr. Saravanan U | A Review of Implicit Constitutive Theories to Describe the Response of Solid Bodies, IIT Madras | January 20, 2023 |
| Symposia: | | | |
| 1. | TLC2 Team Coordinators- Ms. Bipina T V, Ms. KVC Sai Sri and Mr. Kaushik Bhattacharjee (Ph. D. Scholars) | Young Researchers' Symposium on TLC2 – 2023, IIT Madras | January 30, 2023 |
| 2. | Dr. A Meher Prasad | Structural Engineering: The Way Forward, IIT Madras | February 09-10, 2023 |
| Workshop: | | | |
| 1. | Dr. Shiva Nagendra S M | Online Workshop on Sensitisation - cum - Review Workshop under National Clean Air Programme and XV-FC Million Plus Cities Challenge Fund | May 21-22, 2022 |
| 2. | Dr. Balaji Narasimhan | Hydrologic Unit Model for India (HUMID) (A Web Enabled Platform for Hydrologic Modelling of Indian River Basins) Department of Civil Engineering, IIT Madras | December 01-02, 2022 |
| 3. | Dr. Vidya Bhushan Maji | Workshop on Testing of Deep Foundations,, IIT Madras | November 15, 2022 |
| 4. | Dr. Benny Raphael | Online Construction Automation Workshop | October 22, 2022 |
| 5. | Dr. Balaji Narasimhan & Dr. BS Murthy | UK India-Brazil Two Day Winter School – Sustainable Urban Drainage System (SUDS), IIT Madras | December 11-15, 2022 |
| 6. | Prof. M. Haji Sheik Mohammed, BSA Crescent University Prof. Radhakrishna G Pillai | Corrosion Control in Concrete Structures (C3S), IIT Madras | January 30, 2023 |
| 7. | Dr. Radhakrishna G Pillai & Dr. Nikhil Bugalia | Two-day International Workshop on Technologies for Low-carbon and Lean Construction, IIT Madras | February 01-02, 2023 |
| S.No. | Coordinator(s) | Title | Period |
| 8. | Dr. Piyush Chausali & Dr. Manu Santhanam | SPARC Workshop on Sustainability & Durability of Reinforced Concrete Systems, IIT Madras | February 03, 2023 |
| 9. | Dr. Ravindra Gettu & Dr. Keerthana Kirupakaran | Workshop on Textile Reinforced Concrete (TRC), IIT Madras | February 03, 2023 |
| 10. | Dr. Mathava Kumar Prof. Huu-Hao Ngo, | Membrane-Based Technologies for Water Purification, IIT Madras | February 25, 2023 |
| Short Term Course | | | |
| 1. | Dr. Chandrasekhar Annavarapu & Prof. Antonio Rodriguez-Ferran | Recent Advances in Computational Damage and Fracture Mechanics | July 18-22, 2022 |
| 2. | Dr. Ashwin Mahalingam Dr. Sivakumar Palaniappan Dr. Koshy Varghese Dr. Nikhil Bugalia | Mentoring and Augmenting Planning Skills, L&T Construction, Chennai. | November 14-17, 2022 |
| 3. | Dr. Shiva Nagendra S M | 7th Indian International Conference On Air Quality Management (IICAQM 2022) - Measurement, Modelling, Health Risk, And Public Policy,, IIT Madras | November 27-December 01, 2022 |
| Events Organised | | | |
| 1. | Dr. Indumathi M Nambi | Carbon Zero Challenge 2022, The Clean Tech Innovation and Entrepreneurship Program, IIT Madras | December 20-23, 2022 |

| S. No. | Coordinator(s) | Title | Period |
|------------------------|--|--|-------------------|
| Lecture Series | | | |
| 1. | Dr. Shiva Nagendra S M | Air Quality Management Lecture (AQML) Series. The monthly AQML series is jointly organized by the Indian Institute of Technology Madras (IITM), Global Challenges Research Fund (GCRF)-Clean Environment and Planetary Health in Asia (CEPHA), Air Quality Management Association (AQMA), and the Indian International Conference on Air Quality Management (IICAQM) through Webex Meeting | December 23, 2022 |
| 2. | Dr. Shiva Nagendra S M (on behalf of AQML series) | Air Pollution Trends in India – Disentangling the Role of Meteorology and Changing Emissions through Webex | February 17, 2023 |
| 3. | Dr. Shiva Nagendra S M (on behalf of AQML series) | Air Pollution and Respiratory Health through Webex | February 17, 2023 |
| Training Events | | | |
| 1. | 10 graduates from Nagaland | As a part of their internship at IIT Madras | January 10, 2023 |

4.6.3.3. Short-Term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|--|--|--------------------|----------------------|
| Workshops | | | | |
| 1. | Dr Balaji Narasimhan | UK- Brazil India Collaboration Workshop at Anglia Ruskin University | UK | July 03-07, 2022 |
| 2. | Dr. Ashwin Mahalingam & Dr. Nikhil Bugalia | Public Private Partnerships in Rail Infrastructure | Delhi | November 18, 2022 |
| 3. | Dr. Keerthana Kirupakaran | IIT Madras-Kenyon Train-the-Trainers Writing Workshop (Attended) | Puducherry | January 03-08, 2023 |
| 4. | Dr. Piyush Chaunsali | SERB-Karyashala on Advances in Sustainable Construction Materials and Technologies | NIT Warangal | January 13, 2023 |
| 5. | Dr. Piyush Chaunsali | SPARC Workshop on Sustainability and Durability of Reinforced Concrete Systems | IIT Madras | February 03, 2023 |
| 6. | Dr. Piyush Chaunsali | Training Programme for NTPC Engineers | CSIR-SERC, Chennai | February 07, 2023 |
| 7. | Dr Balaji Narasimhan | UK- Brazil India Collaboration Workshop at Anglia Ruskin University | UK | July 03-07, 2022 |
| Seminars | | | | |
| 1. | Dr. Balaji Narasimhan | Advance in Water Resources Planning & Management | IC&SR | May 22, 2022 |
| 2. | Dr. Sivakumar Palaniappan | Data-driven Decision Making for the Management of Smart, Sustainable and Resilient Water Infrastructures | IIT Madras | May 27, 2022 |
| Symposia | | | | |
| 1. | Dr. Amlan K Sengupta | Structural Engineering: The Way Forward | IIT Madras | February 09-10, 2023 |
| Conferences | | | | |
| 1. | Dr. Ligy Philip | Decentralized Systems for Sustainable Wastewater Management in Developing Countries: Challenges and Way Forward Industrial Ecology Gordon Research Conference 2022 | Newry ,Maine USA | June 12-17, 2022 |
| 2. | Dr. Manu Santhanam | 3rd RILEM International Conference on Concrete and Digital Fabrication 2022, Loughborough University | UK | June 27-29, 2022 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|------------------------------|--|----------------|-------------------------|
| 3. | Dr. Indumathi M Nambi | AEEESP conference 2022 | USA | June 28-30, 2022 |
| 4. | Dr. Radhakrishna G Pillai | Calcined Clay for Sustainable Concrete 2022 Conference | Switzerland | July 02-11, 2022 |
| 5. | Dr. Nikhil Bugalia | International System Dynamics Conference 2022 | Germany | July 18-21, 2022 |
| 6. | Dr. Mathava Kumar S | Elucidating Mechanism of Piezoelectrocatalytic Degradation of the Organic Pollutants from Aqueous Solution” 12th International Conference on Environmental Catalysis 2022 (Online Poster Presentation) | Osaka, Japan | July 30-August 02, 2022 |
| 7. | Dr. Koshy Varghese | 30th Annual Conference of the International Group for Lean Construction (IGLC30) | Canada | July 26-30, 2022 |
| 8. | Dr. Amlan K Sengupta | 17th Symposium in Earthquake Engineering | IIT Roorkee | November 14-17, 2022 |
| 9. | Dr. Chandrasekhar Annavarapu | 5th Indian Conference on Applied Mechanics | NIT Jamshedpur | November 10-14, 2022 |
| 10. | Dr. R G Robinson | Indian Geotechnical Conference 2022 | Kochi | December 14-16, 2022 |
| 11. | Dr. B Nageswara Rao | Invited as Keynote Speaker at 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022), IIT Guwahati, Assam | Assam | December 11-14, 2022 |
| 12. | Dr. B Nageswara Rao | Paper Presentation at 17th International Conference on Vibration Engineering and Technology of Machinery (VETOMAC 2022), Institute of Engineering, Lalitpur | Nepal | December 15-17, 2022 |

4.6.3.4. Special Lectures Delivered by Faculty from Other Institutions and Retired Faculty

| S. No. | Name of Faculty | Topic of Lecture | Institution | Dates |
|--------|--|--|--|-----------------------------|
| 1. | Prof. M S Mathews, Retired IIT faculty | Lecture on Neuroscience of Learning | IIT Retired faculty | April 26, 2022 |
| 2. | Prof. Prannoy Suraneni, University of Miami | Lecture on Supplementary Cementitious Material | University of Miami | May 23, 2022 |
| 3. | Dr. Kalyan Piratla, Visiting Faculty | Lecture on “Data-driven Decision Making for the Management of Smart, Sustainable and Resilient Water Infrastructures” | | May 27, 2022 |
| 4. | Prof Raul Zerbino, National | Lecture on Technologies for Low Carbon Lean Construction, Visiting Faculty Institute of Eminence (IoE) project | University of La Plata, Argentina | June 02, 2022-June 01, 2023 |
| 5. | Dr Pramesh Kumar, Department of Civil, Environmental, and Geo-Engineering at the | Lecture on Analyzing Passenger Behaviour Using Transit Automated Data | University of Minnesota | June 24, 2022 |
| 6. | Prof. Kalpana Balakrishnan, Dean(Research) and Director | Talk on Catalyzing Air Quality Actions to Address the Health Burden From Ambient and Household Air Pollution: Experience From Field Studies in India | World Health Organization Collaborating Center | July 15, 2022 |
| 7. | Prof. Shankar Chellam , Texas A&M | Seminar on Selected Issues Related to Municipal and Industrial Water Treatment and Reuse and Urban Aerosols | University, College Station, Texas | July 22, 2022 |
| 8. | Dr. Ing Sparsha Nagula | Lecture on Optimization of Deep Vibratory Compaction as Liquefaction Mitigation Measure | Norwegian Geotechnical Institute (NGI), Oslo, Norway | July 26, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Dates |
|--------|--|--|---|--------------------|
| 9. | Prof. Antonio Rodriguez-Ferran | Seminar on Phase-field Modeling of Complex Crack Patterns | UPC Barcelona | July 27, 2022 |
| 10. | Dr. Prateek Sharma, Vice Chancellor (acting) & Professor | Air Quality Modeling: An Effective Tool for Managing Urban Air Pollution | Department of Sustainable Engineering at TERI School of Advanced Studies, New Delhi | September 23, 2022 |
| 11. | Dr. D Srinagesh, Professor of Practice, Department of Civil Engineering, IIT Madras | Insights From the Large Earthquakes in Himalaya During the Last Century | Former Chief Scientist, NGRI, Hyderabad | September 23, 2022 |
| 12. | Dr. Nagaraja Rao Harshadeep, Global Lead for Disruptive Technology at the Environment, Natural Resources, and Blue Economy Global Practice | Disruptive in Technology in Sustainable Development | World Bank based in Washington DC | September 16, 2022 |
| 13. | Prof. V S Raju, Former Professor and Dean, IIT Madras | Polavaram Earth Cum Rockfill Dam on River Godavari (Under Construction), Overview, Challenges In Design And Execution | Former Director, IIT Delhi | August 25, 2022 |
| 14. | Prof. Mohd Talib Latif, Professor of Atmospheric Chemistry and Air Pollution, Department of Earth Sciences and Environment | Assessment of Major Air Pollutants in the Urban Environment of Kuala Lumpur and Their Potential Impact on Human Health | Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), Malaysia | August 19, 2022 |
| 15. | Dr. Richard J Ball, Department of Architecture and Civil Engineering | Delivered Lecture on Mitigating the Effects of Air Pollutants on People and Buildings | University of Bath, UK | November 18, 2022 |
| 16. | Dr. Virendra Sethi, Environmental Science and Engineering Department | Delivered Lecture on Recent Experiences with Air Pollution Studies of Cities in India | IIT Bombay | October 21, 2022 |
| 17. | Mr. Vishesh V. Singh, | Delivered Lecture on Construction Production Planning & Control through Takt Production | UC Berkeley | November 29, 2022 |
| 18. | Dr Ayushman Bhatt, Research fellow at Singapore | Delivered Lecture on His Broad Area of Interest is Transportation Policy and Economics | University of Technology and Design, Singapore | December 08, 2022 |
| 19. | Dr. Ajay Deshpande, AD-CPS, | Air Quality Management- Policy and Governance: India context | IIT-Bombay, India | December 23, 2022 |
| 20. | Prof. Viswanatham Department of Civil Engineering | IGS Chennai Talk on Some Studies on Modelling of Climatic Events in a Geotechnical Centrifuge | IIT Bombay | October 07, 2022 |
| 21. | Prof. Dr. Ing Habil, Raimund Rolfes Institute of Structural Analysis | Guest Lecture on Finite Element Based Fatigue Analysis of Fiber Composite and Hybrid Structures | Gottfried Wilhelm Leibniz University Hannover, Germany | January 04, 2023 |
| 22. | Dr. Keshav Bharadwaj Post-doctoral scholar | Developing Modelling Frameworks for Performance-based Concrete Mixture Design | Oregon State University, Corvallis, Oregon | January 09, 2023 |
| 23. | Dr. Vedhus Hoskere | Leveraging Synthetic Data for Automated Civil Infrastructure Assessments | University of Houston, USA | January 10, 2023 |
| 24. | Dr. Vedhus Hoskere | Leveraging Synthetic Data for Automated Civil Infrastructure Assessments | University of Houston, USA | January 10, 2023 |
| 25. | Dr. Ravindra Duddu Associate Professor of Civil and Environmental Engineering | Continuum Damage Mechanics Modeling of Fracture | Vanderbilt University, USA | January 11, 2023 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Dates |
|--------|--|---|---|------------------|
| 26. | Prof. Roger Bustamante | A Review of Implicit Constitutive Theories to Describe the Response of Solid Bodies | Universidad de Chile, Santiago, Chile | January 20, 2023 |
| 27. | Prof. Anu Ramaswami Dept. of Civil and Environmental Engineering | Sustainable, Healthy, Equitable Cities: A Systems Science and Engineering Approach : Studies in India, USA and China | Princeton University, USA | January 24, 2023 |
| 28. | Prof. Makarand Hastak, President of The International Council for Research and Innovation in Building and Construction (CIB) & Professor | Guest Lecture on Infrastructure Planning, Resilience and Sustainability for the Students of the Course CE 5014 Sustainable Construction | Construction Engineering and Management, Purdue University, USA | January 25, 2023 |

4.6.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|-----------------------------|-----------------|--|--|---|
| 1. | Dr Sachin S Gunthe | Nepal | April 05-08, 2022 | Promote Academic Program, IIT Madras in Nepalese Universities | |
| 2. | Dr Sachin S Gunthe | Manchester, UK | April 25-28, 2022 | Discussion Related to Upcoming Field Campaign Under IoE | Project |
| 3. | Dr Chandrasekhar Annavarapu | Spain | May 25-June 03, 2022 & June 12-July 03, 2022 | Visit to Universitat Politècnica de Catalunya | With Partial Institute / CPDA |
| 4. | Dr Chandrasekhar Annavarapu | Oslo, Norway | June 05-09, 2022 | 8th European Congress on Computational Methods in Applied Science and Engineering | With Partial Institute / CPDA |
| 5. | Dr Ligy Philip | USA | June 06-11, 2022 | Visit to Pennsylvania State University | |
| 6. | Dr Ligy Philip | USA | June 12-17, 2022 | Plenary Talk at Industrial Ecology Gordon Research Conference 2022 | With Partial Institute / CPDA |
| 7. | Dr Ashwin Mahalingam | USA | June 10-28, 2022 | To Meet Various Alumni Donors of IIT Madras and IITMF Team | Project |
| 8. | Dr. Indumathi M Nambi | Germany | June 13-21, 2022 | To Visit RWTH Aachen University | |
| 9. | Dr. B S Murty | Germany | June 14-15, 2022 | To Participate in Indo German Science and Technology Center Partners Meet 2022 | Project |
| 10. | Dr. B S Murty | Germany | June 16-18, 2022 | Technical Meeting With German Project Partners at Landshut | Project |
| 11. | Dr. Manu Santhanam | UK | June 23-25, 2022 | Research Visit to University of Leeds | Project |
| 12. | Dr. Manu Santhanam | UK | June 27-29, 2022 | 3rd RILEM International Conference on Concrete and Digital Fabrication 2022, Loughborough University | Project |
| 13. | Dr. Indumathi M Nambi | USA | June 28-30, 2022 | AEESP Conference 2022 | With partial Financial Assistance From CPDA |
| 14. | Dr. Ashwin Mahalingam | Germany | July 18-20, 2022 | To Deliver a Lecture in the Indo - German Centre for Sustainability | |
| 15. | Dr. Ashwin Mahalingam | Netherland | July 21-22, 2022 | Invited as a Visiting Researcher at Delft University of Technology | CPDA |
| 16. | Dr. Koshy Varghese | USA | July 25, 2022 | Official | |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|---------------------------|-----------------|--|--|--|
| 17. | Dr. Koshy Varghese | Canada | July 26-30, 2022 | 30th Annual Conference of the International Group for Lean Construction (IGLC30) | Project |
| 18. | Dr. Radhakrishna G Pillai | Switzerland | July 02-11, 2022 | Calcined Clay for Sustainable Concrete 2022 Conference | Project |
| 19. | Dr. Balaji Narasimhan | UK | July 03-07, 2022 | UK- Brazil India Collaboration Workshop at Anglia Ruskin University | CPDA & Project |
| 20. | Dr. Manu Santhanam | Switzerland | July 004-09, 2022 | Project Meeting on Low Carbon Cement and Participate in Calcined Clay for Sustainable Concrete 2022 | Project |
| 21. | Dr. Nikhil Bugalia | Germany | July 18-21, 2022 | International System Dynamics Conference 2022 | With Financial Assistance From CPDA |
| 22. | Dr. Nikhil Bugalia | Germany | July 22, 2022 | To Visit Construction Project | With Financial Assistance From Project |
| 23. | Dr. Benny Raphael | Columbia | July 13-15, 2022 | International Symposium on Automation and Robotics in Construction (ISARC) | CPDA & Project |
| 24. | Dr. Ravindra Gettu | Italy | July 21-23, 2022 | To Visit Polytechnic University of Milan | With Financial Assistance From Project |
| 25. | Dr. Ravindra Gettu | Italy | July 24-29, 2022 August 06-09, 2022 | Official visit to Asti and Pisa | Without Financial Assistance |
| 26. | Dr. Ravindra Gettu | Italy | July 30-August 5, 2022 | To Participate in Gordon Research Seminar and Vice Chair of Gordon Research Conference | With Financial Assistance From CPDA |
| 27. | Dr. Koshy Varghese | USA | August 02-05, 2022 | Visit to Arizona State University | With Financial Assistance From Project |
| 28. | Dr. Radhakrishna G Pillai | Italy | August 01-05, 2022 | To Serve as a Speaker in Advanced Materials for Sustainable Infrastructure Development | With Financial Assistance From CPDA |
| 29. | Dr. Koshy Varghese | USA | August 10-12, 2022 | Visit to University of California | With Financial Assistance From Project |
| 30. | Dr. Manu Santhanam | Malawi | August 21-28, 2022 | Promoting an Environmental Friendly Construction Material Sector (PEFCoM) Project | With financial assistance From Project |
| 31. | Dr. Piyush Chaunsali | Malawi | August 21-28, 2022 | Promoting an Environmental Friendly Construction Material Sector (PEFCoM) Project | With financial assistance From Project |
| 32. | Dr. Radhakrishna G Pillai | South Africa | September 28-October 07, 2022 | 6th International Conference on Concrete Repair Rehabilitation and Retro Fitting (ICCR) | With financial assistance From Project |
| 33. | Dr. Shiva Nagendra M | Malaysia | September 27-29, 2022 | Visit to Universiti Kebangsaan Malaysia (UKM) in Bangi | With financial assistance From Project |
| 34. | Dr. Shiva Nagendra M | Thailand | September 30-October 03, 2022 | Visit to Mahidol University, Ratchathewi, Bangkok | With financial assistance From Project |
| 35. | Dr. Ravindra Gettu | Brazil | October 09-10, 2022 | To Deliver a Lecture in University of Sao Paulo | With Financial Assistance From Project |
| 36. | Dr. Ravindra Gettu | Brazil | October 11-14, 2022 | To Visit and Give a Plenary Lecture in 50th Anniversary Conference of the Brazilian Concrete Institute, Brasilia | With Financial Assistance From CPDA |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|--------------------------------|--------------------|------------------------------------|---|--|
| 37. | Dr. Alagusundaramoorthy P | US | October 14-29, 2022 | Visit to Lexington, US | Without Financial Assistance |
| 38. | Dr. Ravindra Gettu | Brazil | October 15-16, 2022 | To Visit and Lecture in Federal University of Rio de Janeiro | With Financial Assistance From Project |
| 39. | Dr. Subhadeep Banerjee | Italy | November 01, 2022-January 06, 2023 | Research Collaboration | With Financial Assistance under IIT Madras High Risk High Reward (HRHR) Mobility Grant |
| 40. | Dr. Sachin S Gunthe | UK | November 09-26, 2022 | To Attend Mobile Clean Ganga UK Exhibition | Without any Financial Commitment |
| 43. | Dr. Indumathi Manivannan Nambi | USA | November 18-21, 2022 | To Attend 7th Annual Metagenomics and Metadesign of the Subways and Urban Biomes (MetaSUB) Conference | With Institute Financial Assistance from CPDA |
| 44. | Dr. S. Mathava Kumar | Canada | November 23-December 01, 2022 | To Visit University of Calgary for Research Discussion | With Financial Assistance From Project |
| 45. | Dr. Radhakrishna G Pillai | Nepal | November 24, 2022 | Invited as a Speaker at LC3 Information Day on Limestone Calcined Clay Cement | With Financial Assistance From Project |
| 46. | Dr. B Nageswara Rao | Assam | December 11-14, 2022 | Invited as a Keynote Speaker at 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022), IIT Guwahati | With Partial Financial Assistance From CPDA and Project |
| 47. | Dr. B Nageswara Rao | Nepal | December 15-17, 2022 | 17 th International Conference on Vibration Engineering and Technology of Machinery at Institute of Engineering | With Financial Assistance From Project |
| 48. | Dr. Ramesh Kannan K | Chicago, IL, USA | December 12-16, 2022 | Paper Presentation at AGU Fall Meeting 2022 | With Partial Financial Assistance From CPDA and Project |
| 49. | Dr. Ravindra Gettu | France | January 11-13, 2023 | To Attend RILEM Presidency Meeting | With Financial Assistance From Project |
| 50. | Dr. Manu Santhanam | Belgium | January 25, 2023 | Invited as a Member of the Jury of Ph.D. Thesis Examination at Ghent University | With Financial Assistance From Project |
| 51. | Dr. Ligy Philip | Zanzibar, Tanzania | February 12-19, 2023 | Delegation of IIT | Without Institute Financial Assistance |
| 52. | Dr. Manu Santhanam | Belgium | February 19-23, 2023 | Invited as a Member of the Jury of Ph.D. Thesis Examination at Ghent University | With Financial Assistance From Project |
| 53. | Dr. Ravindra Gettu | Colombia | February 21, 2023 | Invited Talk at the Universidad del Valle, Cali | With Partial Institute Financial Assistance From CPDA and Project |
| 54. | Dr. Ravindra Gettu | Colombia | February 23-24, 2023 | Visit to Construction Waste Recycling Plant at Bogota | With Partial Institute Financial Assistance From CPDA and Project |
| 55. | Dr. Ravindra Gettu | Colombia | March 01, 2023 | To Attend XXXVII National Engineering Conference at Universidad del Atlantico in Barranguilla | With Partial Institute Financial Assistance From CPDA and Project |
| 56. | Dr. Manu Santhanam | Mauritius | March 30-31, 2023 | Site Visit at Underpass Caudan Waterfront at Mauritius | With Financial Assistance From Project |

4.6.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date |
|---------------|-----------------------|---|--|---|-------------------|
| Awards | | | | | |
| 1. | Dr. Shiva Nagendra SM | Rekha Nandi and Bhupesh Nandi Prize | 37 th Indian Engineering Congress, Chennai | Impact Assessment of Short-Term Interventions on Air Quality in a Megacity: A Case Study on Odd-Even Policy Implemented in Delhi City | December 16, 2022 |
| 2. | Dr. Ravindra Gettu | Conference Chair in 2024 | 2024 Gordon Research Conference on Advanced Materials for Sustainable Infrastructure Development | Elected as a Chair of the 2024 Gordon Research Conference on Advanced Materials for Sustainable Infrastructure Development. | |
| 3. | Piyush Chaunsali | Outstanding Young Concrete Engineer Award | Indian Concrete Institute (ICI) Chennai Centre | For Contributions to Concrete Research and Application | November 22, 2022 |

4.6.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|-----------------------------|--------------------------|---|
| 1 | Dr. Leletha Devi Vanajakshi | Associate Editor | Journal of Advanced Transportation |
| 2 | Dr. Leletha Devi Vanajakshi | Associate Editor | Journal of the Institution of Engineers India: Series A |
| 3 | Dr. Leletha Devi Vanajakshi | Editorial Board Member | Journal of Big Data Analytics in Transportation |
| 4 | Dr. Leletha Devi Vanajakshi | Editorial Board Member | Transportation in Developing Economies |
| 5 | Dr. Ashwin Mahalingam | Editor | Engineering Project Organization Journal |
| 6 | Dr. Ashwin Mahalingam | Editorial Board Member | Construction Management and Economics |
| 7 | Dr. Piyush Chaunsali | Associate Editor | Journal of Materials in Civil Engineering (ASCE) |
| 8 | Dr. Benny Raphael | Editorial Board Member | Advanced Engineering Informatics |
| 9 | Dr. Benny Raphael | Associate Editor | Frontiers in Built Environment |

4.6.4. Design and Development Activities

4.6.4.1. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR) |
|--------|--|----------------|
| 1 | HP ProDesk 600 G6 Microtower | 1,06,465 |
| 2 | High Pressure Gas Regulator | 32,550 |
| 3 | ACER- All in One PC | 64,561 |
| 4 | Dell Optiplex 7490 All-in-One XCTO Desktop | 1,38,890 |
| 5 | Face Recognition Attendance Machine | 21,216 |
| 6 | HP Laser Jet Pro MFP M329w | 35,434 |
| 7 | PA Amplifier | 31,860 |
| 8 | HP Workstation with Intel Core i9 | 472802 |
| 9 | HP Workstation with Intel Core i9 | 472802 |
| 10 | RPC UPS 10.0 KVA UPS | 98,375 |
| 11 | Total Organic Carbon (TOC) | 26,26,753 |
| 12 | Analytical Balance: Model No: MAB201 | 64,350 |
| 13 | RPC UPS 10.0 KVA UPS | 98,375 |
| 14 | Total Organic Carbon (TOC) | 26,26,753 |
| 15 | Analytical Balance: Model No: MAB201 | 64,350 |
| 16 | Chloride Ion Selective Electrode (ISE) | 1,00,673 |
| 17 | Water Potential with Soil Sampling | 52,217 |

| S. No. | Name of Equipment | Value (in INR) |
|--------|--|----------------|
| 18 | RPC UPS 10.0 KVA UPS | 98,375 |
| 19 | Acer Computer | 1,97,000 |
| 20 | Permeability Mould and Porastone | 71,626 |
| 21 | Executive table and office low Back Chair | 41,985 |
| 22 | FW 75BZ30J Sony 75" inch Bravia 4K Ultra HD HDR Professional Display | 1,76,678 |
| 23 | Gigabyte Z690 Board with Intel Core i9 12900 (16 crore) CM Cabinet with 700w SMPS, Keyboard Mouse. | 99,500 |
| 24 | Miclins Peristaltic pump Model PP-20-x Microprocessor | 61,681 |
| 25 | Pressure Sensor | 1,30,011 |
| 26 | Dell Optiplex | 1,29,633 |
| 27 | Steel Table - V Series | 22,390 |
| 28 | APC UPS | 20,999 |
| 29 | Pressure Transmitter | 21,210 |
| 30 | Palve Premium Wooden Table | 34,161 |
| 31 | Dell P2722H Monitor | 22,155 |
| 32 | Automatic Temperature Correction | 82,983 |
| 33 | Signal Conditioner for Load Cell | 1,77,000 |
| 34 | Dell Precision 3660 Tower System | 1,75,455 |
| 35 | RPC 1 KVA Online UPS | 11,992 |
| 36 | Dell Precision 3660 Tower System | 2,03,939 |
| 37 | BenQ Gw2780 27 inch Led, IPS Monitor | 12,899 |
| 38 | Wooden Table with Steel Legs Made out of Plywood 18MM with Mica | 2,38,508 |
| 39 | Exide 65ah Battery | 1,10,560 |
| 40 | Exide 64ah Battery | 1,16,560 |
| 41 | Exide 27ah Battery | 59,000 |
| 42 | Electromagnetic Lock | 5,428 |
| 43 | HP Laser Mono Computer | 40,293 |
| 44 | Acer Intel Core i5 14 inch Laptop | 55,999 |
| 45 | Storage Shelf with pre laminated board | 9,440 |
| 46 | Canon DSLR Camera EOS 200D | 60,700 |
| 47 | Bar bending Machine UNI 40B | 1,16,230 |
| 48 | Godrej Finish Table _ L shape , 3 standing pedestal and Aero Chair with head rest | 1,26,380 |
| 49 | 400 amps 3 phase Arc Welding Machine | 1,50,332 |
| 50 | Canon Laser Mono Computer Printer | 21,138 |
| 51 | EPSON EB W49 Projector | 61,179 |
| 52 | Pedestal Fan -4 | 18,992 |
| 53 | C-MAG HP 10 Hotplate | 67,669 |
| 54 | FW 75BZ30J Sony 75" inch Bravia 4K Ultra HD HDR Professional Display | 1,76,678 |
| 55 | EPSON Projector | 1,94,162 |
| 56 | SONY 75" Display | 1,76,678 |
| 57 | EPSON Projector | 1,94,162 |
| 58 | EPSON Projector | 1,94,162 |
| 59 | Ahuja make PA Wall Speaker Model - 2 Nos. | 84,306 |
| 60 | Audio Video Conferencing System | 0 |
| 61 | Water Purifier (to HoD Office) | 19,300 |
| 62 | Numeric online UPS 5.0KVA (to MPCEM Lab) | 1,98,150 |
| 63 | EPSON Projector (to VHS -seminar Hall) | 1,94,163 |
| 64 | Voltas Floor Mounted hot, cold and normal water dispenser | 7,496 |

| S. No. | Name of Equipment | Value (in INR) |
|--------|---|----------------|
| 65 | Face with eye based attendance System with software | 44,840 |
| 66 | HP Pro Tower 280 G9 PCI Desktop PC Bundle | 61,339 |
| 67 | HP 280 G9 MT PC, Hp Pro Tower 280 G9 PCI Desktop PC Bundle HP 125 wired Keyboard | 2,38,360 |
| 68 | Supply and Installation of IP Conference Phone with Ip & SIP, USB & Bluetooth | 1,14,696 |
| 69 | Access Switch-24 Port Non PoE Make Nake | 2,18,772 |
| 70 | Zebster ZeB V16HD 15.4" HD VGS & HDMI Monitor | 3,685 |
| 71 | AO Smith water purifier 9 Litres proplanet P5 black | 78,240 |
| 72 | Matrix chair with lumbar support, Office desk senior executive table and low back chair | 59,189 |
| 73 | Samsung Frost Free Fridge 253 Litres | 27,200 |
| 74 | Face with eye based attendance System with software | 1,99,000 |
| 75 | Exide 42ah Battery | 1,01,800 |
| 76 | Senior Executive Table, Matix Medium Back Chair, Low back Chair and 8MM Glass for the Table | 2,30,366 |
| 77 | Aruba 24G 2930F Non-POE Switch | 1,45,848 |
| 78 | Dell Intel Core i7 12700 Desktop computer | 2,38,660 |
| 79 | Dell Intel Core i7 12700 Desktop computer | 2,38,660 |
| 80 | B. Cabinet 5x3, workstation table with storage Non-revolving chair | 2,29,300 |
| 81 | IP Camera Lumens VC-R300 | 2,42,525 |
| 82 | Chat 150 USB Group Speakerphone and 15 meters USB Active Cable | 83,837 |
| 83 | Bosch 4' Angle Grinder, Drilling Machine | 1,29,838 |
| 84 | (5x5) L Table with (2.5x2.5) Leg (5x1.1.5) Keyboard | 57,820 |
| 85 | HP LaserJet Pro MFP M329dw Printer | 75,594 |
| 86 | Dell optiplex 5400 AIO i5 12th Gen | 99,550 |
| 87 | Conference Table of Size: (8Lx3.5WX2.5H) Table Top & Leg made by 25mm Commercial Ply. | 44073 |
| 88 | Customized Chairs with long hand rest for Research Scholars | 46610 |

4.6.5. Patents

4.6.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|---|
| 1. | Dr. Ramesh Kannan Kandasami | Simulating and capturing real-time fracture propagation in soft geomaterials under three-dimensional stress field Country: India, Application Number: 202241040415, Filing Date: July 14, 2022 |
| 2. | Dr. Senthilnathan J | Long-chain alkane silane and hydrophilic-lipophilic balance polymer based water filter for potable water purification Country: India, Application Number: 202241037026, Filing Date: June 28, 2022 |
| 3 | Dr. Benny Raphael | A system and method for 3D printing building structures Country: India, Application Number: 202241056171, Filing Date: September 30, 2022 |
| 4. | Dr. Lelitha Devi V, Dr. Bhargava Rama Chilukuri | Adaptive traffic signal control Country: India, Application Number: 202241060097, Filing Date: August 20, 2022 |
| 5 | Dr. Ligy Philip | A method and system for in-situ remediation of contaminated drains using engineered natural systems Country: India, Application Number 202241062853, Filing Date: November 03, 2022 |

| S. No. | Name of Faculty | Topic of Patent |
|---|---|--|
| 6 | Dr. Ligy Philip | Process and system for recovery of phosphate with layered double hydroxide Zn-Co electrodes Country: India, Application Number 202241066167, Filing Date: November 18, 2022 |
| 7 | Dr. Saravanan U | Photogrammetric technique based on markers tracking algorithm for measuring small surface strain Country: India, Application Number: 202241071264, Filing Date: December 09, 2022 |
| 8 | Dr. Shiva Nagendra S M | Multi-stage smoke extractor for kitchens Country: India, Application Number: 202341024698, Filing Date: March 31, 2023 |
| 9 | Dr. Shiva Nagendra S M | Sensor network for ambient air quality monitoring Country: PCT, Application Number: PCT/IN2022/050826, Filing Date: September 15, 2022 |
| 10 | Dr. Sivanandan R | System for Driver Assessment and On-Board Warnings using Multi-sensor Instrumented Vehicle Country: India, Application Number: 202241075174, Filing Date: December 24, 2022 |
| Jointly Filed with Other Departments | | |
| 1 | Dr. Chandrararaj K (Biotech) Dr. Dali Naidu Arnepalli (Civil Engineering) | Thermoset plastic from waste liquor obtained from ammoniacal glycerol pre-treatment of lignocellulosic biomass. Country: India, Application Number: 202241064010, Filing Date: November 09, 2022 |
| 2 | Dr. Chakravarthy S R, Dr. Muruganandam T M, (Aerospace Engineering) Dr. Ravindra Gettu (Civil Engineering) | Vacuum System Country: India, Application Number: 202241036811, Filing Date: June 27, 2022 |

4.6.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------------------|--|
| 1. | Dr. Lelitha Devi V | A dynamic operation, management & control system for a vehicle Country: India, Patent No: 409992, Patent date: August 27, 2022 |
| 2. | Dr. Manu Santhanam | Instant Concrete Housing Elements, Construction Kits and Shelters Thereof Country: India, Patent No: 418870, Patent date: January 23, 2023 |
| 3. | Dr. Indumathi M Nambi | LCD-supported thin film graphene electrodes Country: India, Patent No: 415489, Patent date: December 26, 2022 |
| 4. | Dr. Ligy Philip | A method and system for treatment of wastewater powered by solar energy Country: India, Patent No: 394888, Patent date: April 18, 2022 |
| 5 | Dr. Ligy Philip | A paper-based sensors for detection of eutrophying nutrients in water and waste water system Country: India, Patent No: 406442, Patent date: September 13, 2022 |
| 6. | Dr. Indumathi M Nambi | Integrative-modular onsite urine treatment unit for recovery of water and green chemicals Country: India, Patent No: 411075, Patent date: November 09, 2022 |
| 7. | Dr. Benny Raphael | A methodology for the construction of structural elements Using Concrete 2D Printing Country: India, Patent No: 418328, Patent date: January 17, 2023 |
| 8 | Dr. Bhargava Rama Chilukuri | Departure Time Planner using V2V and V2I Communication Country: India, Patent No: 411487, Patent date: November 15, 2022 |

4.6.6. Research and Consultancy

4.6.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|-------------------------------------|---|----------------------|---|
| 1. | Physics Informed Neural Networks for Modeling Heterogeneous Subsurface Systems | March 15, 2022 - March 03, 2025 | ExxonMobil Upstream Research Company | 22.21 | Dr. Chandrasekhar Annavarapu Srinivas |
| 2. | Post-Graduate Diploma Program in Bridge Engineering (PGDPBE) | May 10, 2022 - May 9, 2027 | Programme - Centre for Outreach and Digital Education | 55.62 | Dr. Devendra Jalihal Co-PI Dr. Rupen Goswami |
| 3. | Construction Technology & Management (CT&M) | May 10, 2022- May 09, 2027 | Programme - Centre for Outreach and Digital Education | 9.44 | Dr. Devendra Jalihal Co-PI Dr. Ramamurthy K Co-PI Dr. Koshy Varghese |
| 4. | Visionary Leadership In Manufacturing Programme (PGPEX-VLM) | May 10, 2022 - May 09, 2027 | Programme - Centre for Outreach and Digital Education | 228.87 | Dr. Devendra Jalihal Co-PI Dr. Arshinder Kaur, MS Co-PI Dr. Lata Dyaram, MS |
| 5. | Web M.tech Online Programme - Electrical Engineering - VLSI | May 10, 2022 - May 09, 2027 | Programme - Centre for Outreach and Digital Education | 65.72 | Dr. Devendra Jalihal Co-PI Dr. David Koilpillai, EE |
| 6. | Promoting an Environmental-friendly Construction Material Sector in Malawi | June 01, 22 - December 31, 2023 | Technology and Action for Rural Advancement | 47.23 | Dr. Manu Santhanam Co-PI Dr. Piyush Chaunsali |
| 7. | Climate-Resilient, Energy Secure and healthy built environments (CREST) | July 26 - December 31, 2022 | British Council | 1.92 | Dr. Shiva Nagendra S M |
| 8. | CCE Conference Workshop Short Course Projects under Sponsored | July 01, 2022 - June 06, 2027 | Conference | 3.00 | Dr. Devendra Jalihal |
| 9. | MTech in Artificial Intelligence | July 28, 2022 - July 27, 2027 | Programme - Centre for Outreach and Digital Education | 0.00 | Dr. Devendra Jalihal Co-PI Dr. Sridharakumar Narasimhan, CH Co-PI Dr. NIRAV BHATT, BT |
| 10. | Clean Energy for Healthy Environments and Lives (CE4HEAL) | August 01, 2022 - August 08, 2023 | Department of Foreign Affairs and Trade, Australia | 27.69 | Dr. Shiva Nagendra S M Co-PI Dr. Krishna Vasudevan, |
| 11. | Development of Ultra-High-Performance Concretes (UHPCs) for Road. Bridge Infrastructure in Urban Areas | July 29, 2022 - July 28, 2024 | Kerala Highway Research Institute | 37.10 | Dr. Surender Singh Co-PI Dr. Radhakrishna G Pillai Co-PI Dr. Manu Santhanam |
| 12. | Examining the impact of aerosol, urbanisation and irrigation on extreme rainfall occurrences over India using cloud-resolving simulations | October 01, 22 - September 30, 2024 | Asia-Pacific Network for Global Change Research (APN) | 57.11 | Dr. Chandan Sarangi Co-PI Dr. Soumendra Nath Kuiry-008566, CE |
| 13. | Unnat Bharat Abhiyan - SEG - Sanitary & solid waste management | September 23, 2022 - March 31, 2026 | Ministry of Education | 0.69 | Dr. Indumathi M. Nambi Co-PI Dr. Murty B S |
| 14. | Carbonation-induced corrosion and service life of steel-concrete systems with limestone calcined clay cement (LC3) and corrosion inhibitors | January 02, 2023 - January 01, 2025 | Science and Engineering Research Board (SERB) | 22.37 | Dr. Radhakrishna G Pillai |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---------------------------------------|---|----------------------|--|
| 15. | Hypervelocity impact simulation | February 23, 2023 - February 22, 2024 | Armament Research Board | 40.93 | Dr. Alagappan Ponnalagu Co-PI Dr. Rajesh G, |
| 16. | Electrical and electrochemical modelling for routine, non-destructive testing of cathodic protection system in reinforced concrete structures | February 17, 2023 - February 16, 2026 | SERB | 37.34 | Dr. Radhakrishna G Pillai Co-PI Dr. Sankaran Anirudhan, Co-PI Dr. Lakshman Neelakantan |
| 17. | Development of a Novel Limited Channel Surface Wave Test Method | February 20, 2023 - February 19, 2026 | SERB | 42.06 | Dr. Tarun Naskar Co-PI Dr. Subhadeep Banerjee, |
| 18. | Electrochemical advanced oxidation processes for the destruction of PFAS in water | February 01, 2023 - January 31, 2025 | SERB | 22.37 | Dr. Indumathi Manivannan Nambi |
| 19. | Effect of Electric Vehicles (EVs) and EV Lanes on Road Capacity and Fundamental Diagrams | March 15, 2023 - March 14, 2026 | SERB | 20.54 | Dr. Bhargava Rama Chilukuri |
| 20. | A Comprehensive Framework for the Quantification of Workability of Bituminous Mixtures Using Rheology, Tribology and Surface Tension | February 23, 2023 - February 22, 2026 | SERB | 42.57 | Dr. Murali Krishnan J Co-PI Dr. Atul Narayan S P, |
| 21. | Structural Health Monitoring and Assessment of Concrete Bridge Girders | March 13, 2023 - March 12, 2026 | Ministry of Road Transport and Highways | 1192.00 | Dr. Saravanan U Co-PI Dr. Meher Prasad A, |

4.6.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|---|----------------------|
| 1 | Dr. Mohan S Co PI- Dr. Dodagoudar G R | Hazardous Waste Generation and Estimation for Thirumalai Chemicals | Thirumalai Chemicals Limited | 9.44 |
| 2 | Dr. Balaji Narasimhan | Vetting of SWD Design for GCC | Corporation Of Chennai Storm Water Drainage Department | 31.74 |
| 3 | Dr. Arul Jayachandran S | PROOF CHECKING THE DESIGN OF PEBs - IITM - HY-6399-PROOF CHECKING HY-6399 | Kirby Building Systems and Structures India Private Limited | 16.08 |
| 4 | Dr. Apparao G | Proof Checking of Structural Designs and Drawings of 25, 7, 15.25 & 7.75 MLD SPS at Biharsharif, Bihar | Bhugan Infracon Private Limited | 7.67 |
| 5 | Dr. Vidya Bhushan Maji | Geotechnical Investigation -TNUHDB Div 5, construction of S+10 building at Dr.Thomas road Phase 1 project | Tamil Nadu Urban Habitat Development Board (TNUHDB) | 14.75 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|---|---|----------------------|
| 6 | Dr. Meher Prasad A | Proof checking of Consultancy services for preparation of Urban roads improvement plan for all district Headquarters of HP except Kinnaur, Lahaul-Spiti, Shimla and Dharamsala. | L and T Infrastructure Engineering Limited | 8.26 |
| 7 | Dr. Meher Prasad A | Peer Review of Structural Design of Pan India Cancer Care Hospital Projects of Alamelu Charitable Foundation. | Alamelu Charitable Foundation | 21.06 |
| 8 | Dr. Subhadeep Banerjee Co PI- Dr. Robinson R G | Proof checking of Geotechnical Design of Vibro Stone Columns at NRL Assam | Keller Ground Engineering India Private Limited | 5.90 |
| 9 | Dr. Subhadeep Banerjee Co PI- Dr. Robinson R G | Recommendation on Design and Installation Methods of Ground Improvement Methods for Pipe Rack Systems | Keller Ground Engineering India Private Limited | 20.06 |
| 10 | Dr. Meher Prasad A Co PI- Dr. Subhadeep Banerjee | Third-party Proof Check of Structural & Geo Technical Design/Drawings for the Project titled Construction of Post Graduate Institute of Medical Science & Research Trauma Care & Surgery Complex with Casualty Block & Hostels Blocks at Bhubaneswar. | Larsen & Toubro Limited | 17.11 |
| 11 | Dr. Subhadeep Banerjee Co PI- Dr. Tarun Naskar | Measurement and Monitoring Vibration due to Implosion of the Twin Towers in Noida | Geostructural Private Limited | 7.08 |
| 12 | Dr. Arul Jayachandran S | Construction of Research Park (iHUB) at IISc, Bangalore - Work order for Design Check | URC Construction Private Limited | 5.31 |
| 13 | Dr. Ligy Philip | DPR for ZLD for proposed Common Effluent Treatment Plant (CETP) in Chinnalapatti, Dindigul | Chinnalapatti CETP Private Limited | 2.95 |
| 14 | Dr. Meher Prasad A Co PI- Dr. Prakash Maiya M, ME Dr. Benny Raphael, CE Dr. SarathiR,EE Dr. Robinson R G,CE Dr. Raghavan V,ME Dr. Arul Jayachandran S,CE Dr. Krishna Vasudevan, EE Dr. Rupen Goswami ,CE Dr. Subhadeep Banerjee,CE | Proof checking of Indore-Metro Project Viaduct 14+488 to 25+415 including Nine (9) Stations (Package IN-03) and Seven (7) Metro Stations (Package IN-02). | Rail Vikas Nigam Limited | 324.50 |
| 15 | Dr. Mathava Kumar S | Adequacy Study for Existing Effluent Treatment Plant (ETP) and Sewage Treatment plant (STP) at Momentive Performance Materials (India) Pvt. Ltd. at Oragadam, Sriperumbudur, Tamil Nadu | Momentive Performance Materials India Private Limited | 2.95 |
| 16 | Dr. Benny Raphael | Proof Checking for Mumbai - Ahmedabad High Speed Rail Project | Larsen and Toubro Limited | 10.03 |
| 17 | Dr. Apparao G | Testing of Modular Scaffolding Towers | Larsen and Toubro Limited | 14.16 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|--|----------------------|
| 18 | Dr. Arul Jayachandran S | Proof Checking the Design of Superstructure and Substructure of Six Lane Chittoor-Thatchur Road (Greenfield Alignment) from km 43.800 to km 61.380 on Hybrid Annuity Mode under Bharatmala Pariyojna, in the state of Andhra Pradesh and Tamil Nadu (Pack | EKK Infrastructure Limited | 6.49 |
| 19 | Dr. Sathish Kumar S R | Proof Checking Design of Elan Paradise Buildings at Sector 50, Gurugram | Elan Limited | 15.70 |
| 20 | Dr. Nageswara Rao B | Proof Checking and Vetting of Structural Design & Drawings of Proposed Construction of Factory Building for M/s Raising Star Mobiles India [RCC Building of 3.5 floors (0.5 Mezzanine floor of size 35m x 65m), Size of the Building is 190m x 65 m] | Zhongshuo Engineering India Private Limited | 10.62 |
| 21 | Dr. Piyush Chaunsali Co PI- Dr. Surender Singh,CE | Performance Studies of Portland Cement-Based Binders | Dalmia Cement (Bharat) Limited | 5.90 |
| 22 | Dr. Meher Prasad A | Construction of Additional Infrastructure at IISc main campus, Bangalore (Proof Attached). | DEC Infrastructure & Projects (India) Private Limited | 46.13 |
| 23 | Dr. Nageswara Rao B | Proof Checking & Vetting of Structural Design Documents & Drawings of Proposed Construction of Various Building and Infrastructure at Proposed at Helicopter Factory Site of M/S HAL at Biderehalla Kaval, Gubbi Taluk, Tumakuru District, Karnataka | Centre For Urbanization Buildings And Environment(Cube) | 14.16 |
| 24 | Dr. Mohan S Co PI- Dr. Dodagoudar G R,CE | Proof Check for the Design of Proposed Regulator Across Thirumalairajan River at Manampet in Karaikal | Public Works Department | 4.72 |
| 25 | Dr. Surender Singh | Atal Setu Inspection | Goa State Infrastructure Development Corporation Limited | 11.80 |
| 26 | Dr. Sathish Kumar S R | Proof Checking design of Gantry girders for Alstom B1 Depot Building at Nagpur | Everest Industries Limited | 3.54 |
| 27 | Dr. Nageswara Rao B | Proof Checking and Vetting of Structural Design Documents and Drawings of Proposed Construction of Major Bridge at ch:510+994 | Shri S M Autade Private Limited | 3.54 |
| 28 | Dr. Meher Prasad A | Proof checking of Design & Drawings for Mumbai-Ahmedabad High Speed Rail Project. | National High Speed Rail Corporation Limited | 38.94 |
| 29 | Dr. Meher Prasad A | Proof Checking of Structural Designs - Sobha Manhattan Towers - Town Park Phase 1 Wing 4 and 5. | Sobha Limited | 22.32 |
| 30 | Dr. Meher Prasad A | Proof Checking of "Structural Drawings for Manapparai and Theni Industrial Parks". | L&T Infrastructure Engineering Limited | 2.95 |
| 31 | Dr. Nageswara Rao B | Proof Checking & Vetting Of Structural Design Documents & Drawings Of Proposed Construction Of 51 Nos Box Culverts, For Our Garhmukteshwar-Meerut Road Project | Tata Projects Limited | 4.13 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|---|---|----------------------|
| 32 | Dr. Nageswara Rao B | Design Qualification Tests to withstand the Axle load of 25 tons on PSC Monoblock Sleepers (RDSO/T-7008) for Dedicated Freight Corridor | Vishal Nirmitti Private Limited | 13.57 |
| 33 | Dr. Meher Prasad A | Proof Checking of IIIT - Sri City, Chittoor, A.P | Buro Engineers (India) Private Limited | 4.21 |
| 34 | Dr. Sathish Kumar S R | Proof Checking of Design of PEB for M/s Tata Hitachi Construction. Machinery. | SMCC Construction India Limited | 2.50 |
| 35 | Dr. Ligy Philip | Development of Treatment Protocol for Synthetic Metal Working Fluids to Meet the Discharge Standards Specified by CPCB | Callington India Private Limited | 18.17 |
| 36 | Dr. Nageswara Rao B | Fatigue Test on Flash Butt Welded Joint | Voestalpine Vae Vkn India Private Limited | 3.54 |
| 37 | Dr. Meher Prasad A | Construction of Hostel 'S' Block G+8 Floor - Proof Checking & Vetting the Prepared Structural Design Drawing and Providing the Study Report - SRM IST Trichy campus. | SRM Institute Of Science Of Technology | 19.79 |
| 38 | Dr. Ligy Philip | Carrying Out Mass Balance of Mercury in the Treatment Processes of Contaminated Soil in Hindustan Unilever Limited, Kodaikanal | Hindustan Unilever Limited | 43.48 |
| 39 | Dr. Meher Prasad A | Vetting and Approval of Civil & Structural Engineering Design and Drawings of All Pre Cast ESR Staging With Steel Container for UP Empanelment WSS Package 2. | Larsen & Toubro Limited | 8.26 |
| 40 | Dr. Meher Prasad A | Vetting and Approval of Civil & Structural Engineering Design and Drawings of All Pre Cast ESR Staging With Steel Container for UP Empanelment WSS Package 1 | Larsen & Toubro Limited | 8.26 |
| 41 | Dr. Meher Prasad A | Vetting of Structural Design and Drawings for Project Raintree Boulevard Phase 3, L&T Realty, Bangalore. | Larsen & Toubro Limited | 40.79 |
| 42 | Dr. Raghukanth S T G | PSHA for Mumbai Building Site | Nandanbala Commercials Private Limited | 11.80 |
| 43 | Dr. Meher Prasad A | Design & Construction of Commercial Building (2B+G+12 floors) at Trivandrum, Kerala. | Steelion Prefab Infra Solutions Private Limited | 10.24 |
| 44 | Dr. Sathish Kumar S R | Proof Checking of Design of RC Buildings for Software Technology Parks of India | Bridge & Roof Company India Limited | 9.23 |
| 45 | Dr. Nageswara Rao B | Proof Checking & Vetting of Structural Design Documents & Drawings of 270 Nos (S+9) Tenements at Harbour Area Scheme in VOC Nagar, Tondiarpet, Chennai [Built-up Area: 1,26,890 Sqft (approx.)] | Centre For Urbanization Buildings And Environment(Cube) | 4.13 |
| 46 | Dr. Robinson R G Co PI- Dr. Subhadeep Banerjee, CE | Proof Checking of Design of Vibro Stone Columns Using Dry Bottom Feed Method for the Proposed Structures at Cooling Tower Package in NRL Assam | Keller Ground Engineering India Private Limited | 4.72 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|--|---|----------------------|
| 47 | Dr. Raghukanth S T G | SITE SPECIFIC SEISMIC STUDIES for Nirma Corporate House at Ahmedabad, Gujarat state | Nirma Limited | 10.62 |
| 48 | Dr. Apparao G | Proof Checking of Structural Design and Structural Health Safety Audit of Structures of "GARDENS", Chennai, Tamil Nadu | Unitech Limited | 5.90 |
| 49 | Dr. Dali Naidu Arnepalli | Review of the Design, Drawings, Inspection for the Closure and Capping of the SLF-II at HZL-Vizag-Andhra Pradesh Reg. | Garware Technical Fibres Limited | 2.66 |
| 50 | Dr. Nageswara Rao B | Proof Checking & Vetting of Structural Design Documents & Drawings of (i) 78 Nos (S+6) Tenements at Ellis Puram Scheme in Triplicane village; and (ii) 308 Nos (S+11) tenements at Pilliyar Koil Thottam scheme in Chennai | Centre For Urbanization Buildings And Environment(Cube) | 3.42 |
| 51 | Dr. Vidya Bhushan Maji | TNUDB-DV-5, Geo-technical Investigation for Construction of S+11, Vanniyapuram slum Tenements | Tamil Nadu Urban Habitat Development Board (TNUHDB) | 13.28 |
| 52 | Dr. Meher Prasad A | Proof Checking for Park Square Project | Starworth Infrastructure & Construction Limited | 11.12 |
| 53 | Dr. Soumendra Nath Kuiry | Vetting of Design and Drawings of Kharkar Barrage lift irrigation scheme in Jharkhand under WRD | South East Constructions Company Private Limited | 7.08 |
| 54 | Dr. Indumathi Manivannan Nambi | Proof Checking of Design of WTP at Boudh and Kandamal - Odisha | L& T Construction Water and Effluent Treatment IC | 5.31 |
| 55 | Dr. Dali Naidu Arnepalli | Assessing the Safety and Stability, Construction Methodology for Ash Dykes of TSTPP Stage-I and Stage-II at NTPC Kaniha | NTPC Limited | 11.80 |
| 56 | Dr. Nageswara Rao B | Proof Checking and Vetting of Structural Design Documents & Drawings of Process Building (RCC building about 33m in height with 5 floors) of M/S Chemplast Sanmar Limited at Berigai, Hosur | Aswathanarayana & Eswara | 2.95 |
| 57 | Dr. Nageswara Rao B | Proof Checking and Vetting of Approach Bridge Connecting Intake Well | Tata Consulting Engineers Limited | 2.95 |
| 58 | Dr. Manu Santhanam Co PI- Dr. Radhakrishna G Pillai, CE | Design of Concrete Elements for Statue of Oneness | L&T Construction | 17.70 |
| 59 | Dr. Nageswara Rao B | Proof Checking & Vetting of Structural Design Documents & Drawings of Proposed Construction of Major Structures Including Foundation, Substructure and SuperStructure For Meerut Garhmukteshwar Project | Tata Projects Limited | 30.00 |
| 60 | Dr. Subhadeep Banerjee Co PI- Dr. Tarun Naskar, CE | Vibration Measurement at the Kanpur Plastic Concrete Cut-off Wall Construction Project Site | L&T Geostucture Private Limited | 7.08 |
| 61 | Dr. Dali Naidu Arnepalli | Stability Analysis of Ash Dyke of Sembcorp Energy India, Nellore. | Sembcorp Energy India Limited | 5.90 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|---|----------------------|
| 62 | Dr. Sathish Kumar S R | Proof Checking of Steel Bridge for Public Work Department at Manipur | Mukesh & Associates | 5.90 |
| 63 | Dr. Sathish Kumar S R | Proof Checking of Design of PEB for M/s Shree Prefab Steels P Limited | Shree Pre-Fab Steels Private Limited | 11.18 |
| 64 | Dr. Meher Prasad A | Proof Checking of Formwork & Construction Methodology Design, Drawings for "Construction of H.L. Bridge over river Subarnarekha at 36th km on Haldipada NH-16 to West Bengal border via Baliapal, Pantei in the District of Balasore in the State of Odisha | L&T Geostructure Private Limited | 4.13 |
| 65 | Dr. Sathish Kumar S R | Proof Checking of Design of RCC Buildings for M/s Proposed Command & Control Center Building | Office Of The Commissioner Of Police Chennai City | 2.90 |
| 66 | Dr. Sathish Kumar S R | Proof Checking of Design for PEB Building M/s Carbon Black Project | SMCC Construction India Limited | 4.25 |
| 67 | Dr. Sathish Kumar S R | Proof Checking of Design of PEB , Structural & RCC Buildings for M/s Sika at Kharagpur. | MOA Infra | 3.40 |
| 68 | Dr. Apparao G | Proof Checking of Design of Re-Development of Ernakulam Railway Station | Bridge & Roof Co. (India) Limited | 34.69 |
| 69 | Dr. Ravindra Gettu Co PI- Dr. Keerthana,CE | Comparison of the Performance of Different Types of Fibres for Reinforcing Concrete | Fujita Engineering India Private Limited | 7.08 |
| 70 | Dr. Mohan S | Baseline Monitoring of Hazardous Waste Landfill Site at Bargur | RE Sustainability IWM Solutions Limited | 5.90 |
| 71 | Dr. Ligy Philip | Third Party Auditing of CHWTSDF, Gummidipoondi | Industrial Waste Management Association | 1.89 |
| 72 | Dr. Ravindra Gettu Co PI- Dr. Meher Prasad A,CE Dr. Keerthana, CE Dr. Subhadeep Banerjee,CE | Collaboration in the Design of Steel Fibre Reinforced Concrete Tunnel Segments for Patna Metro | Larsen & Toubro Limited-Construction-Heavy Civil Infrastructure | 29.50 |
| 73 | Dr. Sathish Kumar S R | Proof Checking of Design and Drawing of Railway Over Bridge(ROB) at Km 223+747. | D P Jain & Co In-frastructure Private Limited | 3.54 |
| 74 | Dr. Dali Naidu Arnepalli | Stability Analysis and Feasibility of Raising of Bund Height of Ash Pond-C from RL. 202m to RL. 205m Reg. | Odisha Power Generation Corporation Limited | 7.32 |
| 75 | Dr. Dali Naidu Arnepalli | Stability Analysis and feasibility of raising of bund height of of Tilia Ash Pond from RL. 208m to RL. 212 m Reg. | Odisha Power Generation Corporation Limited | 8.85 |
| 76 | Dr. Subhadeep Banerjee | Geotechnical Consultancy for Tank farm & Bullet project in IOCL Panipat, Haryana | L&T Hydrocarbon Engineering Limited | 7.08 |
| 77 | Dr. Venu Chandra | Multi-village Scheme Covering all the Rural Habitations of Dharwad, Hubli, Kundgol, Navalgund & Kalaghatagi taluk's in Dharwad District. | Larsen & Toubro Limited Construction | 11.80 |
| 78 | Dr. Murali Krishnan J | Performance Characterization of Modified Bituminous Mixtures | Farakka-Raiganj Highways Limited | 9.44 |
| 79 | Dr. Alagusundaramoorthy P | Condition Assessment and Repair and Rehabilitation of the MD Bungalow in the Express Avenue | Express Infrastructure Private Limited | 34.40 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|---|---|----------------------|
| 80 | Dr. Alagusundaramoorthy P | Condition Assessment of the Structural Elements and Remedial Measures for the Water Seepage in the Basements of the Express Avenue Mall | Express Infrastructure Private Limited | 30.29 |
| 81 | Dr. Apparao G | Proof Checking for Chennai Peripheral Ring Road Project | Tata Projects Limited | 9.97 |
| 82 | Dr. Sathish Kumar S R | Proof Checking of PEB Design for M/s PCBL (TN) Limited | Metal Scope (India) Private Limited | 6.60 |
| 83 | Dr. Subhadeep Banerjee Co PI- Dr. Tarun Naskar,CE | Demolition of TATA Buildings in Jamshedpur – Measurement of Vibration due to Implosion of the Buildings | Geostructural Private Limited | 14.75 |
| 84 | Dr. Robinson R G Co PI- Dr. Subhadeep Banerjee,CE | Proof Checking Thermax NRL Assam | Keller Ground Engineering India Private Limited | 6.49 |
| 85 | Dr. Soumendra Nath Kuiry | Vetting of Hydraulic Design of the Kharkai lift Irrigation System in Jharkhand | Prathmesh Construction | 11.80 |
| 86 | Dr. Sathish Kumar S R | Proof Checking of Design of R.C Building for Urban Habitat Development Board | Centre For Urbanization Buildings And Environment(Cube) | 10.00 |
| 87 | Dr. Arul Jayachandran S | Tests on Props and its Components- HD Prop 4.0m, Scaffold Bracket Load Test, Safety Harness Hook Point | PERI Werk (India) Private Limited | 4.13 |
| 88 | Dr. Arul Jayachandran S | J#1295/TATA AUTOCOMP SYSTEM LTD. - Proof Checking the Design of PEBs | M and B Engineering Limited | 3.78 |
| 89 | Dr. Dali Naidu Arnepalli | Proof Checking of Design & Drawings of Soil Nailing for the Construction of bypass section of NH66 Chainages from 258+818 to 298+500 & from 298+500 to 335+850 Reg. | KNR Constructions Limited | 11.80 |
| 90 | Dr. Murali Krishnan J | RAP mix design for JM TL | Jaipur Mahua Tollway Private Limited | 11.80 |
| 91 | Dr. Alagusundaramoorthy P Co PI- Dr. Sathish Kumar S R ,CE | Providing Comprehensive Consultancy services for Retrofitting and Waterproofing of Parking Basement in AIIMS at Raipur | All India Institute of Medical Sciences Raipur (CG) | 93.02 |
| 92 | Dr. Alagusundaramoorthy P | Condition Assessment on the Structural Soundness of Unhabituated Hostel Blocks Ananda Ashramam and Arundale Block in Kalakshetra Foundation at Chennai | Kalakshetra Foundation | 4.13 |
| 93 | Dr. Alagusundaramoorthy P | Review of the Analysis and Design and vet the Drawings of 27 MLD Integrated Sewage Treatment Plant for Tambaram Municipality Corporation | Keyem Infra Project Private Limited | 5.02 |
| 94 | Dr. Alagusundaramoorthy P | Analysis and Design of Underpass Below the Proposed Extension of Runway of Madurai Airport | Tamil Nadu Road Infrastructure Development Corporation | 7.08 |
| 95 | Dr. Alagusundaramoorthy P | Review of the Preliminary Design and drawings along with GAD for the Elevated Corridor from Teynampet to Saidapet | Highways Department | 9.74 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------------|--|---|----------------------|
| 96 | Dr. Meher Prasad A | Proof Checking of six laning of Existing 4-Lane stretch of NH-44 from Gundlapochampally to Bowenpally (Design chainage Km: 481.331) total length 10.031 Km in the State of Telangana on EPC mode under Bharatamala Parivojana. | Lakshmi Infrastructure & Developers India Private Limited | 7.08 |
| 97 | Dr. Meher Prasad A | Four Laning of Thorapalli Agraharam-Jittandahalli Section of NH-844 from Km 25.000 to Km 6 3.500 (existing chainage) corresponding to Km 23.350 to Km 60.100 (Design Chainage) under Bharatmala Pariyojana Phase-I (National Corridor) on Hybrid Annuity Mode in the State of Tamil Nadu (Package-II of Hosur Dharmapuri Section). | Sunway RNS TJ Private Limited | 3.54 |
| 98 | Dr. Ravindra Gettu | Review of Concept Notes and Methodologies related to Carbon Capture in the field of Cement and Concrete | Verra | 8.50 |
| 99 | Dr. Meher Prasad A | Proof Checking of "Construction of Office Building (Basement +G+18 floors) for Income Tax Department at No.4,5 & 6 Infantry road Bengaluru | Globe Civil Projects Private Limited | 12.52 |
| 100 | Dr. Ravindra Gettu | Testing of Fibre reinforced Concrete for Kanpur Metro Tunnel Segments | Afcons Infrastructure Limited 22 | 2.83 |
| 101 | Dr. Ravindra Gettu | Proof Checking of Fibre Concretes Industrial Floors | Bekaert Mukand Wire Industries Pvt Ltd | 7.08 |
| 102 | Dr. Ravindra Gettu | Testing of Concrete for Toughness for Kanpur Metro project | Bekaert Mukand Wire Industries Pvt Ltd | 2.83 |
| 103 | Dr. Meher Prasad A | Proof Checking of detailed Design and Drawings for Superstructure, Substructure, Foundation (including Geotech report) Bearings & Erection scheme for 1 no. of ROB & 1 no. of Major Bridge of Ganga Expressway Project | L&T Construction -Transportation Infrastructure IC | 17.70 |
| 104 | Dr. Meher Prasad A | Third Party Proof Check of Structural Design & Drawings for STT Datacenter | L And T Limited, Construction Buildings And Factories | 17.70 |
| 105 | Dr. Meher Prasad A | Proof Checking of "Consultancy Services for the Navy Building (G+8 Floors 32 units) at Saidapet, Chennai. | L and T Infrastructure Engineering Limited | 3.91 |
| 106 | Dr. Alagusundaramoorthy P | Structural Integrity Check for COMNETCEN P-24 Building at INS Adyar Under AGE (I) Navy Chennai | Assistant Garrison Engineer (I) Navy Chennai | 17.59 |
| 107 | Dr. Alagusundaramoorthy P | Structural Integrity Check for Seniors Sailor's Block P14 at INS Adyar Under AGE (I) Navy Chennai | Assistant Garrison Engineer (I) Navy Chennai | 16.70 |
| 108 | Dr. Alagusundaramoorthy P | Structural Integrity Check for E1-Block P-15 Residential Building at Mogappair Under AGE (I) Navy Chennai | Assistant Garrison Engineer (I) Navy Chennai | 18.88 |
| 109 | Dr. Alagusundaramoorthy P | Structural Integrity Check for P16 and P17 at NCB (NCB) Under AGE (I) Navy Chennai | Assistant Garrison Engineer (I) Navy Chennai | 9.97 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|---|----------------------|
| 110 | Dr. Satish Kumar S Rajaram | Proof Checking of Design and Drawing of R.C Building for NBCC (South) at Chennai | NBCC (India) limited | 16.02 |
| 111 | Dr. Meher Prasad A | Proof Checking of 60m Special steel Span of Phase 1B of Kochi Metro Rail Project | Kochi Metro Rail Limited | 5.90 |
| 112 | Dr. Meher Prasad A | Structural Design Vetting of TNUHDB schemes | Centre for Urbanization Buildings & Environment (CUBE) | 7.43 |
| 113 | Dr. Satish Kumar S Rajaram | Proof Checking of PEBs for St.Gobain and Natural Living Projects | Zamil Steel Buildings India Private Limited | 4.20 |
| 114 | Dr. Satish Kumar S Rajaram | Proof Checking Design of PEBs for Tata Advance and Grasim Industries | Everest Industries Limited | 16.00 |
| 115 | Dr. Satish Kumar S Rajaram | Proof Checking Design of PEB / RC Building for Daicel Safety Systems at Chennai | SMCC Construction India Limited | 2.00 |
| 116 | Dr. Satish Kumar S Rajaram | Proof Checking Design of RC Building for Dixon Technologies | K & K Infra | 5.25 |
| 117 | Dr. Satish Kumar S Rajaram | Proof Checking Design of PEB for Trend Ltd. | PKM Metal Buildings Company Private Limited | 5.00 |
| 118 | Dr. Meher Prasad A | Proof Checking of construction of Terminal and Rivering Infrastructure at Guwahati Gateway Ghat, Assam | L&T Geostructure Private Limited | 23.60 |
| 119 | Dr. Dali Naidu Arnepalli | Stability Analysis and Feasibility of raising Bund Height of Ash pond-C from RL. 205m to RL. 208 m Reg | Odisha Power Generation Corporation Limited | 8.85 |
| 120 | Dr. Apparao G | Vetting of Design and Drawings of Structural System for the Redevelopment of Nellore Railway Station | SGRL PROJECTS | 11.80 |
| 121 | Dr. Satish Kumar S Rajaram | Proof Checking of Design of RC Building for BAM DLR at Chennai | URC Construction Private Limited | 8.00 |
| 122 | Dr. Satish Kumar S Rajaram | Proof Checking of Foundation and Structural Steel design for BPCL Mumbai | Kavin Engineering And Services Private Limited | 6.43 |
| 123 | Dr. Arul Jayachandran S | Testing of MLP Track Beams at FLP ISRO Sriharikota | Satish Dhawan Space Centre Shar | 7.08 |
| 124 | Dr. Meher Prasad A | Proof Checking of Construction of Precast 2 Nos faculty Housing Tower (G+12), 3 Nos staff Housing Towers (G+12) and 3 Nos Hostel Blocks (G+6) RCC Structures at IIT Hyderabad, Kandi, Sangareddy. | Teemage Builders Private Limited | 18.81 |
| 125 | Dr. Radhakrishna G Pillai Co PI- Dr. Saravanan U,CE Dr. Keerthana Kirupakaran,CE | Technical Advice for Condition Assessment and Development of Durable Repair Strategies for the Parapets of the Elevated Structures of the Hyderabad Metro Rail Limited (HMRL) | Larsen & Toubro Limited- Construction- Heavy Civil Infrastructure | 23.60 |
| 126 | Dr. Apparao G | Proportioning of I-crete Mixes for High Workability | Navoday Sciences Private Limited | 7.08 |
| 127 | Dr. Phanisri Pradeep Pratapa | 3D Printed Wall Panel Testing | Tvasta Manufacturing Solutions Private Limited | 5.90 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|---|----------------------|
| 128 | Dr. Meher Prasad A | Proof Checking for Structural Design of NWCM project-Karle Infra Pvt. Ltd Bangalore. | Karle Infra Private Limited | 31.86 |
| 129 | Dr. Apparao G | Proof Checking of Structural Designs and Drawings of VIVO at Noida | CCTEB India Private Limited | 52.51 |
| 130 | Dr. Arul Jayachandran S | Testing of 12 Adjustable Props and 9 Vertical cup locks. | Uralungal Labour Contract Co-op Society Ltd | 5.31 |
| 131 | Dr. Arul Jayachandran S | Proof Checking the Design of 220KV GIS and Switchyard Package PDH-PP Project, GAIL USA | GAIL India Limited | 3.78 |
| 132 | Dr. Robinson R G Co PI- Dr. Subhadeep Banerjee, CE | Proof Checking of Geotechnical Design for Installation of Piles and Ground Improvement at Crude Oil Import Terminal | Keller Ground Engineering India Private Limited | 15.34 |
| 133 | Dr. Satish Kumar S Rajaram | Proof Checking of PEB for M/s DP World | Metal Scope (India) Private Limited | 15.25 |
| 134 | Dr. Satish Kumar S Rajaram | Proof Checking of RC Buildings for M/s IISER Pune Balan Activity Centre | C R Narayana Rao Consultants Private Limited | 2.50 |
| 135 | Dr. Meher Prasad A | Proof Checking of Royal Crest - Peer Review | Sobha Limited | 37.83 |
| 136 | Dr. Satish Kumar S Rajaram | Proof Checking of Design of Tank Pads for M/s NRL Assam | Keller Ground Engineering India Private Limited | 2.40 |
| 137 | Dr. Alagusundaramoorthy P | Review of the Analysis and Design and Vet the Drawings for the Redevelopment of the Railway Station and other structures in Ernakulam North at Kerala State | Rank Projects and Development Private Limited | 19.68 |
| 138 | Dr. Satish Kumar S Rajaram | Proof Checking of design of PEB and RC Building for Showa India at Tumkur | SMCC Construction India Limited | 4.27 |
| 139 | Dr. Alagusundaramoorthy P | Review of the Analysis and Design and Vetting of Civil Structural Design and Drawings and Documents Pertaining to Garhwa Lift Irrigation Project in Jharkhand | Larsen & Toubro Limited | 24.78 |
| 140 | Dr. Satish Kumar S Rajaram | Proof Checking of Design of R.C Building for IISC Medical School Foundation | IISC Medical School Foundation | 51.87 |
| 141 | Dr. Meher Prasad A | Proof Checking of construction of H.L. Bridge over Mangala River connecting the road between Sterling Resort to Shamuka Beach Project at Puri in Odisha. | Ashirbad Eng & Construction Private Limited | 5.90 |
| 142 | Dr. Meher Prasad A | Proof Checking of Ampa Hotels and Branded Residences | Ampa Home Build Private Limited | 35.40 |
| 143 | Dr. Radhakrishna G Pillai Co PI- Dr. Manu Santhanam, CE Dr. Ravindra Gettu, CE | Condition Assessment and Developing Durable Repair Strategies for the Structural Rehabilitation of Lawyers Chambers Building, Rohini Court, New Delhi | The Executive Engineer, PWD North West Building (M-341) | 76.70 |
| 144 | Dr. Satish Kumar S Rajaram | Proof Checking of Design of steel concrete composite building for M/s Rail Land Development Authority | Ahluwalia Contracts India Limited | 17.70 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|--|---|----------------------|
| 145 | Dr. Dali Naidu Arnepalli | Proof Checking of Design and Drawings for the Construction of Reinforced Soil Wall as an approach to the RCC Overbridge across Putheri lake in Origins by Mahindra world city, Puduvoyal, Near Gummudipoondi, Thiruvallur, Tamil Nadu Reg. | Sakthi Associates | 2.95 |
| 146 | Dr. Venu Chandra | Review and Approval of Hydraulic Designs/Calculation in connection to "Poola Subbaiah Veligonda Project" Andhra Pradesh. | The Principal Accountant, General (Audit, Andhra Pradesh) | 7.08 |
| 147 | Dr. Robinson R G Co PI- Dr. Subhadeep Banerjee, CE | Proof Checking of Design and Installation of Ground Improvement Works (Vibro Stone Columns/ Compaction Grouting) for the proposed Numaligarh Refinery Expansion Project (NREP)-PFCC package | Keller Ground Engineering India Private Limited | 15.93 |
| 148 | Dr. Dali Naidu Arnepalli | Stability Analysis and Feasibility Study for raising Dykes of Ash Ponds A & C of OPGC from RL. 208m to RL. 211m Reg. | Odisha Power Generation Corporation Limited | 7.43 |
| 149 | Dr. Satish Kumar S Rajaram | Proof Checking of Developmental Works for M/s BAMDLR at Sambalpur | URC Construction Private Limited | 8.00 |
| 150 | Dr. Radhakrishna G Pillai | Ampa Hotels & Branded Residences | Ampa Home Build Private Limited | 21.24 |
| 151 | Dr. Mathava Kumar S | Assessment of Groundwater Contamination in and around the M/s Chemplast Sanmar Plants at Mettur | Tamilnadu Pollution Control Board | 24.96 |
| 152 | Dr. Radhakrishna G Pillai | Performance Assessment of Conbextra GP2, GP3, GP5 and Cable Grout (CG) | Fosroc Chemicals (India) Private Limited | 23.60 |
| 153 | Dr. Ravindra Gettu | Testing of Steel Fibre Reinforced Concrete for Patna Metro Tunnel PC-03 | Larsen & Toubro Limited-Construction-Heavy Civil Infrastructure | 14.16 |
| 154 | Dr. Dali Naidu Arnepalli | Review of the design, drawings for constructing secured landfill facility at Grasim Industries Limited-Nagda-Madhya Pradesh, India Reg. | Garware Technical Fibres Limited | 2.66 |
| 155 | Dr. Dali Naidu Arnepalli | Review of design and drawings for constructing a secured landfill facility at Grasim Industries Limited - Chemical Division-Ganjam-Odisha, India Reg. | Garware Technical Fibres Limited | 2.66 |
| 156 | Dr. Radhakrishna G Pillai | Effect of CAC Corrobit OCI Plus on the service life of reinforced concrete systems exposed to specific conditions | Concrete Additives & Chemicals Private Limited | 17.70 |
| 157 | Dr. Satish Kumar S Rajaram Co-PI: Dr. Alagusundaramoorthy P, CE | Inspection and Report on Flag mast at Chennai Fort | Public Works Department | 5.13 |
| 158 | Dr. Radhakrishna G Pillai | Ammonia Importation Terminal (Ait) 10000 Mt Capacity - Condition Assessment And Strategies For Service Life Extension By 20-25 Years | Greenstar Fertilizers Limited | 7.08 |
| 159 | Dr. Dali Naidu Arnepalli | Chemical Analysis of Soil and Water Samples of CPCL-CBR Nagapattinam, Tamil Nadu, India Reg. | Chennai Petroleum Corporation Limited | 23.32 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--------------------------------|---|--|----------------------|
| 160 | Dr. Meher Prasad A | Proof Checking of Vetting and Approval of Civil & Structural Engineering Design and Drawings of All Pre Cast ESR Staging With Steel Container for UP tubewell WSS Package 3 | Larsen & Toubro Limited | 7.08 |
| 161 | Dr. Apparao G | Proof Checking of Design and Drawings of Structural System for the Redevelopment of Kanyakumari Railway Station | Vishnuo Infra Private Limited | 10.62 |
| 162 | Dr. Apparao G | Proof Checking of Design and Drawings of Katpadi Junction Railway Station Redevelopment | Vishnuo Infra Private Limited | 37.76 |
| 163 | Dr. Apparao G | Proof Checking of Design of Structural Systems for Redevelopment of Pondicherry Railway Station | Vishnuo Infra Private Limited | 12.98 |
| 164 | Dr. Satish Kumar S Rajaram | Proof Checking of PEB for M/s Bonfiglioli Transmission Pvt Ltd | Ratilal Bhagwandas Construction Company | 3.69 |
| 165 | Dr. Indumathi Manivannan Nambi | Vetting of Detailed Project Report, Salem Yarn Coloring Park | Salem Yarn Coloring Park Private Limited | 11.80 |
| 166 | Dr. Raghukanth S T G | Site Specific Seismic Hazard | Navisha Properties Private Limited | 10.62 |
| 167 | Dr. Meher Prasad A | Proof Checking of Redesign for Kolak River Bridge Foundations (Pier No.175 P12, 175 P13, 175P14, 175P15 & 175P16) of MAHSR-C4 Package | Larsen & Toubro Limited | 11.80 |
| 168 | Dr. Soumendra Nath Kuiry | Masalia Ranishwar Lift Irrigation: Pumping System and Water Requirements Calculation | Larsen & Toubro Limited | 7.08 |

4.6.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|--|--|----------------------|
| 1 | Dr. Murty B S Co-PI: Dr. Venu Chandra, CE | Design of Spillway and Associated Components for Kalpasar Project | National Centre For Coastal Research | 48.82 |
| 2 | Dr. Radhakrishna G Pillai Co-PI: Dr. Piyush Chaunsali, CE Dr. Ravindra Gettu, CE Dr. Manu Santhanam, CE | Carbonation And Carbonation Induced Corrosion In Concretes With Various Supplementary Cementitious Materials | Holcim Innovation Center | 19.01 |
| 3 | Dr. Alagappan Ponnalagu Co-PI: Dr. Meher Prasad A, CE Dr. Rupen Goswami-008321, CE | Professional Consultancy Services for Proof Checking of Blast Proof Door Subjected to UNDEX | Larsen & Toubro Limited | 23.60 |
| 4 | Dr. Radhakrishna G Pillai | Assessing the Service Life of Steel-cementitious Systems With Corrosion Inhibitor" | Conchem Labs LLP | 11.80 |
| 5 | Dr. Shiva Nagendra S M | Source Apportionment and Carrying Capacity Assessment for Thoothukudi City Under National Clean Air Mission | Thoothukudi City Municipal Corporation | 88.45 |
| 6 | Dr. Ligy Philip | To Conduct Pilot study by IIT Chennai to Identify Appropriate Treatment Systems to Treat Water From Kolavai Lake and to Provide Constant Quality and Quantity of Water | Mahindra World City Developers Limited | 4.13 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---|--|---|----------------------|
| 7 | Dr. Dali Naidu Arnepalli | Settlement Analysis of Foundations at Sembcorp Energy India, Nellore | Sembcorp Energy India Limited | 21.24 |
| 8 | Dr. Gitakrishnan Ramadurai | Reducing Emission From Mass Transport | Tamilnadu Pollution Control Board | 18.51 |
| 9 | Dr. Gitakrishnan Ramadurai | Predictive Data Models for EV Charging/Discharging Time | MoEVing Urban Technologies Private Limited | 6.37 |
| 10 | Dr. Ligy Philip | Sampling and Analyses Water and Wastewater Samples from TTUF Plant and Lakes | Madras Metropolitan Water Supply and Sewerage Board | 3.66 |
| 11 | Dr. Shiva Nagendra S M | Odour Emission and Monitoring Study | Chennai Petroleum Corporation Limited | 94.69 |
| 12 | Dr. Ligy Philip | To Test the TDS Measurement Device Under Different Environmental Conditions. | Schneider Electric Systems India Private Limited | 7.26 |
| 13 | Dr. Apparao G Co-PI: Dr. Raghukanth S T G, CE | Quasi-static Cyclic Tests on RC Shear Walls With and Without Corrosion Effect | Bhabha Atomic Research Centre | 49.27 |
| 14 | Dr. Ashwin Mahalingam Co-PI: Dr. Koshy Varghese, CE | Implementing Lean Construction for Tata Power | Tata Power Solar Systems Limited | 6.90 |
| 15 | Dr. Piyush Chaunsali Co-PI: Dr. Manu Santhanam, CE | CO2 Sequestration in Concrete with Supplementary Cementitious Materials | Reliance Industries Limited | 59.00 |
| 16 | Dr. Shiva Nagendra S M | Source Apportionment, Emission Inventory and Carrying Capacity Studies for Nellore city under National Clean Air Program Clean Air Mission | Andhra pradesh Pollution Control Board | 82.60 |
| 17 | Dr. Rupen Goswami Co-PI: Dr. Meher Prasad A, CE Dr. Koshy Varghese, CE Dr. Manu Santhanam, CE Dr. Robinson R G, CE Dr. Radhakrishna G Pillai, CE Dr. Subhadeep Banerjee, CE Dr. Piyush Chaunsali, CE | Optimization of High Speed Railway (HSR) Viaduct Design | High Speed Railways Innovation Center Trust | 90.62 |
| 18 | Dr. Ligy Philip | Piloting for Anaerobic Attached Growth Process with IIT Madras | Paques Environmental Technology India Private Limited | 22.12 |
| 19 | Dr. Radhakrishna G Pillai | Research Based Industrial Consultancy Project | Krishna Conchem Product Private Limited | 29.50 |
| 20 | Dr. Venkatraman Srinivasan | Combined Flood and Drought Mitigation Through Rapid Groundwater Recharge in Karst Aquifers | Project Office District Rural Development Agency | 69.13 |

4.6.6.4. Retainer Consultancies (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------------|---|--|----------------------|
| 1 | Dr. Radhakrishna G Pillai | Technical Advice for the Condition Assessment and Electro-chemical Repair of Reinforced Concrete Structures | Structural Specialities And Projects India Private Limited | 28.32 |
| 2 | Dr. Nikhil Bugalia | Policy Maker E-Training Program on Principles of Developing Quality Infrastructure in Asia | Asian Development Bank Institute | 1.24 |

4.6.6.5. Faculty Members' Participation With Other Institutions Under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/Institution Which Has MoU |
|--------|----------------------|-----------------------|---|
| 1 | Prof. Robinson G | Faculty Champion | National Center for Seismology, New Delhi |
| 2 | Prof. C V R Murty | Faculty Champion | Malaviya National Institute of Technology, Jaipur |
| 3 | Prof. Ravindra Gettu | Faculty Champion | Universidad Nacional de La Plata (UNLP) Argentina |
| 4 | Prof. Ligy Philip | Faculty Champion | Australia India Water Centre, Australia (Deed of Accession) |

4.6.7. Distinguished Visitors to the Department

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|------------------------------|--|
| 1. | Prof. Krishna R Reddy, University of Illinois at Chicago | April-July, 2022 | Adjunct Faculty (U.S. Fulbright-Nehru Academic Scholar) |
| 2. | Prof. Sankar Arumugam, NCSU | June 2, 2022 | Free Flowing Discussion on Potential Collaboration With the Research Group |
| 3. | Prof. David Trejo, Oregon State University | July 30-August 14, 2022 | Technical Discussions Under Ongoing SPARC Project |
| 4. | Mr. F Andreas Lönning, D-Walls and Big Pilling | September 26, 2022 | The Intricacies of Diaphragm Wall Construction |
| 5. | Dr. Daniel Jesus Rosado Alcarria | September 5-October 16, 2022 | Visiting Faculty |
| 6. | Prof. Kuruvilla John Department of Mechanical Engineering University of North Texas | October 10, 2022 | Visiting the Dept. Of Civil Engineering, IIT Madras as an Adjunct Faculty. |
| 7. | Shri. Alkesh Kumar Sharma, Secretary, Ministry of Electronics and Information Technology (MeitY), Govt. of India, New Delhi | October 20, 2022 | Visit to Intelligent Transportation Systems (ITS) Lab., Transportation Engg. Div., Dept. of Civil Engg. |
| 8. | 29 students from Various Institutes | December 20, 2022 | As a part of Explore Programme, the students from various Institutes are visiting our Department and were taken around the labs. |

4.6.8. Other Activities of the Department/Centre

4.6.8.1. Activities Initiated

Major Infrastructure Developments Made in the Department

The third floor of the Building Sciences Block has been refurbished to create more classrooms and faculty offices. A new DCF has been established in the third floor of BSB with two halls, one for conducting classes with about 65 desktop computers, and the other for meeting the computing requirements of research scholars.

A new recycled aggregate laboratory is being established to simulate the production of recycled materials in laboratory conditions and their fundamental characterization. The lab contains numerous state-of-the-art equipment such as compression & impact crushers, aggregate image measurement system, and helium pycnometer.

A laboratory has been set up to facilitate traffic studies in a safe environment and controlled manner which are difficult to achieve from conventional traffic real-world data collection methods. Presently, the laboratory is equipped with a bike simulator that has 2 degrees of freedom and a car simulator that offers 6 degrees of freedom, and the laboratory intends to enhance its capabilities in the near future.

4.7

Department of Computer Science and Engineering

HTML

The Hypertext Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

4.7.1. Introduction

Started as the Computer Centre in 1973, the Department of Computer Science and Engineering was established as a full-fledged department in 1983. The department also offers several attractive industry-sponsored fellowships for outstanding Ph.D. scholars. The vision of the CSE Department is 'global excellence and local relevance' in research, teaching and technology development in computer science and engineering.

4.7.2. Academic Programmes

B.Tech., Dual Degree (B.Tech. and M.Tech.), M.Tech., M.S., Ph.D., Dual M.S./Ph.D., Dual M.Tech./Ph.D.; Inter-disciplinary Dual Degree in Data Science (B.Tech/M.Tech) and Web based M.Tech. in Information Security.

4.7.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|---|
| 1 | CS4852 | Knowledge Graphs and Ontologies for Engineers |
| 2 | | Probabilistic and Smoothed Analysis of Algorithms |
| 3 | | Natural Computing and Algorithms |
| 4 | CS6858 | Distributed Trust |

4.7.2.2. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|------------|-----------|-----------------|------------|
| B.Tech. | 90 | 86 | 87 | 78 | 10 & 10 | 361 |
| Dual Degree | - | - | - | - | 4 + 8 | 12 |
| M.A. | - | - | - | - | - | - |
| M.Sc. | - | - | - | - | - | - |
| M.Tech. | 92 | 72 | 6 | 1 | 7 | 178 |
| M.B.A. | - | - | - | - | - | - |
| M.S. | 16 | 15 | 25 | 7 | 1 | 64 |
| Ph.D. | 12 | 20 | 19 | 8 | 17 & 12 | 88 |
| Total | 210 | 193 | 137 | 94 | 69 | 703 |

4.7.2.3. Names of Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|---------------|--|--|---|--|---------------------------|
| Abroad | | | | | |
| 1 | Shivani Saxena | CS19S029 | Institute of Electrical and Electronic Engineers/International Federation for Information Processing Network Operations and Management Symposium (IEEE/IFIP NOMS) 2022 Conference | April 25-29, 2022. (Online) | Project |
| 2 | Sutanay Bhattacharjee | CS21D005 | Association for Computing Machinery (ACM) India Workshop on Algorithms and Lower Bounds | January 03-12, 2022. (Online) | |
| 3 | Amartya Basu | CS21S063 | ACM SIGMETRICS 2022 | June 06-10, 2022. Bombay | |
| 4 | Arup Das | CS20S016 | International Conference on Agglutinative Language Technologies 2022 | June 07-08, 2022. (Online) | |
| 5 | K K Nisha | CS18D002 | International Conference on Graph Theory 2022 , Montpellier, France | July 03-07, 2022. Montpellier France | |
| 6 | Girija Limaye | CS17D006 | MATCH-UP 2022, TU Vienna, Austria | August 24-26, 2022. Vienna, Austria | |
| 7 | Deepali Ande | CS20S052 | International Conference on Functional Programming (ICFP) 2022 | September 12-16, 2022. Ljubljana, Slovenia | |
| 8 | Anshu Yadav | CS18D008 | Computer and Communications Security (CCS) 2022 | November 07-11, 2022. Los Angeles | |
| 9 | Anuja Modi | CS21D405 | Theory of Cryptography Conference (TCC) 2022 | November 07-11, 2022. (Online) | |
| 10 | Adwait Parsodkar | CS20404 | International Conference on Case Based Reasoning (ICCBR) 2022 | September 12-15, 2022. (Online) | |
| 11 | Anshu Yadav | CS18D008 | CCS 2022 | November 07-11, 2022. Los Angeles, | |
| 12 | Anuja Modi | CS21D405 | Theory of Cryptography Conference (TCC) 2022 | Online | |
| 13 | Amartya Basu | CS21S063 | International Conference on COMmunication Systems & NETworkS (COMSNETS) 2022 | January 4 – 7, 2022. Bangalore | |
| 14 | SKM Anoop | CS18D003 | The 28 th International Computing and Combinatorics Conference (COCOON 2022) | October 22, 2022. (Online) | |
| 15 | Sonam Gupta, ArtiKeshari, Anushka, O. Nath, Pooja K Binoy, S. Jain | CS18D005 CS19S008 CS22S015 CS22S013 CS20D006 CS19S024 CS21S043 | 12 th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP 2022) | December 08-10, 2022. IIT Gandhinagar | |
| 16 | Arup Das | CS20S016 | 19 th International Conference on Natural Language Processing (ICON) 2022 | December 15-18, 2022, IIIT Delhi, India | |
| 17 | Rahul Vashisht | CS18D006 | Asian Conference on Machine Learning | December 2022, IIIT Hyderabad | |
| 18 | Aman Nougrihiya | CS12D023 | Code Generation and Optimization (CGO) 2023 | February 25-March 01, 2023, Montreal, Canada | NSM project |

4.7.2.4. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|-----------------|---------------------------------------|
| 1. | V Sai Venkata Krishnan | CS20D408 | PMRF Fellowship | Prime Minister's Research Fund (PMRF) |
| 2. | Abdul Bakey Mir | CS20D400 | PMRF Fellowship | PMRF |
| 3. | Saish Jaiswal | CS20D405 | PMRF Fellowship | PMRF |
| 4. | Divya Rathore | CS21D011 | PMRF Fellowship | PMRF |

4.7.2.5. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|----------------------------------|----------|--|-----------------------|
| 1. | Chandra Churh Chatterjee | CS21M013 | Sri. Prakash Arora Prize | Shri Tej Arora |
| 2. | Keerthi K | CS17D013 | Bro. C Selvam Endowment Fund Prize | Ms. Giruba Beulah Se |
| 3. | Anshu Yadav | CS18D008 | Bro. C Selvam Endowment Fund Prize | Ms. Giruba Beulah Se |
| 4. | Aditya C | CS20B003 | Sri. V Ramachandran Prize | Shri R Gopalakrishnan |
| 5. | K V Vikram | CS19B021 | Computer Age Management Services Pvt. Ltd. Prize | Shri V Shankar |
| 6. | Shreesha G Bhat | CS18B103 | Computer Age Management Services Pvt. Ltd. Prize | Shri V Shankar |
| 7. | Chahel Singh | CS21B021 | Sri. K Krishnamurthi Prize | Shri Bhaskaran K |
| 8. | Chougule Atharva Mahavir | CS19B016 | Late B Ravichandran Memorial Prize | |
| 9. | Nischith Shadagopan M N | CS18B102 | Alumni Association Prize | |
| 10. | Chandra Churh Chatterjee | CS21M013 | CMC Prize | |
| 11. | Alan Joel J | CS19B077 | C Sivaram Murthy Best B.Tech. Project Award | |
| 12. | Shah Kshitij Aashish | CS19B027 | Motorola Prize | |
| 13. | Brahma Asutosh & Anukul Parajuli | CS21M079 | Prof. H N Mahabala Endowment Prize (Joint Winners) | |
| 14. | Babar Sadbhavana Manohar | CS18S029 | Biswajit Sain Endowment Prize & Avishek Bhattacharjee Memorial Award | |
| 15. | Sareena K P | CS15D400 | IBM Best Thesis Award | |
| 16. | Tarun Kumar | CS15D017 | Best Ph.D. Thesis in Data Sciences | |

4.7.3. Faculty and Their Activities

4.7.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|-------------------------|---|
| Head | |
| Krishna Nandivada V | Compilers, Program Analysis, Programming Languages, High Performance Computing |
| Professors | |
| Anurag Mittal | Computer vision, Multi-camera vision systems, Sensor planning, Surveillance, Computer graphics |
| Chandra Sekhar C | Speech recognition, Neural networks, Kernel methods, Computer architecture |
| Hema A Murthy | Speech Processing, Music information Retrieval. |
| Janakiram D | Large Scale Distributed Systems, Cloud and Grid Computing, Big Data Systems. |
| Jayalal Sarma M N | Structural & Computational Complexity theory, Circuit Complexity, Lower bounds, Derandomization |

| Name and Qualifications | Major Areas of Specialisation |
|--------------------------------|--|
| John Ebenezer Augustine | Distributed Algorithms, Optimization Algorithms, Computational Geometry, Algorithmic Game Theory |
| Kamakoti V | Software aspects of VLSI design, Cluster computing, High-performance computing, Algorithms, Data structures, Computational geometry |
| Krishna M Sivalingam | Wireless networks, Sensor networks, Optical networks |
| Krishna Nandivada V | Compilers, Program Analysis, Programming Languages, High Performance Computing |
| Madhu Mutyam | Memory subsystem design, Network-on-chip architectures, Shared resource management. |
| Narayanaswamy N S | Analysis of algorithms, Parameterized Complexity theory, Artificial Intelligence |
| Ravindran B | Machine learning, Reinforcement learning, Social Network Analysis, Data and text mining |
| Siva Ram Murthy C | Ad hoc wireless networks, Parallel and distributed computing, Real-time systems, Computer networks. |
| Sreenivasa Kumar P | Database systems, Semi-structured data and XML, Data mining, Graph algorithms, Parallel computing |
| Sukhendu Das | Computer vision, digital image processing; pattern recognition; Graphics; Soft Computing; Computational brain modeling. |
| Sutanu Chakraborti | Information retrieval, Memory-based reasoning, Machine learning |
| Associate Professors | |
| Manikandan Narayanan | Bioinformatics, Computational network biology, Systems biology/genomics in health and disease, Data science |
| Meghana Nasre | Graph theory, Algorithms, Matching with preferences. |
| Mitesh Khapra | Statistical Machine Translation, Text Analytics, Deep Learning and Crowd-sourcing |
| Prashanth L A | Reinforcement Learning, Stochastic Optimization, Multi-armed Bandits |
| Raghavendra Rao B V | Structural aspects of Arithmetic and Boolean Circuits, Computation on Algebraic and Combinatorial Structures, Combinatorial Commutative Algebra. |
| Rupesh Nasre | Compilers, Parallelization |
| Shweta Agrawal | Cryptography and Information theory |
| Assistant Professors | |
| Aishwarya T | Cryptography, Security, and Privacy |
| Akanksha Agrawal | Parameterized Complexity, Computational Geometry |
| Arun Rajkumar | Machine Learning, Rank Aggregation, Statistical Learning |
| Ayon Chakraborty | Mobile systems, Wireless sensing |
| Chandra Shekar L | Deep Learning, Reinforcement Learning, Stochastic Approximation and Large Scale Markov Decision Processes |
| Harish Guruprasad Ramaswamy | Machine Learning, Learning Theory and Optimisation |
| Kartik Nagar | Automated Formal Verification, Program Analysis, Programming Languages. |
| Nishad Bharat Kothari | Graph theory, Matching theory, Combinatorial Optimization |
| Yadu Vasudev | Algorithms, especially Sublinear Algorithms and Computational Complexity Theory |
| Visiting Professor | |
| Vijay Raghunathan | Computer Engineering, VLSI and Circuit Design, Communications, Networking, Signal & Image Processing |

4.7.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by the Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|--|--|--|
| Conferences | | | |
| 1 | Hema A Murthy (one of the general chairs) | International Society for Music Information Retrieval, Bangalore | December 4-8 2022 |
| Workshops | | | |
| 1 | KC Sivaramakrishnan | 9 th Principles and Practices of Consistency for Distributed Data | April 5, 2022 |
| 2 | Arun Rajkumar | Robert Bosch Centre for Data Science and AI-The Finnish Centre for AI (RBCDSAI-FCAI) Conference on Deployable AI | March 7-10, 2022 (virtual) |
| 3 | Rupesh Nasre | National Supercomputing Mission (NSM) CUDA Programming | May 2-June 17, 2022 (online) |
| 4 | Akanksha Agrawal (co-organised with G. Philip, CMI) | ACM-India Workshop on Algorithms & Lower Bounds | January 1-3, 2022 (online) |
| 5 | Ayon Chakraborty | National Programme on Technology Enhanced Learning (NPTEL) Short Term Course on Location Tracking for Internet of Things | March 21-26, 2022 (online) |
| 6 | Rupesh Nasre. | NSM Mini-Course on Concurrent Programming | July 25-30, 2022 (online) |
| 7 | Chester Rebeiro | Theory and Practice of Side-Channel Attacks in Cryptography | July 25-30, 2022 |
| 8 | Chester Rebeiro | Embedded Capture the Flag | December 13-15, 2022 |
| 9 | Hema A Murthy (one of the coordinators) | CompMusic Workshop | December 12-16, 2022 |
| 10 | Krishna Nandivada | IIT Madras OpenMP compiler (IMOP) Tutorial | February 25, 2023. Montreal, Canada |

4.7.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|------------------------------------|---|--|------------------|
| Conferences | | | | |
| 1 | Harish Ramaswamy | Inductive Bias of Normalization Methods in Homogeneous Networks | Algorithmic Learning Theory (ALT), Paris. | 2022 |
| 2 | Arun Rajkumar | A Theory of Tournament Representations | International Conference on Representation Learning (ICLR) | 2022 (Online) |
| 3 | Chester Rebeiro | Practical Trustx Performance Metrics for Block Cipher Evaluation in Automotive Environments | 11 th European Congress on Embedded Real Time Systems, 2022 | June 2022 |
| 4 | Shweta Agrawal | Round-Optimal Lattice-Based Threshold Signatures, Revisited. | (International Colloquium on Automata, Languages, and Programming) ICALP, 2022 | 2022 |
| 5 | Akanksha Agrawal | Deleting, Eliminating and Decomposing to Hereditary Classes Are All FPT-Equivalent. | Symposium on Discrete Algorithms (SODA) 2022 | 2022 |
| 6 | Kartik Nagar, K C Sivaramakrishnan | Certified Mergeable Replicated Data Types | Programming Language Design and Implementation (PLDI) 2022 | June 2022 |
| 7 | Sutanu Chakraborti | Anwasha: A Tool for Semantic Search in Bangla | International Conference on Agglutinative Language Technologies 2022 | 2022 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|----------------------|--|---|---------------|
| 8 | Narayanaswamy N S | Exactly Hittable Interval Graphs | International Conference on Graph Theory 2022 , Montpellier, France | 2022 |
| 9 | V Kamakoti | JUGAAD: Comprehensive Malware Behavior-as-a-Service | Cyber Security Experimentation and Test (CSET) 2022 (USENIX) | 2022 |
| 10 | Shweta Agrawal | Multi-Input Attribute Based and Predicate Encryption | Crypto, 2022 | 2022 |
| 11 | Narayanaswamy N S | Parameterized Complexity of Minimum Membership Dominating Set | International Conference and Workshop on Algorithms and Computation (WALCOM) 2022 | 2022 |
| 12 | Akanksha Agrawal | Deleting, Eliminating and Decomposing to Hereditary Classes Are All FPT-Equivalent. | SODA 2022 | 2022 |
| 13 | Ayon Chakraborty | WiFi Interference-Based Adversarial Attacks on NTC Using CSI Sensing | Institute of Electrical and Electronics Engineers -International Conference on Communications (IEEE ICC) 2022 | 2022 |
| 14 | Sutanu Chakraborti | Never Judge a Case by Its (Unreliable) Neighbors: Estimating Case Reliability for CBR | International Conference on Case Based Reasoning 2022 | 2022 |
| 15 | John Augustine | A Fully-Distributed Scalable Peer-to-Peer Protocol for Byzantine-Resilient Distributed Hash Tables | (Virtually at) Symposium on Parallelism in Algorithms and Architectures (SPAA) 2022 | 2022 |
| 16 | John Augustine | Byzantine Connectivity Testing in the Congested Clique | Distributed Computing, 2020. Augusta, GA, USA. (DISC 2022) | 2022 |
| 17 | K C Sivaramakrishnan | Composing Schedulers using Effect Handlers | OCaml Workshop (International Conference on Functional Programming-ICFP 2022) | 2022 |
| 18 | Shweta Agrawal | Practical Round Optimal Lattice-Based Blind Signatures | Computer and Communications Security (CCS) 2022 | 2022 |
| 19 | Shweta Agrawal | Bounded Functional Encryption for Turing Machines: Adaptive Security from General Assumptions | Theory of Cryptography Conference (TCC) 2022 | 2022 |
| 20 | Hema A Murthy | Fellowship award of Indian Science Congress Association (ISCA) | INTERSPEECH 2022 | August 2022 |
| 21 | Hema A Murthy | General Chair | International Society for Music Information Retrieval (ISMIR) 2022 | December 2022 |

4.7.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|----------------------|---|---------------------------------------|-------------------------|
| 1 | V Krishna Nandivada | IMOP Tutorial | | April 3, 2022 (Online) |
| 2 | Rupesh Nasre | Compiler Optimizations | KIIT Bhubaneswar | March 12, 2022 (online) |
| 3 | Chester Rebeiro | AI for Security (The Challenges) | Naval War College Goa | |
| 4 | Chester Rebeiro | Side-Channel Security Evaluation | CSIR-4PI | March 24, 2022 (online) |
| 5 | K C Sivaramakrishnan | Certified Mergeable Replicated Data Types | Nomadic Labs Caransera, Paris, France | April 26, 2022 |
| 6 | Sutanu Chakraborti | Computational Models of Language: Challenges From a Cognitive Perspective | Amrita University, Mysuru | March 12, 2022 |
| 7 | C Chandra Sekhar | Deep Learning Models for Text, Speech and Image Processing | SSN College of Engineering, Chennai | March 7, 2022 (online) |
| 8 | Rupesh Nasre | Parallel Graph Algorithms | Google | May 4, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------|---|---|-------------------------|
| 9 | Shweta Agrawal | Interplay of Mathematical Assumptions in Cryptography | University of Minnesota | June 19, 2022 |
| 10 | Akanksha Agrawal | Hybrid Parameters and Graph Problems | International Institute of Information Technology, Hyderabad | March 3, 2022 |
| 11 | Kartik Nagar | Certified Mergeable Replicated Data Types | Microsoft Research India | May 6, 2022 (online) |
| 12 | Kartik Nagar | Certified Mergeable Replicated Data Types | Cambium Research Team, INRIA | June 7, 2022 (online) |
| 13 | C Chandra Sekhar | Deep Learning Models for Image and Video Processing | Vignan University, Guntur, AP | July 9, 2022 |
| 14 | Meghana Nasre | Stable Matchings and Properties | RMK College of Engineering Kavaraipettai | August 13, 2022 |
| 15 | Meghana Nasre | NP-Completeness and Beyond (Lectures as a part of Faculty Development Programme- FDP) | SRM Institute of Science and Technology, Kattankalanthur. | August 18-20, 2022 |
| 16 | Krishna Sivalingam | Machine Learning Techniques for Resource Management in Network-Sliced 5G Networks (Keynote) | IC3 Conference (JIIT Noida), | August 6, 2022 (online) |
| 17 | Akanksha Agrawal | Parameterized Algorithms | SRM Institute of Science and Technology, Kattankalanthur | August 20, 2022 |
| 18 | C. Chandra Sekhar | Deep Learning Models Based Approaches to Visual Captioning and Visual Question Answering | FDP at SRMIST, Chennai | October 21, 2022 |
| 19 | Hema A Murthy | Building Speech Interfaces for the Marginalised Sections of Indian Society (Invited Talk) | EMPOWER 2022 | October 13-15, 2022 |
| 20 | Hema A Murthy | Signal Processing Guided Machine Learning | Tata Institute of Fundamental Research- Advances in Science, Engineering and Technology (TIFR-ASET) | January 2023 |
| 21 | Hema A Murthy | Science at the Sabha: Carnatic Music Processing: A Culture Specific Approach | Music Academy | February 2023. |
| 22 | KC Sivaramakrishnan | Retrofitting Concurrency – Lessons from the Engine Room (Keynote) | International Conference on Functional Programming (ICFP) 2022 | September 14, 2022 |
| 23 | Sutanu Chakraborti | Towards More Cognitively Appealing Paradigms in Case-Based Reasoning (Invited Talk) | International Conference on Case Based Reasoning (ICCBR) 2022 | September 15, 2022 |
| 24 | Shweta Agrawal | Post Quantum Cryptography | NIT Calicut | October 14, 2022 |
| 25 | Shweta Agrawal | Post Quantum Cryptography | NIT Warangal | September 20, 2022 |
| 26 | Shweta Agrawal | Post Quantum Cryptography | NIT Goa | September 23, 2022 |
| 27 | Chester Rebeiro | Side Channel Analysis (Workshop Talk) | NIT Calicut | December 2022 |
| 28 | Chester Rebeiro | Malware Design and Analysis | NIT Calicut | December 2022 |
| 29 | Chester Rebeiro | Towards Secure Computing Systems (Keynote) | (Security, Privacy and Applied Cryptographic Engineering) SPACE 2022 | December 2022 |
| 30 | Chester Rebeiro | Malware Analysis | IIIT Kottayam | December, 2022. |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------|---|---|----------------|
| 31 | Chester Rebeiro | Trusted Computing Environments in RISC V Processors | 12th Indo-German Frontiers of Engineering Symposium (INDOGFOE), | September 2022 |
| 32 | Deepak Khemani | The Quest for AI | IIT Ropar | March 2023 |
| 33 | Aishwarya T | Analysis of Classical Block Cipher Designs | IIIT Kottayam | December 2022 |

4.7.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|---------------------|-----------------|--|--|---|
| 1 | B Ravindran | UK | March 9-11, 2022. Wiston House, West Sussex | To attend the Wilton Park conference in Indo-UK collaboration in AI | |
| 2 | Chester Rebeiro | France | May 30-June 5, 2022 | Conference: ERTS 2022 | |
| 3 | Chester Rebeiro | Germany | September 29-October 3, 2022 | Keynote talk at INDOGFOE 2022 | |
| 4 | Akanksha Agrawal | Germany | June 7-18, 2022 | Invited talk at IWOCA 2022 and visiting scientist hosted by Henning Fernau | |
| 5 | Akanksha Agrawal | Israel | June 18-July 17, 2022 | Research visit at Weizmann Institute of Science, funded by VHAR | |
| 6 | KC Sivaramakrishnan | USA | | Conference: PLDI 2022 | |
| 7 | John Augustine | Israel | June 9-July 7, 2022 | Research | |
| 8 | Akanksha Agrawal | Israel | June 18-July 13, 2022 | Research | |
| 9 | John Augustine | USA | October 23-November 2. Augusta, GA | | |
| 10 | Akanksha Agrawal | Germany | October 24-28, 2022. Leiden | | |
| 11 | KC Sivaramakrishnan | Slovenia | September 13-19. Ljubljana | | |
| 12 | Anurag Pandey | Germany | October 15-23. Saarbrücken | | |
| 13 | Krishna Nandivada | Japan | December 3-21, 2022. University of Tokyo | Sakura Science Foundation, visiting faculty | Sakura Science Foundation (partial) + NSM |

4.7.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date |
|----------------|------------------|---|---|-------------|------------------|
| Honours | | | | | |
| 1 | Hema A Murthy | Fellow of International Speech Communication Association | ISCA | | 2022 |
| 2 | Shweta Agrawal | Co-Chair for Asiacrypt 2022, a Flagship Conference Established by IACR | The International Association for Cryptologic Research (IACR) | | 2022 |
| 3 | Shweta Agrawal | Women in Mathematics 2022. Minnesota (Invited Speaker) | | | June 16-19, 2022 |
| 4 | Akanksha Agrawal | 33 rd International Conference on Combinatorial Algorithms (IWOCA), 2022. Trier, Germany (Invited Speaker) | | | |

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date |
|---------------|---------------------|--|-----------------------------|---|-----------|
| 5 | KC Sivaramakrishnan | Dagstuhl Seminar on the Foundations of Web Assembly (Invitation) | | | |
| Awards | | | | | |
| 6 | Mitesh M. Khapra | Srimathi Marti Annapurna Gurunath Award | | Excellence in Teaching | 2021-2022 |
| 7 | Rupesh Nasre | Srimathi Marti Annapurna Gurunath Award | | Excellence in Teaching | 2022-2023 |
| 8 | Shweta Agrawal | Top Reviewer Award | | Computer and Communications Security (CCS) 2022 | 2022 |
| 9 | Shweta Agrawal | Outstanding Contributions Award | | Computing by a Woman (OCCW) by ACM India | 2022 |
| 10 | Shweta Agrawal | ACM India Outstanding Contributions Award | | Computing by a Woman, 2022. | 2022 |
| 11 | Shweta Agrawal | Program Co-chair of Asiacypt | Asiacypt, 2022. | Established by the IACR. | 2022 |
| 12 | Shweta Agrawal | Committee Member of Test of Time Award, 2022. | Eurocrypt, Crypto, Asiacypt | 3 Flagship Cryptography Conferences | 2022 |
| 13 | Chester Rebeiro | Department of Science and Technology (DST)-IIT Madras Pravartak Technologies Foundation Faculty Fellowship | IIT Madras Pravartak | | 2022 |
| 14 | Narayanaswamy N S | Best Teacher Award, for Excellence in Teaching for the year 2023 | | | 2023 |
| 15 | B Ravindran | Fellow of INAE | | | 2023 |

4.7.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|-------------|-----------------|-------------------|
| INAE | | |
| 1. | B Ravindran | November 1, 2023 |

4.7.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|---|--------------------------|---|
| 1. | Rupesh Nasre | Associate Editor | Concurrency and Computation: Practice and Experience |
| 2. | Mitesh M Khapra, Srin Parthasarathy Balaraman Ravindran | | Frontiers in Big Data, Section Data Mining and Management |
| 3. | Jayalal Sarma | | Theoretical Computer Science |
| 4. | Chester Rebeiro | Associate Editor | Journal of Hardware and System Security, Springer |

4.7.4. Design and Development Activities

4.7.4.1. Brief and Specific Details of Processes/Instruments/Equipment/Software Designed and Developed

StarPlat: Domain Specific Language for Parallel Graph Algorithms by Rupesh Nasre.

4.7.5. Patents

4.7.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|-------------------------------|---|
| 1 | Krishna M Sivalingam | 399379 - A method for optimizing a network topology of a communication network |
| 2 | Nandivada Venkata Krishna | 410472, System and Method for Determining the Behavioral Integrity of an Application. |
| 3 | Chester Rebeiro | 202241053753 A PROMISE for Security, Programmable Runtime Oriented Monitor for Secure Execution |
| 4 | Chester Rebeiro V Kamakoti | 202241028439 A system and method to facilitate real-world run-time malware behavior as a service |
| 5 | Chester Rebeiro V Kamakoti | 202241007976, A Framework and Method to Detect Malware using Cross-dimensional Analysis of Network, Operating System, and Hardware behavior |

4.7.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|---------------------------|---|
| 1 | Nandivada Venkata Krishna | System and Method for Determining the Behavioral Integrity of an Application. |

4.7.6. Research and Consultancy

4.7.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|---------|-------------------------------------|-------------------------------------|------------------------|
| 1 | KAS: Keeping Analysis Stable | | IBM Canada | 61 | V Krishna Nandivada |
| 2 | ValFly: Program Analysis to Make Value Types Fly | | IBM Canada | 61 | V Krishna Nandivada |
| 3 | Mega-Ace Blockchain Project | | Algorand | 80 | Shweta Agrawal |
| 4 | Speech Technologies in Indian Languages | | MeiTY | 5000 (3000 lakhs is for IIT Madras) | Hema A Murthy |
| 5 | Center for Hardware Security | | MeiTY | 363 | Chester Rebeiro |
| 6 | Sangam: Three-way Handshake Between Static Compiler, JIT Compiler and Hardware | 1 Year | Intel Corporation Santa Clara | \$30,000 | V Krishna Nandivada |
| 7 | Synthesizing Adversarial Timeseries for Robust Networked Control Systems | 1 Year | Indo-US collaborative program (NSF) | 15 | Ayon Chakraborty |
| 8 | Approximation Algorithms in Time Beyond Polynomial | 2 Years | SERB Start-up Research Grant | | Akanksha Agrawal |
| 9 | Infrastructure-free Localization in Dynamic Indoor Environments | 2 Years | SERB Start-up Research Grant | 22.54 | Ayon Chakraborty |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|------------------------------|-----------|---------------------------|----------------------|-----------------------------|
| 10 | Holographic Cognitive Models | 1 Year | Exploratory Project, ICSR | 6 | Sutanu Chakraborti |
| 11 | KYC Through Blockchains | 18 Months | CIFIL Project | 26 | Aishwarya T, John Augustine |

4.7.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) | Duration |
|--------|---------------------|---|---|----------------------|-----------|
| 1 | Shweta Agrawal | Blockchains | Algorand | \$120,000 | |
| 2 | Ayon Chakraborty | Next Generation Telecommunications Networks: Privacy and Security Challenges, Regulatory Interventions and Policy Framework | Australia-India Cyber and Critical Technology Partnership | 16.5 | |
| 3 | Madhu Mutyam | Tracking Beehive Health Using IoT Technology | Socially Relevant Project Scheme, IIT Madras | 3 | |
| 4 | Shweta Agrawal | Blockchains | Algorand | \$120,000 | |
| 5 | Madhu Mutyam | Tracking Beehive Health Using IoT Technology | Socially Relevant Project Scheme, IIT Madras | 3 | |
| 6 | Rupesh Nasre | Large Scale GPU Graph Analytics | Shell | 107 | 3 Years |
| 7 | V Krishna Nandivada | Efficient Analysis and Optimizations for Parallel Applications | SERB | 40 | 3 Years |
| 8 | Chester Rebeiro | Formal Analysis of Timing Interference in Automotive Platforms | Vitesco Technologies | 35 | 2 Years |
| 9 | Chester Rebeiro | Packet Classification to Support Throughput of up to 100Gbps | DRDO | 16.7 | 20 Months |

4.7.7. Distinguished Visitors to the Department

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|-------------------------------|--|
| 1 | Karthikeyan Bhargavan, Project Leader, INRIA Prosecco, Paris, France | April 12, 2022 | Research Discussions |
| 2 | Prof. Vijaykrishnan Narayanan, Penn State University | August 19, 2022. | Research Seminar and Interaction With Faculty and Students |
| 3 | Dr. Akshay Gadre, Asst. Professor, Univ. of Washington Seattle, USA | August 22-23, 2022. | Research Seminar and Interaction With Faculty and Students |
| 4 | Pradeep Ramachandran, KLA | October 10, 2022. | Talk and Discussion |
| 5 | Melissa Rossi, ANSI Paris | August 30-September 16, 2022. | Research |

4.7.8. Other Activities of the Department/Centre

4.7.8.1. International Collaboration Achievements by the Department

1. Faculty Visit

| S. No. | Name of Faculty Member | Purpose of Visit | Date & Venue |
|--------|------------------------|---|---------------------|
| 1 | V Krishna Nandivada | Exploring Collaboration with Faculty at University of Tokyo | December 3-21, 2022 |

2. Student Visit

| S. No. | Name of the Student | Purpose of Visit | Date & Venue |
|--------|---------------------|---|---------------|
| 1 | Aman Nougrihiya | Exploring Collaboration Opportunities With Stony Brook University | March 3, 2023 |

4.8

Department of Electrical Engineering

4.8.1. Introduction

The Department of Electrical Engineering is one of the largest departments in IIT Madras, and carries out teaching, research, and technology development in the frontier areas of Communications, Signal Processing, Networks, Power Systems, Power Electronics High Voltage, Integrated Circuits and Systems, Microelectronics, MEMS, VLSI, RF, Photonics, Biomedical Devices, and Control and Optimisation. The Department has initiated the following Centres of Excellence that are recognised nationally for research and development:

- National 5G Testbed
- Centre for Battery Engineering and Electric Vehicles (CBEEV)
- Centre for NEMS and Nanophotonics
- Healthcare Technology Innovation Centre (HTIC)
- Centre of Excellence in Wireless Technology (CEWiT)
- Brain Centre
- AMOLED Research Centre

The Department received funding for several prospective Centres of Excellence during Phase I of the Institutes of Eminence (IoE) initiative. Following Phase I reviews, the following were identified as IoE Centres of Excellence and Research Centre for Phase II.

IoE Centres of Excellence

- Healthcare and Assistive Technologies
- RF, Analog and Mixed-Signal Integrated Circuits
- Quantum Information, Communication and Computing (QulCC)

IoE Research Centres

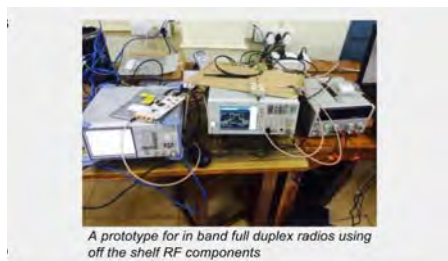
- GaN Research ANd Development (GRAND)
- Centre of Excellence on Advanced Memory and Computing (CAMAC)
- Photonic Integrated Circuits
- Computer Vision

The collaborative efforts of the Department are currently grouped under the following areas of research:

EE1: Communications and Signal Processing

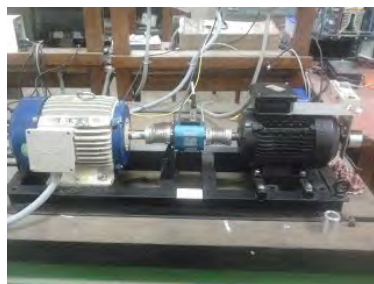
Communications and Networks: This research group focuses on cutting-edge problems in wireless communications and networks, including mathematical modelling, analysis, designing of new algorithms and prototyping using test beds. Their interests span physical-layer aspects, modulation and coding, scheduling and rate adaptation, estimation and detection, resource allocation and optimization, network control, information theory, 4G/5G technology and standards, LTE systems, MIMO systems, cognitive radios, mobile IP, optical backbone networks and software defined radios and networks.

Image and Speech Signal Processing: This research group's focus is on image processing and computer vision, including image deblurring and dehazing, underwater imaging, image and video matting, HDR, face recognition, 3D geometry inpainting and depth from motion blur. They work on developing novel computational cameras and mathematical frameworks for their analysis, as well as deep learning architectures for solving various image processing and computer vision problems. The Speech research group works mainly on Automatic Speech Recognition (ASR) for Indian languages, deep learning methods for speech recognition, and multilingual speech recognition.



EE2: Power Systems, Power Electronics and High Voltage

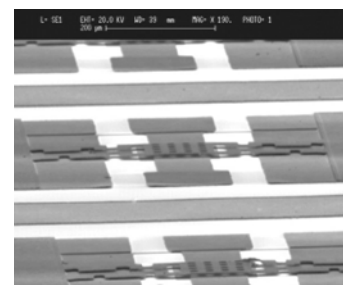
This group is actively involved in research related to power electronics-based motor drives, grid integration of renewable energy sources with a focus on solar and wind, power quality issues and mitigation techniques, smart grids, power systems modelling and analysis, energy markets, nanotechnology, condition monitoring of power apparatus adopting multi fusion sensor techniques, sterilisation of liquid foods, and effluent treatment.



EE3: Microelectronics and VLSI Design

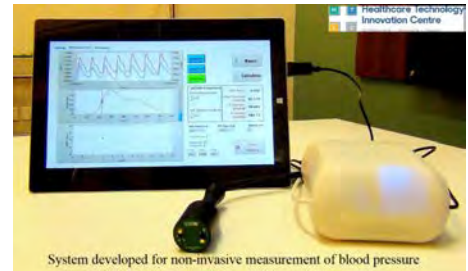
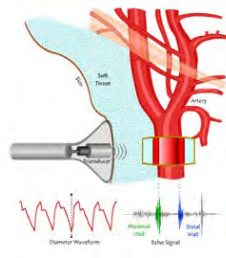
The Microelectronics group focuses on design, simulation, modelling, fabrication and testing of micro- and nano-scale electronic components and systems. The Microelectronics and MEMS Lab in the Department is well-equipped for semiconductor device and MEMS fabrication, characterisation, modelling and simulation. It has Class-100 and Class-1000 clean rooms, which house major facilities including a mask writer, double-sided lithography facility, substrate bond aligner, LPCVD for polysilicon deposition, PECVD for dielectrics, diffusion furnaces, e-beam metallisation unit and RIE for dry etching.

The VLSI group is involved in research in the areas of DSP architectures, FPGAs, mapping of algorithms, and reconfigurable computing.



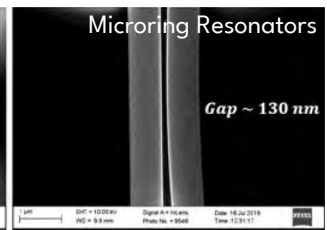
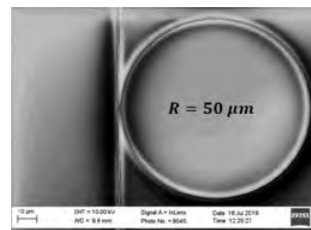
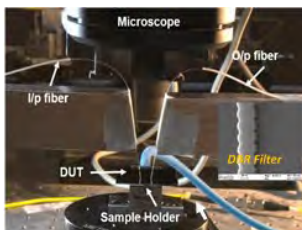
EE4: Electronic System Design and Instrumentation

The Electronic System Design and Instrumentation group focuses on addressing the challenges and complexity of automation in industrial structures and manufacturing systems. Nowadays, diverse areas such as energy systems, infrastructure management, transportation systems, and medicine are increasingly becoming reliant on progress in this discipline. The group’s recent efforts have been in biomedical instrumentation, healthcare, power networks, sensors for automotive and transport applications, and cyber-physical systems.



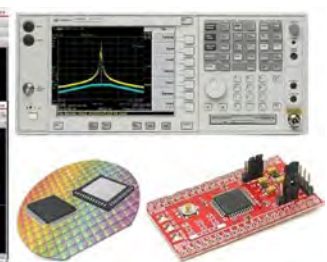
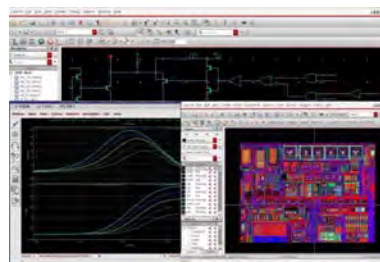
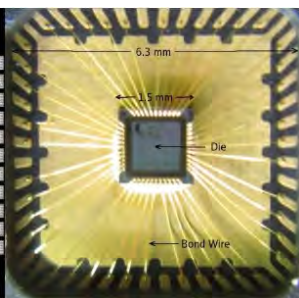
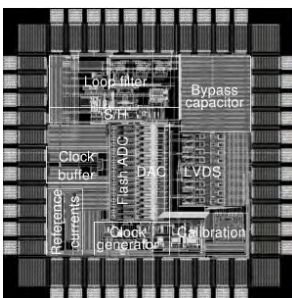
EE5: RF and Photonics

This group focuses on applications in a variety of interdisciplinary areas such as radar systems, satellite imaging, fibre and free-space classical and quantum technologies, optoelectronic devices, lasers, signal processing, metrology and sensing, microwave remote sensing, and microwave imaging. Research activities include the design, analysis and synthesis of devices, components, and aspects of system and network design. The group designs, fabricates, and analyses various kinds of silicon photonic, plasmonic and diffractive optic devices. In addition to physical devices, research on Tbps optical communication systems with advanced modulation formats, optical signal processing, and quantum communication are also investigated. The group also does active research on discrete and distributed fibre sensors, high-power fibre lasers operating at different wavelengths, narrow-line lasers, and pulsed lasers. In the radio or microwave realm, work is ongoing on aspects of satellite remote sensing, inverse microwave imaging, computational electromagnetics, and radio-over-fibre millimetre-wave communications for radar systems, and optical fronthauling for 5G networks. There are active research collaborations with several international universities such as the Optoelectronic Research Centre (University of Southampton), the University of Rochester, the University of Melbourne, and the University of Glasgow to name a few, and with different Indian industries—Sterlite Technologies, LightMotif, and Forbes Marshall, to name a few. The group receives research funding from different government agencies, DRDO, and the industry.



EE6: Integrated Circuits and Systems

This group deals with various aspects of designing integrated circuits and embedded systems. The group has highly experienced faculty in analog/mixed signal and digital ICs, VLSI CAD, and embedded systems, with a track record of driving full chip products right from concept to design, tapeout, prototyping and testing. The research areas of this group include analog, mixed signal and RF, analysis and simulation of noise in circuits, and high-speed ADCs.



Circuit Design, Simulation and Layout → Tapeout → Prototyping and Testing

EE7: Control and Optimisation

The research focus of this group spans a wide range of topics in modelling, design and control for intelligent robotics, transportation and power networks, and cyber-physical systems.



4.8.2. Academic Programmes

4.8.2.1. New Disciplines/Branches Introduced

Research group EE7: Control and Optimisation is a newly-formed group. Its introduction has facilitated the EE4 group to switch its focus from Control and Instrumentation to Electronic System Design and Instrumentation.

4.8.2.2. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|--|
| 1 | EE5705 | Data Analytics Lab |
| 2 | EE5130 | Digital Signal Processing |
| 3 | EE2004 | Digital Signal Processing |
| 4 | EE6418 | Game Theory with Engineering Applications |
| 5 | EE6342 | Advanced Topics in Microelectronics and MEMS |
| 6 | EE6332 | Modelling and Optimization in VLSI |
| 7 | EE6327 | Advanced Clock Generation Techniques |
| 8 | EE6331 | Embedded Memory Design |

4.8.2.3. Students on Roll as of September 2021 + M.S. & Ph.D. Admissions in January 2022

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|------------|------------|-----------------|-------------|
| B.Tech. | 155 | 154 | 126 | 129 | | 564 |
| Dual Degree | | | 28 | 24 | 74 | 126 |
| M.A. | | | | | | 0 |
| M.Sc. | | | | | | 0 |
| M.Tech. | 73 | 60 | | | | 133 |
| M.B.A. | | | | | | 0 |
| M.S. | 50 | 70 | 69 | 16 | 5 | 210 |
| Ph.D. | 34 | 49 | 52 | 43 | 120 | 298 |
| Total | 312 | 333 | 275 | 212 | 199 | 1331 |

4.8.2.4. Students/Scholars Who Attended Conferences, Seminars, Symposia and Workshops in India and Abroad

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|-------------------------|----------|---|---|---------------------------|
| 1 | Rahul M | EE17D202 | Institute of Electrical and Electronics Engineers (IEEE) 44th International Engineering in Medicine and Biology Conference | May 2022 Glasgow, Scotland, UK, | Project |
| 2 | Sakthi Sundaram S | EE19S086 | International Conference on Power, Control and Computing Technologies | May 2022 Raipur, India | Project |
| 3 | Kaushik Ghosh | EE21D750 | International Conference on Power, Control and Computing Technologies | May 2022 Raipur, India | Project |
| 4 | Sushmitha Sree S | EE18D702 | International Conference on Communication Systems & Networks (COMSNETS) 2022 | May 2022 Bangalore, India | Project |
| 5 | Snehal Singh Tomar | EE20S091 | Computer Vision and Pattern Recognition (CVPR) Workshop on Computer Vision for Augmented and Virtual Reality, 2022 | June 2022 New Orleans, LA | Project |
| 6 | Saiganesh P | EE19S029 | 15th International Symposium on Flexible Organic Electronics | June 2022 Thessaloniki. Greece | Project |
| 7 | Atul Bushan Nagarkar | EE19S023 | 22nd IEEE International Conference on Environment and Electrical Engineering 6th Industrial and Commercial Power Systems Europe | June 2022 Congress & Hotel Olsanka, Prague | Project |
| 8 | Ashwini Kumar Dubey | EE20S291 | 22nd IEEE International Conference on Environment and Electrical Engineering 6th Industrial and Commercial Power Systems Europe | June 2022 Congress & Hotel Olsanka, Prague | Project |
| 9 | K Chitra Sai Srivatsava | EE19S032 | International Symposium on Flexible Organic Electronics | June 2022 Thessaloniki. Greece | Project |
| 10 | Sushmitha Sree S | EE18D702 | Joint Telematics Group (JTG)/ IEEE Information Theory SOCIety (ITSoc) Summer School 2022, IIT Mandi | June 2022 Online | Project |
| 11 | Ajay Kumar Rai | EE21D024 | Joint collaborative project with CDAC Trivandrum | June 2022 Vellayambalam, Thiruvananthapuram Kerala | Project |
| 12 | Nisha Varghese | EE19D750 | A visit to DRDO, Dehradun, as a part of project titled 'Development of algorithms for motion deblurring of images' | June 2022, Dehradun | Project |
| 13 | SS Chakraborty | EE16D014 | 5th IEEE Global Conference on Computing, Power and Communication Technologies | June 2022 New Delhi | Project |
| 14 | SS Chakraborty | EE16D014 | 5th IEEE Global Conference on Computing, Power and Communication Technologies | June 2022 New Delhi | Project |
| 15 | Vibhave Pandey | EE18D421 | 2022 IEEE International Conference on Environment and Electrical Engineering | June 2022 Congress & Hotel Olsanka, Prague | Project |
| 16 | Aggraj Gupta | EE18D033 | IEEE International Symposium on Antennas and Propagation | June 2022 Denver, Colorado, USA | Project |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|-------------------------|----------|--|--|---------------------------|
| 17 | Ragul S | EE16D031 | IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS 2022) | June 2022 Toronto, Canada | Project |
| 18 | Nistala Krishna Vamsi | EE20S025 | Conference on Optics, Photonics & Quantum Optics, 2022 | October 2022 IIT Roorkee | Project |
| 19 | K Barathi | EE20D700 | Information Theory Workshop 2022 | October 2022 Marbella, Spain | Project |
| 20 | Jaswanthi | EE19D700 | Information Theory Workshop 2022 | October 2022 Marbella, Spain | Project |
| 21 | Manoj Divakar | EE21D010 | 9th International Conference on Condition Monitoring and Diagnosis 2022 | October 2022 Kitakyushu, Japan | Project |
| 22 | Raman Balireddy | EE17D302 | International Association for Hydro-Environment Engineering and Research—Asia and Pacific Division (IAHR–APD) 2022 | October 2022 Chennai, India | Project |
| 23 | Shruti MP | EE17D413 | IEEE BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium (BCICTS) | October 2022 Monterey Marriott California, USA | Project |
| 24 | Sameer Ahmad Mir | EE19D418 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 25 | Viswanathan S | EE21S075 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 26 | Nistala Krishna Vamsi | EE20S025 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 27 | Siva Subramaniyan CN | EE20S068 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 28 | Arjun Kurur | EE20S137 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 29 | Anjali PS | EE17D038 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 30 | Sameer Ahmad Mir | EE19D418 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 31 | Sooraj MS | EE17D055 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 32 | Sreeraj SJ | EE17D033 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 33 | Suresh Chejarla | EE19D016 | Conference on Optics, Photonics & Quantum Optics 2022 | November 2022 IIT Roorkee | Project |
| 34 | Amrendra Singh | EE20S018 | International Council on Electrical Engineering (ICEE) Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 35 | Farzana Yasmin | EE20S061 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 36 | Shanbhag Ajay Govindray | EE18D415 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 37 | Pallavi Kumari | EE21D014 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|--------------------------------|----------|--|--|---------------------------|
| 38 | Prasant Singh | EE18D026 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 39 | Sandip Ghosh | EE20S017 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 40 | Khade Ramdas Pandurang | EE17D411 | ICEE Conference 2022 | December 2022 Haevichi Hotel & Resort Juje, Korea | Project |
| 41 | Ankit Kumar Gupta | EE18D007 | IEEE Global Conference on Artificial Intelligence | December 2022 Dubai, United Arab Emirates | Project |
| 42 | Vuppalapati Navya | EE17D056 | IEEE Global Conference on Artificial Intelligence | December 2022 Dubai, United Arab Emirates | Project |
| 43 | Anushka Tiwari | EE19D032 | IEEE International Conference on Emerging Electronics | December 2022 New Delhi, India | Project |
| 44 | Sourodeep | EE19D414 | IEEE International Conference on Emerging Electronics | December 2022 New Delhi, India | Project |
| 45 | Ashwini Kumar Dubey | EE20S091 | IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES) 2022 | December 2022 Jaipur, India | Project |
| 46 | Rajarshi Basu | EE19D412 | IEEE PEDES 2022 | December 2022 Malaviya National Institute of Technology (MNIT) Jaipur, Rajasthan | Project |
| 47 | Sougata Nayak | EE20S060 | IEEE PEDES 2022 | December 2022 Malaviya National Institute of Technology (MNIT) Jaipur, Rajasthan | Project |
| 48 | Nitheesh R | EE19D026 | IEEE PEDES 2022 | December 2022 Malaviya National Institute of Technology (MNIT) Jaipur, Rajasthan | Project |
| 49 | Sujan Sankar | EE17D007 | International Conference on Emerging Electronics | December 2022 Bangalore, India | Project |
| 50 | Mohait Sharma | EE21D012 | International Conference on Emerging Electronics | December 2022 Bangalore, India | Project |
| 51 | Aparna Behara | EE16D038 | IEEE Conference on Advanced Networks and Telecommunications Systems (ANTS) | December 2022 Gandhinagar, Gujarat, India | Project |
| 52 | Bommisetty Lokesh | EE18D701 | IEEE Global Conference on Artificial Intelligence & Internet of Things (GCAIoT) 2022 | December 2022 Istanbul, Turkey | Project |
| 53 | Prajosh KP | EE17D044 | IEEE Microwave, Antennas, and Propagation Conference (MAPCon) 2022 | December 2022 Bangalore, India | Project |
| 54 | Sukhadia Vrunda Nileshkumar | EE20S008 | IEEE Spoken Language Processing and Technology | January 2023 Doha, Datar | Project |
| 55 | Addagalla Vijaya Nandhini Devi | EE18D028 | IEEE International Conference on Emerging Electronics (ICEE) 2022 | December 2022 Bangalore, India | Project |

| S. No. | Name of the Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|---------------------------|
| 56 | Nisha Varghese | EE19D750 | Indian Conference on Computer Vision, Graphics and Image Processing | December 2022 IIT Jodhpur, India | Project |
| 57 | Gowriprasad R | EE19D702 | International Society for Music Information Retrieval Conference (ISMIR) 2022 | December 2022 Bengaluru, India | Project |
| 58 | Leelavathi E | EE19S028 | Power India International Conference (PIICON) 2022 | December 2022 National Institute of Technology Delhi, India | Project |
| 59 | Jerin Geogy George | EE20D029 | SPARC Project | January 2022 IIT Kharagpur | Project |
| 60 | Tanvi Vinay Kulkarni | EE20S046 | Society of Photo-Optical Instrumentation Engineers (SPIE) Medical Imaging | February 2023 BELLINGHAM, Washington, USA | Project |
| 61 | Susan Thomas | EE20D751 | SPIE Photonics West | January 2023 BELLINGHAM, Washington, USA | Project |
| 62 | Sumathi M | EE17D054 | Technical Discussion Meeting | December 2022 | Project |
| 63 | Kanimozhi | EE20D301 | Women in Optics and Photonics in India 2022 | December 2022 Raman Research Institute, Bangalore | Project |
| 64 | Sukhadia Vrundha Nileskumar | EE20S008 | IEEE Spoken Language Processing | January 2023 | Project |
| 65 | Shivam Nigam | EE20S070 | Very Large Scale Integration (VLSID) Conference 2023 | January 2023 HICC Hyderabad | Project |
| 66 | Snigdha Jakkaoju | EE20S039 | VLSID Conference 2023 | January 2023 Hyderabad, India | Project |
| 67 | Sushmitha Shree | EE18D702 | International Conference on Communication Systems & Networks (COMSNETS) 2023 | January 2023 Bangalore, India | Project |
| 68 | Rohan Desai | EE20S007 | COMSNETS 2023 | January 2023 Chancery Pavilion Hotel, Bangalore, India | Project |
| 69 | Himanshu Patel | EE18D420 | 2023 IEEE Texas Power and Energy Conference | February 2023 Texas A&M University, College Station, Texas USA | Project |
| 70 | Kousik Ghosh | EE12D750 | International Workshop on Planar Magnetic Technology | February 2023 IISc Bangalore | Project |
| 71 | Kunchakara Alekhya | EE21D026 | National Conference on Communication 2023 | February 2023 Conference Center Foyer | Project |
| 72 | Snehal Singh Tomar | EE20S006 | 37th AAAI Conference on Artificial Intelligence | February 2023 Vancouver, British Columbia, Canada | Project |
| 73 | Arnab Goswami | EE17D011 | European Conference on Integrated Optics | March 2023 | Project |
| 74 | Sruthi M P | EE17D413 | 2023 IEEE International Reliability Physics Symposium | March 2023 Monterey, California | Project |

4.8.2.5. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize |
|--------|-----------------------------|----------|--|
| 1 | Abishek S | EE18B001 | Siemens Prize |
| 2 | S Sivasubramaniyan | EE17B029 | Philips India Prize American Express Top Achievement Award |
| 3 | Leeshma Mathew | EE20M015 | Siemens Prize |
| 4 | U Gautham | EE17B033 | Institute Merit Prize |
| 5 | Nishant Sanjay Patil | EE17B023 | Prof. Achim Bopp Endowment Prize |
| 6 | Rekha Yadav | EE18S046 | TS Vedagiri Memorial Award |
| 7 | Peddamalla Nagachandrika | EE15D213 | Dr. M Mukunda Rao Endowment prize |
| 8 | Shubhang Pandey | EE19S057 | Institute Research Award for M.S. 2022-23 (July-November) |
| 9 | Snehal Singh Tomar | EE20S006 | Institute Research Award for M.S. 2022-23 (July-November) |
| 10 | Sandeep VN | EE15D023 | Institute Research Award 2022-23 for Ph.D. (July-November) |
| 11 | M Suin | EE17D201 | Institute Research Award 2022-23 for Ph.D. (July-November) |
| 12 | P Vinod | EE18D023 | Institute Research Award 2022-23 for Ph.D. (July-November) |
| 13 | Sriprabha | EE19D013 | Malathi Veeraraghavan Fellowship Scholars |
| 14 | Aakanksha | EE18D405 | Malathi Veeraraghavan Fellowship Scholars |
| 15 | Amulya | EE18D003 | Institute (Women) Research Award for Ph.D. 2022-23 |
| 16 | G Abhiram | EE20B037 | EE Department & Analytics Club, CFI secured first place for their project, 'Sentimental Analysis of Customer Feedback' in the field of Artificial Intelligence at the 1st Convoive, pan-IIT AI Hackathon in collaboration with CISCO |

4.8.3. Faculty and their Activities

4.8.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|---------------------------------|--|
| Professors | |
| Dr. Nagendra Krishnapura (Head) | Analog Circuits |
| Dr. Amitava DasGupta | Semiconductor Devices and MEMS |
| Dr. Andrew Thangaraj | Signal Processing, Communication |
| Dr. Anil Prabhakar | Photonics, Magnonics, Assistive Technologies |
| Dr. Anjan Chakravorty | Semiconductor Devices |
| Dr. Aravind R | Signal Processing, Communication |
| Dr. Arun D Mahindrakar | Digital Control and Systems Theory |
| Dr. Anbarasu M | Nanoelectronics, NVRAM, Phase Change Memory |
| Dr. Balaji Srinivasan | Fibre Laser and Sensors |
| Dr. Bhaskar Ramamurthi | Signal Processing, Communication |
| Dr. Bijoy Krishna Das | Silicon Photonics |
| Dr. Bobby George | Instrumentation and Measurements |
| Dr. David Koilpillai R | Signal Processing, Communication |
| Dr. Deepa Venkitesh | Photonics, Optical Communication |
| Dr. Deleep R Nair | Semiconductor Devices and MEMS |
| Dr. Devendra Jalihal | Signal Processing, Communication |
| Dr. Enakshi Bhattacharya | MEMS, Biosensors and Semiconductor Devices |
| Dr. Gaurav Raina | Communication Networks, Control Systems |
| Dr. Giridhar K | Signal Processing, Communication |
| Dr. Harishankar R | Plasma, RF Electromagnetics |

| Name and Qualifications | Major Areas of Specialisation |
|--------------------------------|--|
| Dr. Jagadeesh Kumar V | Instrumentation and Measurements |
| Dr. Kalyan Kumar | Power Systems |
| Dr. Karmalkar S | Semiconductor Devices |
| Dr. Krishna Vasudevan | Power Electronics |
| Dr. Lakshminarasamma N | Power Electronics |
| Dr. Mahesh Kumar | Power Systems |
| Dr. Mohansankar S | Biomedical Devices |
| Dr. Nandita DasGupta | Semiconductor Devices |
| Dr. Nitin Chandrachoodan | Digital Systems and Architectures |
| Dr. Pradeep Sarvepalli | Classical and Quantum Coding Theory |
| Dr. Rajagopalan AN | Image Processing |
| Dr Ramkrishna Pasumarthy | Control Theory |
| Dr Sarathi R | High Voltage |
| Dr Shanthi Pavan Y | Analog Circuits |
| Dr Shanti Bhattacharya | Optics |
| Dr Shanti Swarup | Power Systems |
| Dr Sridharan K | Control Systems and Digital Architecture |
| Dr Srikrishna Bhashyam | Signal Processing, Communication |
| Dr Srirama Srinivas | Power Electronics |
| Dr Sheetal Kalyani | Machine Learning for Communications |
| Dr Umesh S | Speech Processing |
| Dr Vinita Vasudevan | Digital Systems and VLSI |
| Dr Venkatesh TG | Communication Networks |
| Associate Professors | |
| Dr. Ananth Krishnan | Computational Electromagnetics |
| Dr. Aniruddhan S | Analog and RF Circuits |
| Dr. Arun Pachai Kannu | Signal Processing, Communication |
| Dr. Bharath Bhikkaji | Control Theory |
| Dr. Debdutta Ray | Semiconductor Devices and Organic LEDs |
| Dr. Kamalesh Hatua | Power Electronics |
| Dr. Krishna Jagannathan | Optical Networks |
| Dr. Krishna S | Power Systems |
| Dr. Kaushik Mitra | Image Processing |
| Dr. Manivasakan R | Communications Systems |
| Dr. Radha Krishna Ganti | Communications Systems |
| Dr. Ramalingam CS | Speech Processing |
| Dr. Soumya Dutta | Semiconductor Devices and Organic Electronic Devices |
| Dr. Uday Khankhoje | Inverse Problems, Computational Electromagnetics, Remote Sensing |
| Dr. Venkatesh Ramaiyan | Wireless Networks |
| Assistant Professors | |
| Dr. Abhishek Sinha | Theoretical Machine Learning, Networks |
| Dr. Arun Karuppaswamy | Power Electronics |
| Dr. Avhishek Chatterjee | Communications Networks |
| Dr. BN Shivananju | Instrumentation and Nano-bio-photonics |
| Dr. Bhaswar Chakrabarti | Micro- and Nanoelectronics, Neuromorphic Computation |
| Dr. Janakiraman Viraraghavan | Digital Systems and Architectures |
| Dr. Jayaraj Joseph | Medical Devices, Instrumentation, Image-free Ultrasound |
| Dr. Mathiazhagan C | Analog Circuits |

| Name and Qualifications | Major Areas of Specialisation |
|--|--|
| Dr. Puduru Viswanatha Reddy | Control Theory and Game Theory |
| Dr. Quadeer Ahmad Khan | Digital Systems, Low Power Design |
| Dr. Rachael Kalpana | Control Theory |
| Dr. Saurabh Saxena | Analog and Mixed Signal Circuits, Clock Generators, SERDES |
| Dr. Sudharsanan Srinivasan | Diode Lasers, Integrated Photonics |
| INSPIRE Faculty | |
| Dr. Kota Srinivas Reddy | |
| Dr. Mousumi Mukherjee | |
| Ramalingaswami Fellow | |
| Dr. Ramya Balachandran | Image-guided Surgery, Medical Image Processing |
| Visiting Faculty | |
| Dr. MA Atmanand | |
| Dr. Liam Paul Barry | |
| Dr. Shayam Mookherjee | |
| Dr. Govind P Agrawal | |
| Dr. -Ing. Marian Walter | |
| Emeriti Scientists/Emeriti Professors | |
| Dr. Ashok Jhunjunwala | Optical Communication, Computer Networks, Wireless Communication |
| Dr. Christopher S | Radar Signal Processing |
| Scientific Officers/Engineers | |
| Jeyasutha Avudai Thangam | |

4.8.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|------------------------|--|----------------------|
| Conferences | | | |
| 1 | Krishna Jagannathan | Institute of Electrical and Electronics Engineers (IEEE) Signal Processing and Communication (SPCOM) 2022 Conference | July 12-15, 2022 |
| 2 | Sheetal Kalyani | IEEE SPCOM Conference | July 17, 2022 |
| 3 | Enakshi Bhattacharya | IEEE International Conference on Electronic and Photonic Integrated Circuits (EPIC 2022) | December 16-17, 2022 |
| 4 | Amitava DasGupta | IEEE International Conference on Emerging Electronics (ICEE) 2022 | December 11-13, 2022 |
| 5 | Anjan Chakravorty | ICEE 2022 | December 10-13, 2022 |
| 6 | Lakshminarasamma | IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES) | November 13-21, 2022 |
| 7 | Deleep R Nair | 6th International Conference on Emerging Electronics | December 10-14, 2022 |
| 8 | Soumya Dutta | 6th International Conference on Emerging Electronics | December 10-14, 2022 |
| 9 | Sudharsanan Srinivasan | 6th International Conference on Emerging Electronics | December 10-14, 2022 |
| 10 | Ramya Balachandran | 23rd Annual Conference of the Skull Base Surgery Society of India (SKULL BASECON) 2022 | November 4-6, 2022 |
| 11 | Radha Krishna Ganti | International Conference on Communication Systems & Networks (COMSNETS) 2023 | January 8, 2023 |
| 12 | Balaji Srinivasan | Laser Congress | December 11-15, 2022 |
| 13 | Enakshi Bhattacharya | National Conference on Frontiers in Physics | March 3-4, 2023 |
| 14 | Krishna Jagannathan | National Conference of Communications 2023 | February 23-26, 2023 |
| 15 | Srikrishna Bhashyam | National Conference of Communications 2023 | February 23-26, 2023 |

| S. No. | Coordinator(s) | Title | Period |
|------------------|-------------------------|---|------------------------|
| Seminars | | | |
| 1 | Krishna Vasudevan | IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES) | December 15-17, 2022 |
| 2 | K S Swarup | National Power Systems Conference (NPSC) | December 18-19, 2022 |
| 3 | Andrew Thangaraj | Association for Computing Machinery (ACM) COMPUTE 2022 | November 9-11, 2022 |
| 4 | Shanti Bhattacharya | Microactuators, Microsensors and Micromechanisms (MAMM) 2022, IIT Hyderabad | December 3-5, 2022 |
| | | Women in Optics and Photonics in India (WOPI) 2022, RRI Bengaluru | December 6-7, 2022 |
| 5 | Shanti Bhattacharya | Conference on Optics & Quantum Physics | November 9-11, 2022 |
| 6 | Bhaswar Chakrabarti | Seminar on Neuromorphic Computing | December 20-25, 2022 |
| Symposia | | | |
| 1 | Arunkumar D Mahindrakar | 6 th Cyber-Physical Systems Symposium | July 28-30, 2022 |
| 2 | Shanthi Pavan | Annual Symposium of the Indian National Science Academy | December 15-17, 2022 |
| Workshops | | | |
| 1 | Anil Prabhakar | Workshop on Next Generation Optical Networks | August 9, 2022 |
| 2 | Srikrishna Bhashyam | IEEE Information Theory Workshop 2022 | November 5-10, 2022 |
| 3 | Andrew Thangaraj | IEEE Information Theory Workshop 2022 | November 5-10, 2022 |
| 4 | Shanti Pavan | Workshop on Device and Circuits | January 24-29, 2023 |
| 5 | Ananth Krishnan | Indo-UK Workshop on Photonics | March 29-April 3, 2023 |

4.8.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences, and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Coordinator(s) | Title | Location | Period |
|------------------|-----------------------|---|---------------------|------------------------|
| Workshops | | | | |
| 1 | Janakiraman | Workshop on Devices and Circuits | Khajuraho | January 25-28, 2023 |
| 2 | Shanti Pavan | Workshop on Devices and Circuits | Khajuraho | January 25-28, 2023 |
| 3 | Anil Prabhakar | Workshop on Next Generation Optical Networks | New Delhi | August 9, 2022 |
| 4 | Srikrishna Bhashyam | IEEE Information Theory Workshop | Mumbai | November 5-11, 2022 |
| 5 | Andrew Thangaraj | IEEE Information Theory Workshop 2022 | Mumbai | November 7-8, 2022 |
| 6 | Nagendra Krishnapura | IEEE-EDS (Electron Devices Society) Workshop on Devices and Circuits | Khajuraho | January 25-28, 2023 |
| 7 | Anantha Krishnan | Indo-UK Workshop on Applied Photonics | Gandhinagar | March 29-April 3, 2023 |
| 8 | Pradeep Sarvepalli | IEEE Information Theory Workshop 2022 | Mumbai | November 5-9, 2022 |
| 9 | MA Atmanand | Workshop on the Scoping of Next Assessments of the United Nations in Indonesia | Belitung, Indonesia | December 13-15, 2022 |
| 10 | Ramkrishna Pasumarthy | 'Topology and Input Design for Network Controllability' at the Mechanics and Control workshop | IIT Bombay | March 15-18, 2023 |

| S. No. | Coordinator(s) | Title | Location | Period |
|--------------------|-------------------------|--|--------------------|-----------------------------|
| Symposia | | | | |
| 1 | Anil Prabhakar | IEEE Region 10 Symposium (TENSYMP) 2022) | Mumbai | July 1-3, 2022 |
| 2 | Shanthi Pavan | Annual Symposium of the Indian National Science Academy | Vishakhapatnam | December 13-17, 2022 |
| 3 | Arunkumar D Mahindrakar | 6th Cyber-Physical Systems Symposium | Bengaluru | July 28-30, 2022 |
| Conferences | | | | |
| 1 | Sudharsanan Srinivasan | IEEE International Conference on Emerging Electronics (ICEE) | Bengaluru | December 11-14, 2022 |
| 2 | Bhaswar Chakrabarti | Seminar on Neuromorphic Computing | Kolkata | December 20-25, 2022 |
| 3 | Enakshi Bhattacharya | IEEE Applied Sensors Conference APSCON 2023 | Bengaluru | December 23-25, 2022 |
| 4 | Enakshi Bhattacharya | International Conference on Electronic and Photonic Integrated Circuits (EPIC 2022) | Vijayawada | December 16-17, 2022 |
| 5 | Enakshi Bhattacharya | National Conferencs on Frontiers in Physics | Hyderabad | December 16-17, 2022 |
| 6 | Amitava Das Gupta | IEEE International Conference on Emerging Electronics (ICEE) | Bengaluru | December 11-13, 2022 |
| 7 | Krishna Vasudevan | IEEE Power Electronics Drives and Energy Systems Conference | Jaipur | December 15-17, 2022 |
| 8 | Shanti Swarup | National Power System Conference (NPSC) | New Delhi | December 18-19, 2022 |
| 9 | Anil Prabhakar | IEEE International Conference on Signal Processing and Communications (SPCOM) | Bengaluru | July 13-15, 2022 |
| 10 | Shanti Bhattacharya | International Conference on Advanced Biomedical Imaging | Chennai | January 9-11, 2023 |
| 11 | Shanti Bhattacharya | Conference on Photonics & Quantum Optics | Roorkee | November 9-11, 2022 |
| 12 | Anjan Chakravorty | IEEE International Conference on Emerging Electronics (ICEE) | Bengaluru | December 10-13, 2022 |
| 13 | Lakshminarasamma | IEEE PEDES 2022 | Jaipur | November 13-21, 2022 |
| 14 | Deleep R Nair | IEEE International Conference on Emerging Electronics | Bengaluru | December 10-13, 2022 |
| 15 | Soumya Dutta | IEEE 6th International Conference on Emerging Electronics (ICEE) | Bengaluru | December 12-14, 2022 |
| 16 | Lakshminarasamma | IEEE Industry Applications Society (IAS) Global Conference on Renewable Energy and Hydrogen Technologies | Maldives | March 11-12, 2023 |
| 17 | Srikrishna Bhashyam | IEEE Wireless Communications and Networking Conference (WCNC 2023) | Scotland, UK | March 26-29, 2023 |
| 18 | Shanthi Pavan | International Solid-State Circuits Conference (ISSCC 2023) | San Francisco, USA | February 19-23, 2023 |
| 19 | Deepa Venkitesh | IEEE Photonics Conference 2022 | Canada | November 13-17, 2022 |
| 20 | Shanthi Bhattacharya | Society of Photo-Optical Instrumentation Engineers (SPIE) Photonics West Conference | USA | January 27-February 2, 2023 |

4.8.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture/Event Information | Institution | Date |
|--------|-------------------------|---|---|------------------------------|
| 1 | Bhaskar Ramamurthi | 'Towards an Atmanirbhar Telecom Network' | Indian National Academy of Engineering (INAE) Chennai Chapter | July 8, 2022 |
| 2 | Nagendra Krishnapura | 'Widely Tunable Active True-Time-Delay Line and Millimeter-Wave VCO' | Distinguished lecture hosted by the Institute of Electrical and Electronics Engineers Solid-State Circuits Society (IEEE SCS) Kolkata | July 23, 2022 |
| 3 | Nagendra Krishnapura | 'Widely Tunable Active True-Time-Delay Line and Millimeter-Wave VCO' | Distinguished lecture hosted by the IEEE SCS/Circuits and Systems Society (CAS) Delhi | August 8, 2022 |
| 4 | Nandita Das Gupta | Launch of the book She Is: Women in STEAM | Office of Principal Scientific Adviser to the GOI and British High Commissioner | September 21, 2022 |
| 5 | Nitin Chandrachoodan | Program Management Review Committee (PMRC) meeting for SERB-FIRE | Science and Engineering Research Board—Fund for Industrial Research Engagement (SERB-FIRE), New Delhi | October 14, 2022 |
| 6 | Lakshminarasamma | IETE Award Ceremony | Institution of Electronics and Telecommunication Engineers (IETE) | September 25, 2022 |
| 7 | Debdutta Ray | Research collaboration under Japan Society for the Promotion of Science (JSPS) Bilateral Joint Research Project FY 2022 with India's Department of Science & Technology (DST) | Center for Organic Photonics and Electronics Research (OPERA), Kyushu University | November 26–December 3, 2022 |
| 8 | Anil Prabhakar | Summit at USA | IBM Quantum | November 7–9, 2022 |
| 9 | S. Umesh | IEEE Spoken Language Processing and Technology (SLT) 2023 | Doha, Qatar | January 7–14, 2023 |
| 10 | Balaji Srinivasan | Laser Congress at Barcelona, Spain; and University of Alcala de Henares | University of Alcala de Henares | December 9–25, 2022 |
| 11 | Shanti Swarup | 'Autonomous Grids for Self-Healing and Energy Sustainability' | NIT Puducherry, Karaikal | March 30, 2023 |
| 12 | Dr. Avhishek Chatterjee | 'A Converse for Quantum Fault-Tolerance' | Monthly Seminar of LINCS, Laboratory for Information, Networking and Communication Sciences, Paris | February 8, 2023 |

4.8.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit |
|--------|--------------------------|-----------------|----------------------|---|
| 1 | Shanti Pavan | USA | April 28–30, 2022 | IEEE Panel of Editors Meeting |
| 2 | Andrew Thangaraj | Finland | June 26–July 3, 2022 | IEEE International Symposium on Information Theory 2022 |
| 3 | Arun Kumar D Mahindrakar | USA | June 5–13, 2022 | American Control Conference |
| 4 | Ramkrishna Pasumarthy | Greece | June 27–July 1, 2022 | The 30th Mediterranean conference on Control and Automation |
| 5 | Rachel | Greece | June 27–July 1, 2022 | The 30th Mediterranean conference on Control and Automation |
| 6 | Mohanasankar S | Mumbai | June 23–24, 2022 | ICMR CoE Launch |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit |
|--------|-----------------------|-----------------|------------------------|---|
| 7 | Krishna Vasudevan | Germany | July 17–22, 2022 | IGCS Steering Committee and Advisory Board Meetings |
| 8 | Shanti Bhattacharya | Japan | July 30–August 7, 2022 | CLEO Pacific Rim 2022 |
| 9 | Ramkrishna Pasumarthy | England | July 8–17, 2022 | European Control Conference |
| 10 | Anil Prabhakar | Bengaluru | July 13–15, 2022 | IEEE International Conference on signal processing and communications |
| 11 | Anil Prabhakar | Mumbai | July 1–3, 2022 | IEEE Region 10 Symposium |

4.8.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Period |
|--------|---|-------------------------------------|--|--|---------|
| 1 | Nagendra Krishnapura | Distinguished Lecturer | IEEE Solid-State Circuits Society | Expertise in the area | 2022–23 |
| 2 | Bhaskar Ramamurthi | Lifetime Achievement Research Award | IIT Madras | | 2022 |
| 3 | Bhaskar Ramamurthi | DRDO Academic Excellence Award | 21st edition of the Telecom Leadership Award, Indian Telecom Ecosystem | | 2022 |
| 4 | Balaji Srinivasan | Rajamani Award | Executive Committee of Indian Society for Non-Destructive Testing | Best technical talk/paper presentation | 2021–22 |
| 5 | Ashok Jhunjhunwala | Voice and Data Lifetime Award | 21st edition of the Telecom Leadership Award, Indian Telecom Ecosystem | | 2022 |
| 6 | Ashok Jhunjhunwala | Lifetime Achievement Award | 5th India Energy Storage Alliance Industry Excellence Award | Spearheading energy storage & e-mobility | 2022 |
| 7 | Ashok Jhunjhunwala | G.D. Naidu Award | | Best Innovative Ecosystem | 2022 |
| 8 | Y Shanthi Pavan | INSA Fellows 2022 | | | 2022 |
| 9 | Balaji Srinivasan | | DST-IITM Pravartak Technologies Foundation Senior Faculty Fellowship | | 2022–23 |
| 10 | Shanti Bhattacharya | IESA Annual Technovision | | | 2022 |
| 11 | Ph.D. Scholar: Kanaka Joy Guide: Deleep R Nair | Outstanding Poster Award | IEEE Electronics System-Integration Technology Conference | | 2022 |
| 12 | Lakshminarasamma N | Bimal K Bose Award | IETE | | 2022 |
| 13 | Anil Prabhakar | | Federation of Indian Chambers of Commerce & Industry (FICCI) Research Subcommittee for FY 2023 | | 2022 |
| 14 | Soumya Dutta | Unlock Ideas Award | Lam Research Corporation, USA | | 2022 |
| 15 | Shanti Bhattacharya | | Journal of Optical Microsystems. | Associate Editor | 2022 |

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Period |
|--------|---------------------|---------------|---------------------------------|---|------------------------|
| 16 | MA Atmanand | | United Nations in Indonesia | Faculty attended Workshop on the Scoping of Next Assessments | December 13–15, 2022 |
| 17 | Anil Prabhakar | | IBM Quantum Summit | USA | November 7–9, 2022 |
| 18 | Deepa Venkitesh | | Canada | IEEE Photonics Conference | November 13–17, 2022 |
| 19 | Shanti Bhattacharya | | USA | Society of Photo-Optical Instrumentation Engineers (SPIE) Photonics West Conference | January 27–Feb 2, 2023 |
| 20 | S Umesh | | Doha, Qatar | IEEE Spoken Language Processing and Technology | January 7–14, 2023 |
| 21 | Balaji Srinivasan | | University of Alcala de Henares | Laser Congress at Barcelona, Spain | December 9–25, 2022 |

4.8.3.7. Faculty on Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|----------------------|--------------------------|---|
| 1 | Nagendra Krishnapura | Distinguished Lecture | IEEE Solid State Circuits Society for 2022-2023 |

4.8.3.8. Faculty on Scientific Management Boards or Advisory Boards

| S. No. | Name of Faculty | Scientific Management Board/Advisory Board | Position |
|--------|----------------------|---|----------|
| 1 | Anil Prabhakar | India-based Neutrino Observatory (INO) Scientific Management Board | Member |
| 2 | Anil Prabhakar | Laser Interferometer Gravitational-Wave Observatory (LIGO) India Scientific Management Board | Member |
| 3 | Shreepad Karmalkar | All India Council for Technical Education (AICTE)'s All India Board of PG Education and Research in Engineering and Technology | Chairman |
| 4 | Shreepad Karmalkar | IIT Council | Member |
| 5 | Jagadeesh Kumar V | BoG, NIT Nagaland | Member |
| 6 | Jagadeesh Kumar V | Senate, NIT Puducherry | Member |
| 7 | Jagadeesh Kumar V | BWC, NIT Trichy | Member |
| 8 | Jagadeesh Kumar V | Management Council, VelTech University | Member |
| 9 | Jagadeesh Kumar V | Academic Council, Crescent University | Member |
| 10 | Jagadeesh Kumar V | Science and Engineering Research Council (SERC), Department of Science and Technology (DST) PRB | |
| 11 | Gaurav Raina | Academic Council, Krea University | Member |
| 12 | Krishna Vasudevan | Advisory Board of International Journal of Power Electronics | Member |
| 13 | Enakshi Bhattacharya | Research Council of the Council of Scientific and Industrial Research's Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani | Member |
| 14 | Enakshi Bhattacharya | Nanosciences Domain Expert Committee, Ministry of Education—Scheme for Transformational and Advanced Research in Sciences (STARS) | Member |

4.8.4. Design and Development Activities

4.8.4.1. Patents

4.8.4.1.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|--------------------|--|
| 1 | Amitava Dasgupta | Direct growth of preferential (100)-oriented aluminium nitride (AlN) thin films on conducting boron-doped nanocrystalline diamond (B-NCD) films without using any buffer layer |
| 2 | Anil Prabhakar | A system and method for simultaneous live cell imaging and growing |
| 3 | Anil Prabhakar | Quantum random number generator using residual time bins |
| 4 | Anil Prabhakar | System for plug-and-play differential phase-encoded measurement-device-independent quantum key distribution |
| 5 | Balaji Srinivasan | Method for determining onset of combustion instability in a combustion system |
| 6 | Balaji Srinivasan | Excitation of whispering gallery modes (WGM) in a microbottle resonator using an optical beam with orbital angular momentum (OAM). |
| 7 | Balaji Srinivasan | Instantaneous wideband frequency measurement and processing using parallel sub-Nyquist sampling based on an optical pulse source. |
| 8 | Bhaskar Ramamurthi | Methods and systems for UL time synchronization in non-terrestrial networks-based communication |
| 9 | Bhaskar Ramamurthi | Methods to reduce the number of blind decoding attempts |
| 10 | Bhaskar Ramamurthi | Signalling aspects in integrated access and backhaul network |
| 11 | Bhaskar Ramamurthi | Method and system for resource allocation in integrated access and backhaul network |
| 12 | Bhaskar Ramamurthi | Method and apparatus for a low PAPR technique in GHz/THz network |
| 13 | Bhaskar Ramamurthi | Signalling and procedures for high-precision positioning and orientation estimation using wireless networks |
| 14 | Bhaskar Ramamurthi | Signalling methods for a network with reconfigurable intelligent surface and/or repeaters |
| 15 | Bhaskar Ramamurthi | Multiplexing of signalling information related to UL control in DL data channel |
| 16 | Bhaskar Ramamurthi | Power management in integrated access and backhaul network |
| 17 | Bhaskar Ramamurthi | High-precision positioning for wireless networks |
| 18 | Boby George | Mannequin-based training system for ophthalmic sub-tenon anaesthesia |
| 19 | Boby George | A smart primary pad with integrated TMR sensors for wirelessly charged EVs |
| 20 | Boby George | TMR sensor-based detection of EVs in semi-dynamic traffic for optimal charging |
| 21 | Debdutta Ray | Electro-thermo-chromic touch display devices |
| 22 | Deepa Venkitesh | Method and system for direct-detection-based FMF optic communication using digital power division multiplexing |
| 23 | Deepa Venkitesh | Scheme for analog optical fronthauling based on frequency multiplication with external modulators |
| 24 | Deepa Venkitesh | Design of optical recirculating loop with single switch for long-haul optical coherent communication systems |
| 25 | Deepa Venkitesh | Instantaneous wideband frequency measurement and processing using parallel sub-Nyquist sampling based on an optical pulse source |
| 26 | Deleep R Nair | Direct growth of preferential (100)-oriented Aluminium nitride(AlN) thin films on conducting boron-doped nanocrystalline diamond (B-NCD) films without using any buffer layer |
| 27 | Devendra Jalihal | SENSurAIR network for ambient air quality monitoring |
| 28 | Kamalesh Hatua | System and method for controlling voltage across switching devices present in circuit |
| 29 | Kamalesh Hatua | Structure and winding patterns for 3-phase induction motor with outer rotor for ceiling fan application |
| 30 | Kamalesh Hatua | A simple and low VA rating snubber method for recovering the turn-on switching losses in power electronic converter topologies |

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|---|
| 31 | Kaushik Mitra | Real-time restoration of images captured in extreme low-light conditions |
| 32 | Kaushik Mitra | Fast and efficient restoration of light fields captured in the dark |
| 33 | Krishna Vasudevan | Thyristors control to suppress the effect of supply voltage even order harmonics on ASD |
| 34 | Mohanasankar Sivaprakasam | System for information extraction and mining and method, and computer program product thereof |
| 35 | Mohanasankar Sivaprakasam | Multimodal learning framework for carbon footprint prediction for healthcare procurement and waste management activities, system, method, and computer program product |
| 36 | Mohanasankar Sivaprakasam | A system and method for monitoring carbon expenditure, anticipated carbon footprint prediction and recommendation, system, method, and computer program product |
| 37 | Mohanasankar Sivaprakasam | Multimodal learning framework for recommending greenhouse gas optimisation strategies based on healthcare activity, system, method, and computer program product |
| 38 | Mohanasankar Sivaprakasam | A system for non-invasive calibration-free blood pressure (BP) measurement |
| 39 | Mohanasankar Sivaprakasam | Augmented multimodal flow-mediated dilatation |
| 40 | Mohanasankar Sivaprakasam | Multimodal learning framework for activity-based carbon footprint prediction for healthcare, system, method, and computer program product |
| 41 | Mohanasankar Sivaprakasam | Robotic surgery systems and surgical guidance methods thereof |
| 42 | Mohanasankar Sivaprakasam | Mannequin-based training system for ophthalmic sub-tenon anaesthesia |
| 43 | Mohanasankar Sivaprakasam, Jayaraj Joseph | Automated cover-slipper for large format slides (150 X 200mm) with switchable compatibility to handle multiple format slides |
| 44 | Mohanasankar Sivaprakasam | Robotic surgery systems and surgical guidance methods thereof |
| 45 | Mohanasankar Sivaprakasam, Jayaraj Joseph | Single-element image-free ultrasound probe |
| 46 | Mohanasankar Sivaprakasam, Jayaraj Joseph | Image-free ultrasound vascular health monitoring device |
| 47 | Radha Krishna Ganti | Scheme for analog optical fronthauling based on frequency multiplication with external modulators. |
| 48 | Ramalingam CS | Method and electronic device for estimating frequencies of multiple sinusoids using line spectral pairs |
| 49 | Ramalingam CS | Method and electronic device for estimating frequencies of multiple sinusoids which trades bias with variance |
| 50 | Ravinder David Koilpillai | A novel correction algorithm for discrete digital phase shifters and attenuators |
| 51 | Ravinder David Koilpillai | An accurate RF phase shifter and attenuator in CMOS technology based on switched network topology with a novel correction algorithm |
| 52 | Ravinder David Koilpillai | Scheme for analog optical fronthauling based on frequency multiplication with external modulators |
| 53 | Sarathi R | Design and development automated electrical wire explosion technique for the production of nanoparticles |
| 54 | Soumya Dutta | Development of a field-effect device using conducting polymers such as poly(3,4-ethylenedioxythiophene) polystyrene sulfonate (PEDOT:PSS) layers made using microbubble lithography |
| 55 | Soumya Dutta | Device and method for mask-less laser-assisted hybrid etching for interdigitated electrodes in semiconductor devices |

4.8.4.1.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|---|--|
| 1 | Boby George | A combined reluctance-Hall Effect-based angle sensor |
| 2 | Quadeer Khan and Saurabh Saxena | Multi-phase low drop out voltage regulator |
| 3 | Boby George | Apparatus and method for wireless detection of wristwatch with conductive backplate and wireless charging of its battery |
| 4 | Boby George, Jagadeesh Kumar V and Atamanand MA | Device and methods for conductivity measurement of fluids |
| 5 | Balaji Srinivasan | Fused fibre couplers, and apparatuses and methods for the manufacture |
| 6 | Balaji Srinivasan | Energy-based auto-correction and repetition rate optimization of laser pulses—System, apparatus and methods |
| 5 | Saurabh Saxena | Injection-locked clock multiplier with embedded phase interpolator |
| 6 | Bhaskar Ramamurthi | Methods to extend coverage in cellular and/or mesh communication networks |
| 7 | Boby George | Linear and rotary displacement transducer |
| 8 | Ashok Jhunjhunwala | Method and system for enhancing authentication performance by updating voice print |
| 9 | Balaji Srinivasan | Fused fibre couplers, and apparatuses and methods for the manufacture |
| 10 | Kamalesh Hatua | Structure and winding patterns for 3-phase induction motor with outer-rotor for low-power applications |
| 11 | Shanti Bhattacharya | An imaging system and a method for Fourier Ptychographic Microscopy (FPM) |
| 12 | Kaushik Mitra | An imaging system and a method for Fourier Ptychographic Microscopy (FPM) |
| 13 | Arun Pachai Kannu | Downlink synchronization in a heterogeneous cellular network |
| 14 | Boby George | PEDOMETER |
| 15 | Sheetal Kalyani | Method for estimating vector/matrix parameter of communication system |
| 16 | Anil Prabhakar | Tactograph |

4.8.5. Research and Consultancy

4.8.5.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---------------------------------|---|----------------------|---------------------------|
| 1 | Centre for Big Data and the Brain for Precision Mental Health | May 29, 2022–May 28, 2024 | Indo-US Science & Technology Forum | 37.09 | Dr. Ramkrishna Pasumarthy |
| 2 | Application of Machine Learning/Deep Learning Techniques in Tile Extraction of Scientific Parameters from DFRS data | June 24, 2022–June 23, 2025 | Indian Space Research Organisation | 22.83 | Dr. Sheetal Kalyani |
| 3 | Competitive Kinetic Study for Designing a Continuous Process for Friedel Crafts Acylation, to Achieve Maximum Yield (>85%) of the Desired Isomer | August 1–October 31, 2022 | Dr. Reddy's Laboratories Limited | 2.50 | Dr. Aniruddhan S |
| 4 | Designing of a Heterogeneous Catalyst and Continuous Process for Friedel Craft's Alkylation/acylation Processes in API synthesis in Pharmaceutical Industry | August 1–October 31, 2022 | Dr. Reddy's Laboratories Limited | 2.50 | Dr. Aniruddhan S |
| 5 | Design and Demonstration of Silicon Photonics Chip for Quantum Number Generation | August 25, 2022–August 24, 2024 | Defence Research and Development Organisation | 88.68 | Dr. Bijoy Krishna Das |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|---------------------------------------|--|----------------------|------------------------------------|
| 6 | Design, Fabrication and Characterization of Ultrafast Mixed-mode Optical-Electrical Switches based on Chalcogenide Phase Change Materials for Optoelectronic and Photonic Applications | July 28, 2022–July 27, 2024 | Science And Engineering Research Board | 40.95 | Dr. Anbarasu Manivannan |
| 7 | Fund for Improvement of S&T Infrastructure (FIST) Engineering Sciences Level B C or D: Project | September 2, 2022–September 1, 2027 | Department of Science and Technology | 202.00 | Dr. Nagendra Krishnapura |
| 8 | 2nd BHS-PAC Meeting at IIT Madras on October 14–15, 2022 | September 29, 2022–September 28, 2023 | Science And Engineering Research Board | 15.32 | Dr. Sarathi R |
| 9 | Studies of the Lifetime Characteristics of Multi-layer OLED Devices made using a Close-Space Sublimation (CSS) method for Layer Deposition | September 16, 2022–September 15, 2024 | Department of Science & Technology | 6.01 | Dr. G. Rajeswaran |
| 10 | Development of Nanocomposites for Electrical Insulation in Harsh Environment and for EMI Shielding | November 7, 2022–November 6, 2025 | Board of Research in Nuclear Sciences | 40.08 | Dr. Sarathi R |
| 11 | Lab to Fab Non-Fullerene Organic Photovoltaic Modules with Self-Organized Cathode Interlayer via Green Solvent and Open-air Printing | November 15, 2022–November 14, 2024 | Science and Engineering Research Board | 22.37 | Dr. Debdutta Ray |
| 12 | Two-dimensional Materials–based Optical Fibre Bragg Grating Biosensor for Early Cancer Detection | October 26, 2022–October 25, 2024 | Science and Engineering Research Board | 28.70 | Dr. Shivananju BN |
| 13 | Pravartak Research Grant for Dr. Balaji Srinivasan | November 1, 2022–October 31, 2023 | IITM Pravartak Technologies Foundation | 6.00 | Dr. Balaji Srinivasan |
| 14 | Pravartak Research Grant for Dr. Mohanasankar Sivaprakasam | November 1, 2022–October 31, 2023 | IITM Pravartak Technologies Foundation | 6.00 | Dr. Mohanasankar S |
| 15 | Pravartak Research Grant for Dr. Andrew Thangaraj | November 1, 2022–October 31, 2023 | IITM Pravartak Technologies Foundation | 6.00 | Dr. Andrew Thangaraj |
| 16 | 6G: Sub-THz Wireless Communication with Intelligent Reflecting Surfaces (IRS) | November 14, 2022–November 13, 2025 | Ministry Of Electronics & Information Technology | 1430.51 | Dr. Sankaran Aniruddhan |
| 17 | Inter-Institutional School of Diagnostic Innovation in Biodesign: A Fellowship Program for Building Next Generation Pool of Diagnostic Innovators and Entrepreneurs | December 19, 2022–December 18, 2027 | Department of Biotechnology | 120.67 | Dr. Jayaraj Joseph |
| 18 | Factorising Matrices under Structural Constraints | February 21, 2022–February 20, 2023 | Science and Engineering Research Board | 6.60 | Dr. Lakshmi Narasimhan Theagarajan |
| 19 | Cache-aided Content Delivery Networks | January 19, 2023–January 18, 2028 | Department of Science & Technology | 112.40 | Dr. Kota Srinivas Reddy |
| 20 | Investigation of Ion Defect Dynamics in Lead-free Halide Perovskite Thin Film Transistors for Development of Complementary Circuits towards Future Flexible Electronics | January 12, 2023–January 11, 2026 | Department of Science & Technology | 36.49 | Dr. Soumya Dutta |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|---------------------------------------|--|----------------------|------------------------------------|
| 21 | A Compressed Sensing-based Framework for Physical Layer Security in Large-Dimensional Wireless Communication Systems | September 28, 2018–September 27, 2023 | Department of Science and Technology | 35.00 | Dr. Lakshmi Narasimhan Theagarajan |
| 22 | Development of High Power Dense Permanent Magnet-Assisted Multi Phase Synchronous Reluctance Machine for Electric Vehicle Applications | February 7, 2023–February 6, 2026 | Science and Engineering Research Board | 37.10 | Dr. Kamalesh Hatua |
| 23 | Signal Analysis Problems | December 24, 2022–December 23, 2027 | Ministry of Defence | 1486.00 | Dr. Devendra Jalihal |

4.8.5.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|--|----------------------|
| 1 | Balaji Srinivasan | Development of FBG-Based SHM System | Sasmos Het Technologies Limited | 5.90 |
| 2 | Boby George | Design Review of Sensors in the Process Automation Industry | Schneider Electric Systems India Private Limited | 5.00 |
| 3 | Boby George | Environmental Testing for EMD Electronics Instruments | EMD Electronic Instruments Limited | 4.72 |
| 4 | Boby George | Brake Wear Sensor Testing | Madras Engineering Industries Private Limited | 7.17 |

4.8.5.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------|--|---|----------------------|
| 1 | Boby George | Enhancement of the Anti-magnetic Property for Watches | Titan Company Limited | 7.79 |
| 2 | Mohanasankar S | Bronchoscopy Development Support | Mitra Medical Services LLP | 61.36 |
| 3 | Kamalesh Hatua | Design and Development of High-power Inverter for High-performance Electric Vehicle | Semtronics Limited | 24.00 |
| 4 | Rajagopalan A N | Qualcomm Faculty Award | Qualcomm Technologies, Inc. | 11.55 |
| 5 | Mohanasankar S | Technology Platform for Psychological, Physiological Stress and Performance Monitoring | E8RUT Private Limited | 7500.00 |
| 6 | Deepa Venkitesh | Development of RFoF Link in the X-band | SFO Technologies Private Limited | 12.04 |
| 7 | Kamalesh Hatua | Design of Synchronous Reluctance Machine for Industrial Application | Integrated Electric Company Private Limited | 11.80 |
| 8 | Ganti Radhakrishna | Establishment of 5G TB at MCTE How Phase 1 | Military College of Telecommunication Engineering, MHOW | 950.00 |
| 9 | Giridhar K | Advanced Algorithms for 5GNTN—Phase 1A: Q/V Band LEO/MEO Channel Modelling and Link Budget | Tata Consultancy Service Limited | 42.48 |
| 10 | Sankaran Aniruddhan | Identification of Optimal intervention Strategies for Manipulating Home Microbiome | Unilever Industries Private Limited | 2.95 |
| 11 | Giridhar K | Research Advisory on Communications and Radar | Tata Consultancy Services Limited | 21.24 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------|--|--|----------------------|
| 12 | Arun Karuppaswamy B | Development of AC and DC Charger for Electric Vehicle | Predictive Energy Instruments Private Limited | 4.72 |
| 13 | Ganti Radhakrishna | R&D on Establishment of 5G gNB at C-DOT, Bangalore | Centre for Development of Telematics | 462.15 |
| 14 | Anil Prabhakar | Measurement-device-independent Differential-phase-shifted Quantum Key Distribution (MDI-DPS-QKD) | Bharat Electronics Limited | 151.15 |
| 15 | Qadeer Ahmad Khan | Qualcomm Innovation Fellowship | Qualcomm Technologies, Inc | 10.89 |
| 16 | Rajagopalan A N | Synthesizing Multiple Realistic Image Degradations | KLA Corporation | 21.00 |
| 17 | Soumya Dutta | Study and Development of Surface Acoustic Wave Sensors for Showerhead Flow Characterization | Lam Research Corporation | 40.87 |
| 18 | Umesh S | Speech to Text Translation | Facebook India Online Services Private Limited | 34.69 |
| 19 | Mohanasankar S | Multi-task Learning and Meta Learning Techniques for MRI | Wipro GE Healthcare Private Limited | 68.34 |
| 20 | Mohanasankar S | MS Student Fellowship | Stryker Global Technology Center Private Limited | 118.00 |
| 21 | Ganti Radha Krishna | 5G gNB at IITM Pravartak, Chennai | IITM Pravartak Technologies Foundation | 106.10 |

4.8.5.4. Retainer Consultancies (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|----------------------|--|--|----------------------|
| 1 | Nitin Chandrachoodan | Research Advisory Services on Hardware Acceleration | Tata Consultancy Services Limited | 28.32 |
| 2 | Lakshminarasamma N | Skill Development Training Program | IITM Pravartak Technologies Foundation | 2.36 |
| 3 | Shanti Bhattacharya | Design of Diffractive Optical Elements | Bluebinaries Engineering and Solutions Private Limited | 5.90 |
| 4 | Deepa Venkitesh | Design of Photonic Radars | Sasmos Het Technologies Limited | 5.66 |
| 5 | Qadeer Ahmad Khan | Power Management for LED Drivers | QwikChip Technologies Private Limited | 14.16 |
| 6 | Sheetal Kalyani | Textless NLP | Toyota Connected India Private Limited | 5.31 |
| 7 | Deepa Venkitesh | Design of Photonic Radars - SFO Tech | SFO Technologies Private Limited | 5.66 |
| 8 | Anil Prabhakar | Research Advisory on Photonic and Quantum Computing | Tata Consultancy Services Limited | 7.43 |
| 9 | Qadeer Ahmad Khan | Power Management Integrated Circuits for Solar Energy Applications | Enphase Solar Energy Private Limited | 10.45 |

4.8.6. Distinguished Visitors to the Department

| S. No. | Name & Affiliation of Visitor | Date of Visit | Purpose of Visit |
|--------|---|---------------|---|
| 1 | Sridevi Sarmam | April 2022 | Gave a presentation titled 'Opportunities at Johns Hopkins University' |
| 2 | Kentaro Harada, Kyushu University | June 2022 | Gave a talk on the analysis of TADF-OLED degradation induced by extrinsic impurities: and introduction of OPERA Solutions Inc. |
| 3 | Pierre Medrel, Universite de Limoges | June 2022 | Gave a talk on high efficiency GaN-based power amplifier circuits and architectures |
| 4 | Ashok Vardhan, UIUG/EPFL | August 2022 | Held a seminar titled 'KO codes: Inventing Non-Linear Encoding and Decoding for Reliable Wireless Communication' |
| 5 | Ayalavdi Ganesh, Univ. of Bristol, UK | August 2022 | Held a seminar titled 'Job Parallelism for Latency' |
| 6 | Muralikrishnan, Chalmers University of Technology, Sweden | August 2022 | Gave a talk titled "Optimising Communication Systems" |
| 7 | Pilsoon Choi, Research Scientist, MIT Cambridge, USA | August 2022 | Held a seminar titled "Towards Power efficient and Small Form Factor Mobile by PCoE on Gan Research & Development" |
| 8 | Arumugam Nallanathan, Queen Mary University, London | August 2022 | Gave a talk titled 'Massive Ultra-Reliable Connectivity on 6G' |
| 9 | Dick Thijssen, Radbound University Medical Centre | August 2022 | Gave a lecture series titled 'Cardiovascular Ageing: Clinical significance, Assessment & Prevention' |
| 10 | Ayaj Kottapalli, Universitij of Groningen, Netherlands | August 2022 | Gave a seminar titled 'Bio-inspired MEMS and Wearable Electronics Sensors' |
| 11 | Dheerab Nagaraj, Google Research | August 2022 | Gave a seminar titled 'Leveraging Independence to Design Algorithm for Dependent Data: Two Vignettes' |
| 12 | Gopal Panduranga, University of Houston | August 2022 | Gave a talk titled 'Energy-efficient Distributed Algorithms' |
| 13 | Nitin Jain, IEEE Fellow | October 2022 | Development of mm-wave systems since 1990s |
| 14 | Gugan Thoppe, IISc Bengaluru | October 2022 | Gave a seminar talk titled 'Demystifying Approximate Value-based RL with ϵ -Greedy Exploration: A Differential Inclusion View' |
| 15 | Byrav Ramamurthy, University of Nebraska-Lincoln, USA | December 2022 | Application-Network Coordination for Smart Cyberinfrastructure |
| 16 | Kiran Kukkavilli, Qualcomm Wireless Research | December 2022 | 6G Technology Enablers and Roadmap |
| 17 | Rajagopalan Srinivasan, Nvidia Corporation Santa Clara | December 2022 | Autonomous Vehicles & Very Large Scale Integration |
| 18 | Subhas Mukhopadhyay, Macquarie University, NSW | December 2022 | IEEE Distinguished Lecture on Trends for Wearable and Medical Devices |
| 19 | Moritz Riede, University of Oxford. | December 2022 | Microstructure and Electronic Disorder in Organic Solar Cells |
| 20 | Ramprasath, University of Minnesota | January 2023 | Analog/Mixed-signal Circuits |
| 21 | Venkatraman, Lund University | January 2023 | Distributionally Robust Covariance Steering with Optimal Risk Allocation |
| 22 | Ajit Jalal, University of California, Berkeley | January 2023 | Compressed Sensing using Generative Models |
| 23 | Ramu Ranathan, President of Maxisys Inc | January 2023 | Smart Grid Test Bed: Distribution System Model |

| S. No. | Name & Affiliation of Visitor | Date of Visit | Purpose of Visit |
|--------|---|---------------|---|
| 24 | SS Venkata, Alumnus of IIT Madras | January 2023 | Design Guide for Microgrid Protection with Deep Deployment of DER, Inverters, and other Devices |
| 25 | Krishna Pillutla, Google Research | January 2023 | Towards Next Generation ML/AI |
| 26 | Ravi Jain, University of New Mexico | January 2023 | VAJRA Visiting Faculty |
| 27 | Christian Rehtanz, Technical University of Dortmund | February 2023 | Aspects of European Energy System Development |
| 28 | Shayan Mookherjea, University of California, USA | February 2023 | Record Performance in Electro-optic Modulation and Switching using Integrated Photonics |
| 29 | Siddharth Tallur, IIT Bombay | February 2023 | Embedded Systems Applications for Low-cost Biosensors |
| 30 | David Patterson, UC Berkeley | February 2023 | Learning Accelerators: Lessons Learned and Carbon Footprint |

4.8.7. Other Activities of the Department

4.8.7.1. Student Visits

| S. No. | Name of the Student | Purpose of Visit | Date & Venue |
|--------|---------------------|--|----------------------------|
| 1 | Sakthi Sundaram | Design and development of a DSP-FPGA-based control board for electrical vehicle applications at the ICPCT 2022 | November 6-11, 2022. Dhaka |
| 2 | Koushik Gosh | Design and development of a DSP-FPGA based control board for electrical vehicle applications at the ICPCT 2022 | November 6-11, 2022. Dhaka |

4.9

Department of Engineering Design

4.9.1. Introduction

Set up in the year 2006, the Department of Engineering Design is the 16th department to come up at the Indian Institute of Technology Madras. Engineering Design is a series of steps that engineers follow to come up with a solution to a problem. Many times the solution involves designing a product that meets certain criteria and/or accomplishes a certain task. It is a decision-making process, often iterative, in which the basic sciences and the engineering sciences are applied to the optimal conversion of resources to meet a stated objective. Students are first introduced to the design process along with fundamental mathematics, science and engineering, graphic art, design and aesthetics. They are trained not only in the mechanical aspects of design, but also in electronics, control and embedded systems for all-round skill development. Courses in Geometric Modelling, Finite Elements, Materials Engineering, Automotive Engineering, Mechatronics, Robotics, Biomedical Imaging and Diagnostic Techniques are also offered.

4.9.2. Academic Programmes

A first of its kind in India, the department provides much-needed leadership in engineering design with two novel dual-degree programs. Both the programs offer a B.Tech. in Engineering Design, and the first that began in 2006 offers an M.Tech. in Automotive Engineering. The second program, launched in 2008, offers an M.Tech. in Biomedical Design. Since 2007, the Department also offers M.S. and Ph.D. programs. Two interdisciplinary dual degree programs in Robotics and in Electric Vehicles were started with ED as the coordinating department. The Department also offers research based M.S. and Ph.D. programs.

4.9.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|--|
| 1 | ED5345 | Powertrain & Fuels |
| 2 | ED5350 | Electric Vehicle Engineering and Development |
| 3 | ED5215 | Introduction to Motion Planning |

4.9.2.2. Modification Courses

| S. No. | Course No. | Title | Remarks |
|--------|------------|---|----------------------------------|
| 1 | ED5050 | Structural & Component Design of Vehicles | Basket of IDDD Electric Vehicles |
| 2 | ED5235 | Power Electronics and Motor Drives for Electrified Vehicles | Updation of Pre-requisites |
| 3 | ED5011 | Energy Storage Device and Systems | Basket of IDDD Electric Vehicles |
| 4 | ED1021 | Introduction to Computation and Visualisation | Modification of Credits |
| 5 | ED5016 | Bio MEMS and Bio NEMS: Devices and Applications | Basket of IDDD Electric Vehicles |
| 6 | ED5020 | Design of Implantable and Surgical Devices | Modification of Content |
| 7 | ED5220 | Vehicle Dynamics | Modification of Content |

4.9.2.3. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|------------|-----------|-----------------|------------|
| Dual Degree | 79 | 73 | 72 | 60 | 56+13 | 343 |
| M.S. | 10 | 15 | 14 | 6 | 3 | 48 |
| Ph.D. | 17 | 20 | 16 | 13 | 28 | 94 |
| Total | 106 | 108 | 102 | 79 | 100 | 485 |

4.9.2.4. Endowment Prizes Instituted

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|--------------------------------------|---------------|
| 1 | Kuncolienkar Aditya Raj | ED17B002 | Prof. M Singaperumal Endowment Award | IIT Madras |

4.9.2.5. Students/Scholars who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance From |
|---------------|--------------------------------------|----------------------|---|--|---------------------------|
| Abroad | | | | | |
| 1 | Kavitha I | ED18D600 | 14 th Annual International Workshop on Advanced Materials (IWAM) | February 19-21, 2023. Ras Al-Khaimah, The United Arab Emirates | IIT Madras |
| | | | 26 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (Micro TAS 2022) | October 23-27, 2022. Hangzhou, China | Project |
| India | | | | | |
| 1 | Dontiboina Hemanth Kumar | ED20D012 | Institute of Electrical and Electronics Engineers (IEEE) Region 10 Technology for an Autonomous World Symposium (TENSYP) 2022, IIT Bombay | July 1-3, 2022. | IIT Madras |
| 2 | Kishor Kumar Kachari | ED19S200 | | | IIT Madras |
| 3 | Rahul Choudhary | ED20S010 | | | Project |
| 4 | Baburam Mudavath | ED20D403 | | | IIT Madras |
| 5 | Malkuchi Anirudh | ED17B027 | | | IIT Madras |
| 6 | Navya G | ED18D300 | 13 th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2022) | August 21-26, 2022. | IIT Madras |
| 7 | Semion Kingslee | ED20S200 | | | |
| 8 | Kavitha I | | International Online Conference on Nanomaterials (ICN) | August 12-14, 2022. | IIT Madras |
| 9 | Ezhil S | ED21S022 | Non-Destructive Evaluation 2022 (NDE 2022) | November 24-26, 2022. Gandhi Nagar, India | Project |
| 10 | Farhanuzzaman Khan, Vishwas-Swarnkar | ED21D001 ED21D016 | A 2-Week Hand-On Training Workshop Monitoring & Characterization Metal Additive Manufacturing (M&C@MAM-2022) | December 05-18, 2022. Nagpur, India | IIT Madras |
| 11 | Subin P George | ED19D754 | CME on Spine Surgery, CMC Vellore | November 26, 2022. | IIT Madras |

4.9.2.6. Students/Scholars who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------------------------|----------------------------------|---|
| 1 | Akhilesh Kumar Kashyap | BT20M018 (under Dr. KA) | Best Poster Award | IEEE Bombay Section on July 3, 2022 |
| 2 | Subin P George | ED19D754 | GD Sundararaj Best Paper Session | Christian Medical College, Vellore |
| 3 | Yugandhara Yadam | ED16D001 | Institute Research Award | Keshav Ranganath and Institute Research Committee |
| 4 | Jeslin P Issac | ED18D601 | Women Leading IITM 2023 | IIT Madras |

4.9.2.7. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------------------------------|-----------------------------|----------|---|---------------|
| Convocation | | | | |
| 1 | Abhinav Azad | ED17B001 | Dronnadula Nagarathnam Reddy Award | IIT Madras |
| 2 | Aditya Raj Kuncolienkar | ED17B002 | Dr. Susan Calvin Prize | |
| 3 | Hari Prasad V | ED17B012 | Prof T Govindaraj Prize | |
| 4 | Francis J Vellara | ED17B039 | Dr. K Gopinath & Padmini Gopinath Prize | |
| Institute Prize Winners | | | | |
| 1 | Aditya Raj Kuncolienkar | ED17B002 | Ms Pattammal Viswanathan Prize | IIT Madras |
| 2 | Razeem Ahmad Ali Mattathodi | ED17B022 | Sarada Bhaskara Reddy Award | |
| 3 | Akash Anand | ED18B002 | Dr Srikanth Sundararajan Prize | |
| 4 | Sahil Girhepuje | ED19B048 | Ms. Latha & Sampath Srinath Prize | |
| 5 | Vimal Suresh Mollyn | ED17B055 | American Express Award | |

4.9.3. Faculty and Their Activities

4.9.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|-------------------------|--|
| Professors | |
| Asokan T | Robotics, Mechatronics, Control, Electro-hydraulic Servo Systems |
| Balkrishna C Rao | Sustainable Manufacturing, Sustainable Design, Nano-Manufacturing, Manufacturing for Bio-medical Applications, Simulation of Manufacturing Processes |
| Ganapathy Krishnamurthi | Medical Image Analysis, Pre-clinical Imaging Systems-X-ray Micro-CT, Fluorescence Imaging |
| Jayaganthan | Materials Engineering, Nanomaterials and Design, Biomaterials, Additive Manufacturing, Energy Storage Devices |
| Kavitha Arunachalam | Biomedical Instrumentation, Radio Frequency and Microwave Antenna Design, Hyperthermia Physics, Non-destructive Material Evaluation |
| Nilesh J. Vasa | Opto-mechatronics, Laser-based Sensing and Micro-manufacturing |
| Ramanathan M | Geometric and Solid Modelling, CAD, Computer Vision, Computational Geometry, Computer Graphics, Computational Biology, Shape Search |
| Saravana Kumar G | CAD, Design Optimization, Design for Additive Manufacturing, Orthopedic Bio-mechanics and Biomedical Image Processing |
| Shankar Ram C S (Head) | Vehicle Dynamics and Control, Active Safety Systems |
| Srikanth Vedantam | Design with Novel Materials, Mechanical Behaviour of Materials, Wetting, Microstructure Evolution |

| Name and Qualifications | Major Areas of Specialisation |
|---------------------------------------|---|
| Venkatesh Balasubramanian | Design Thinking; Innovation Management; Human Factors and Ergonomics, Biomedical Devices and Implants, and Public Policy |
| Associate Professors | |
| Palaniappan Ramu | Optimization, Application of Statistical and Probabilistic Techniques for engineering design under uncertainties, risk/reliability based engineering design, Surrogate-based Modeling and Analysis |
| Sandipan Bandyopadhyay | Robotics, Dynamics of Multibody Systems, Design |
| Tuhin Subhra Santra | Bio-nano/micro Electro Mechanical Systems (bio-NEMS/MEMS), Biomedical micro/nano Devices, Bio-micro/nano Fabrication, Single-Cell Technology, Nanomedicine, Biosensors and Bioelectronics, Bionanomaterials. |
| Assistant Professor | |
| Bijo Sebastian | Mechatronics, Autonomous Navigation for Mobile Robots, Exoskeleton Systems for Rehabilitation |
| Deepak Ronanki | Power Electronic Converters, Advanced Control Techniques, Electric Vehicle Charging Infrastructure, Electric Vehicle Power Trains, Traction Motor Drives, Electric Energy Storage Systems, and Transportation Electrification |
| Niravkumar Patel | Medical Robotics, Image-guided Surgery |
| Srikanthan Sridharan | Electrified Vehicle Systems, Modeling and Control of Power Electronic Converters and Electric Machine Drives |
| Emeritus Professor | |
| Krishna Kumar R (Institute Professor) | Nonlinear Finite Elements, Vehicle Dynamics and Tyre Mechanics |

4.9.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|----------------------------|-------------------------------|---|-----------------------------------|
| Conferences | | | |
| 1 | Shankar Ram C S | Vehicle Dynamics | August 03-October 12, 2022 |
| | | eMobility and Electric Vehicle Engineering | September 15–November 30, 2022 |
| | | Sizing of Electrified Powertrains | March 27, 2023 |
| 2 | Tuhin Subhra Santra | International Conference on Nanotechnology | August 12-14, 2022 |
| 3 | Srikanthan Sridharan | Overview of Power Electronics and Motor Drives for Electrified Vehicle Technology | December 20-21, 2023 |
| 4 | Venkatesh Balasubramanian | Construction Safety | March 08, 2023 |
| | | Capacity Building for Scientific Road Crash Investigation | March 28-30, 2023 |
| Workshops | | | |
| 1 | Venkatesh Balasubramanian | Integrated Road Accident Database (iRAD) Competency Development ToTs of Jammu Kashmir and Assam | May 11, 2022 |
| 2 | Asokan TNirav Kumar Patel | Medical Robotics | August 13, 2022 |
| Training Programmes | | | |
| 1 | Shankar Ram C S (Coordinator) | Certificate Course on E-Mobility and Electric Vehicle Engineering | October 02, 2022 - March 31, 2023 |

4.9.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|---------------------|--|---|----------------------|
| Symposia | | | | |
| 1 | Asokan T | Hamlyn Symposium on Medical Robotics | London, UK | June 26-29, 2022 |
| Conferences | | | | |
| 1 | Asokan T | International Conference on Robotics and Automation (ICRA) | Philadelphia, USA | May 22-27, 2022 |
| | | Advanced Robotics and Its Social Impacts | Long Beach, USA | May 28-30, 2022. |
| 2 | Nirav Kumar Patel | International Conference on Intelligent Robots and Systems (IROS 2022) | Japan | October 23-27, 2022 |
| 3 | Tuhin Subhra Santra | International Online conference on Nanomaterials (ICN) | Kottayam | August 12-14, 2022 |
| | | The 26 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (Micro TAS 2022) | Hangzhou, China | October 23-27, 2022 |
| | | International Conference on Nanotechnology (ICNT-2022) | Haldia, West Bengal | December 23-24, 2022 |
| Workshops | | | | |
| 1 | Tuhin Subhra Santra | Spiky gold nanomaterials synthesis in a symmetric flow- focusing microfluidic platform for biomedical applications | Tas Al-Kaimah, The United Arab Emirates | February 19-21, 2023 |

4.9.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------------|---|---|------------------------------|
| 1 | Venkatesh Balasubramanian | Road Safety in Rajasthan | Rajasthan State | April 30, 2022 - May 1, 2022 |
| 2 | Asokan T | Autonomy for Robots Design Challenges | Samsung Research Institute, New Delhi | September 29, 2022 |
| | | Design and Analysis of Manipulator Systems for Human- centered Applications | IIT Gandhi Nagar | October 8, 2022 |
| | | 2D LiDAR based SLAM in ROS Environment | Samsung R&D, Delhi | November 14, 2022 |
| | | Tele-Medical Robotics | NIT Silchar | January 16, 2023 |
| | | Connecting Science with Engineering Experiences | Govt. Victoria College, Palakkad | January 27, 2023 |
| | | Robotics in Rehabilitation | MGR Institute of Technology and Science | February 07, 2023 |
| 3 | Nirav Kumar Patel | Image-Guided Surgery and Surgical Robotics | Dept. of Biomedical Engineering. SSN College of Engineering | November 30, 2022 |

4.9.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|-------------------|-----------------|--------------------------------|--|--------------|
| 1 | Nirav Kumar Patel | Japan | October 23-27, 2022 | International Conference on Intelligent Robots and Systems | CPDA |
| 2 | Krishna Kumar R | America | November 23- December 02, 2022 | International Advisors and Alumni | Project |

4.9.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|---------------|---------------------|---------------|------------|---|---------------|
| Awards | | | | | |
| 1 | Tuhin Subhra Santra | Best Teacher | IIT Madras | Best Teacher Award for Excellence in Teaching from ED for the Year 2022 | 2022 |

4.9.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|---------------------|--------------------------|--|
| 1 | C S Shankar Ram | Associate Editor | IEEE Transactions on Systems, Man and Cybernetics: Systems |
| 2 | Deepak Ronanki | Associate Editor | IEEE Transactions on Industry Applications (Transportation Systems Committee) |
| | | Associate Editor | IEEE Transactions on Industry Applications (Industrial Automation and Control Committee) |
| | | Associate Editor | IEEE Transactions on Transportation Electrification |
| | | Associate Editor | IEEE Transportation Electrification Committee (TEC) eNews Letter |
| | | Associate Editor | Wiley International Journal of Circuit Theory and Applications |
| 3 | Tuhin Subhra Santra | Associate Editor | Frontiers in Materials, Biomaterials Section |
| | | Associate Editor | Frontiers in Molecular Biosciences, Biomaterials Section |
| | | Associate Editor | Frontiers in Bioengineering and Biotechnology, Biomaterials Section |
| | | Guest Editor | Biomolecules, Special issue : Advances in Single Cell Technologies, MDPI |

4.9.4. Design and Development Activities

4.9.4.1. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|---|---------------------|
| 1 | GPU Server - Super Server 4029GP, Make: HLBS | 23.25 |
| 2 | Computer Controlled Static Gas Mixing System | 6.31 |
| 3 | Automatic Target Recognition (ATR) Development of Synthetic Vision System (SVS) | 36.13 |
| 4 | Diagnostic and Repair -RMA Lekos RMA-22-008 Supercontinuum Laser. | 62.20 |
| 5 | Fabrication of Hyperthermia Clinical Device (Customized development of clinical device for treatment of intact breast cancer) | 44.39 |
| 6 | MODEL: TATA NEXON EV MAX XZ+LUX (4 WHEELER) | 20.30 |
| 7 | PhaseSpace Motion Capture with Impulse X2 | 19.82 |
| 8 | Keysign 500 Airline with Airline Outer Conductor, 50 Airlines | 7.62 |
| 9 | 11.5 KVA Inverter along with Switchgears | 21.00 |

4.9.5. Patents

4.9.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|---------------------|--|
| 1 | Asokan T | Novel dune rover configuration for improved lateral stability and mobility in uneven terrains. |
| | | Artificial hand for prosthetic applications |
| 2 | Balkrishna C Rao | A Novel turning cutter design for enhancing the efficiency of cutting processes |
| | | A frugally engineered jaw crusher for extraction of minerals |
| | | Metallic functionally-graded materials and manufacturing methods thereof |
| 3 | Jayaganthan R | Convertible seat |
| | | Dishwasher for cleaning utensils |
| | | Method to develop a fabricated titanium modified aluminium alloy, and fabricated titanium modified aluminium alloy |
| | | Jack assembly |
| | | Solar array for a rotatable object |
| 4 | Kavitha Arunachalam | Device and methodology for delivering variable coverage catheter-based hyperthermia |
| 5 | Tuhin Subhra Santra | Single-cell patterned substrate, method, and applications thereof |
| | | 3D printed three-layered polymer scaffold for periodontal regeneration, method for preparing the scaffold |
| | | Rgo mixed PDMS pyramidal micro tip device for highly efficient biomolecular delivery |
| | | Massively parallel high throughput single-cell Optoporation |
| | | Photoporation activated high-throughput intracellular delivery in 3D cancer spheroid using infrared diode laser |
| | | Low-cost open surface paper microfluidic sensing platform for selective and sensitive detection of glucose in sweat with superior shelf-life |

4.9.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|------------------------------------|---|
| 1 | Asokan T | A multirotor with a vertically offset overlapping configuration and uses thereof |
| | | Method for controllable variable buoyancy system based on actuated flexible members or structures for underwater system |
| | | Design of a 6 DOF master manipulator arm with enhanced gravity compensation and compliant grasping for robotic surgery |
| 2 | Jayaganthan | Intelligent fire-fighting robot and method thereof |
| | | Active wheel alignment mechanism for changing toe angle in a vehicle |
| | | A wire explosion assembly for producing metallic nanoparticles and a method thereof |
| | | Active wheel alignment mechanism for changing camber angle in a vehicle |
| 3 | Palaniappan Ramu | Joint mechanism for modular jewellery |
| | Palaniappan Ramu; Saravana Kumar G | Automatic gear transmission mechanism for bicycles using continuous variable transmission gears |
| 4 | Ramanathan M | Method for extracting volumetric features in a mesh representation of CAD model using random cutting planes and graph traversals |
| 5 | Soma Guhathakurta | Long bone substitutes from biomimetic scaffold of plant tissues |
| 6 | Tuhin Subhra Santra | Method for formation of nanostructures on Az-31 (Mg-Alloy) and their uses thereof |
| | | Drug loaded plasmonic core shell electrospun nanofibres for laser mediated intracellular delivery |
| 7 | Venkatesh Balasubramanian | Intelligent universal steering cover for haptic and other feedback to monitor and provide intervention based on driver fatigue and/or behaviour |
| 8 | Lelitha Devi V Shankar Ram C S | A dynamic operation, management and control system for a vehicle |

4.9.6. Research and Consultancy

4.9.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Coordinators |
|--------|--|-------------------------------------|---|----------------------|---------------------|
| 1 | A Single-use Disposable Compliant Robotic Tool Tip for Minimally Invasive Surgery | March 03, 2022-April 15, 2023 | Intuitive Surgical (INSU) | 44.46 | Niravkumar Patel |
| 2 | Cooperative Manipulation and Transportation Using Mobile Robots | November 07, 2022-November 06, 2024 | Science and Engineering Research Board (SERB) | 30.06 | Bijo Sebastian |
| 3 | A Wearable Device for Core Body Temperature Monitoring Using Microwave Radiometry | December 08, 2022-December 07, 2025 | SERB | 47.50 | Kavitha Arunachalam |
| 4 | 3D Microwave Imaging of Locally Advanced Breast Cancer (LABC) to Aid in Hyperthermia Treatment | November 22, 2022-November 21, 2024 | SERB | 22.37 | Kavitha Arunachalam |
| 5 | Development of Absorption Enhanced Multilayered Structure for Reducing Electromagnetic Interference in Power Electronics | February 06, 2023-February 05, 2026 | SERB | 68.00 | Jayaganthan |
| 6 | Near Field Microwave Active Phased Array Antenna Design and Pattern Synthesis for Targeted Tissue Heating | March 09, 2023-March 08, 2026 | SERB | 53.95 | Kavitha Arunachalam |
| 7 | Synthesis of Highly Monodispersed Anisotropic Gold Nanostructures Via Single Microfluidic Platform and its Use for Intracellular Biomolecular Delivery | March 15, 2023-March 14, 2026 | SERB | 64.44 | Tuhin Subhra Santra |

4.9.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|---|----------------------|
| 1 | Srikanth Vedantam | Analysis of brittle crack growth in glass using a novel discrete particle model | Saint Gobain India Private Limited (Research & Development) | 12.04 |

4.9.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------------|---|--|----------------------|
| 1 | Venkatesh Balasubramanian | Assessment of Road Safety and Implementation of Capacity and Capability Improvement in Rajasthan | Department of Transport and Road Safety, Govt of Rajasthan | 398.25 |
| 2 | Asokan Thondiyath | Generation of Hydraulic System Architecture and System Model based on requirement analysis, System Modelling and Simulation | Defence Research and Development Organisation | 43.07 |
| 3 | Kavitha Arunachalam | Development of Thermal Therapy Device for Adjuvant Treatment of Locally Advanced and Recurrent Breast Cancers | SBI General Insurance Company Limited | 30.78 |
| 4 | Venkatesh Balasubramanian | Identifying Scientific Enforcement Strategies to Improve Road Safety | TN Special Task Force for Road Safety | 25.00 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|---------------------------|--|---|----------------------|
| 5 | Kavitha Arunachalam | Investigation of wireless high- power transmission over long distances using non-diffracting microwave beams | Larsen & Toubro Limited | 39.93 |
| 6 | Venkatesh Balasubramanian | Road Safety Research & Intervention | SNS Foundation | 100.00 |
| 7 | Niravkumar Patel | Development of a robotic system for knee/hip replacement | Meril Healthcare Private Limited | 5.66 |
| 8 | Jayaganthan | Battery Management System | Indus Towers Limited | 120.00 |
| 9 | Bijo Sebastian | Development of an Assignment Engine for intelligent truck dispatch scheduling in a mining site | Caterpillar India Engineering Solutions Private Limited | 41.06 |
| 10 | Asokan Thondiyath | Development Grasping and Manipulation Capabilities for a 3-Finger Gripper attached to Robotic Manipulator | Research & Development Establishment (Engineers) | 84.06 |
| 11 | C. S. Shankar Ram | Advanced Antilock Brake System for Single Unit Heavy Commercial Road Vehicle | Madras Engineering Industries Private Limited | 107.38 |

4.9.6.4. Retainer Consultancy (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|------------------|--|---|----------------------|
| 1 | Niravkumar Patel | Development of an endoscopic suturing device | Krishna Innovation and Research Private Limited | 2.00 |

4.9.6.5. Exchange Programme with Other Universities Including Institutions/ Universities Under MOU

| S. No. | Name of the Scholar | Programme | University | Year |
|--------|---------------------|---------------------------|---|----------------------|
| 1 | Koyel Dey | Student under JDP Program | National Tsing Hua University, Taiwan | 2021-23 |
| 2 | Pulasta Chakraborty | Exchange Programme | Toyohashi University of Technology, Japan | June 2022 – May 2024 |

4.9.6.6. Faculty Members' Participation With Other Institutions Under MoU

| S. No. | Name of Faculty | Name of University/Institution Which Has MoU |
|--------|---------------------|--|
| 1 | Asokan T | Dr. MGR Educational and Research Institute |
| 2 | Tuhin Subhra Santra | Toyohashi University of Technology, Japan |

4.9.7. Distinguished Visitors to the Department

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|---|------------------|------------------------|
| 1 | Dr. Nikhil Deshpande, Italian Institute of Technology, Genova, Italy | August 25, 2022 | Research Collaboration |
| 2 | Dr. Mahasweta Sarakar, Professor, California State University San Diego | November 9, 2022 | Fulbright Program |

4.10

Department of Humanities and Social Sciences

4.10.1. Introduction

The Department of Humanities and Social Sciences, one of the oldest at the Indian Institute of Technology Madras, has been contributing to the Institute's academic environment since 1959. The essentially interdisciplinary nature of the Department is its distinguishing feature, which allows students to develop an appreciation for a diverse set of fields such as Development Studies, Economics, English Studies, Environmental Studies, Climate Policy, Astronomy, History, International Relations, Philosophy, Cultural Studies and Sociology. The Department offers both Masters and Doctoral programmes, as well as electives for engineering students.

In addition to its multi-disciplinary background, the Department boasts of a highly diverse and experienced Faculty. The Department has an excellent student-teacher ratio, providing opportunities for academically intense learning.

4.10.2. Academic Programmes: Integrated M.A. (Two-year Programme)

The Department restructured its Master of Arts program in 2022. Instead of a five year integrated M.A., the Department will be offering two year M.A. programmes in Development Studies, Economics and English Studies from July 2023.

The Department also offers a Dual Degree M.A. in Public Policy for the Institute's B. Tech. students.

4.10.2.1. New Courses Introduced

| S. No. | Proposed New Course Code | Course Title |
|--------|--------------------------|--|
| 1 | ID5035 | Climate Change and Society |
| 2 | HS5950 | Economic Analysis of Public Policy |
| 3 | HS5951 | Intellectual Property Rights: Global and Indian Perspectives |
| 4 | HS5952 | Governance and Institution in India |
| 5 | HS5501 | Indian Social Structure and Development |
| 6 | HS5502 | Climate Change, Technology and Sustainability |
| 7 | HS5503 | Development and Ethics |
| 8 | HS5504 | State-Making, Governance and Development |
| 9 | HS5551 | Modern World History |
| 10 | HS5552 | The Making of Modern India |
| 11 | HS5553 | Perspectives on Health and Biomedical Ethics |
| 12 | HS5703 | Statistical Inference |
| 13 | HS5704 | Mathematical Economics |
| 14 | HS5705 | History of Economic Thought |
| 15 | HS5709 | Indian Economy |
| 16 | HS5751 | Labour Economics |

| S. No. | Proposed New Course Code | Course Title |
|--------|--------------------------|---|
| 17 | HS5752 | Agricultural Economics |
| 18 | HS5753 | Industrial Economics |
| 19 | HS5754 | Law and Economics |
| 20 | HS5755 | Multinational Corporations (MNCs) and Economic Analysis |
| 21 | HS5756 | Behavioural Economics and Finance |
| 22 | HS5757 | Corporate Social Responsibility: Integrating Business, Environment, and the Society |
| 23 | HS5758 | Economics of Artificial Intelligence |
| 24 | HS5759 | Applied Industrial Organization |
| 25 | HS5601 | Historicizing Literature |
| 26 | HS5602 | The Arc of the Renaissance |
| 27 | HS5603 | The Novel and Change |
| 28 | HS5604 | Indian Classics in Context |
| 29 | HS5605 | Language and Society |
| 30 | HS5606 | Romantic Literature and Philosophy |
| 31 | HS5607 | Victorian Realism |
| 32 | HS5608 | Twentieth Century Modernisms |
| 33 | HS5649 | Research Methods in Literary and Cultural Studies |
| 34 | HS5651 | American Literature and Culture |
| 35 | HS5652 | Language, Cognition and Computation |
| 36 | HS5653 | Literatures of the Anthropocene |
| 37 | HS5654 | Literature, Technology and Medicine |
| 38 | HS5655 | Editing and Publishing in Literary Studies |
| 39 | HS5656 | Indian Writing in English |
| 40 | HS5657 | Fashion Studies: Literature, Cinema, Society |
| 41 | HS5658 | Literature and Rhetoric |
| 42 | HS5659 | Principles and Practices of English Language Teaching |
| 43 | HS5660 | Literature and Embodiment |
| 44 | HS5661 | Literature and Social Justice |

4.10.2.2. Students On Roll as of March 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|-----------|-----------|-----------|-----------|-----------------|------------|
| M.A. | 51 | 57 | 50 | 43 | 44 | 245 |
| Ph.D. | 22 | 34 | 16 | 26 | 51 | 159 |
| Total | 73 | 91 | 66 | 69 | 95 | 404 |

4.10.2.3. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-----------------------------|----------|---|----------------------|---------------------------|
| 1 | Neethu S Biju | HS17D026 | National Seminar on Indian Democracy at 75: Progress, Challenges, and Opportunities organised by the Department of Political Science, Government College Chalakkudi, Kerala, and the Institute of Parliamentary Affairs, Govt. of Kerala. | December 14-15, 2022 | Self |
| 2 | Rashi Shrivastava | HS18D028 | Memory in a Digital Age International Conference, IIT Madras. | August 23-25, 2022 | Self |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-----------------------------|----------|--|------------------------------|---------------------------|
| 3 | Sancharini Mitra | HS17D004 | The Global Conference on Women and Gender, organised by Christopher Newport University | March 17-19, 2022 (Online) | IIT Madras |
| | | | 5 th Annual South Asia Conference organised by Ireland India Institute, Dublin | 26-29 April, 2022 (Online) | Self |
| 4 | Arindam Nandi | HS21D003 | Encountering the Other(s)", organized by SUNY Albany English Graduate Student Organization, University at Albany. | April 2, 2022 | Self |
| | | | Postgraduate Research Symposium titled "Memory, Crisis and Estrangement", co-hosted by the Cultural Identity and Memory Studies Institute (CIMS), University of St. Andrews, UK and The Centre for Memory Studies, IIT Madras. | April 22, 2022 | Self |
| | | | 'The 23 rd Annual International Conference' of the English Department, University of Bucharest – Literature and Cultural Studies Section on Disaster Discourse: Representations of Catastrophe. | June 2-4, 2022 | Self |
| | | | Annual Student Seminar titled "Frames of Reference: Interrogating Gender in Hindi Cinema", organized by SMCS, Tata Institute of Social Sciences (TISS), Mumbai. | June 22-24, 2022 | Self |
| | | | 14 th Victorian Popular Fiction Association Annual Conference titled 'Purity and Contamination in Victorian Popular Fiction and Culture', organised by Loughborough University, London | July 13-15, 2022 | Self |
| 5 | Sanket Sakar | HS21D011 | International Students' Conference, organized by the State University of New York (SUNY), Albany, English Graduate Student Organization | April 2, 2022 | Self |
| | | | The Madison Graduate Conference in English Language and Literature on 'Para Crisis', organized by the University of Wisconsin-English Department | April 10, 2022 | Self |
| | | | Postgraduate Research Symposium on 'Memory, Crisis and Estrangement' organized by the Centre for Memory Studies, IIT Madras and Cultural Identity and Memory Studies Institute, University of St. Andrews | April 22, 2022 | Self |
| 6 | Indranil Pramanik | HS21D022 | "Archiving the Contemporary: Memory, Technology and People" an international conference organised by Indian Institute of Technology Madras, Chennai. | April 6 - 8, 2022 | Self |
| | | | "Natural History, Women's Agency and Conserving Bio-Diversity" organised by Indian Institute of Technology Madras, Chennai. | April 30, 2022 | Self |
| | | | "Folklore Studies in the Digital Age" organised by the Centre for Language, Translation and Cultural Studies (CLTCS), Netaji Subhas Open University, West Bengal | December 2022 - January 2023 | Self |
| | | | 81 st session of the Indian History Congress, organised by the Madras Christian College, Chennai. | December 27-29, 2022 | Self |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-------------------------------------|----------|---|---------------------------------|---------------------------|
| 7 | Soham Chakraborty | HS18D024 | "... a techne of images without substance': Autoimmunity, Technology, and Memory in J. M. Coetzee's Slow Man" at the International Memory Studies conference Memory in a Digital Age, organized by the Centre of Memory Studies, IIT Madras | May 23-25, 2022 | Self |
| | | | "Consuming Popular Culture: Movement, Image and Animality in Jordan Peele's Nope" at the international conference on Popular Culture and Contemporary Literature, organized by Department of English, Pondicherry University | November 10-11, 2022 | Self |
| 8 | Madhura Balasubramaniam | HS22D006 | "Reading the Himalayas in Diplomatic Writing: Cartographic Anxieties and the Production of space" at The Himalayas from its Edges: Mobilities, Networks, Geographies, organized by Ashoka University, Delhi in partnership with University of Westminster | January 27-28, 2023 | Self |
| 9 | Surya Nandana | HS21D034 | 'Memory in a Digital Age' organised by the Centre for Memory Studies, Indian Institute of Technology Madras | August 23-25, 2022 | Self |
| | | | 'International Seminar on Popular Culture and Contemporary Literature' organised by the Department of English, Pondicherry University | November 10-11, 2022 | Self |
| 10 | Gokul KS | HS19D018 | 16 th International Association of Tibetan Studies Seminar Charles University, Prague, Czechia | July 3-9, 2022 | Institute |
| | | | 4 th Young India Research Scholars Conference organised by Tibet Policy Institute, Sarah , Dharamsala, Himachal Pradesh | October 17-19, 2022 | Self |
| 11 | Ankur Ranjan | HS19D012 | Manchester Centre for Political Theory Workshop: Duties to oneself, Manchester, United Kingdom (UK) | September 7-9, 2022 | Self |
| | | | Philosophical Debates on Inclusion/Exclusion, Kerala University | January 4-6, 2023 | Self |
| | | | Philosophy Beyond Boundaries: The Existential Struggle for Space, Satya Nilayam Institute of Philosophy and Culture (SNRI), Chennai | October 7-8, 2022 | Self |
| 12 | Snigdha Medhi (with Anindita Sahoo) | HS21D005 | "Split and Optionality in Ergative Constructions" The Linguistic Society of Hong Kong (LSHK), Annual Research Forum | December 3, 2022 (Online) | Self |
| 13 | Vipin Francis | HS21D019 | Conference on 'Web and Text Analytics' Deendayal Upadhyay Kaushal Kendra (DDUKK) Cochin University of Science and Technology (CUSAT), Kochi | May 14-15, 2022 | Self |
| 14 | Devlina | HS19D022 | International Workshop on The Political Economy of Industrialization in India: A pro-labour perspective, IIT Madras | April 13, 2022 | NA |
| 15 | Fathima R F | HS19D014 | European Sociological Association's Urban Sociology Conference, Humboldt University Berlin, Germany | October 5-7, 2022 | IIT Madras |
| | | | 5 th Annual South Asian Conference organised by Ireland India Institute, Dublin | April 26-29, 2022 (Online) | Self |
| 16 | Athira Anand | HS17D012 | Chinese Studies Association of Australia (CSAA) 17 th Biennial Conference 'Changing China: Then and Now' Australian National University | November 29 - December 01, 2022 | NA |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|------------------------------|----------|--|-------------------------------|--|
| 17 | Deepa B | HS22d011 | International Conference on Interdisciplinary Perspectives on Memory Studies : Storytelling and the Impact of Digital technologies. Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering & Technology (VNRVJIT) | November 24-25, 2022 | Self |
| 18 | Krishna Payeng | HS21d007 | International Interdisciplinary Series of Conferences on The Global Indian Diasporas: Literary, Cultural and Socio-Economic Perspectives in the 21 st Century, Online, Central University of Gujarat, Gandhinagar | February 23-25, 2023 | Self |
| 19 | Madhu Narayanan | HS18D030 | Archiving the Contemporary: Memory, Technology and People International Conference, IIT Madras, Chennai | April 6 - 8, 2022. | Multiple |
| | | | Annual conference of Society for History of Technology (SHOT), New Orleans, USA, | November 10-13, 2022. | Society for History of Technology, REEDI travel grant. |
| 20 | Sanoop Sajan Koshy | HS21D027 | International Conference on Bandung-Belgrade-Havana in Global History And Perspective, organized by Bandung Spirit, Indonesia. | November 07-14, 2022 (Online) | Self |
| | | | International Seminar on Recent Political Development in South Asian Region, organized by School of Distance Education (SDE), University of Calicut, Kerala | February 20-23, 2023 (Online) | Self |
| 21 | Arya Rachel Thomas | HS19D006 | International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Europe 2022 Conference, Vienna | November 6-9, 2022 | Partly funded by IIT Madras |
| 22 | Monisha Mukherjee | HS22D003 | The Uses of Indian Aesthetics: Conversations and Contestations with Western Theory: A Three day workshop curated by The Centre for Indian Knowledge Systems, IIT Madras | December 17-19, 2022 | Self |
| | | | Seminar on Panini and Foundation of Language Studies, organized by Centre of Indian Knowledge Systems, IIT Madras and Central Institute of Indian Languages, Mysuru | February 17-18, 2023 | Self |
| | | | Memory in a Digital Age, Organized by the Centre for Memory Studies, IIT Madras | August 23-25, 2022 | Self |
| | | | Self Discovery through the Mahabharata, Organized by Hindu University of America | December 24, 2022 (Online) | Self |
| 23 | Tugutla Chandra Sekhar Reddy | HS19D009 | "Archiving the Contemporary: Memory, Technology and People" an International Conference organised by Indian Institute of Technology Madras, Chennai. | April 6-8, 2022 | Self |
| | | | "Natural History, Women's Agency and Conserving Bio-Diversity" organised by Indian Institute of Technology Madras, Chennai. | April 30, 2022 | Self |
| | | | 81 st session of the Indian History Congress, organised by the Madras Christian College, Chennai. | December 27-2, 2022 | Self |

4.10.2.4. Students/Scholars who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--|--|
| 1 | Ashan Joy | HS17D025 | Mofa Taiwanian Fellowship 2023 | Taiwan |
| 2 | Fathima R F | HS19DO14 | Fulbright Nehru Doctoral Fellowship 2023-24 | United States-India Educational Foundation (USIEF) |
| | | | TASA travel grant | The Australian Sociological Association |
| 3 | Madhu Narayanan | HS18D030 | Predoc Visiting Research Fellow | Max Planck Institute for the History of Science, Berlin, Germany |
| 4 | Rohan Gopakumar | HS18H036 | Globalink Research Internship Award | Mitacs, Canada |
| 5 | Karolin Martin | HS19H060 | 1 among the Top 100 Essays at the 52 nd St Gallen Symposium | St Gallen Symposium, Zurich |

4.10.2.5. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prizes | Name of Donor |
|--------|-----------------------------|----------|-------------------------------|--------------------|
| 1 | Abhirami Girish Kumar | HS18H051 | Institute Blues Award | IIT Madras |
| 2 | Haripriya Guduru | HS18H014 | Dr V Ravikumar Memorial Prize | Prof. R Nagarajan |
| 3 | Rohan Gopakumar | HS18H036 | Gonsalvez Foundation Prize | Dr David Gonsalvez |
| 4 | Reeya Rakchhandha | HS18H055 | Dr V Ravikumar Memorial Prize | Prof R Nagarajan |
| 5 | Kishan Alakkal Sanoj | HS19H019 | Dr V Ravikumar Memorial Prize | Prof. R Nagarajan |
| 6 | Sajusha Ashok | HS19H035 | Institute Merit Prize | IIT Madras |
| 7 | Sushant Jaswal | HS20H043 | Institute Merit Prize | IIT Madras |
| 8 | Arya Jayant Daoo | HS21H012 | Institute Merit Prize | IIT Madras |

4.10.3. Faculty and Their Activities

4.10.3.1. Faculty

| S. No. | Name and Qualification | Designation | Major Areas of Specialisation |
|--------|--|-------------|---|
| 1 | Jyotirmaya Tripathy, Ph.D. (IIT Kharagpur) – Head | Professor | Culture and Development, Contemporary India |
| 2 | Muraleedharan V R, Ph.D. (IIT Madras) | Professor | Healthcare Policy, Environmental Health, Technology and Development, History of Healthcare in South India |
| 3 | Sudhir Chella Rajan, Ph.D. (University of California) | Professor | Automobility, Sustainability and Political Theory, Social Studies of Corruption |
| 4 | Umakant Dash, Ph.D. (IIT Kanpur) | Professor | Financial Economics, Health Policy Analysis, Economic Evaluation of Healthcare Programmes and Inter-industry Analysis |
| 5 | Aysha Iqbal Viswamohan, Ph.D. (Vikram University) | Professor | American Literature, Film Studies and Popular Culture |
| 6 | Sreekumar N, Ph.D. (University of Hyderabad) | Professor | Philosophical and Phenomenological Hermeneutics, Philosophies of Wittgenstein and Gadamer, Bioethics |
| 7 | Dhanavel S P, Ph.D. (Tripura University) | Professor | Literary Studies, English Language Teaching, Communication and Soft Skills |
| 8 | Swarnalatha R, Ph.D. (Madras University) | Professor | Ecocriticism, American Literature |
| 9 | Suresh Babu M, Ph.D. (Jawaharlal Nehru University (JNU) New Delhi) | Professor | Applied Macroeconomics, Industrial Economics and Trade and Development |

| S. No. | Name and Qualification | Designation | Major Areas of Specialisation |
|--------|---|---------------------|---|
| 10 | Rajesh Kumar, Ph.D. (University of Illinois) | Professor | Language in Education, Sociolinguistics, Linguistic Theory |
| 11 | Subash S, Ph.D. (IIT Bombay) | Professor | Applied Industrial Economics, Foreign Direct Investment, Economics of Innovation and Technological Change, Small Firms and Industrial Development |
| 12 | Satya Sundar Sethy, Ph.D. (University of Hyderabad) | Associate Professor | Philosophy of Language, Analytical Philosophy and Indian Philosophy |
| 13 | Sonika Gupta, Ph.D. (JNU, New Delhi) | Associate Professor | Chinese Domestic Politics, Foreign Policy, International Relations Theory, Tibetan Exile Community in India |
| 14 | Roland Wittje, Ph.D (Norwegian University of Science and Technology(Trondheim) | Associate Professor | History of Science and Technology |
| 15 | John Bosco Lourdusamy, D.Phil. (Oxford University) | Associate Professor | Plantation Studies, History of S&T and Medicine in Modern India |
| 16 | Milind Brahme, Ph.D. (JNU, New Delhi) | Associate Professor | German Language and Literature, Comparative Literature and Literary Theory, Education |
| 17 | Prema Rajagopalan, Ph.D. (IIT Kanpur) | Associate Professor | Sociology of Science and Technology, Sociology of Development |
| 18 | Solomon J Benjamin, Ph.D (Massachusetts Institute of Technology) | Associate Professor | Urban Studies, World Development |
| 19 | Sudarsan Padmanabhan, Ph.D (University of South Florida and Pondicherry University) | Associate Professor | Social and Political Thought, Indian Philosophy and Culture, Philosophy of Law |
| 20 | Anup Kumar Bhandari, Ph.D. (Indian Statistical Institute) | Associate Professor | Industrial Economics, Applied Econometrics, Indian Banking and Financial Economics |
| 21 | Binitha V Thampi, Ph D. (Institute for Social and Economic Change(ISEC), Bengaluru) | Associate Professor | Gender and Development, Decentralisation and Governance Reforms, Welfare state, Poverty Reduction Policies and Programmes |
| 22 | Kalpna K, Ph. D. (Madras Institute of Development Studies, (University of Madras) | Associate Professor | Gender and Development, Women's Studies and Microfinance |
| 23 | Santhosh R, Ph.D. (ISEC, University of Mysore) | Associate Professor | Sociology, Globalisation and Change |
| 24 | Sabuj Kumar Mandal, Ph.D. (ISEC, University of Mysore) | Associate Professor | Energy and Environmental Economics, Applied Econometrics, Industrial Economics |
| 25 | Joe Thomas Karackattu, Ph.D. (JNU, New Delhi) | Associate Professor | Economic Interdependence and Conflict, International Relations |
| 26 | Mathangi Krishnamurthy, Ph.D. (University of Texas at Austin) | Associate Professor | Anthropology of Work, Medical Anthropology, Gender Studies |
| 27 | Merin Simi Raj, Ph.D. (IIT Bombay) | Associate Professor | Postcolonial Studies, Indian fiction in English and Literary Historiography Studies |
| 28 | Hemachandran K, Ph. D (Cambridge University) | Associate Professor | Literary Criticism and Rhetoric, Disability Studies and Comparative Musicology |
| 29 | Santosh Kumar Sahu, Ph.D (IIT Bombay) | Associate Professor | Industrial Economics, Energy Economics, Economics of Global Climate Change |
| 30 | Avishek Parui, Ph.D (Durham University) | Associate Professor | Modernism, Masculinity Studies, Memory Studies, Posthumanism |
| 31 | Santhosh Abraham, Ph.D. (University of Hyderabad) | Assistant Professor | Colonial Psychiatry and Institutions, Colonial Veterinary Practices, Law and Society |
| 32 | Tabraz S S, Ph. D. (JNU, New Delhi) | Assistant Professor | International Relations Theory, Conflict Resolution, International Mediation and Politics of West and South Asian Regions |
| 33 | Anindita Sahoo, Ph.D (IIT Delhi, New Delhi) | Assistant Professor | Linguistic Typology, Syntax, Pragmatics |

| S. No. | Name and Qualification | Designation | Major Areas of Specialisation |
|--------|---|---------------------|---|
| 34 | Divya A, Ph.D (Nanyang Technological University , Singapore) | Assistant Professor | 19 th -Century English Fiction and Visual Culture; Early Modern English Drama and Shakespeare; 19 th -Century Colonial Writings on India; Colonial Picturesque and Company Paintings; Gender Studies; Children's Literature |
| 35 | Aditya Sri Ram Kolachana, Ph.D. (IIT Bombay) | Assistant Professor | History of Mathematics, Astronomy of India |
| 36 | Krishna Malakar, Ph.D. (IIT Bombay) | Assistant Professor | Risk, Vulnerability and Adaptation to Climate Change, Community Resilience, Sustainability, and Disaster Risk Management |
| 37 | Pramod Kumar Naik, Ph.D (IIT Bombay) | Assistant Professor | Financial Economics, Stock Market Volatility, Behavioral Finance, Corporate Finance, Applied Econometrics Time-series and Panel data, Money, and Banking. |
| 38 | Sandeep Kumar Kujur, Ph.D. (JNU, New Delhi) | Assistant Professor | Industrial Economics, Economics of Technology, Labour and Development Economics. |
| 39 | K S Kannan, Ph.D (Karnataka State Open University) | Visiting Faculty | Sanskrit Literature, Indian Aesthetics and Criticism |
| 40 | Christoph Woiwode, Ph.D (University of London) | Visiting Faculty | Sustainable Urban Development, Social Transformation to Sustainability, Climate Change, Disaster Risks, Governance |
| 41 | Yuan Hsiao-Hui, Master Degree, National Chi Nan University in Taiwan. | Visiting Faculty | Mass Media, Chinese language |
| 42 | Soo Jin Shim, Ph.D. (Seoul National university) | Visiting Faculty | Foreign Language Education (Korean and English) |

4.10.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by the Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|---|--|----------------------|
| Conferences | | | |
| 1 | Roland Wittje, Kannan M, Ponnarasu S, Benedetta Zaccarello, John Bosco Lourdasamy, Santhosh Abraham | “What is an Archive in India and Europe?” #2: Archiving the Contemporary: Memory, Technology and People (International conference at IIT Madras) | April 6–8, 2022 |
| 2 | Aditya Kolachana | International Conference on History of Mathematics | November 25–27, 2022 |
| 3 | Avishek Parui and Merin Simi Raj | Memory in a Digital Age | August 23–25, 2022 |
| Seminars | | | |
| 1 | Roland Wittje, Louise Devoy, Tacye Phillipson | SIC Online Seminar (Zoom) | October 27, 2022 |
| 2 | Avishek Parui and Merin Simi Raj | Lecture on Gender and Ethnicity (by Prof. Malashri Lal, University of Delhi) | June 8, 2022 |
| | | Lecture on Extended Reality Solutions for Teaching and Research in the Humanities | April 21, 2022 |
| | | Lecture on Affective Memory and Digitality by Prof. Nayanika Mookherjee, Durham University | October 21, 2022 |
| 3 | Santosh Kumar Sahu | Seminar on Policies driving Environmental Sustainability in Thailand at IGCS, IIT Madras | September 27, 2022 |
| Workshops | | | |
| 1 | Jyotirmaya Tripathy | “The Uses of Indian Aesthetics: Conversations and Contestations with Western Theory” at the Dept. of Humanities and Social Sciences, IIT Madras | December 17–19, 2022 |

| S. No. | Coordinator(s) | Title | Period |
|--------|--|---|-----------------------|
| 2 | Aditya Kolachana | Mathematics Education in India: Pedagogy and Methods | September 21-22, 2022 |
| 3 | Christoph Woiwode, in collaboration with Chennai Resilience Centre | Agroecology: Exploring Food System Transformation in the Chennai Region | August 26, 2022 |

4.10.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|---|--|---|-----------------------------|
| Workshops | | | | |
| 1 | Roland Wittje | KNOW-IN II: Exploring Trans/Regionality. The Workings of Infrastructures and the Production of Knowledge | University of Regensburg, Germany | July 1 – 2, 2022 |
| 2 | Sonika Gupta | Indo-Pacific Circle Residency Programme | Council for Strategic and Defense Research (CSDR) | July 24-26, 2022. |
| 3 | Aditya Kolachana | International Conference on Indian Contribution to Mathematics — Ancient & Modern | Ethiraj College, Chennai | October 13-14, 2022 |
| | | International Conference on Puranic and Siddhantic Cosmology | Govardhan Eco Village, Near Mumbai | November 4-6, 2022 |
| | | International Conference on History of Mathematics | IIT Madras, Chennai | November 25-27, 2022 |
| | | 88 th Annual Conference of the Indian Mathematical Society: An International Meet | BIT Mesra, Ranchi | December 27-30, 2022 |
| 4 | Milind Brahme, as Panel Member and Participant | DAAD Strategy Workshop for German Studies in India | DAAD, New Delhi | June 2022 |
| Seminars | | | | |
| 1 | Sonika Gupta | “Tibetan Rehabilitation in Arunachal Pradesh: Local, State and Geopolitical Anxieties.” | 7 th Critical Studies Conference, Calcutta Research Group & Rosa Luxemburg Stiftung and Institute for Human Sciences (IWM), Vienna Conference on Forced Migration, Kolkata | November 17-19, 2022 |
| 2 | Jyotirmaya Tripathy | “Revisiting Theory in Contemporary India” | Forum on Contemporary Theory, Baroda | December 20- 21, 2022 |
| 3 | William G, Coehlo K, Thampi BV, and Mahadevia D | RGS-IBG Annual International Conference: Geographies Beyond Recovery | Royal Geographic Society Annual Conference, London | August 30-September 2, 2022 |
| Conferences | | | | |
| 1 | Roland Wittje | Universeum Annual Conference “University Museums & Collections: Challenges of the Past – Responsibilities for Today” | Ghent University, Free University of Brussels, KU Leuven, Belgium | July 4 – 8, 2022 |
| 2 | Sonika Gupta | Lese Majeste-Is Tibetan Exile Democracy at Work or Risk? | 16 th Tibet Studies Conference, Charles University, Prague | July 3-7, 2022 |
| | | Unintended Consequences of Road Building in Arunachal & Tibetan Rehabilitation. | 7 th Asian Borders Research Network Conference, Chung Ang University, Seoul | June 24-26, 2022 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|---|--|--|--------------------|
| 3 | Aysha Iqbal Viswamohan & Arjun Anil Bhaskar | 'Performing a Half Man in Two and a Half Men'. | British Association of American Studies, University of Hull, UK (online) | April 21-23, 2022. |
| 4 | Aysha Iqbal Viswamohan | On the panel 'The American First Ladies'. | British Association of American Studies, University of Hull, UK (online) | April 21-23, 2022. |

4.10.3.4. Special Lectures Delivered by the Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------|---|--|-------------------|
| 1 | Roland Wittje | Cold Moves: Deutsch-indische Zusammenarbeit in der Tieftemperaturphysik in den 1970 er Jahren | University of Bielefeld, Germany | November 8, 2022 |
| | | Deutsche Ingenieursausbildung in Indien? Das IIT Madras und die TH Braunschweig 1959-1974 | Technical University of Braunschweig, Germany | November 16, 2022 |
| 2 | Krishna Malakar | Environmental Indices and Policy Making | Tamil Nadu Chief Minister Fellowship Programme | October 7, 2022 |
| 3 | Sonika Gupta | 13 th Dr. Kamala Aravind Endowment Lecture: 70 Years of Resistance: Tibetan Struggle Against Chinese Occupation | Stella Maris College, Chennai | March 21, 2022 |
| 4 | Jyotirmaya Tripathy | "Introduction to Varied Facets of Social Media" | IIT Bhubaneswar | December 12, 2022 |
| | | "Revisiting Theory for Contemporary Times" | University of Madras | June 24, 2022 |
| | | "English in Postcolonial India" | Dept. of HSS, IIT Bhubaneswar | March 23, 2022 |
| | | "Multiculturalism and Global World (in two parts)" | Dept. of Political Science, University of Madras | January 28, 2022 |
| 5 | Aditya Kolachana | Astronomy in India | Ajeenkya DY Patil University, Pune | May 13, 2022 |
| | | Ganita: Sources, Texts, Schools and Thinkers | IIT Kharagpur | November 29, 2022 |
| 6 | Binitha V Thampi | "Rethinking Development: Issues and Questions" | Spatial Methods for Urban Sustainability (SMUS), Technical University of Berlin, Germany | July 13, 2022 |
| | | Inaugural Address for a National Seminar titled "Development of Kerala: Possibilities and Challenges" | Thunchath Ezhuthachan Malayalam University, Tirur, Kerala | December 19, 2022 |
| | | "Public Policy Making – State Welfare Programs for Poverty Reduction" for Tamil Nadu Chief Minister Fellowship Program (TNCMFP) | Anna Administrative Staff College, Chennai | October 18, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------|--|--|--------------------------------|
| 7 | Aysha Iqbal | Women Filmmakers in Hindi Cinema: The New Age Provocatrices | 3-hour Lecture at Dept of Film Studies, Queen's University, Canada | September 13, 2022 (in-person) |
| | | 'Women in Indian Films, Media and Beyond: Representations and Aesthetics'. | Seminar at University of Guelph, Canada | September 15, 2022 (in-person) |
| | | 'Telling her Tales: Women and Representations in Contemporary Hindi cinema.' | Keynote Lecture at Online Value-Added Course "Gender Matters". West Bengal State University. | February 21, 2022 (online) |
| | | 'Potential and Challenges of Indian Regional Cinema' | Global Communication Education Conclave(GCEC). Department of Mass Communication, School of Media, Films & Entertainment, Sharda University | March 28, 2022 (online) |
| 8 | Avishek Parui | Gender and the Digital Archive | Australian National University | November 5, 2022 |
| | | Interdisciplinary Research in Memory Studies, International Faculty Development Programme | Kristu Jayanti College, Bengaluru | November 23, 2022 |
| | | The Future of Memory Studies, International Conference on Memory Studies | Vallurapalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology in association with Loughborough University | November 24, 2022 |
| | | Itineraries of Memory Studies: Reflections on Methodological Innovation, Moderator, Memory Studies Association Week of Virtual Events, | Sogang University. | July 7, 2022 |
| | | Reading IWE: A Student Workshop, Indian Writing in English Online, an IoE project | Department of English, University of Hyderabad. | September 29-2, 2022 |
| | | Workshop on Memory Studies | Department of English, University of Kashmir | July 18-20, 2022 |
| | | Lecture Series on Medical Humanities | Postgraduate and Research Department of English, Mar Ivanios College | July 8, 2022 |
| | | Interdisciplinary Research in Memory Studies, Faculty Development Programme | SRM Institute of Science and Technology | December 22, 2022 |
| | | Memory and the Posthuman: Histories and Theories, National Seminar on "Rescripting Culture: From Humanism to Posthumanism | St.Terasas College | December 16, 2022 |
| | | The Future of Memory: Research Possibilities in Memory Studies, national seminar on "Of Remembering/ Forgetting: Memory Studies Now" | Sacred Heart College, Thevara | September 26, 2022 |
| 9 | Merin Simi Raj | Gender and the Digital Archive, New Directions in Memory Studies | Australian National University | November 5, 2022 |
| | | Digital Humanities | Gayatri Vidya Parishad College of Engineering, Vishakhapatnam | December 8, 2022 |
| | | Digital Storytelling and Extended Reality | IIIT Kottayam | September 21, 2022 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------|--|--|-------------------|
| 9 | Merin Simi Raj | Memory Studies | English Department Literary and Debate Association, PSGR Krishnammal College for Women, Coimbatore | August 5, 2022 |
| | | On Memory and Historiography: Frameworks and Methods | Department of English and Cultural Studies, Christ University, Bangalore | August 3, 2022 |
| | | Workshop on Memory Studies | Department of English, University of Kashmir | July 18-20, 2022 |
| | | Research Possibilities in Memory Studies | Department of Women's Studies, University of Madras | February 24, 2022 |

4.10.3.5. Visits Abroad by Faculty Members

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|------------------|-----------------|--------------------------------------|---|---|
| 1 | Roland Wittje | Norway | May 26, 2022 - June 10, 2022 | Research collaboration at NTNU, Trondheim | NTNU |
| | | Belgium | July 4-8, 2022 | Universeum conference | IIT Madras |
| | | Germany | July 14-22, 2022 | Workshop at University of Regensburg and Conference at University of Flensburg | University of Regensburg and IIT Madras |
| | | Germany | August 20, 2022-September 22, 2022 | Research Collaboration at University of Flensburg | Private |
| | | Germany | October 1, 2022-July 31, 2023 | Senior Fellowship at Kate Hamburger Kolleg Cultures of Research, Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen | RWTH Aachen |
| 2 | Sonika Gupta | Czechia | July 03 -07, 2022 | 16 th Tibet Studies Conference, Charles University, Prague | IIT Madras |
| | | South Korea | 24-26 June, 2022 | 7 th Asian Borders Research Network Conference, Chung Ang University, Seoul | IIT Madras |
| 3 | Binitha V Thampi | Germany | June 13-August 7, 2022 | Visiting Faculty, Technical University of Berlin, Germany | DAAD |
| 4 | Aysha Iqbal | Canada | September 6, 2022-September 16, 2022 | Delegate at Toronto International Film Festival | IIT Madras |
| 5 | Avishek Parui | United Kingdom | June 24-July 1, 2022 | Project Visit | IOE Mobility Grant |

4.10.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|----------------|-----------------|--|--|---|---|
| Honours | | | | | |
| 1 | Milind Brahme | Selected DAAD Research Ambassador for South Asia Region for the Humanities and Social Sciences | DAAD | | September 13, 2022; Research Ambassador tenure from 2022-2025 |
| Awards | | | | | |
| 1 | Avishek Parui | Global Fellowship 2022/23 | University of St. Andrews, UK | Research in Memory Studies | May 19, 2022 |
| | | IAS Fellowship 2023/24 | Institute of Advanced Study, Durham University | Research in Memory Studies and Medical Humanities | February 7, 2023 |

4.10.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|--------|-----------------|--|
| 1. | Avishek Parui | Global Fellowship, University of St. Andrews, UK 2023 |
| 2. | Avishek Parui | Institute of Advanced Study (IAS) Fellowship, Durham University, UK 2024 |

4.10.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|--------------------|---|--|
| 1 | Sonika Gupta | Guest Editor for a Special Issue on India's Borderlands | India Quarterly |
| 2 | Aditya Kolachana | Member | History of Science in South Asia |
| 3 | Avishek Parui | Editorial Board | Memory Studies Review |
| 4 | Merin Simi Raj | Editorial Board | Memory Studies Review |
| 5 | Santosh Kumar Sahu | Editorial Member | Environmental Quality Management, Wiley Publications |
| 6 | Santosh Kumar Sahu | Editorial Member | Journal of Public Affairs, Wiley Publications |
| 7 | Santosh Kumar Sahu | Associate Editor | SN Business and Economics, Springer Nature |

4.10.4. Research and Consultancy

4.10.4.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|-----------------------------------|---|----------------------|---|
| 1 | Centre for Indian Knowledge Systems | April 02, 2022- April 01, 2023 | All India Council for Technical Education | 37.5 | Aditya Sri Ram Kolachana Jyotirmaya Tripathy Rajesh Kumar Santosh Sahu Sudarsan Padmanabhan Arun Menon (CE) Manu Santhanam (CE) |
| 2 | Emergence and Articulations of New Atheism: An Exploratory Study in South India | July 04, 2022- July 03, 2023 | University of Zurich | 2.0 | Santhosh R |

4.10.4.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--------------------------|---|--|----------------------|
| 1 | Aditya Sri Ram Kolachana | Proposal for Research into Indian Mathematical and Astronomical Traditions | AICL Communications Limited | 15 |
| 2 | Subash S | Cities, Urban Amenities, and Global Value Chain (Phase 4): India Case Study | Economic Research Institute for ASEAN and East Asia (ERIA) | 6.32 |
| 3 | Santosh Kumar Sahu | Detailed Project Report (DPR) for the Evaluation of Ecosystem Services for Kalpasar Dam | National Centre For Coastal Research | 32.4264 |
| 4 | Sonika Gupta | Protracted Conflict & Borderland Communities in Taiwan and India: Case Studies of Kinmen (Taiwan) and West Kameng (India) | Chiang Ching Kuo Foundation | 14.8878 |
| 5 | Joe Thomas Karackattu | India-China boundary (in the Handbook of South Asian Borders) | National University of Singapore | 0.924 |

4.10.4.3. Faculty Members Participation with Other Institution under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/Institution which has MoU |
|--------|------------------|--|--|
| 1 | Avishek Parui | Project Visit | University of St. Andrews, UK |
| | | Project Visit / GE Office Collaborations | University of Southampton, UK |
| 2 | Binitha V Thampi | Advanced Researcher, SMUS | Technical University of Berlin, Germany |

4.10.5. Distinguished Visitors to the Department

| S. No. | Name of the Speaker | Title | Date |
|--------|---|--|-------------------|
| 1 | Dr. Alexander Follmann, University of Bonn, Germany | Lecture on “Peri-urban Dynamics in the Global South: Theoretical Reflections and Empirical Insights” | February 16, 2023 |
| 2 | Dr Ravinarayan Charakodi, Professor, Regional Institute of English, Bengaluru | Lecture on “Gaining Professional Competence: The Journey of an Educator” | March 7, 2023 |

4.10.6. Other Activities of the Department/Centre

4.10.6.1. Patent

The German Utility Model: 2022, Designation/Title: Ein System zur Berücksichtigung der Auswirkungen von Covid-19 auf die Haushaltswirtschaft in Indien, English Translation: A system to account for the impact of Covid-19 on household economics in India. This patent is for the invention of methodology in the area of Resource Planning and Analytics (WIPO code G06Q 10/06).

4.10.6.2. Inter Disciplinary Group Achievements of the Departments

Dr. Aditya Kolachana and other colleagues from HSS and CE Established the Centre for Indian Knowledge Systems

4.10.6.3. Socially Relevant Activities Carried Out by the Department

Dr. Avishek Parui & Dr. Merin Simi Raj- Phygital exhibition MemoryBytes at Dakshina Chithra Heritage Museum, Chennai (28 December 2022 to 31st January 2023)

4.10.7. International Collaboration Achievements by the Department

British Council Going Global Grant in collaboration with the University of St. Andrews, UK (Project – Dr Avishek Parui & Dr Merin Simi Raj)

4.10.7.1. Outreach

| S. No. | Date | Particular |
|--------|-------------------|--|
| 1 | October 19, 2022 | Hosted 34 school students and 04 teachers from Kavi Bharathi Vidyalaya, Chennai in the Department and introduced the students to the career prospects in Social Sciences |
| 2 | January 07, 2023 | Coordinated Industry-Academic Meet (Social Expression), held at ICSR, IIT Madras. |
| 3 | January 27, 2023 | Hosted 30 school students and 04 teachers from JRK Global School, Chennai and introduced the students to research and career options in Social Sciences |
| 4 | February 02, 2023 | Coordinated a ‘Panel Discussion on the Union Budget 2023-24’ organized by the Department of Humanities and Social Sciences, IIT Madras. |

4.11

Department of Management Studies

4.11.1. Introduction

The Department of Management Studies (DoMS) was established in the year 2004 and has transformed into a leading business school. Small class size, high faculty-student ratio, and exchange programmes with international Universities makes DoMS a very special business school in the country. In the NIRF ranking 2022, DoMS has been ranked among the top ten B schools in India.

DoMS offers a wide variety of programmes to develop and nurture business leadership and management research skills among students. Extending from the initial MBA programme, DoMS currently offers a repertoire of six programmes, starting with the well-established two-year full-time MBA course, which was the first academic programme offered in DoMS. The Department offers an Executive MBA programme for mid and senior level executives. DoMS also offers a Tech-MBA programme and Quantitative Finance, as a dual degree option, for the engineering graduates of IIT Madras. The Department has a strong research programme at the Master's (MS) and Doctoral (PhD) levels. The Department is also a partner in a multi-institutional Diploma programme (PGPEX-VLM) for Visionary Leaders in Manufacturing, along with IIM Calcutta and IIT Kanpur.

The major areas of specialisation are

- Finance
- Human Resource Management and Organizational Behavior
- Information Systems
- Marketing
- Operations
- Strategy

DoMS is committed to provide foundational, inter-disciplinary, and experiential learning and global educational experience to the students and industry executives. DoMS prepares individuals to become analytical thinkers and responsible leaders with high values of professional integrity and ethics.

4.11.2. Academic Programmes

The **Master of Business Administration (MBA)** at DoMS is a two-year full-time programme aimed at training graduates to become capable managers. The programme involves classroom teaching, case discussions, hands-on management internship in industry and project work. The programme comprises seven quarters of course-work, with four quarters for first year and three quarters for second year. Students are equipped with quantitative tools and techniques necessary for analyzing business problems along with personal skills such as business communication, general business knowledge, and interpersonal skills. The inputs given through courses are supplemented with industrial training through a summer project for 8 – 10 weeks after the fourth quarter along with project work during the seventh quarter.

The **Executive Programme in Business Administration (EMBA)** programme is designed to equip mid-career working professionals with deep functional and broad industrial domain knowledge, through blended weekend learning and enables working professionals to make strategic investment in their careers while they continue to meet their job demands.

The **Tech MBA** programme is a part of the Five-Year interdisciplinary dual degree programme that has been conceptualized by DoMS. The programme enables undergraduate students of the Institute to engage in curricula that integrate and synergizes technology and management disciplines. TechMBA programme aims to provide knowledge of business functions and strategies, developing expertise in business analytics and on transformation technologies that transform enterprises, economies and societies.

The **Quantitative Finance programme** is a part of the Five-Year interdisciplinary dual degree programme that has been conceptualized by DoMS and has a strong interdisciplinary flavour with teachers participating from various departments such as Department of Mathematics, Department of Computer Science, and Department of Humanities and Social Sciences. The programme enables students to build advanced knowledge in Quantitative Finance, Financial Engineering and Risk Management and bridges the gap between application of modern product and process technologies and state-of-the-art finance.

The **PGPEX-VLM** is a unique, one-year full-time residential programme, that has a built in manufacturing focus. This programme is being conducted jointly by three premier institutes of India – IIM Calcutta, IIT Kanpur, and IIT Madras. The programme introduces courses on green manufacturing, SAP ERP and breakthrough management, and targets engineers from manufacturing and allied industries.

The **MS by Research** programme is a full-fledged research programme that aids students seeking a research-oriented industry job or students who want to kick-start their research career. This programme is characterized by a significant research component in the curriculum.

The flagship **PhD** or Doctoral programme is a full-fledged research programme designed to prepare and provide exceptional faculty members resources for management, teaching, and research. DoMS faculty are well-accomplished in the field of Management Research, recognized for publishing in reputed academic journals.

4.11.2.1. New Courses Introduced

| S. No. | Proposed New Course Code | Course Title |
|--------|--------------------------|--|
| 1. | MS6621 | Corporate Finance (Multilevel course) by Dr. Krishnaprasanna |
| 2. | ID5055 | Foundation of Machine Learning by Dr.Nandan Sudarsanam |
| 3. | MS5213 | Fundamentals of Technopreneurship by Dr. L Prakash Sai |
| 4. | MS5235 | Operational Forensics by Dr. R. K. Amit |
| 5. | MS5332 | Supply Chain Analytics by Dr. Usha Mohan |
| 6. | MS5921 | Technology Foresight and Innovation by Dr. L Prakash Sai |
| 7. | MS6211 | Digital Business Models by Dr. L Prakash Sai |
| 8. | MS5617 | Asset Pricing by Dr. M Thenmozhi/Dr. P Krishna Prasanna/Dr. Madhumathi R |

4.11.2.2. New Lab(s) Established

| S. No. | Lab Name |
|--------|---|
| 1 | CAMS FinTech Lab - Computer Age Management Service (CAMS) Limited and IIT Madras collaborate to set up an interdisciplinary Fintech Lab |
| 2 | Decision Engineering & Pricing Lab – DEEP lab has been funded by reputed agencies like Department of Science and Technology (DST), Science and Engineering Research Board (SERB), Aeronautics Research & Development Board (AR&DB), Indian Council of Social Science Research (ICSSR), and South Asian Network for Development and Environmental Economics (SANDEE) |

4.11.2.3. Students on Roll as of September 2022 + M.S. & Ph.D Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | > 5 others | Total |
|--------------|------------|------------|-----------|-----------|-----------------|------------|------------|
| MBA | 86 | 68 | -- | -- | | -- | 154 |
| EMBA | 50 | 49 | -- | -- | | -- | 99 |
| Tech MBA | -- | -- | 36 | 7 | 10 | -- | 53 |
| VLM | 40 | -- | -- | -- | | -- | 40 |
| M.S. | 8 | 13 | 3 | 9 | 6 | -- | 39 |
| Ph.D. | 24 | 19 | 21 | 28 | 15 | 43 | 150 |
| Total | 208 | 149 | 60 | 44 | 31 | 43 | 535 |

4.11.2.4. Students/Scholars who Attended Conferences, Seminars and Symposia Abroad/in India

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|---------------|-----------------------|----------|---|---|---|
| Abroad | | | | | |
| 1. | S Dhandabani | MS18D201 | Presented Paper titled “Revenue Management with multiple flexible products: downgradables, upgradables and callables” presented at the Revenue Management Study Group meeting, Airline Group of the International Federation of Operational Research Societies (AGIFORS) | April 26–28, 2022. Virtual meeting | No Assistance |
| 2. | Jasmine Banu | MS17D200 | Highly prestigious conference in the Eastern Academy of Management’s (EAM) Outstanding Paper awards, 2022 on the title “Women Entrepreneurship and their Work-Family Interface: A Systematic Literature Review of the Growing Research | May 17-20, 2022. Portland, Maine, USA | Alumni Fund and partly from Vembu Technologies - Prof G Srinivasan DoMS Research Endowment Fund |
| 3. | Teena Thomas | MS19D022 | Paper presented in the conference IISE Annual conference & Expo 2022 on the title “Optimization of solid waste management in an Indian city with flexible transfer station location” | May 21 - 24, 2022. Seattle Pacific University Washington, USA | IIT Madras |
| 4. | Mohit Kumar | MS17D202 | Paper presented at the European Economics and Finance Society (EEFS) Twentieth Annual Conference on the title “Emerging Bond Markets in Asia: Credit Spread Drivers and Economic Activity” | June 16-19, 2022 | IIT Madras |
| 5. | Mojahedu Islam Nayyer | MS17D004 | Paper presented in the conference CIB World Building Congress 2022 on the title “Effect of Transparency on Development Phase of Public-Private Partnership: Analysis of Highway Projects” | June 27-30, 2022 Royal Melbourne Institute of Technology (RMIT) University, Melbourne, Australia | IIT Madras |
| 6. | Veena Kannan | MS17S200 | Digitally Enabled Shrimp Farming: A Service Dominant Logic View America’s Conference on Information Systems (AMCIS). | August 10–14, 2022. Minnesota, USA | IIT Madras |
| 7. | Pratyush Yadav | MS18D204 | Antecedents of Perceived Fairness and User Trust in Scientific Recommender Systems, Pacific Asia Conference on Information Systems 2022 | Taipier & Sydney, Virtual | No Assistance |
| 8. | Rahul R Lexman | MS17D013 | Research Paper accepted for presentation on the title “Video-conferencing applications for facilitation of educational continuity: An Indian perspective towards building institutional resilience” at the 4th Annual Aston India Centre for Applied Research Centre Conference (AICAR) | July 1-2, 2022. Birmingham, UK | Alumni funded |
| 9. | M Ramya | MS17D016 | Presentation accepted at the 82nd Annual Meeting of the Academy of Management (AOM) on the title “A practitioner’s definition of corporate environmental responsibility”. | August 05 – 08, 2022. Washington, USA | IIT Madras |

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|--------------------------|----------|--|---|--|
| 10. | Jasmine Banu | MS17D200 | Presentation accepted at the 82nd Annual Meeting of the Academy of Management on the title "Women Entrepreneurship and their Work-Family Interface: A Systematic Review and Research Agenda". | August 05 – 08, 2022 Washington, USA | Personal fund for membership fee (presented online). |
| 11. | M Ramya | MS17D016 | Presentation accepted at the 82nd Annual Meeting of the Academy of Management on the title "Effect of employee's sustainability-related moral conflict on sustainability actions: a multi-method micro-foundations investigations" | August 05 – 08, 2022 Washington, USA | IIT Madras |
| 12. | Davangave Balaji Manmath | MS19S015 | Paper accepted for publication on the title "Context Aware POI Recommendation using Bipartite Graph" in Americas Conference on Information Systems 2022. | August 10-14, 2022. Minneapolis, USA | IIT Madras |
| 13. | Rajdeep Singh | MS19D201 | Paper presented on the title: A Policymaker's guide for allocation of Vaccines: The case of COVID-19 on the Operational Research Applied to Health Services conference. | July 17-18, 2022 Bergamo, Italy | IIT Madras |
| 14. | Rajdeep Singh | MS19D201 | Paper presented on the title: "Understanding Vaccine Allocation Strategies for COVID-19" at the International System Dynamics conference. | July 18-22, 2022 Frankfurt, Germany. | IIT Madras |
| 15. | Mahak Bisen | MS19D001 | Paper Presented on the title: Patenting strategies of domestic and foreign players in the Indian machine tool industry: A comparative study using multidimensional scaling approach. In the Portland International Center for Management of Engineering and Technology (PICMET'22) | August 7-11, 2022 Portland, USA | IIT Madras |
| 16. | Muhammed Sadiq T | MS19D014 | Workshop on Combating Misinformation: Theoretical and Design Challenges to Support a Healthy Information Ecosystem (online) on the title: "Infodemic and its cure: A digital nudging approach" | August 18-19, 2022 Online | No Assistance |
| 17. | Rajdeep Singh | MS19D201 | Attended a Conference "A Policymaker's guide for allocation of Vaccines: The case for COVID-19" at the Operational Research Applied to Health Services (ORAHS) Conference | July 17 – 18, 2022 Bergamo, Italy | IIT Madras |
| 18. | Rajdeep Singh | MS19D201 | Attended a Conference Understanding vaccine allocation strategies for COVID-19 at the International System Dynamics. | July 18-22, 2022. Germany | IIT Madras |
| 19. | Nitika | MS18D016 | Presented paper titled "CSR and Value Creation: Evidence from India" at the 19th International Conference on Corporate Social Responsibility (ICCSR). | September 7-10, 2022. Balaclava, Mauritius | IIT Madras |
| 20. | Dhandabani S | MS18D201 | Presented paper titled "Two-way substitution with multiple flexible products" in 62nd Annual Symposium, AGIFORS | September 12-15, 2022. Toulouse, France | IIT Madras |
| 21. | Sagar Bhikari Pingale | MS20S005 | Presented paper titled "Two Echelon Vehicle Routing Model based on Collaboration Points in Last Mile Delivery" in International Conference on Computational Logistics 2022 | September 21-23, 2022. Barcelona, Spain | IIT Madras |

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|------------------|----------|--|---|---------------------------|
| 22. | R Shruti | MS21D009 | Presented paper titled “Does origin affect monitoring incentives of institutional investors? Evidence from stock price crash risk” at International Society for the Advancement of Financial Economics conference (ISAFE-2022) | December 5-6, 2022. Ho Chi Minh City, Vietnam | No Assistance |
| 23. | Apoorva Goel | MS19D039 | Presented paper titled “Workplace Politics and Women’s Wellbeing: Moderated Mediation of Self-Concept and Voice” at International Conference organised by Australian and New Zealand Academy of Management (ANZAM) 2022 | December 6-7, 2022. Griffith University, Australia | IIT Madras |
| 24. | Nabila Khan | MS17D021 | Presented paper titled “Upward voice under felt uncertainty: Role of emotion regulation” at International Conference organised by Australian and New Zealand Academy of Management (ANZAM) 2022 | December 6-7, 2022. Griffith University, Australia | IIT Madras |
| 25. | Meghana J.V. | MS20D201 | Presented paper titled “Work-family enrichment among nurses: A systematic review and research agenda” in International Conference organised by Australian and New Zealand Academy of Management (ANZAM) 2022 | December 6-7, 2022. Griffith University, Australia | IIT Madras |
| 26. | Reshma M | MS20D001 | Presented paper titled “How effective is remote work?: An exploratory investigation into the role of technology and culture” in International Conference organised by Australian and New Zealand Academy of Management (ANZAM) 2022 | December 6-7, 2022. Griffith University, Australia | IIT Madras |
| 27. | Somdeep Acharyya | MS20S001 | Presented paper titled “Towards Cross Domain Recommendations: A Personality Based Probabilistic Matrix Factorization Approach” at the Workshop on Information Technologies and Systems organized by the INFORMS Information Systems Society | December 14-16, 2022. Copenhagen Business School (CBS) in Denmark | IIT Madras |
| 28. | Sajira Khatoun | MS19D033 | Presented paper titled “Understanding Brand Grief: Conceptualisation and Definition” at the ANZMAC Conference 2022 - Reconnect & Reimagine | December 6-7, 2022 Perth, Australia | IIT Madras |
| 29. | Anu Mary Chacko | MS16D203 | presented a paper titled “Small Talk is not that Small ! B2B sales persons. social media usage and small talk facilitating collection of customer-based competitive intelligence enhancing sales performance” at the 2023 AMA Winter Academic Conference | February 6, 2023. Tennessee, US | No Assistance |
| 30. | Sanjay K | MS18D008 | Presented a paper titled "Generalized Representation of Electronic Health Records for Unplanned Hospital Readmission" in the European Conference on Information Systems – ECIS 2022 | June 10, 2022. Timisoara, Romania | IIT Madras |
| 31. | Sanjay K | MS18D008 | S Krishnamurthy, N Pervin, "How to Find Better Neighbors?: A Context Aware Session-based Recommendation", World Integrated Trade Solution (WITS) 2022 | December 14 -16, 2022. Copenhagen, Denmark | No Assistance |

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------------|------------------|----------|--|-----------------------------------|--|
| India | | | | | |
| 1. | Vijaya C | MS20D003 | “Performance of Smart Beta Exchange Traded Funds in India” at International Conference on Financial Markets and Corporate Finance (ICFMCF), 2022. | July 7-9, 2022. IIT Bombay | IIT Madras |
| 2. | Shruti R. | MS21D019 | Attended an International Conference on Financial Markets and Corporate Finance (ICFMCF), 2022 on the title: “Institutional Investors and Stock Price Crash Risk: Evidence from India” | July 6-8, 2022. IIT Delhi | Thiagara-jar School of Management, Madurai |
| 3. | Rajdeep Singh | MS19D201 | Attended a conference on Allocating vaccines for COVID-19: A System Dynamics approach at the International Conference on Systems Analysis for Enabling Integrated Policy Making. | August 10-12, 2022 New Delhi | IIT Madras |
| 4. | Ajay Philip | MS19D009 | Presented paper titled “Procurement and Storage under Disruptions: A Mathematical Model for Tactical decision-making in a Straw Supply Chain” at 25th Annual International Conference of the Society of Operations Management (SOM 2022) | December 16 -18, 2022. IIM Indore | IIT Madras |
| 5. | Anukesh Valase | MS19D200 | Presented paper titled “A Joint Location-Inventory Problem in an Omnichannel Closed-Loop Supply Chain considering returned product condition” at 25th Annual International Conference of the Society of Operations Management (SOM 2022) | December 16 -18, 2022. IIM Indore | IIT Madras |
| 6. | R.Shruti | MS21D019 | Presented a paper titled “Can active monitoring and risk diversification reduce crash risk in pledging firms? Role of institutional monitoring and business group affiliation” at India Finance Conference, 2022 (IFC 2022) | December 19-21, 2022. Kolkata | No Assistance |
| 7. | Vijaya C | MS20D003 | Presented a paper titled “Are Smart Beta indices ‘smarter’ during stagnant or volatile markets? ” at India Finance Conference, 2022 (IFC 2022) | December 19-21, 2022, Kolkata | IIT Madras |
| 8. | Nibu John Thomas | MS16D017 | Presented a paper titled "The Antecedences of Flow in the Gamified Learning" at the AIMS International Conference on Management organized by Association of Indian Management Scholars International (AIMS) International & Indian Institute of Management Kozhikode | December 28-31, 2022, Kozhikode | IIT Madras |
| 9. | Nibu John Thomas | MS16D017 | Presenteda paper titled "Influence of the Metaverse and Positive Psychology on Gamification: Evidence from the Practice" at the 8th Indian Academy of Management (INDAM) Conference | January 5-6, 2023. Mumbai | No Assistance |
| 10. | Aiswarya Ramesh | MS18D203 | Presented a paper titled “Designing chatbots for optimal user experience” at the 2023 International Conference on Digital Organization (ICODO) at the IIM-Ahmedabad campus | January 8-9, 2023. Ahmedabad | IIT Madras |

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|--------------------------------------|----------|---|--|--|
| 11. | Shashi Bhushan Kumar | MS15D019 | Presented a paper titled "Entrepreneurial Strategy and Decision-making: Past Insights and Research Direction" at the Pritam Singh Memorial (PRISM) 2022 conference. | Nov 17-19, 2022 Indian Institute of Management Nagpur | IIT Madras |
| 12. | Shashi Bhushan Kumar | MS15D019 | Presented a paper titled "Modelling entrepreneurial decision-making problem" at the Asian Society for Innovation and Policy (ASIP) 2022 conference. | November 24-26, 2022 Indian Institute of Science (IISc) Bangalore | IIT Madras |
| 13. | Muhammed Sadiq T | MS19D014 | Presented a paper titled "Fighting the Health Misinformation Infodemic on Social Media: Can Digital Nudging help?" at the ICODO'23 | January 8-9, 2023. IIM Ahmedabad | IIT Madras |
| 14. | Muhammed Suhail PS | MS19D015 | Presented a paper titled "Empirical Analysis of Early Signals for Financial Distress Using Accounting, Market, and Reporting Anomaly Variables" at 2nd International Research Conference on Insolvency and Bankruptcy | February 23-25, 2023 IIM Bangalore | Insolvency and Bankruptcy Board of India (IBBI) and IIT Madras |
| 15. | Ajay Philip | MS19D009 | Presented a paper titled "Feedstock Procurement for a 2G-Biorefinery: A Sustainable Approach" at the International Conference on Sustainable Business Management (SBM 2023) | March 23 - 25, 2023 Uttarakhand | IIT Madras |
| 16. | Shashi Bhushan Kumar | MS15D019 | Presented a paper titled "Entrepreneurial Strategy and Decision-making: Past Insights and Research Direction" at the International Sustainable Development Studies Institute (ISDSI) 2022 in Jagdish Sheth School of Management (JagSOM), Bengluru, International Conference on People, Ecosystems & Emerging Trends in Entrepreneurship (ICPEETE) 2022 | December 27-29, 2022 IIM Kashipur | IIT Madras |
| 17. | Shashi Bhushan Kumar | MS15D019 | Presented a paper titled "Modelling Entrepreneurial Decision-making problem" at the ASIP 2022 in IISc. Bangalore, ICPEETE 2022 in IIM Nagpur, PRISM 2022 | November 24, 2022 IIM Kashipur | IIT Madras |
| 18. | Karen Nisha A | MS15D025 | Presented a paper titled "Do derivatives moderate default probability of commercial banks?" at India Finance Conference, 2022 (IFC 2022) | December 19-21, 2022 IIM Calcutta | No Assistance |
| 19. | Mathukumalli V R K Kanaka Durga Devi | MS20D011 | Presented a paper titled " Review on Exploring Employee Perception of Management Practices: A special focus on Career Development and Technology Adaptation in the Digitalization era" | April 1, 2023, Hyderabad | IIT Madras |
| 20. | Mohit Kumar | MS17D202 | International Conference on Shaping the Future of Management Education for Sustainable Emerging Economies, IIT Roorkee | November 20-22, 2022 IIT Roorkee | IIT Madras |
| 21. | Rishabh Goswami | MS18D013 | 12th Asian Conference for Innovation and Policy | November 24-26 , 2022, IISC Bangalore | November 24-26 , 2022, IISC Bangalore |
| 22. | S Vasanthraj | MS18D004 | Production and Operations Management Society (POMS India) International Conference 2022 | December 21- 23, 2022 | IIT Madras |

| S. No. | Name | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|--------------|----------|---|---|---------------------------|
| 23. | C Balaganesh | MS18D007 | 14th edition of Conference on the Digital Economy (CODE) (Organized by ISB) | January 3 - 5, 2023 at Taj Malabar, Kochi | IIT Madras |
| 24. | Preethi R | MS16D008 | Presented a paper titled "A conceptual framework proposed through literature review to evaluate social transparency in global supply chains" in ISDSI Global Conference 2022 in JAGSoM, Bengaluru | December 27 - 29, 2022 | IIT Madras |

4.11.2.5. Students/Scholars who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--|---|
| 1. | Jasmine Banu | MS17D200 | "Best Doctoral Student Paper Award" for research Paper Titled: "Women Entrepreneurship and their work-Family Interface: A Systematic Literature Review of a Growing Research | Award issued at the 59th Annual Meeting of the Eastern Academy of Management on Resilience and Reinvention (EAM-2022) |
| 2. | C Vijaya | MS20D003 | "Best Paper Award" and "Best Presenter Award" for presenting paper entitled "Quantitative Funds in India: Do the AI Based Models Outperform Traditional funds?" | Award issued in the International Conference on 'Technology Analysis, Fintech and Financial Services' (TAFS-2022) |
| 3. | Mojahedul Islam Nayyer | MS17D004 | Best Paper Award for the paper titled "Effect of Transparency on the Development Phase of Public-Private Partnership: Analysis of Highway Projects | "World Building Congress (WBC) 2022" held at RMIT University, Australia. |
| 4. | Mojahedul Islam Nayyer | MS17D004 | Best Paper Award Paper titled: "Effect of Transparency on the Development Phase of Public-Private Partnership: Analysis of Highways projects" | World Building Congress (WBC) 2022. |
| 5. | Nibu John Thomas | MS16D016 | Best Student Paper Award. Paper titled: "Gamification in Management Education: Examining the Engagement pathways o Learning" in the Barry Armandi Award in Management Education and Development (MED) at 82nd Annual Meeting | Academy of Management (AoM) 2022. |
| 6. | Sri Vidhya Bhavani | MS16D012 | First prize from the Tirunelveli District Collector and Startup TN for successful demonstration of a Patient Management System for Primary Health Centers across the district. | Tamil Nadu Government |
| 7. | Nithyashri T | MS21A067 | Second Place in Pronigma 3.0 | IIM Sambalpur |
| 8. | Joe Larsen R | MS21A028 | | |
| 9. | Saurabh K | MS21A059 | | |
| 10. | L R Kavith | MS21A033 | Second Place in Saastra - Opsium | IIT Madras |
| 11. | Sanjana A | MS21A058 | | |
| 12. | Jagadeesh E S | MS21A024 | Third Place in Data Analytics Quiz | DTU, New Delhi |
| 13. | Sudipta Mitra | MS21A064 | | |
| 14. | Suganthan T | MS21A065 | First Place in Constrat | IIM, Jammu |
| 15. | Aravinthan R | MS21A007 | | |
| 16. | K Nithish Kanna | MS21A042 | | |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|---|----------------------|---|---|
| 17. | Sharath Ram | MS21A053 | First Place in Entrée-preneurship 4.0 | IIM Nagpur |
| 18. | Sanjana A | MS21A058 | | |
| 19. | Varun Kumar | MS21A070 | | |
| 20. | Gowthaman K | MS21A020 | National Finalist in Markwiz 2.0 | IIM Vizag |
| 21. | Sugapriya T | MS21A066 | | |
| 22. | Mr. Rishab Goswami | MS18D013 | Best Paper Award for his paper titled "Venture Capitalist' Stake and Valuation of Privately Held Firms in India" at the "12 Asian Society of Innovation and Productivity" | IISc Bangalore |
| 23. | Mr. Muthu Kumar E | MS22A052 | Secured Second Position in the competition "Aghaaz" organised by | Institute of Management Technology (IMT), Ghaziabad |
| 24. | Mr. Bharath M | MS22A015 | Secured Second Position in the competition "Dear Digital Casemate" | Symbiosis Institute of Digital and Telecom Management (SIDTM), Pune |
| 25. | Ms. Divya A | MS22A026 | | |
| 26. | Mr. Guntur Dinesh | MS22A030 | | |
| 27. | Mr. Shiva Ganesan S | MS22A080 | | |
| 28. | Mr. Aravind V | MS22A009 | Secured First Position in the Competition "The Data Doyen" | IMT Ghaziabad |
| 29. | Ms. K V Shalini | MS22A077 | | |
| 30. | Mr. Sakthi Pandian TM | MS22A072 | | |
| 31. | Mr. Amit Kumar | MS22A004 | Second Position in the Competition "Just-Bid-IT-A Strategy and Bidding Competition" | IIM Shillong |
| 32. | Mr. Arkit Sukhadia | MS22A085 | | |
| 33. | Mr. Lav Kumar | MS22A044 | | |
| 34. | Mr. Harish S | MS22A085 | Secured First Position in the Competition "tHRive - The HR Competition" - Khlurthma 11.0 organized | IIM Shillong |
| 35. | Mr. Hari Baskar A | MS22A031 | | |
| 36. | Ms. Maitreyi Krishnamoorthy | MS22A048 | | |
| 37. | Mr. Sudharsan R | MS22A083 | Secured First Position in the Competition "TechTonic Shift: The Analytics Challenge" | SP Jain Institute of Management and Research (SPJIMR), Mumbai |
| 38. | Mr. Romal Jose | MS22A071 | | |
| 39. | Mr. Harsha | MS22A034 | | |
| 40. | Mr. Amit Kumar | MS22A004 | Secured Second Position in the Competition "Advertere: The Advertising Challenge" | SPJIMR |
| 41. | Mr. Lav Kumar Jha | MS22A044 | | |
| 42. | Mr. Meet Kumar Dagli | MS22A022 | | |
| 43. | Mr. Arkit Sukhadia | MS22A085 | Secured Second Position in the Competition "Silicon Valley: The Rent-A-Preneur Challenge" organised | Shaastra '23 - IIT Madras |
| 44. | Ms. Romal Jose | MS22A071 | | |
| 45. | Mr. Gokul S | MS22A028 | | |
| 46. | Mr. Sudharsan R | MS22A083 | Secured Second Position in the Competition Chanakya Yukti | IMT Ghaziabad |
| 47. | Mr. Jegannath U | MS21A027 | | |
| 48. | Mr. Samarth Johnson Prasad | MS21A056 | | |
| 49. | Mr. Sharath Ram S | MS21A053 | Campus Reporters | Business Standard |
| 50. | Ms. Wiselyn Ruth Jebakumari Mr. Harish Bania | MS22A090 MS21A022 | | |

4.11.2.6. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prizes | Name of Donor |
|--------|-----------------------------|----------|---|---------------|
| 1. | Sanjana Kumar | MS20A052 | K V Arunkumar Memorial Prize | IIT Madras |
| 2. | Tanya Gupta | MS20A061 | Coka Parthasarathy Prize | IIT Madras |
| 3. | Anshika Bharti | MS20W002 | Institute Merit Prize | IIT Madras |
| 4. | Kishore K | MS21V051 | Pgpex VIm Gold Medal For First Rank Holder | IIT Madras |
| 5. | Simi Hazra | MS21V029 | Pgpex VIm Gold Medal For Second Rank Holder | IIT Madras |
| 6. | Sumit Kumar Jha | MS21V031 | IIMC Alumni Association Calcutta Chapter Gold Medal For Third Rank Holder | IIT Madras |
| 7. | Kishore K | MS21V051 | Director's Merit List | IIT Madras |
| 8. | Simi Hazra | MS21V029 | Director's Merit List | IIT Madras |
| 9. | Sumit Kumar Jha | MS21V031 | Director's Merit List | IIT Madras |
| 10. | Adarsh Rai | MS21V001 | Director's Merit List | IIT Madras |
| 11. | Ashwin J Baliga | MS16D003 | Sri Kannan Prize | IIT Madras |
| 12. | Abraham Cyril Issac | MS16D027 | Sri R N Rajendran Memorial Prize | IIT Madras |

4.11.3. Faculty and Their Activities

4.11.3.1. Faculty

| S. No. | Name of the Faculty | Major Areas of Specialisation |
|-------------------|---|--|
| Professors | | |
| 1. | M Thenmozhi (Head of the Department) | Financial Management, Strategic Management, Computational Finance |
| 2. | Amit R K | Game Theory, Operations Research, Decision Theory, Natural Resources Management |
| 3. | Arun Kumar G | Mergers & Acquisitions, Corporate Valuation & Governance, Development Finance |
| 4. | Arshinder Kaur | Operations Research, Supply Chain Management, Total Quality Management, Services Operations Management |
| 5. | Kamalanabhan T J | Organisational Behaviour, Human Resource Management And Training And Development |
| 6. | Krishna Prasanna P | Corporate Governance, Fixed Income Securities, Financial Risk Management And Market Micro Structure |
| 7. | Madhumathi R | Financial Management And Accounting, Forex Research, Bank Management, Capital Market Studies |
| 8. | Prakash Sai L | Strategic Management, IT Outsourcing And IT Strategic Planning Business Models, Technology Management, Entrepreneurship |
| 9. | Rahul Ratnakar Marathe | Simulation, Industrial Engineering, TQM, Operations Research, Operations Management |
| 10. | Rajendran C | Operations Management, Production And Materials Management, Supply Chain Management, Scheduling |
| 11. | Saji Mathew | Management Information Systems, IT Strategy, Data Mining And Business Intelligence, IT Services And Outsourcing, Information Systems Development |
| 12. | Srinivasan G | Advanced Operations Research, Operations Management, Supply Chain Management, Manufacturing Systems Management, O. R. Applications, Services Operations Management |
| 13. | Sundarraaj R P | Information Systems, Supply Chain Management, E-Business, Computational Optimization, Decision Support System |
| 14. | Rupashree Baral | Strategic Human Resources Management, Work-Life Balance, Employee Engagement, Diversity And Inclusiveness, Career Exit And Re-Entry of Women |

| S. No. | Name of the Faculty | Major Areas of Specialisation |
|-------------------------------------|------------------------|--|
| 15. | Lata Dyaram | Leadership Development, Cognition In Organisations, Organisational Development, Industrial and Organisation Psychology |
| 16. | Thillai Rajan A | Venture Capital And Private, Equity Project and Infrastructure Finance, Public-Private Participation, Corporate Finance |
| 17. | Usha Mohan | Quantitative Models in Operations Management, Probability and Statistics, Combinatorial Optimisation |
| Associate Professors | | |
| 1. | Nandan Sudarsanam | Experimentation, Data Mining, Applied Statistics, Algorithmic and Heuristic Approaches to Problem Solving |
| 2. | Richa Agrawal | Customer Relationship Marketing, Consumer Behaviour And Insight Advantage |
| 3. | Varisha Rehman | Marketing Management And Research, Advertising and Publicity, Experiential Marketing |
| 4. | Vijayalakshmi V | Happiness And Performance, Mindfulness, Humor in the Workplace, Workplace Emotions, Creativity and Innovative Capability Of Firms, Indian Wisdom and Management, Innovative Teaching and Learning Practices, Integral Holistic Education, Women Empowerment through Entrepreneurship |
| Assistant Professors | | |
| 1. | Nargis Pervin | Social Network Mining, Recommender Systems, Mobile App Analytics |
| 2. | Pinosh Kumar Hajoary | Strategic Management, Management of Technology, Digital Transformation, Technology Policy |
| 3. | Vaibhav Chawla | Mindfulness And Sales Call Reluctance, Spirituality In Sales Organisations, Salesperson Performance |
| Ajit Singhvi Chair Professor | | |
| 1. | C. Bhaktavatsala Rao | Business Leadership and Corporate Governance, Corporate Strategy, Business Development and Global Alliances, Manufacturing, R&D and Marketing Operations, Mentoring and Coaching |
| Adjunct Faculty | | |
| 1. | Prof. Alexander Hübner | Design of Sustainable Supply Chains. Developing decision support tools for transportation, inventory management, capacity management and assortment planning with particular applications in retailing, consumer goods industries and health care systems. |

4.11.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|----------------------------------|---|-------------------|
| Conferences | | | |
| 1. | Vijayalakshmi V Nargis Pervin | IITM DoMS Research Symposium | July 27, 2022 |
| Seminars | | | |
| 1. | Richa Agrawal | Organised the R Natarajan Endowment Lecture on the Topic: Business Theory & Managerial Competence Speaker: Prof. Vishwanath Baba, Professor, McMaster University | August 18, 2022 |
| Workshops | | | |
| 1. | Richa Agrawal | Organised Experts Talk 1.0: Entrepreneurship Opportunities in Healthcare (under NIRMAAN) | August 6, 2022 |
| 2. | Richa Agrawal | Organised Experts Talk 2.0: Entrepreneurship Opportunities in Fintech (under NIRMAAN) | November 5, 2022 |
| 3. | Richa Agrawal | Organised Experts Talk 3.0: Entrepreneurship Opportunities in Sustainability (under NIRMAAN) | February 11, 2023 |
| 4. | Saji Mathew & Arshinder Kaur | An Interactive Training Session on AoL for all Teaching Assistants in DoMS | March 21, 2023 |

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|--------------------------------|--|-------------------------------|
| Short-term Courses | | | |
| 1. | T J Kamalanabhan & M Thenmozhi | Supervisory Development Programme For L&T, Chennai - 28 participants | May 25-31, 2022 |
| 2. | Nandan Sudarsanam | Data Science for Financial Surveillance | July 04-September 09, 2022 |
| 3. | Nandan Sudarsanam | Applied Data Science | July 04-August 31, 2022 |
| 4. | Thenmozhi | AI and Digital Marketing Technologies Boot camp | July 20-December 31, 2022 |
| 5. | L Prakash Sai G Arun Kumar | Management Development Programme for IRS Officers | July 6-8, 2022 |
| 6. | Nandan Sudarsanam | Data Science for Financial Surveillance for National Stock Exchange of India Ltd | July 4-September 30, 2022 |
| 7. | Arshinder Kaur | Lean Management & Value Stream Mapping for Daimler India Commercial Vehicles Pvt Ltd | October 8-11, 2022 |
| 8. | T J Kamalanabhan & M Thenmozhi | Supervisor Development Programme for L&T | October 10-15, 2022 |
| 9. | T J Kamalanabhan & M Thenmozhi | Bloom for L&T | October 17-22, 2022 |
| 10. | T J Kamalanabhan & M Thenmozhi | Project Leadership and Managerial Development Programme (PLMDP) for L&T | October 26 – November 4, 2022 |
| 11. | T J Kamalanabhan & M Thenmozhi | Project Leadership and Managerial Development Programme (PLMDP) | November 14- 23, 2022 |
| 12. | T J Kamalanabhan & M Thenmozhi | Building Leadership in Operational and Organisational Management (BLOOM) | January 04-10, 2023 |
| 13. | Rupashree Baral | Training Session for 40 Staff of IIT Madras on the topic “Understanding and Managing Behaviour at Workplace” | February 27, 2023 |
| 14. | A. Thillai Rajan | Business Management Programme for MSME leather cluster, Pallavaram | February 27 – March 03, 2023 |
| 15. | V. Vijayalakshmi | Re-energizing the classroom: Through the use of gamification and experiential activities in management education | March 03-17, 2023 |
| 16. | Rupashree Baral | Managing Human Resources and employee Engagement | March 02, 2023 |

4.11.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------------------|-----------------|--|--|---------------------|
| Conferences | | | | |
| 1. | Rupashree Baral | Influence of the Metaverse and Positive Psychology on Gamification: Evidence from the Practice. ‘Work-family conflict and work engagement among construction professionals: role of psychological contract breach and gender’ Impact of high-performance work practices on innovative work behaviour – the moderated-mediating role of leadership and organizational pride | Indian Academy of Management Conference (INDAM) 2023 at SBM-NMIMS Mumbai | January 06-08, 2023 |
| 2. | Rupashree Baral | Chaired a Conference Track on “Future of Work” | INDAM 2023 at SBM-NMIMS Mumbai | January 06-08, 2023 |

4.11.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|----------------------|---|--|-------------------|
| 1. | Pinosh Kumar Hajoary | Technology Management for Competitive Advantage | Defence Insitute of Quality Assurance, Ministry of Defence, Govt. of India | March 14, 2023 |
| 2. | Rupashree Baral | Work-Family Balance: Finding that Balance | GAC Horizon 2022 event organized by the HSBC Global Analytics Centers. | November 20, 2022 |
| 3. | M Thenmozhi | Chief Guest, International Conference on Innovation, Technology and Management (ITM): An Integrated Approach for Sustainable Future | Adithya School of Business Management, Coimbatore. | May 11, 2022 |
| 4. | M Thenmozhi | Webinar Programme on “Digital Marketing for Exports and their advantages in the current scenario” | exporters of CAPEXIL, Chennai | June 17, 2022 |
| 5. | M Thenmozhi | Inaugural Talk, Workshop on SPSS Applications in data Analysis | Amritha Vishwa Vidyapeetham, Kochi | May 23, 2022 |
| 6. | Rupashree Baral | Online talk on "Work_Family Balance: Finding that Balance" | GAC Horizon 2022 event organized by the HSBC Global Analytics Centres for around 300 employees of HSBC | November 29, 2022 |
| 7. | Richa Agrawal | 1. Understanding Target Customers 2. Value Proposition - Activity | L&T (CEP) | December 07, 2022 |
| 8. | Rupashree Baral | Interactive talk on "Leading with Impact" on December 8, 2022 for a Faculty Development Programme on "Developing Leadership and Team Management Skills" | Department of Humanities and Social Sciences at Indian Institute of Technology, Tirupati | December 08, 2022 |
| 9. | V Vijayalakshmi | Talk on “Learner Engagement” | Shrimathi Devkunvar Nanalal Bhatt (SDNB) Vaishnab College, Chennai | February 22, 2023 |
| 10. | V Vijayalakshmi | Talk on “Joy of Life & Work” | Employees of Transact | March 6, 2023 |
| 11. | Richa Agrawal | Creating Customer Value & 2 Design Thinking | Training Sessions for L&T | |
| 12. | Richa Agrawal | Understanding Target Customers Value Proposition - Activity | | December 7, 2022 |
| 13. | Richa Agrawal | Invited speaker for a session on Institutional Innovation Architecture of IIT Madras organized by Gopal Deshmukh Centre | IIT Madras | February 21, 2023 |

4.11.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|-----------------|-----------------|-------------------------|---|--------------|
| 1. | C Rajendran | USA | April 01 – May 19, 2022 | Private Visit | Self |
| 2. | C Rajendran | USA | May 20- 26, 2022 | IISC Annual Conference Expo 2022 at Hyatt Regency Seatile, Washington, USA | IIT Madras |
| 3. | Vaibhav Chawla | Germany | May 15 – June 10, 2022 | Visiting Professorship at the University of Passau, Germany. | IIT Madras |
| 4. | A Thillai Rajan | USA | June 01 – 14, 2022 | Joint Research work with the Faculty Collaborator at the Harvard Kennedy School, Harvard University, Massachusetts. | IIT Madras |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|------------------------------|-----------------|---------------------------------|--|--------------|
| 5. | Saji K Mathew | Germany | June 15 – 26, 2022 | To deliver a lecture and discuss joint research projects at University of Passau, Germany. | Self |
| 6. | A Thillai Rajan | Germany | July 03 – 29, 2022 | To offer the course “Financing Mega Projects” and to discuss joint research opportunities | Self |
| 7. | A Thillai Rajan | USA | August 3 – 10, 2022 | Personal visit | Self |
| 8. | Saji K Mathew | USA | August 10 – 19, 2022 | To present a paper at Americas Conference on Information Systems (AMCIS) | IIT Madras |
| 9. | Arun Kumar | Thailand | August 22- 26, 2022 | To visit Asian Institute of Technology as Adjunct Faculty in the School of Management. | Self |
| 10. | C Rajendran | USA | August 23 – October 17, 2022 | Personal visit | Self |
| 11. | G Arun Kumar | Thailand | September 18 – 23, 2022 | Visit to Asian Institute of Technology as Adjunct Faculty in the School of Management. | Self |
| 12. | Pinosh Kumar Hajoary | Austria | November 02 – 04, 2022 | Visit to present a paper titled "Industry 4.0 Maturity and Readiness- A case of a Steel Manufacturing Organization" in 4th International Conference on Industry 4.0 and Smart Manufacturing (ISM 2022) | IIT Madras |
| 13. | Saji K Mathew Arshinder Kaur | Thailand | November 14-18, 2022 | To attend Assurance of Learning Seminar and attend Asia Pacific Annual Conference of Association to Advance Collegiate Schools of Business (AACSB) | IIT Madras |
| 14. | C Rajendran | Germany | November 28 – December 20, 2022 | To deliver lectures on Logistics Management | IIT Madras |
| 15. | Lata Dyaram | Australia | December 6 – 7, 2022 | To present papers on “Employee Voice” | IIT Madras |
| 16. | Richa Agrawal | Germany | December 17 – 29, 2022 | To discuss about a joint research project “Dyadic Interaction between Humans and AI Virtual Assistants” | IIT Madras |
| 17. | C Rajendran | U.S.A | March 11 – August 15, 2023 | Sabbatical Leave - Book writing | Self |
| 18. | Arshinder Kaur | Australia | March 23 – April 12, 2023 | Personal Visit | Self |
| 19. | Richa Agrawal | Germany | December 2022 | For research discussions and collaborations | IIT Madras |

4.11.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|---------------|-----------------|---------------------------------------|---|--|------------------------------------|
| Awards | | | | | |
| 1. | Rupashree Baral | Best Conference Paper Award | The 6 th Biennial Conference of Work and Family Research Network (WFRN) | What Does it Take to be a Woman Entrepreneur? Examining the Line between Entrepreneurship and Work-life Balance | June 23 – 25, 2021 NYC, USA |
| 2. | Rupashree Baral | John Yanouzas Outstanding Paper Award | The 19 th BIENNIAL CONFERENCE of Eastern Academy of Management International (EAM-I) | Research paper titled “A Cross National Examination of Work-Family Interface During COVID-19” | June 07 – 11, 2022 Lyon, France |
| 3. | Rupashree Baral | John Yanouzas Outstanding Paper Award | The 19 th Biennial Conference of Eastern Academy of Management International (EAM-I) | Issued by Iona College LaPenta School of Business for the Research paper titled “A Cross Examination of Work-Family Interface During COVID-19” | June 07 – 11, 2022 Lyon, France |

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|--------|-----------------|------------------------------|--|---|------------------|
| 4. | C Rajendran | Achievement | IIT Madras | Listed in top 2 percent global scientists and No.1 among the 47. | |
| 5. | G Arunkumar | Best Teacher Award | IIT Madras | Excellence in Teaching for the year 2022 | |
| 6. | M Thenmozhi | Women Empowerment Award | Greater Chennai Corporation, Government of Tamilnadu | Exemplary Service in Education and Contribution towards Empowering Young Women | March 19, 2023 |
| 7. | Thillai Rajan A | Guru of the Week Recognition | IIT Madras Alumni Association (IITMAA) | Guru of the Week Recognition | July 22, 2022 |
| 8. | Thillai Rajan A | WBC 2022 Best Paper Award | World Building Congress, Melbourne, Australia | Public Private Partnerships: Past, Present and Future. For the paper: Effect of Transparency on Development Phase of Public-Private Partnership: Analysis of Highway Projects | June 27-30, 2022 |

4.11.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|-----------------|--------------------------|---|
| 1. | Arshinder Kaur | Associate Editor | OPSEARCH |
| 2. | Thillai Rajan A | Guest Editor | Journal of Indian Business Research |
| 3. | R. P Sundarraj | Associate Editor | Group Decision and Negotiation |
| 4. | R P Sundarraj | Editorial Board | IEEE Transactions on Engineering Management |
| 5. | R P Sundarraj | Associate Editor | IEEE Engineering Management Journal |
| 6. | R P Sundarraj | Editorial Board | Management Research Letters |

4.11.4. Design and Development Activities

4.11.4.1. Patents

4.11.4.1.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------|---|
| 1 | R P Sundarraj | Revision patent filed RE: System and Method for Time-preference-based Negotiation |

4.11.5. Research and Consultancy

4.3.5.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|------------------------------------|--|----------------------|-------------------|
| 1. | Determining Successful Delivery Methods for ICT in Educations, using Targeted Interventions, towards Improving Learning Outcomes | May 01, 2019 - 31 May, 2024 | Samagra Shiksha - Tamil Nadu | 46.40 | Nandan Sudarsanam |
| 2. | Research Round Table for iVEIN Report | March 01, 2021 – December 31, 2023 | Indian Institute of Management Bangalore | 2.00 | Thillai Rajan A |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---------------------------------------|--|----------------------|---------------------------------------|
| 3. | Decision Fusion Technique for a Multisensorial Context for Ensuring Applications in Fault Diagnostics and Decision Support System | February 02, 2022 – February 09, 2025 | Aeronautics Research & Development Board | 34.80 | Amit R K |
| 4. | What stops Indian Female athletes? Exploring a mechanism for their ramp up | November 30, 2022 – November 29, 2023 | National Commission for Women | 9.83 | Rupashree Baral |
| 5. | Creating Intellectual Heritage - Start-up India | November 14, 2022 – May 13, 2023 | Indian Institute of Management Bangalore | 5.00 | Thillai Rajan A |
| 6. | Centre for Research on Startups and Risk Financing (CREST) -IoE | February 2021-December 2026 | Ministry of Education | 85.5 | Thillai Rajan A Krishna Prasanna P |
| 7. | CAMS IITM Fintech Innovation Lab | December 17, 2022- March 31, 2025 | Computer Age Management Services Private Limited | 800.00 | Thenmozhi M |
| 8. | For conducting a programme for Educating, Mentoring and Handholding on Entrepreneurship for the spouses of GAIL | April 01, 2023 - December 31, 2023 | GAIL | 37 | Richa Agrarawal Thillai Rajan A |

4.11.5.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|---|----------------------|
| 1. | Nandan Sudarsanam | Consulting Services for Project Identification in Walmart | WM Global Technology Services India Private Limited | 4.00 |
| 2. | Nandan Sudarsanam | Machine Learning for IT System Upkeep - RC | GAVS Technologies Limited | 130.23 |
| 3. | Nandan Sudarsanam | Learning with Limited, Partial and Noisy Data | Robert Bosch Engg & Business Solutions | 10.00 |
| 4. | Nandan Sudarsanam | Advisory Support for Quantel AI | Quantel AI, Inc | 17.50 |
| 5. | Nandan Sudarsanam | Data Analytics Client Support | Silint Consulting Private Limited | 11.80 |

4.11.5.3. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-----------------|--|--------------------|----------------------|
| 1 | Richa Agrawal | Retainer Consultancy Guiding Marketing Efforts at IITM Research Park | IITM Research Park | 14.16 |

4.11.5.4. Exchange Programme With Other Universities Including Institutions/ Universities Under MoU

| S. No. | Name of the Scholar/ Student | Country Visited | Date | Purpose of Visit |
|--------|----------------------------------|-----------------|-------------------------------------|---|
| 1. | Mr. S.Vasanthraj, MS18D004 | Australia | May 11, 2022 – November 29, 2022 | Under Joint Degree Programme at Curtin University, Australia. |
| 2. | Ms. Krutheeka Baskaran, MS17D204 | Germany | June 08, 2022 – January 15, 2023 | Under Exchange programme at University of Passau, Germany. |
| 3. | TND Tulsi Dash Sharma, MS20S004 | Germany | April 07, 2022 – September 27, 2022 | Joint Master's Programme at the University of Passau. |

| S. No. | Name of the Scholar/ Student | Country Visited | Date | Purpose of Visit |
|--------|--|-----------------|-------------------------------------|--|
| 4. | Antony Johnson, MS21A006 | Austria | January - June 2023 | Management Center Innsbruck (MCI) |
| 5. | Saurabh K, MS21A059 | Austria | January - June 2023 | Management Center Innsbruck (MCI) |
| 6. | V H Haritha, MS20D014 | Australia | March 31, 2023 – May 31, 2024 | University of Technology, Sydney |
| 7. | Antony Johnson & Saurabh K, MBA Students | Austria | February – June, 2023 | Management Center Innsbruck (MCI) |
| 8. | Ms. Anusha Kumar MS18D200 | USA | August 18, 2022 – November 30, 2022 | Research Visit, Massachusetts Institute of Technology. |

4.11.5.5. Faculty Members' Participation With Other Institutions Under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/ Institution which has MoU |
|--------|-----------------|--|---|
| 1. | C Rajendran | Nominated to serve on the Task Force Committee constituted by Government of Karnataka to upgrade their Government Engineering Colleges for the year 2022-23. | Government of Karnataka |
| 2. | G Arun Kumar | Nominated as Independent Director on the Board of Services Export Promotion Council (SEPC) Limited (formerly Shriram EPC) for the period of 5 years June 24, 2022 – June 23, 2027 | SEPC (formerly Shriram EPC) Limited., Engineering the future. |
| 3. | Richa Agrawal | Board of Director | At Parley India, Three years from 01.03.23 |
| 4. | Thillai Rajan A | Visiting Professor, School of Business, Economics & Information Systems | Universität Passau, Passau, Germany, July 2022 |

4.11.6. Distinguished Visitors to the Department

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|----------------|---|
| 1. | Ms. V Kavitha Dutt Joint Managing Director, KCP Limited | March 28, 2022 | 39th Endowment Lecture of IIT Madras and the Employers' Federation of Southern India |
| 2. | Mr. Syed Musheer Ahmed Founder & Managing Director of FinStep Asia | April 21, 2022 | Invited talk on "Cryptocurrency: How it will impact Business, Investment and the Economy". |
| 3. | Prof. Kulwant Pawar University of Nottingham | April 29, 2022 | Invited talk on "Supply Chain Configuration Conundrum: A Comparative Study of Traditional vs Metal Additive Manufacturing". |
| 4. | Prof. Piyush Sharma Curtin University | May 10, 2022 | Talk on "My Research and Emerging Research Interest" |
| 5. | Shri. S Ramesh Shankar Chief Joy Officer, Hrishti, Bangalore. | May 20, 2022 | Talk on EMBA Guest Lecture "How to be a Professional" |
| 6. | Shri. R Karthik Head, Test Services, Prodapt | June 18, 2022 | Talk on EMBA Guest Lecture "How to make yourself relevant in Dynamic Technological Environment" |
| 7. | Prof. Vishal Gupta, University of Alabama | July 06, 2022 | Talk on "Writing for Good Academic Journals" |
| 8. | Dr. Murugappa Krishnan, Visiting Professor in Accounting, University of Washington | July 12, 2022 | Talk on "The Pricing Of Earnings In The Presence Of Informed Trades: A Simple GMM Approach" |
| 9. | Mr. Mithun Zachariah, Principal Products Manager (Advertising) at Zee, Ms. Shrinidhi S R, Product Manager and Wipro Ltd Mr. Ashwin Ramasamy, Co-Founder @ PipeCandy | July 12, 2022 | An Alumni Panel discussion on the theme "Returning with more Wisdom" |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|----------------------------------|---|
| 10. | Prof. Ranganathan Chandrasekaran, Professor and Director of Master of Science in Management information Systems (MSMIS) Graduate Studies. The University of Illinois at Chicago. | August 1, 2022 | Talk on "Harnessing Social Media Data for Management Research". |
| 11. | Mr. Nedumaran Balasundaram Global Human Resources Expert and a Digital Transformation Specialist. | August 04, 2022 | Talk on "Industry Engagement-Resume Building". |
| 12. | Prof. C N V Krishnan Professor & Department Chair, Banking and Finance and Faculty Director of the Master of Finance programme at the Weatherhead School of Management. | August 05, 2022 | Talk on "Market Misreaction" |
| 13. | Prof. Deva Rangarajan IESEG School of Management, Paris la Défense – France. | August 08, 2022 | Talk on "Examining the Promise of a New Marketing Function: The Role of Customer Success Management in Ensuring Consumer Health and Firm Performance" |
| 14. | Mr. Vivek Vyas Executive Director & Head of Employee Relations, Nomura & Ms. Sujata Swamy Vice President, Nomura | August 10, 2022 | Talk on "Nomura Case Study Competition Launch+ Pre Placement". |
| 15. | Shri. Venkatanarayanan, Shri Rajesh Raghavan, President, Corporate Services & Shri Prasad General Manager Corporate Planning. | August 16, 2022 | To explore the Industry Engagement and Collaboration Activities |
| 16. | Shri. Anand Venkataraman Quality Manager, Infosys | August 17, 2022 | Talk on "Pre-event Presentation for Infosys Ingenious and Pre-Placement" |
| 17. | Mr. Anand Venkatraman Quality Manager, Mr. Samrat Dutta & Ms. Nishanthi Balakumar, Associate Leads, Talent Acquisition. | August 17, 2022 | Talk on " Infosys Case Study Competition Launch + Pre Placement". |
| 18. | Prof. Viswanath Baba Professor of Management, DeGroote School of Business, McMaster University, Canada | August 18, 2022 | Talk on "Business Theory and Managerial Competence: Implications for Management Training". |
| 19. | Mr. Amit Shah Chief Marketing Officer, Zycus | August 25, 2022 | Talk on "B2B Marketing: What is happening out here while you're in there (Bschoo!!)" |
| 20. | Mr. N. Krishnakumar Head of Brand Marketing, IMocha | August 20, 2022 | Talk on " Story telling in Business" |
| 21. | Dr. Arun Prasad, Director & Chair, Center or Business Research & Consultancy | August, 2022 | Interaction with Faculty Members |
| 22. | Kaustav Mukherjee Assistant Vice President, Financial Solutions Practices, Jean Martin Aadhi Shivani Selvaraj Investment banking Analyst, JMI AI | September 08, 2022 | Careers In Investment Banking |
| 23. | Dr Medha Satish Kumar Alumna and post doc researcher at Beedie school of Business, Simon Fraser University, Vancouver | October 20, 2022 Online | Ph.D. and beyond |
| 24. | Mr. Mauritus Martinaitis, Managing Director, Purchasing & Logistics - South Asia, Inter IKEA Group | October 20, 2022 Online session | IKEA Supply Challenges & Opportunities in India |
| 25. | Ms. Anagha & Mr. Bhavesh, Principal Consultant, Dr. Reddy's laboratories | October 21, 2022 Online session | Pre-Placement Talk |
| 26. | Dr. Shilpa Madan Asst. Professor, Marketing, Pamplin College of Business, Virginia Tech | November 02, 2022 Online session | Designing a Career: From Industry to Business Academia |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|-------------------------------------|--|
| 27. | Prof. Jan K Brueckner Distinguished Professor of Economics, University of California, Irvine | November 08, 2022 | My Research Journey in the Airline Industry |
| 28. | Ms. Archana Stalin Founder – myHarvest Farms | November 09, 2022 Online session | Being an Entrepreneur |
| 29. | Mr. Kewyn George Director, Expeditors | November 10, 2022 Online session | Let it sink in: Leadership, Entrepreneurship, Technology |
| 30. | Dr. Anusuys Ghosh Principal OR Scientist, GoBolt | November 24, 2022 Online session | The Transformations of Operations Research & Machine Learning in the next period |
| 31. | Ms. Debajani Mohanty Practice Head - Ascendion | December 10, 2022 Online session | Blockchain and Web3 – Opportunities of Tomorrow |
| 32. | Mr. G Sundarraman, Executive Vice President, Corporate development, Godrej | December 02, ,2022 DoMS | Understanding Breakthrough Management in the Business Context |
| 33. | Mr. Ayappan, Director Digital Manufacturing | January, 2023 | Digital Manufacturing |
| 34. | Mr. Sankar Venugopal, Vice President, Mahindra and Mahindra | January, 2023 | EV Manufacturing |
| 35. | Mr. Nampuraja Enose, Industry 4.0 COE, Advanced Engineering Group, Infosys | January, 2023 | Industry 4.0 |
| 36. | Mr. Murali Sundaram, Emerging Technologies Practitioner | January, 2023 | Manufacturing Ladar |
| 37. | Mr. Chandrasekaran Vasudevan, 5G-Core, Ericsson | January, 2023 | 5G Tech |
| 38. | Ms. Dwiwesh Mehta, Director, Harvard Business School, Higher Education, South Asia & Middle East | January 13, 2023. | Delivered a lecture on Curriculum Designing, Hybrid Teaching Methods, Latest Trends and Tools for Experiential Learning Solutions |
| 39. | Ms. Nupoor Singh, Senior Editor, Springer | January 17, 2023. | Talk on Publishing Ethics |
| 40. | Prof. Sridhar Tayur, from Ford Distinguished Research Chair; University Professor of Operations Management, Carnegie Mellon University, | January 24, 2023 | Delivered a lecture to M.S. & Ph.D. scholars |
| 41. | Mr. Chirag Jain, Founder of GetMyParking and an Alumnus of DoMS | February 8, 2023 | Talk on topic "Maximizing the Insti Life & Startup 101: The Good, The Bad & The Ugly" |
| 42. | Mr. Dhruv Kalia, Lead, Omni Channel Operations at Croma | February 2, 2023 | The online lecture was conducted on online platform to the students of MBA about Omni- Channel. |
| 43. | Mr. Santhosh Muruganantham, Founder of Kolapasi chain of restaurants across Australia, | February 09, 2023 | Addressed the students at the first Insight out talk hosted by DoMS in collaboration with Business Standar |
| 44. | Prof. Piyush Sharma, Professor, Faculty of Business and Law, Curtin University | February 17, 2023 | Interaction with faculty and scholars of DOMS |
| 45. | Mr. Shubham Gupta, Tanya Tomar, naveet Kaur & Sanjana Kamar from the class of 2020, 20221 & 2022 respectively as the speakers. | February 18, 2023 | Virtual Summer Intership placement fundae session |
| 46. | Speaker: Asan Kumar, Supply Chain Analytics Manager, Google | February 18, 2023 | Alumni Talk on Recent Trends in Operations & Analytics |
| 47. | Professor Carolin Häussler, renowned Expert in the field of Innovation Management and Entrepreneurship, University of Passau, Germany | March 23, 2023. | Lecture on "Promoting Novelty Creation in Ventures: The Impact of Owner Empowerment," organized by CREST (Centre for Research on Startups and Risk Financing) |
| 48. | Prof. Nico Heuvinck (IESG School of Management) | March 28, 2023 | Lecture on "Tips to publish in top research journal through JCP (FT-50) Publication" |
| 49. | Ms. Ayushi Verma, Head, South India Business for Bloomberg LP and Mr. Chirag Dixit, Regional Business at Bloomberg | March 17, 2023. | Interactive session for MBA students |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|----------------|--|
| 50. | Prof. 'Seenu' Srinivasan from The Adams Distinguished Professor of Management, Emeritus, delivered a lecture about Research Journey and Conjoint Analysis. | March 23, 2023 | A general interaction with scholars on the Key to do good research, Taking up diverse opportunities, Not saying no can be beneficial, Importance of interfacing between different ideas, The relationship and importance of research, Teaching and consultation to each other, Conjoint Analysis |
| 51. | Mr. Harish Lakshman, Vice Chairman, Rane Group | March 24, 2023 | Lecture on the topic "Architecting the Future of Resilient Manufacturing" under the 40th edition of IITM-EFSI Endowment lecture |

4.11.7. Other Activities of the Department/Centre

4.11.7.1 Results Obtained in Research Work

| S. No. | Roll No. | Scholars | Guide | Title |
|--------|----------|------------------------|---|--|
| 1. | MS16D027 | Abraham Cyril Issac | Dr. Rupashree Baral Dr. Timothy Colin | Understanding knowledge hiding and establishing the effects of Power on knowledge sharing and hiding. |
| 2. | MS17D010 | V Ramachandran | Dr. Kamalanabhan Dr. Andreas Mueller | Socially responsible behaviour at work: The impact of goal directed action and leadership |
| 3. | MS16D013 | R Rofia | Dr. V Vijayalakshmi Dr. Piyush Sharma Dr. Subramaniam Dr. Anantharam | Nested sub-system model of technostressors: Impact of psychological need satisfaction, Technostress inhibitors, mindfulness and LMX quality on burnout and work engagement |
| 4. | MS13D212 | Kayalvizhi P N | Dr. M Thenmozhi | Impact of technology, digitalization and financial sector development on foreign direct investment |
| 5. | MS14D205 | V Venkatanagarajan | Dr. T J Kamalanabhan | A study on the relationship between followers' and leaders' psychological capital |
| 6. | MS16D204 | R Vasanthi | Dr. Lata Dyaram | Employment and employability of persons with disabilities: Individual and organizational accounts |
| 7. | MS14D001 | Kavitha Balaiyan | Dr. R K Amit | Dependent demand forecasting and optimization for airline pricing and revenue management |
| 8. | MS14D011 | Sriram Venkiteswaran | Dr. R P Sundarraj | Anger intensity in electronic negotiation |
| 9. | MS15D004 | Balaji P | Dr. Nandan Sudarsanam | Effect of design resolution and response type on sample size determination under an online experimental framework |
| 10. | MS15D012 | Silpa Sangeeth L R | Dr. Saji K Mathew | Information processing in electricity demand response systems |
| 11. | MS15D021 | S Navaneetha Krishnan | Dr. C Rajendran | Survival strategies for entrepreneurial ventures: The context of Indian innovative start-UPS |
| 12. | MS16D003 | Ashwin J Baliga | Dr. Vaibhav Chawla | Service failure and recovery in B2B markets |
| 13. | MS16D004 | Ashish Goel | Dr. Ganesh LS Dr. Arshinder Kaur | Integration of social sustainability considerations in the management of construction projects - A stakeholder approach |
| 14. | MS16D018 | Sweetey Hansuwa | Dr. Usha Mohan | Shelter location-allocation models incorporating location and network vulnerability |
| 15. | MS16D300 | Kandaswamy Paramasivan | Dr. Nandan Sudarsanam Dr. V Kamakoti | Counterfactual analyses of crimes and accidents during the two waves of covid-19 pandemic induced lockdowns - Learnings from Tamil Nadu |
| 16. | MS17D005 | Arti Omar | Dr. P Krishna Prasanna | Corporate default risk and its drivers in emerging Asia |
| 17. | MS17D007 | Gopinath K | Dr. Prakash Sai L | Technology evolution, brand positioning, and user intension: A Study of wearable devices |

| S. No. | Roll No. | Scholars | Guide | Title |
|--------|----------|--------------------------|--|--|
| 18. | MS16D026 | Siva Kameswari Vissa | Dr. M Thenmozhi | “Impact of home country macro determinants on domestic and cross – border mergers and acquisitions” |
| 19. | MS17D016 | M Ramya | Dr. Rupashree Baral | “Effect of employees sustainability-related moral conflict on sustainability actions: A Multi-method investigation” |
| 20. | MS16D007 | T S Hariharan | Dr. V Vijayalakshmi -Co-Guide Dr. Piyush Sharma - Guide Dr. Vidy Potdar - Co-Guide | “Management of Degraded Ecosystems: The case of invasive lantana camara in the Nilgiri biosphere reserve’s protected areas” |
| 21. | MS16D002 | Priyanks Suresh | Dr. Vaibhav Chawla | “Containing customers? Outpouring of emotions on social media: Service recovery in double deviation scenarios” |
| 22. | MS16D017 | Nibu John Thomas | Dr. Rupashree Baral | ‘Mechanism of Gamification: Conceptualizing gameful experience and examining the role of flow in gamified learning” |
| 23. | MS14D009 | V Sathyanarayanan | Dr. R P Sundarraj | “Health–Analytics adoption: The role of Institutional factors and design of readiness – Assessment” |
| 24. | MS15D025 | Karen Nisha | Dr. R Madhumathi | “Derivative impact on the macro prudential Indicators of banks and its Moderation role on bank risk exposure: Empirical evidence from India” |
| 25. | MS15D027 | Shilpi Saxena | Dr. Richa Agrawal | “Return Service quality in E- tailing: construct refinement, scale development and validation” |
| 26. | MS16D202 | J H Jyotsna | Dr Prakash Sai L | “Pilgrim – tourist experience at the sacred sites of hindusium: An empirical study” |
| 27. | MS16D001 | A Niroopa Rani | Dr. A Thillai Rajan | “what drives syndication in angel investments: resourse – pooling or risk – reduction?” |
| 28. | MS16S015 | Senthil Kumar S | Dr. V Vijayalakshmi | Impact of student inner development on engagement and well-being |
| 29. | MS17S200 | Veena Kannan | Dr. Saji K Mathew | Essays on digital platforms |
| 30. | MS18S008 | Anushee Jain | Dr. C Rajendran | Mathematical-model based exact and heuristic approaches for forecasting classification, and clustering |
| 31. | MS18S011 | Tejasvee Saxena | Dr. C Rajendran | Analytical-model and mathematical-model based approaches for inventory and logistics management in supply chains |
| 32. | MS19S009 | V V Ramachandran | Dr. G Srinivasan | Heuristics for multi-product multi-period orienteering problem |
| 33. | MS19S011 | Gnanadeepan | Dr. G Srinivasan | “Solving a variant of the output rate variation (ORV) problem in just-in-time level scheduling” |
| 34. | MS19S003 | Harshit Shekhar Jha | Dr. Usha Mohan | “Viable supply chains? Addressing the resilience and survivability issues faced by global supply chains during disruption” |
| 35. | MS17S015 | Abhishek | Dr. G Arun Kumar | CEO Compensation and Cronyism in Emerging Economies :Evidence from India |
| 36. | MS19S007 | Hrushikesh More | Dr. Richa Agrawal | Investigating the impact of curiosity, gamification and promotion on effectiveness of cart recovery emails ” Addressing the resilience and survivability issues faced by global supply chains during disruption” |
| 37. | MS19S015 | Davangave Balaji Manmoth | Dr. Nargis Pravin | Personalized context aware recommender systems |
| 38. | MS19S013 | Soofi Hussian S M M | Dr. Nargis Pravin | “Capitalizing Multi – Modality and Aspect –S entiments in Social Recommender Systems” |

4.11.7.2. Interdisciplinary Group Achievements of the Departments

| S. No. | Faculty Name | Inter Disciplinary Group Achievements |
|--------|--------------|--|
| 1 | M Thenmozhi | Started dual degree programme on Quantitative Finance in collaboration with Department of Computer Science and Mathematics |
| 2 | M Thenmozhi | CAMS IITM Fintech lab started in collaboration with Department of Computer Science |

4.11.7.3. Socially Relevant Activities Carried Out by the Department

| S. No. | Name of the Faculty Member | Socially Relevant Activities | Date & Venue |
|--------|----------------------------|---|-----------------------|
| 1. | Rupashree B | An interaction meeting with women entrepreneurs from tiny and small enterprises in Tamil Nadu was jointly organized by the Women Leading IIT M (WLI), Indian Institute of Technology, Madras and District Industries Centre, Mayiladuthurai at TANSTIA Hall, Guindy, Chennai. Around 40 women entrepreneurs attended the meeting and participated in the event. Dr. Rupashree Baral delivered the special address on “Creating a ripple effect through inspiring, nurturing, and empowering women.” | August 13, 2022 |
| 2. | Thillai Rajan | Hosting a weekly live programme “Start-up Junction” on Sundays, in Doordarshan Tamil (Podhigai) from 12 Noon to 1 PM. | Ongoing |
| 3. | M.Thenmozhi | Faculty Selection Committee, IIT Kanpur | May 3, 2022, virtual |
| 4. | M.Thenmozhi | DC Meeting , VIT, Vellore | May 20, 2022, virtual |
| 5. | M.Thenmozhi | Faculty Selection Committee, PSG Tech, Coimbatore | June 9, 2022 virtual |
| 6. | M. Thenmozhi | Participated in a live programme on Jaya TV on 9 th August 2022, and responded to queries on educational and professional opportunities related to academic programmes on business administration. | August 09, 2022 |
| 7. | Thillai Rajan | Hosting a weekly live programme “Start-up Junction” on Sundays, in Doordarshan Tamil (Podhigai) from 12 Noon to 1 PM. | |
| 8. | V.Vijayalakshmi | Ph.D. Viva Examiner at RV College of Engineering, Bangalore | February 21, 2023 |
| 9. | V.Vijayalakshmi | Talk on “Holistic Education” for over 500 Government and Corporation School Children | March 27-31, 2023 |
| 10. | Thillai Rajan A | Panel Speaker, “Makkal Medai”, “Funding for Start-ups: How? When? By Whom?” [ஸ்டார்ட் அப் நிறுவனங்களுக்கு நிதி ; எப்படி? எங்கே? யாரால்?] DD Podhigai, | April 19, 2023 |
| 11. | Thillai Rajan A | Panel Speaker, “Makkal Medai”, “இந்தியாவின் ஸ்டார்ட் அப் நிறுவனங்கள் - சாதனைகளும் சவால்களும்” DD Podhigai on the occasion of National Start-up Day | January 16, 2023 |
| 12. | Thillai Rajan A | Special Guest, “Makkal Medai”, “மத்திய அரசின் 8 ஆண்டு கால ஆட்சியின் தொடங்கி இந்நியாதிட்டம்” DD Podhigai, | June 13, 2022 |
| 13. | Thillai Rajan A | Capsule on Credit Score (கடன் மதிப்பெண்) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 13, 2022 |
| 14. | Thillai Rajan A | Capsule on Time Value of Money (பணத்தின் கால மதிப்பு) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 13, 2022 |
| 15. | Thillai Rajan A | Capsule on Venture Capital (துணிகர முதலீடு) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 11, 2022 |
| 16. | Thillai Rajan A | Capsule on EMI (சமமான மாதாந்திர தவணை) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 08, 2022 |
| 17. | Thillai Rajan A | Capsule on Angel Investors (தனி நபர் முதலீட்டாளர்கள்) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 06, 2022 |
| 18. | Thillai Rajan A | Capsule on Compound Interest (கூட்டு வட்டி) in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM, | April 04, 2022 |
| 19. | Thillai Rajan A | Capsule on Start-ups in “நாலும் அறிவோம்”, All India Radio Tamil Chennai AM | April 01, 2022 |

4.11.7.4. International Collaboration Achievements by the Department

| S. No. | Name of Institute | Date & Venue |
|--------|--|-----------------------|
| 1. | University of Dubai signs MoU with IIT Madras to facilitate the exchange of students and faculty, as well as research & knowledge sharing | May 11, 2022, Virtual |
| 2. | R K Amit co-organised a workshop titled “ Digital Manufacturing and Supply Chains Workshop” at Midingley Hall, University of Cambridge | March 14-15, 2023 |
| 3. | Collaborative research paper: 1. Mohan, A.; Krishnan, R.; Arshinder, K.; Vandore, J.; Ramanathan, U. Management of Postharvest Losses and Wastages in the Indian Tomato Supply Chain—A Temperature-Controlled Storage Perspective. Sustainability 2023,15,1331. https://doi.org/ 10.3390/su15021331 | |
| 4. | Completed SPARC Project--Advanced in Digital Manufacturing: R K Amit and R P Sundarraj | |

4.11.7.5. Books Published

| S. No. | Name of the Faculty Member | Book Title |
|--------|----------------------------|---|
| 1. | Amit R K, Sundarraj R P | Advances in digital manufacturing systems: Technologies, business models, and adoption, Springer Nature, Singapore |
| 2. | Thillai Rajan A | The Book: “Shifting Orbits: Decoding the Trajectory of the Indian Start-up Ecosystem” : Universities press, has been ranked at the Top of the List, India@75: 15 books on startups, innovation and creativity in India, https://yourstory.com/2022/08/india-75-independence-books-startups-innovation-impact/amp |
| 3 | C Bhaktavatsala Rao | STEM: Strategy. Technology. Enterprise. Management. Leadercrest Academy, Chennai, 2022 |

4.11.7.6. Book Chapters

| S. No. | Name of the Faculty Member | Book Chapters |
|--------|-------------------------------|--|
| 1 | Rupashree Baral Thomas N J | Gamification for synchronous and asynchronous learning. In P. Kumar & J.Eisenberg (Eds.), <i>Synchronous and Asynchronous Approaches to Teaching</i> . Essay, Palgrave Macmillan. (2023) |

4.11.7.7. Articles

| S. No. | Name of the Faculty Member | Article |
|--------|----------------------------|--|
| 1 | Thillai Rajan A | Bringing efficiency to the Indian start-up ecosystem: The case of YNOS Venture Engine, Hindustan Chamber Review, 59 (3),Page 9-10, January 2023 |
| 2 | Thillai Rajan A | Helping grassroots level women entrepreneurs succeed, in “Technology for Social Impact – Creating innovative technological solutions to meet the country’s challenges” p54-57, a publication of IIT Madras, 2022. |
| 3 | Thillai Rajan A | Start-ups still patently low on filing, The Hindu Business Line, May 12, 2022. https://www.thehindubusinessline.com/data-stories/start-ups-and-patents-the-landscape/article65404025.ece |

4.11.7.8. Professional Assignments

| S. No. | Faculty Name | Professional Assignments |
|--------|-----------------|---|
| 1. | M Thenmozhi | Scientific Committee Member, Research Symposium on Finance and Economics (RSFE) 2022, Institute of Financial Management and Research (IFMR) Business School, Krea University, Sricity |
| 2. | M Thenmozhi | Selection Committee for evaluation of Academic Performance Indicator, University of Madras Nominee, Sir Theagaraya College, Chennai |
| 3. | M Thenmozhi | Member, Board of Studies in Commerce, Faculty Of Arts, Humanities and Commerce Amritha Vishwa Vidyapeetham, Coimbatore |
| 4. | Arun Kumar G | Session Chair, Technical Session 6 (A): Portfolio Management-II, Research Symposium on Finance and Economics (RSFE) 2022, Krea University, Sricity |
| 5. | Rupashree Baral | Online talk on "Work_Family Balance: Finding that Balance" at GAC Horizon 2022 event organized by the HSBC Global Analytics Centres for around 300 employees of HSBC |
| 6. | M Thenmozhi | Scientific Committee Member, Research Symposium on Finance and Economics (RSFE) 2022, IFMR Business School, Krea University, Sricity |
| 7. | Thillai Rajan A | Speaker, Start-up and entrepreneurship research and academic activities at IIT Madras, University of Adelaide Delegation visit to IIT Madras, March 20, 2023 |
| 8. | Thillai Rajan A | Resource Person, Simulation and Gaming in Finance, Faculty Development Programme on "Re-Energizing the Classroom! Through the Use of Gamification and Experiential Activities in Management Education," IIT Madras, March 15, 2023 |
| 9. | Thillai Rajan A | Speaker, Start-up and entrepreneurship research and academic activities at IIT Madras, Curtin University – IIT Madras Summit, February 16, 2023 |
| 10. | Thillai Rajan A | Speaker, Panel discussion on "Evolving Role of Entrepreneurship Education and Academic Incubators," DSSE Entrepreneurship Symposium, IIT Bombay, January 31, 2023 |
| 11. | Thillai Rajan A | Online Lecture on "Entrepreneurial finance – Stages & sources of start-up financing" in the Foundations of Entrepreneurship Course, IIT Indore, October 26, 2022 |
| 12. | Thillai Rajan A | Speaker, Panel Discussion on Status and Prospects: Pushing Boundaries, SICCI National Blue Economy Conclave 2022, Chennai, September 23, 2022 |
| 13. | Thillai Rajan A | Speaker, Workshop on Government and Financial Support Schemes for Leather & Footwear Cluster, organized under Small Industries Development Bank of India (SIDBI) MSME Cluster Intervention Programme, Chennai, September 05, 2022 |
| 14. | Thillai Rajan A | Moderator, Panel Discussion on Investment Ecosystem: A Paradigm Shift, Startup TN, Tamil Nadu Start-ups and Incubators Meet, August 02, 2022. https://www.linkedin.com/posts/thestartuptn_founders-entrepreneurs-incubators-activity-6957543174596608002-reqL |
| 15. | Thillai Rajan A | Speaker, Panel discussion on "Building Capital for Sustainable Organization", Finance Conclave – FIN-BETA, Dwaraka Doss Goverdhan Doss Vaishnav College School of Management, Chennai, May 05, 2022 |
| 16. | Thillai Rajan A | Speaker, Entrepreneurship – A Tool for Sustainable Employment, International Conference on Realigning Business Practices for a Sustainable Future, Stella Maris College, Chennai, April 22, 2022 |
| 17. | Richa Agrawal | Invited speaker for a session on Institutional Innovation Architecture of IIT Madras organized by Gopal Deshmukh Centre Date: February 21, (Tuesday). |

4.11.7.9. Other Student-related Activities of the Department

| S. No. | Student Activities | Date & Venue |
|--------|--|---------------------------------------|
| 1. | Sangam Night, the Annual research scholars' cultural fest was conducted, Research scholars & professors along with their families participated with great enthusiasm in the event | September 16, 2022 |
| 2. | 'Chak de! DOMS', an exclusive cricket tournament was conducted for all students of the department. | August 27, 2022 |
| 3. | Sarva, an informal rendezvous where students of the various academic streams in DOMS could interact with each other (Final year MBA, Final year EMBA, VLM, TechMBA, and Research Students who have completed two year) and have a fun-filled time was conducted. | December 04, 2022 |
| 4. | VLM-Farewell: The farewell function for the 16 batch of the VLM students of DoMS was held at IITM Research Park | December 10, 2022 |
| 5. | The orientation programme for the 6th batch of EMBA was held at DoMS | December 11, 2022 |
| 6. | EMBA Cultural Fest- Embrace 2022 was held at DoMS | December 18, 2022 |
| 7. | The farewell function for the MBA class of 2021-2023 was held at DoMS | March 09, 2023 |
| 8. | Scholars Orientation Programme: Orientation programme for the newly joined Ph.D. scholars and M.S. scholars was conducted. | January 10, 2023 |
| 9. | Alumni Committee of DoMS organized the alumni reunion at Mumbai and Delhi | March 04 – 18, 2023 |
| 10. | The Sports and Cultural Committee of the DoMS organized the DoMS League, a sporting event featuring four sports, namely Football, Chess, Volleyball, and Throwball. | February 19, 2023 – March 01, 2023 |
| 11. | Student of DoMS celebrated Ugadi festival by organizing various cultural programmes and events in the Department | March 22, 2023 |

4.12

Department of Mathematics

4.12.1. Introduction

The Department of Mathematics was established in 1959 along with the Institute. It offers M.Sc. programme in Mathematics, M.Tech. programme in Industrial Mathematics and Scientific Computing (IMSC), and Ph.D. programme. In addition, the Department has taken the responsibility of teaching Mathematics courses to B.Tech., M.Tech. (other than IMSC), M.Sc. and Ph.D. students at the Institute.

Major Research Areas of the Department

1. Algebraic Combinatorics
2. Algebraic Geometry
3. Algebraic Topology
4. Applied Probability
5. Approximation Theory
6. Category Theory
7. Combinatorial Optimization
8. Combinatorics
9. Combinatorics of Words
10. Commutative Algebra
11. Complex Analysis
12. Conformal Geometry
13. Contact and Symplectic Topology
14. Convective Heat & Mass Transfer
15. Computational Fluid Dynamics
16. Computational Number Theory
17. Cryptology
18. Differential and Integral Equations
19. Differential Topology
20. Fixed Point Theory
21. Fluid Mechanics
22. Functional Analysis
23. Fractals
24. Game Theory
25. Graph Algorithms
26. Graph Theory
27. Harmonic Analysis
28. Inverse and Ill-Posed Problems
29. Linear Algebra
30. Low Dimensional Topology
31. Mathematical Modeling
32. Mathematical Study of Ferromagnetic Networks
33. Nonlinear Analysis
34. Nonlinear Analysis of Functional Differential Equations
35. Nonlinear Differential Equations
36. Number Theory
37. Operator Algebras
38. Operator Equations
39. Operator Theory
40. Optimization
41. Partial Differential Equations
42. PDE Numerics
43. Solid Mechanics
44. Special Functions
45. Systems and Control Theory
46. Theory of Codes
47. Theory of Computation
48. Theory of Wavelets
49. Time Frequency Analysis
50. Wave Structure Interactions

4.12.2. Academic Programmes

4.12.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|---------------------------------|
| 1. | MA5897 | Fast Matrix Algorithms |
| 2. | MA5018 | Stochastic Calculus for Finance |

4.12.2.2. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|-----------|-----------|-----------|-----------|-----------------|------------|
| B.Tech. | - | - | - | - | - | - |
| Dual Degree | - | - | - | - | - | - |
| M.A. | - | - | - | - | - | - |
| M.Sc. | 48 | 41 | - | - | - | 89 |
| M.Tech. | 22 | 24 | - | - | - | 46 |
| M.B.A. | - | - | - | - | - | - |
| M.S. | - | - | - | - | - | - |
| Ph.D. | 16 | 8 | 13 | 18 | 44 | 99 |
| Total | 86 | 73 | 13 | 18 | 44 | 234 |

4.12.2.3. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|---------------|-----------------------------|----------|---|---|---|
| Abroad | | | | | |
| 1. | Elancheeran R S | MA20D751 | Satellite Conference cum Workshop, The International Congress of Mathematicians (ICM) 2022 on Representations and Characters: Revisiting the Works of Harish-Chandra and André Weil | July 01-19, 2022. National University of Singapore | Prime Minister's Research Fellowship (PMRF) Contingency Grant |
| 2. | Sivashankar B | MA19D018 | Satellite Conference cum Workshop, ICM 2022 on Representations and Characters: Revisiting the Works of Harish-Chandra and André Weil | July 1-19, 2022. National University of Singapore | NBHM Contingency grant |
| 3. | Shubhangi Sikaria | MA16D203 | 36 th International Workshop on Statistical Modeling Manuscript titled, Option Pricing using Hawkes Process | July 18-22, 2022. University of Trieste, Italy | IIT Madras |
| 4. | V A Kandappan | MA16D300 | 24 th Conference of the International Linear Algebra Society Talk titled, 'A Domain Decomposition Based Preconditioner for Discretised Integral Equations in Two Dimensions' | June 20-24, 2022. Galway, Ireland | IIT Madras |
| 5. | Deyyala Satyaprasad | MA17D200 | 39 th International Association for Hydro-Environment Engineering and Research (IAHR) World Congress Talk Titled 'A Meshless Numerical Method for Solving 1D Shallow Water Equations' | June 19-24, 2022. Palacio de Congresos de Granada, Spain | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------------|-----------------------------|----------|--|--|---------------------------|
| 6. | Mrityunjy Ghosh | MA18D001 | Shape Optimization, Related Topics & Applications titled, Monotonicity of the First Dirichlet Eigenvalue of the p -Laplacian w.r. to Dihedral Symmetry | June 13-17, 2022. Roscoff, Biological Center, Bretagne, France | IIT Madras |
| 7. | Mohit Kumar | MA15D203 | Geometry of Deterministic and Random Fractals titled, Fractal Interpolation for Data Set with stable Noise | June 27-July 17, 2022. Budapest University of Technology and Economics, Hungary | IIT Madras |
| 8. | Vijay | MA15D205 | Geometry of Deterministic and Random Fractals titled, Rational Spline Zipper Alpha-fractal Functions' | June 27-July 1, 2022. Budapest University of Technology and Economics, Hungary | IIT Madras |
| 9. | Divya Murali | MA17D012 | 15th Viennese Conference on Optimal Control and Dynamic Games | July 12-15, 2022. Vienna University of Technology, Vienna, Austria | IIT Madras |
| 10. | Ayushi Singh Sengar | MA15D201 | International Conference on Mechanical, System and Control Engineer (ICMSC) 2022 Convolutd Fractional Poison Process of order k | June 17-18, 2022. [Attended virtually] IMRF Dubai Academic Chapter, Omega, Dubai | IIT Madras |
| 11. | Sagar Sawant | MA18D015 | Oral Presentation titled, On Distinguishing Digraphs by its Quasisymmetric B -polynomial Colloquium on Combinatorics | November 18-19, 2022. Paderborn University, Germany | IIT Madras |
| 12. | Koushik Brahma | MA18D002 | Conference on Toric Topology 2023 titled, Integral Cohomology Rings of Weighted Grassmann Orbifolds" | February 21-22, 2023. Osaka Metropolitan University, Japan | IIT Madras |
| 13. | Sudeep Podder | MA17D019 | Conference on Toric Topology 2023 titled, K – Theory of Real Grassmann Manifolds" | February 21-22, 2023. Osaka Metropolitan University, Japan | IIT Madras |
| India | | | | | |
| 1. | Souvik Mandal | MA22D014 | (The Ramanujan Mathematical Society) RMS 2022 conference | December 06-08, 2022 SSN College of Engineering, Chennai | Not availed |
| 2. | Jiya Rose Johnson | MA20D021 | 37 th Annual Conference of RMS | December 06-08, 2022 SSN College of Engineering, Chennai | Self |
| 3. | Subhajit Roy | MA19D009 | 37 th Annual Conference of RMS | December 06-08, 2022 SSN College of Engineering, Chennai | Self |
| 4. | Sagnik Biswas | MA20D013 | 37 th Annual Conference of RMS | December 06-08, 2022 SSN College of Engineering, Chennai | Self |
| 5. | Deblina Dey | MA20D750 | 37 th Annual Conference of RMS | December 06-08, 2022 SSN College of Engineering, Chennai | Not availed |
| 6. | Vinay Sipani | MA19D005 | 37 th Annual Conference of RMS titled, On the Classification of Planar Rips Complexes with Weak Pseudo Manifold Structure | December 06-08, 2022 SSN College of Engineering, Chennai | Not availed |
| 7. | Surajit Mandal | MA20D022 | 23 rd International Conference on Cryptology in India (Indocrypt 2022) | December 11-14, 2022. TCG Crest, BOSE Institute, Kolkata | Self |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|---------------------------------|
| 8. | Rahul Balu Girme | MA18D020 | 23 rd International Conference on Cryptology in India (Indocrypt 2022) | December 11-14, 2022. TCG Crest, BOSE Institute, Kolkata | IIT Madras |
| 9. | Chandan Dey | MA18D009 | 23 rd International Conference on Cryptology in India (Indocrypt 2022) | December 11-14, 2022. TCG Crest, BOSE Institute, Kolkata | IIT Madras |
| 10. | Soumya Sahoo | MA20D201 | 23 rd International Conference on Cryptology in India (Indocrypt 2022) | December 11-14, 2022. TCG Crest, BOSE Institute, Kolkata | Not Availed |
| 11. | Kamla Kant Mishra | MA16D037 | 37 th Annual Conference of RMS titled, Local and Global Existence of Mild Solutions for a Class of Non-autonomous Evolution Fractional Integrodifferential Equations | December 06-08, 2022 SSN College of Engineering, Chennai | IIT Madras |
| 12. | Sagar Sawant Sudhirkumar | MA18D015 | 37 th Annual Conference of RMS titled, On Distinguishing Digraphs by its Quasisymmetric B-polynomial" | December 06-08, 2022 SSN College of Engineering, Chennai | IIT Madras |
| 13. | Koushik Brahma | MA18D002 | 37 th Annual Conference of RMS titled, Integral Generalized Equivariant Cohomologies of Weighted Grassmann Orbifolds | December 06-08, 2022 SSN College of Engineering, Chennai | IIT Madras |
| 14. | Bidhan Paul | MA19D003 | 37 th Annual Conference of RMS titled, K – Theory of flag Bott Manifolds | December 06-08, 2022 SSN College of Engineering, Chennai | IIT Madras |
| 15. | Deyyala Satyaprasad | MA17D200 | 23 rd International Association for Hydro Environment Engineering and Research-Asia Pacific Division (IAHR-APD) Conference | December 14-17, 2022. Department of Ocean Engineering, IIT Madras | IIT Madras |
| 16. | Ganapathy K | MA19D203 | Conference on Commutative Algebra and Algebraic Geometry (CoCAAG 2023) | February 08-11, 2023. Department of Mathematics, IIT Hyderabad | Conference Fund |
| 17. | K Mohamed Harith | MA20D012 | Conference on Commutative Algebra and Algebraic Geometry (CoCAAG 2023) | February 08-11, 2023. Department of Mathematics, IIT Hyderabad | Conference Fund (Organizer) |
| | | | Poster Presentation on Algebraic Algorithms for Generalised Vertex Colorings of a Graph International School Computational Commutative Algebra (CoCoA 2023) | March 19-25, 2023. Hue University, Hue, Vietnam | Travel funded by the Organizers |
| 18. | Balaji Rohidas Kadam | MA19D205 | International Symposium on Applied Optimization and Game Theoretic Models for Decision-Making (ISOGTDM 2023) | February 01-03, 2023. Indian Statistical Institute, Delhi | Self |
| 19. | Krupa Maria Jose | MA22D005 | International Symposium on Applied Optimization and Game Theoretic Models for Decision Making (ISOGTDM 2023) | February 01-03, 2023. Indian Statistical Institute, Delhi | PMRF Contingency Fund |
| 20. | Pratiksha Shingavekar | MA17D004 | Oral Presentation on 3-Selmer groups, Ideal Class Groups and the Cube Sum Problem at Chennai-Tirupati Intercity Number Theory Conference | February 11-12, 2023. CMI Chennai | Not Applicable |
| | | | Special Values of L-functions | March 13-17, 2023. University of Paderborn, Germany | Provided by the conference |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/ Workshop | Date & Venue | Financial Assistance from |
|--------|-----------------------------|----------|--|---|---------------------------|
| 21. | Kamla Kant Mishra | MA16D037 | Oral Presentation on Controllability for a Class of Nonlinear Fractional Control System” in the International Conference on Fractional Differentiation and Its Applications (ICFDA 2023) | March 14-16, 2023. Ajman University, Ajman, UAE | IIT Madras |

4.12.2.4. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|--|---------------|
| 1. | Subhankar Nandi | MA14D204 | Institute Research Award for the year 2022-23 | IIT Madras |
| 2. | Shubham Mallik Thakur | MA20M022 | Prof Helmut Neunzert Endowment Prize | IIT Madras |
| 3. | Goreogaokar Neha Shailesh | MA20C026 | Mira Paul Memorial Prize | IIT Madras |
| 4. | Debabrata De | MA15D001 | Smt Lakshmikutty Amma and Shri A Krishnakutty Nair Prize (Joint Winners) | IIT Madras |
| | Vijayakumar R | MA16D031 | | |

4.12.3. Faculty and Their Activities

4.12.3.1. Faculty

| Name and Qualifications | Major Area of Specialisation |
|--|--|
| Professors | |
| Prof. V Vetrivel, Ph.D. (IIT Madras) | Non-smooth Optimization, Non-linear Analysis, Fixed Point Theory, Complementarity Problems |
| Prof. A K B Chand, Ph.D. (IIT Kanpur) | Fractals, Approximation Theory and Wavelets |
| Prof. Arindama Singh, Ph.D. (IIT Kanpur) | Logic, Numerical Analysis |
| Prof. S Ponnusamy, Ph.D. (IIT Kanpur) | Complex Analysis, Function Spaces, Special Functions and Conformal Geometry |
| Prof. R Radha, Ph.D. (IMSc Chennai) | Harmonic Analysis, Wavelets, Time-Frequency Analysis |
| Prof. R Rama, Ph.D. (Anna University) | Formal Language and Automata Theory/Molecular Computing |
| Prof. Y V S S Sanyasiraju, Ph.D. (IIT Madras) | Computational Fluid Dynamics |
| Prof. Satyajit Roy, Ph.D. (IISc Bangalore) | Convective Heat and Mass Transfer, Computational Fluid Dynamics |
| Prof. K C Sivakumar, Ph.D. (IIT Madras) | Functional Analysis, Mathematical Programming |
| Prof. Ch. Srinivasa Rao, Ph.D. (IISc Bangalore) | Non-linear Differential Equations |
| Prof. S R Manam, Ph.D. (IISc Bangalore) | Applied Mathematics |
| Prof. S Sundar, Ph.D. (IIT Madras) | Computational Fluid Dynamics, Numerical Analysis for Partial Differential Equations, Mathematical Modeling |
| Dr. A V Jayanthan, Ph.D. (IIT Bombay) | Commutative Algebra and Algebraic Combinatorics |
| Dr. A J Shaiju, Ph.D. (IISc, Bangalore) | Game Theory, Systems and Control Theory |
| Dr. Kalpana Mahalingam, Ph.D. (University of South Florida, Tampa) | Theory of Codes, DNA Computing, Combinatorics of Words |
| Dr. Shruti Dubey, Ph.D. (IIT Kanpur) | Nonlinear Analysis of Functional Differential Equations, Mathematical Study of Ferromagnetic Systems, Differential Equations and Neural Networks |
| Dr. Kunal Krishna Mukherjee, Ph.D. (Texas, A&M) | Operator Algebras |
| Dr. R Balaji, Ph.D. (IIT Madras) | Linear Algebra and Optimization |
| Dr Santanu Sarkar, Ph.D. (ISI, Kolkata) | Cryptology and Computational Number Theory |

| Name and Qualifications | Major Area of Specialisation |
|--|---|
| Associate Professors | |
| Dr Neelesh S Upadhye, Ph.D. (IIT Bombay) | Probability Theory and Applications |
| Dr Sounaka Mishra, Ph.D. (ISI, Kolkata) | Discrete Mathematics, Approximation Algorithm, Combinatorial Optimization |
| Dr. V Uma, Ph.D. (IMSc Chennai) | Topology and Geometry of Toric Varieties and Related Spaces |
| Dr. Arijit Dey, Ph.D. (IMSc Chennai) | Algebraic Geometry |
| Dr. N Narayanan, Ph.D. (IMSc, Chennai) | Graph Theory: Graph Colouring, Structural and Extremal Graph Theory Probabilistic Combinatorics, Discrete Mathematics |
| Dr. Priyanka Shukla, Ph.D. (JNCASR, Bangalore) | Fluid Mechanics: Hydrodynamic Instability, Nonlinear Dynamics, Numerical PDE, Granular Flows, Pattern Formation |
| Dr. T V Anoop, Ph.D. (IMSc Chennai) | Linear and Nonlinear Partial Differential Equations, Nonlinear Functional Analysis |
| Dr. Soumen Sarkar, Ph.D. (ISI, Kolkata) | Algebraic Topology, Geometric Topology, Differential Geometry, Convex Geometry, K-theory, Topological Complexity, Persistent Homology, Ring of Continuous Functions |
| Assistant Professors | |
| Dr. P Aprameyan, Ph.D. (Philipps University, Marburg, Germany) | Analysis on Symmetric Spaces, Representations of Real Lie Groups, Geometric Quantization |
| Dr. Dipramit Majumdar, Ph.D. (Brandeis University) | Algebraic Number Theory, p-adic Aspects of Modular Forms and Galois Representations |
| Dr. Ramesh Kasilingam, Ph.D. (IIT Bombay) | Differential and Algebraic Topology and their Interactions with Differential Geometry |
| Dr. Sarang S Sane, Ph.D. (TIFR, Bombay) | Commutative Algebra, Homological Algebra, Algebraic k-Theory, Algebraic Geometry |
| Dr Sivaraman Ambikasaran, Ph.D. (Stanford University) | Numerical Linear Algebra, Fast Algorithms, and Scientific Computing |
| Dr. Sriram Balasubramanian, Ph.D. (University of Florida) | Functional Analysis |
| Dr. Suhas Jaykumar Pandit, Ph.D. (ISI, Bangalore) | Geometric Group Theory and Low-dimensional Topology |
| Dr. Sumesh K, Ph.D. (ISI, Bangalore) | Operator Algebras, Operator Theory, and Mathematical Aspects of Quantum Information Theory |
| Dr. T E Venkata Balaji, Ph.D. (CMI, Chennai) | Algebraic Geometry and Commutative Algebra |
| Dr. Barun Sarkar, Ph.D. (University of Wuppertal, Germany) | Stochastic PDEs & Probability Theory |
| Dr. Surjit Kumar, Ph.D. (IIT Kanpur) | Operator Theory |
| Dr. G Arunkumar, Ph.D. (IMSc, Chennai) | Infinite – Dimensional Lie Algebras, Algebraic Combinatorics & Spectral Graph Theory |
| Dr. A Sathish Kumar., Ph.D. (IIT Roorkee) | Approximation Theory, Sampling Operators |
| Dr. Anuj Jakhar, Ph.D. (IISER Mohali) | Algebra And Number Theory |
| Visiting Faculty | |
| Dr. Saurav Samantaray, Ph.D. (IISER Thiruvananthapuram) | Numerical Analysis and Scientific Computation |
| Emeritus Faculty | |
| Prof. R Usha, Ph.D. (IIT Madras) | Fluid Dynamics |

4.12.3.2. Short-term Courses, Workshops, Seminars, Symposia, Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|---|--|------------------------------|
| Conferences | | | |
| 1. | Chairs: Prof. V Vetrivel Prof. S Sundar Organizing Secretary: Prof. K C Sivakumar Convener: Prof. S R Manam | International Conference on Recent Strategies in Mathematics and Statistics (ICRSMS 2022) organized by Department of Mathematics, Stella Maris College in collaboration with Department of Mathematics, IIT Madras | May 19-21, 2022 |
| 2. | Prof. R Radha (Coordinator- ICAIPA 2022) | International Conference on Analysis, Inverse Problems and Applications (ICAIPA 2022) Sponsored by Office of Global Engagement, IIT Madras & International Mathematical Union | July 18-21, 2022 |
| 3. | Dr. Arijit Dey | Vector Bundles In Chennai | February 6-11, 2023 |
| Seminars | | | |
| 4. | Dr. Soumen Sarkar Dr. Ramesh Kasilingam | Lakshmi Raman Memorial Lectures Topology Day 2022 | December 5, 2022 |
| Symposia | | | |
| 5. | Dr. T V Anoop, Dr. P Aprameyan and Dr. N Narayanan Inaugural address by Prof. V Kamakoti, Director | Mathematics In-house Symposium Sponsored by Office of International & Alumni Relations IIT Madras | July 29-30, 2022 |
| 6. | Dr. Ramesh Kasilingam & Dr. P Aprameyan | National Symposium on Mathematics and Applications [NSMA 2022] | December 22, 2022 |
| Workshops | | | |
| 7. | Dr. V Vetrivel | Industry Meets Math | January 18, 2023 |
| 8. | Dr. Barun Sarkar | POPULAR MATHEMATICS WORKSHOP Sponsored by Global Engagement, IITM & partially funded by NBHM | February 13-15, 2023 |
| Short-term Courses | | | |
| 9. | Dr. Neelesh S Upadhye | Data Visualization with R (online) | 21, 28 and 29th January 2023 |

4.12.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of the Faculty | Title | Institution | Period |
|------------------|---------------------|---|---|------------------------|
| Workshops | | | | |
| 1. | Dr. Satyajit Roy | Invited talk on Non-uniform Mass Transfer and Non-uniform Heating in Fluid Flow Problems in 3rd International Workshop on Numerical and Analytical Techniques in Engineering Problems | SRMIST, Chennai | January 31, 2023 |
| 2. | Dr. Shruti Dubey | Workshop on Emerging Areas in Differential Equations and Real-World Applications | Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT), Gandhinagar, Gujarat | May 30 – June 03, 2022 |
| 3. | Dr. Barun Sarkar | Workshop on Lectures on Probability Series - XV | IISc Bangalore | December 02-06, 2022 |

| S. No. | Name of the Faculty | Title | Institution | Period |
|--------------------|-------------------------|--|--|-----------------------|
| Seminar | | | | |
| 4. | Dr. V Uma | International Online Seminar on International Polyhedral Products Seminar 'K-theory of Springer Varieties' | Princeton University | November 17, 2022 |
| Symposia | | | | |
| 5. | Dr. Shruti Dubey | National Mathematics Day | Ramanujan Institute for Advanced Study in Mathematics, University of Madras | December 22, 2022 |
| | | National Symposium on Modern Mathematical Methods in Science Engineering | NIT Warangal | May 11, 2022 |
| Conferences | | | | |
| 6. | Dr. Arijit Dey | Conference on Algebraic Geometry | SRM University | July 19-23, 2022 |
| 7. | Dr. Barun Sarkar | International Conference on Dynamical Systems, Control and their Applications | IIT Roorkee | July 01-03, 2022 |
| 8. | Dr. S Ponnusamy | High-dimensional Approximation and Discretization | Sirius Mathematical Centre, Sochi, Russia | June 27-July 01, 2022 |
| | | International congress of Mathematicians 2022 on Complex Analysis and Related Topics | Kazan Federal University, Kazan, Russia | June 30-July 04, 2022 |
| | | Plenary Speaker (Offline) at the 9th International Conference on Mathematics and Computing (ICMC 2023) on On Bohr's phenomenon | Birla Institute of Technology Goa Campus, Goa | January 06-08, 2023 |
| | | Plenary speaker (Online) at the International Conference on Algebra, Analysis and Applications on On Landau-Bloch Theorems for Analytic Mappings | Manipal Institute of Technology MIT, Manipal Campus | January 06-08, 2023 |
| 9. | Dr. Shruti Dubey | International Conference on Dynamical Systems, Control and Their Applications | IIT Roorkee | July 01-03, 2022 |
| 10. | Dr. V Uma | RMS conference on K-theory of Springer Varieties | SSN college Chennai | December 06-08, 2022 |
| | | Annual Conference of Indian Women in Mathematics on K-theory of flag Bott manifolds | IISER Pune | December 27-29, 2022 |
| 11. | Dr. Y V S S Sanyasiraju | Third International Conference on Recent Trends in Applied and Computational Mathematics (ICRTACM 2022) | Department of Mathematics, School of Applied Sciences Reva University, Bangalore | October 10, 2022 |
| 12. | Dr. A K B Chand | Talk titled, Fractal Interpolation Functions for Noisy Data Sets in the International Conference on Mathematical Analysis and Applications | Institute of Mathematics and Applications Bhubaneswar | January 21-22, 2023 |
| | | Talk titled, Shape Preserving Aspects of Graph Directed Fractal Functions in the International Conference on Recent Trends in Applied Mathematics | ICRTAM 2023, Loyola College, Chennai | February 23-24, 2023 |
| 13. | Dr. A Sathish Kumar | Talk titled, Approximation of Functions by Kantorovich Exponential Sampling Series in 2nd International Conference on Mathematical Analysis and Computing (ICMAC) 2022 | SSN College of Engineering, Chennai | December 22-23, 2022 |

| S. No. | Name of the Faculty | Title | Institution | Period |
|--------------------------|-----------------------|---|---|----------------------|
| 14. | Dr. Dipramit Majumdar | Talk titled, Integers Expressible as Sum of Rational Cubes | SSN College of Engineering, Chennai | December 08, 2022 |
| 15. | Dr. Ramesh Kasilingam | Talk titled, Euler Characteristic and Data Analysis at the 4th International Conference on Mathematical Techniques and Applications | SRM Institute of Science and Technology, Kattankulathur | March 23-34, 2023 |
| | | Talk titled, Smooth Structures on PL-manifolds of Dimensions Between 8 and 10 at the Frontier Symposium in Mathematics 2023 | School of Mathematics, IISER Thiruvananthapuram Kerala | February 17-19, 2023 |
| Short-term Course | | | | |
| 16. | Dr. Sumesh K | Quantum Dynamical Semigroup (Online) | ISI Bangalore | July - November 2022 |

4.12.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of the Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------------|--|---|------------------------------|
| 1. | Dr. S Ponnusamy | Recent Developments Around Bohr's Inequality | Stella Maris College/IIT Madras | May 19, 2022 |
| | | Invited Talk on Recent Developments and Problems on Bohr type Inequality for the Plane Case | Sirius University, Sochi Russia | June 28, 2022 |
| | | Plenary talk on Length of Ray Images Under Conformal Mappings | Kazan Federal University, Kazan, Russia | June 30, 2022 |
| | | Landau-Bloch Theorems for Harmonic Mappings at Congressio-Mathematica: The VIII International Conference of Mathematics and Computer Science | Plenary Talk (Online) Olsztyn, Poland | September 19-25, 2022 |
| | | Advanced Training in Mathematical Analysis on Series of Lectures in Complex Analysis | Bharathidasan University, Trichy | October 31-November 11, 2022 |
| | | Expert Lecture at RPS Group of Institutions, 8th Milestone Balana, on Analytic Functions & Power Series Representation | Mahendergarh, Haryana | November 05, 2022 |
| 2. | Dr. Jayant Jha | Introduction to the State-of-the-art Advances in Bayesian Computation and Inference With Application to Neuroscience | Stella Maris College/IIT Madras | May 19, 2022 |
| 3. | Dr. Neelesh S Upadhye | Time-Changed Poisson Process of Order k | Stella Maris College/IIT Madras | May 19, 2022 |
| 4. | Dr. Narayanan N | Cycle Double Cover Conjecture | Stella Maris College/IIT Madras | May 20, 2022 |
| 5. | Dr. Shaiju A J | Evolutionary and Dynamic Stability of Population States | Stella Maris College/IIT Madras | May 20, 2022 |
| 6. | Prof. K C Sivakumar | Game Theory | Stella Maris College/IIT Madras | May 20, 2022 |
| 7. | Dr. Arijit Dey | An Introduction to Birational Geometry of Algebraic Varieties | Stella Maris College/IIT Madras | May 20, 2022 |

| S. No. | Name of the Faculty | Topic of Lecture | Institution | Date |
|--------|------------------------|---|---|----------------------|
| 8. | Dr. Venkata Balaji T E | Studying and Classifying Quadratic Forms | Stella Maris College/IIT Madras | May 20, 2022 |
| | | Dynamic Geometric Proofs Using Geogebra at Mathematics Club Meeting | Sri Sankara Sr. Sec School, Adyar | July 18, 2022 |
| | | Geogebra as a Tool to Visualise Geometric Proofs | IIT Madras STEM Summer Programme for rural 10th std students | June 22, .2022 |
| | | What is Complex Analysis and Why it Should be Learned? | Curry Leaf Days (Online) Workshop, Sponsored by MTTs | October 29, 2022 |
| | | 8 Invited Lectures and 3 Tutorial Sessions on Conformal Mappings, Schwarz-Christoffel Transformations, Riemann Mapping Theorem and Applications | TEW NCM Workshop on Complex Analysis and Geometry at MNIT Jaipur | December 15-17, 2022 |
| 9. | Dr. Soumen Sarkar | Invariant Meridians and Parallels for Polynomial Vector Fields on Product of Spheres | Stella Maris College/IIT Madras | May 20, 2022 |
| 10. | Dr. Ramesh Kasilingam | Topology Through Four Centuries : Manifolds | Stella Maris College/IIT Madras | May 20, 2022 |
| 11. | Dr. Uma V | Algebra | Stella Maris College/IIT Madras | May 21, 2022 |
| 12. | Dr. Shruti Dubey | Fractional Order Initial Value Problems With State Dependent Delay | NIT Warangal | May 11, 2022 |
| | | Fractional Derivatives and Their Importance in Present Scenario | Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT), Gandhinagar, Gujarat | May 30-June 03, 2022 |
| | | Existence of Solution for Abstract Fractional Semilinear Differential Equation with Delay | Department of Mathematics, Indian Institute of Technology Roorkee (IIT-Roorkee) | July 01-03, 2022 |
| | | Study of Abstract Cauchy Problem With State Dependent Delay | Ramanujan Institute for Advanced Study in Mathematics, University of Madras | December 22, 2022 |
| 13. | Dr. Barun Sarkar | Existence and Uniqueness of Solutions for Stochastic PDEs in the Space of Tempered Distributions | IIT Roorkee | July 01-03, 2022 |
| | | Weak Solutions of Stochastic PDEs in the Space of Tempered Distributions | MiHS 2022, IC & SR, IIT Madras | July 30, 2022 |
| 14. | Dr. Surjit Kumar | A Review of Spherical Tuple of Operators | MiHS 2022, IC & SR, IIT Madras | July 30, 2022 |
| | | An Invited Lecture on On Basic Calculus | VIT Vellore | November 18, 2022 |
| | | Invited talk titled Commuting Tuple of Multiplication Operators Homogeneous Under the Unitary Group at Conference on Operator Theory and Complex Geometry | IISER Kolkata | November 24-26, 2022 |
| | | Commuting Tuple of Multiplication Operators Homogeneous Under K- group | Ramanujan Mathematical Society (RMS) 2022 | December 06-08, 2022 |

| S. No. | Name of the Faculty | Topic of Lecture | Institution | Date |
|--------|-------------------------|---|---|----------------------|
| 15. | Dr. Sanyasiraju Y V S S | Numerical Computations Using Radial Basis Functions | MiHS 2022, IC & SR, IIT Madras | July 30, 2022 |
| | | Invited talk on Some Simple Computational Techniques for Solving Stefan Problems 3rd International Conference on Recent Trends in Applied and Computational Mathematics (ICRTACM 2022) | Reva University, Bangalore | October 10, 2022 |
| 16. | Dr. Dipramit Majumdar | Ribet's Conjecture for the Eisenstein Maximal Ideals | MiHS 2022, IC & SR, IIT Madras | July 29, 2022 |
| 17. | Dr. R Balaji | Resistance Matrices of Balanced Digraphs | MiHS 2022, IC & SR, IIT Madras | July 30, 2022 |
| 18. | Dr. Priyanka Shukla | Numerical Aspects of the Stability of Flows Through Multi-layer Porous Channels at A Three-Day Online Faculty Development Programme on Recent Trends in Computational Fluid Dynamics | VIT, Chennai | September 28, 2022 |
| 19. | Dr. G Arunkumar | Recent Developments on Stanley's Tree Conjecture | MiHS 2022, IC & SR, IIT Madras | July 29, 2022 |
| | | Talk titled, Euclid's Game Vigyan Pratibha Workshop for Tamil Medium School Teachers | IMSc., Chennai | August 11, 2022 |
| | | Latex Software and the Related Topics Vigyan Pratibha Workshop for English Medium School Teachers | IMSc., Chennai | August 17, 2022 |
| | | Latex Software and the Related Topics Workshop on Latex for Technical Writing | Shri Krishnaswamy College for Women, Chennai. | September 20, 2022 |
| 20. | Dr. Sounaka Mishra | Approximation Algorithm for Node Deletion Problems on Bipartite Graphs | Invited Talk: Colloquium IIT Delhi | September 25, 2022 |
| 21. | Dr. Santanu Sarkar | RSA Cryptosystem | Invited Talk, NIT Trichy | August 29, 2022 |
| 22. | Dr. K Sumesh | An Introduction to Separability and Entanglement Breaking Maps | Centre for Data Science, ITER, Siksha 'O' Anusandhan Bhaneswar | September 17, 2022 |
| 23. | Dr. Ramesh Kasilingam | Metric Spaces at the Second CMI-NASI Winter Training Programme in Mathematics | Ramanujan Institute for Advanced Study in Mathematics, University of Madras | December 07-17, 2022 |
| 24. | Dr. Arindama Singh | Defining Trigonometric Functions | BITS Goa | February 21, 2023 |
| 25. | Dr. A K B Chand | Member of Faculty Recruitment Interview (Technical) for Mathematics/Statistics | VIT-AP University | February 18, 2023 |
| 26. | Dr. V Vetrivel | Talk titled, Constrained and Unconstrained Optimization Techniques in Workshop on Mathematics for Machine Learning | Gayathri Vidhya Parishad, Vishakapatnam | March 14-17, 2023 |

4.12.3.5. Visits Abroad by Faculty

| S. No. | Name of the Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|---------------------|-------------------|--------------------------|--|--|
| 1. | Dr. V Vetrivel | Switzerland | May 23-27, 2022 | Seminar for Applied Maths at ET, Zurich | GE/Cumulative Professional Development Allowance (CPDA) |
| 2. | Dr. K C Sivakumar | Spain | May 30-June 30, 2022 | To Attend ASEM-DUO Exchange Program, Department of Mathematics, Universitat Politechnia de Catalunya, Barcelona, Spain | CPDA |
| | | Portugal | June 15-17, 2022 | To Attend International Conference on Matrix Analysis and Applications (ICMAA 2022) University of Aveiro, Portugal | CPDA |
| | | USA | January 01-June 30, 2023 | Research Interactions with Prof. Maribel Bueno Cachadina in Department of Mathematics, (Visiting Professor) at University of California, Santa Barbara (UCSB). | UCSB |
| 3. | Dr. Santanu Sarkar | Germany | May 25-June 20, 2022 | To Attend Meeting in Ruhr University, Bochum, Germany | CPDA |
| | | Norway | | To Present Paper at EUROCRYPT 2022, Trondheim, Norway | CPDA |
| 4. | Dr. Soumen Sarkar | Republic of Korea | July 06-10, 2022 | Research Collaboration at Korea Advanced Institute of Science & Technology (KAIST), Seoul Daejeon, Republic of Korea | NA |
| | | Republic of Korea | July 11-13, 2022 | Invited Talk in Workshop on Toric Topology at KAIST, Seoul Daejeon, Republic of Korea | CPDA |
| 5. | Dr. S Ponnusamy | Russia | June 15-August 16, 2022 | Research Collaboration at Petrozavodsk State University, Russia as the Director of the 'Center for Functions Theory Problem' | Travel by CPDA and Local Expenses by Petrozavodsk State University |
| 6. | Dr. Priyanka Shukla | Singapore | December 06-31, 2022 | Research Discussion at National University Singapore | Travel by CPDA |
| 7. | Dr. V Uma | Japan | February 21-24, 2023 | Participated in the International Conference Toric Topology 2023 and Delivered an Invited Talk on Equivariant K-theory of Springer Varieties at Osaka Metropolitan University, Osaka, Japan. | CPDA |

4.12.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of the Faculty | Name of Award | Awarded By | Awarded For | Date of Award |
|----------------|---------------------------|--|--|------------------------|-----------------|
| Honours | | | | | |
| 1. | Prof. S Sundar | Chair Professor | Institute | Research Contribution | April 01, 2022 |
| 2. | Prof. R Rama | Girija Vaidyanathan Chair Professor | Institute | Research Contribution | June 28, 2022 |
| 3. | Prof. S Ponnusamy | Leader of Geometric Function Theory Group at High Dimensional Approximation and Application Laboratory | Moscow Centre of Fundamental and Applied Mathematics | Research Contribution | August 26, 2022 |
| Awards | | | | | |
| 4. | Prof. Y V S S Sanyasiraju | Best Teacher Award 2022 | Institute | Excellence in teaching | August 31, 2022 |

4.12.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of the Faculty | Year of Admission |
|--------|--------------------------------|-------------------|
| 1. | Dr. Anuj Jakhar: Member, INYAS | 2023 |

4.12.3.8. Journal Editorial Boards

| S. No. | Name of the Faculty | Position (Editor/Member) | Journal Name |
|--------|---------------------|--------------------------|--|
| 1. | V Vetrivel | Editorial Member | The Journal of Indian Mathematical Society |

4.12.4. Research and Consultancy

4.12.4.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|--|-------------------------------------|---|----------------------|---|
| 1. | Development of Efficient Swarm Intelligence Based Optimization Algorithm using Fractional Calculus for Diagnosis of Muscle Disorders | October 10, 2022–October 11, 2025 | TARE, DST SERB | 10.05 | Dr. V Vetrivel (PI) |
| 2. | An Initiative to Create Changing Computational Environment in Free Surface Turbulent Flows: Mesh-free RBF (Radial Basis Function) Based Local Schemes IITM | One Year | RF/22-23/0543/MA/RFER/005020 | 10 | Dr. Y V S S Sanyasiraju (PI) Prof. R. Usha (Co-PI) |
| 3. | A Study on Weyl-Kac Character Formula of Borcherds-Kac-Moody Lie (Super) Algebras | Two Years | DST-SERB (Startup Research Grant) | 14 | Dr. G Arunkumar |
| 4. | Research Project titled Existence and Uniqueness of Fourth order SPDEs in the Space of Tempered Distributions | Two Years | DST-SERB DST-SRG grant 2022 | 15.06 | Dr. Barun Sarkar |
| 5. | Weakly Spherical Tuples and G-balanced Hilbert Spaces | November 02, 2016–November 02, 2022 | DST Inspire Faculty Project | 6.96 | Dr. Surjit Kumar |
| 6. | Subnormality and Complete Contractivity of K-homogenous Tuples of Operators | January 05, 2023–January 01, 2026 | DST-SERB MATRICS Grant | 6.6 | Dr. Surjit Kumar |
| 7. | Direct and Inverse Voronovskaya Results for the Sampling Operators | Two Years | SP/22-23/1304/MA/SERB/009017 | 4.4 | Dr. A Sathish Kumar |
| 8. | A Study of Polynomials Over Valued Fields | One Year | SERB SP/22-23/1213/MA/SERB/009034 | 6.8 | Dr. Anuj Jakhar |
| 9. | K-Theory of Hessenberg Varieties | Three Years | MATRICS Project from DST-SERB | 6 | Dr. V Uma |
| 10. | Frames & Shift Invariant Systems on Non-abelian Locally Compact Groups | Three Years Since March 29, 2023 | NBHM | 3.98 | Dr. R Radha (PI) Dr. K Sumesh (Co-PI) |
| 11. | Mathematical Study of Anomalous Diffusion Processes via Partial Differential Equations | 2020-2023 | Science and Engineering Research Board (SERB) | 6.6 | Dr. Shruti Dubey |

4.12.4.2. Retainer Consultancies (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-----------------------|---|--------------------|----------------------|
| 1. | Dr. Neelesh S Upadhye | Technical Guidance for Foundry Software | MPM Infosoft Ltd. | 8.76 |
| 2. | Dr. Neelesh S Upadhye | Algorithms for Market Analysis | Futures First Ltd. | 6 |
| 3. | Dr. Neelesh S Upadhye | Shape-based Search Algorithms | Sconce Pvt. Ltd. | 14.16 |

4.12.5. Distinguished Visitors to the Department

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|---|--------------------|--|
| 1 | Prof. Ozhan Genc, Jagiellonian University, Faculty of Mathematics and Computer Science, Poland | April 02-30, 2022 | Collaboration Work on the Topic Study of Vector Bundles and it's Moduli Spaces Over Algebraic Varieties under the IoE Project Algebraic Geometry |
| 2 | Dr. Padmanabhan Seshaiyer, Professor of Mathematical Sciences, George Mason University, USA | April 13, 2022 | Gave Talk on Mathematical Modeling, Analysis and Simulation of Multi-physics Applications in Biological, Bio-inspired and Engineering systems" |
| 3 | Prof. Somesh Kumar, Dept. of Mathematics, IIT Kharagpur | April 25, 2022 | Bootstrap Tests for One Way ANOVA under Heteroscedasticity and Unbalanced Data |
| 4 | Prof. Gadadhar Misra, J C Bose National Fellow at the Statistics and Mathematics Unit, ISI Bangalore & Visiting professor, Mathematics at IIT Gandhinagar | May 20, 2022 | Spherical Operators |
| 5 | Prof. Sunil K. Chebolu, Professor and Undergraduate Director, Department of Mathematics Illinois State University, USA | June 16, 2022 | Gave Talk An Overview of Fuchs' Problem |
| 6 | Prof. Hema Srinivasan, Department of Mathematics, University of Missouri, Columbia | June 20, 2022 | Gave Talk on How To Glue Two Semigroups In \mathbb{N}^n and The Consequences Of Such Gluing |
| 7 | Dr. Suprio Bhar, Department of Mathematics and Statistics, IIT Kanpur, UP | June 22-29, 2022 | Research Collaboration with Dr. Barun Sarkar |
| 8 | Andres Encinas Bachiller, Professor, Department of Mathematics, Polytechnic University of Catalunya, Barcelona, Spain. | July 14, 2022 | Gave Talk on Potential Theory on Finite Networks |
| | | July 01-30, 2022 | Professor KC Sivakumar was his host and his trip was sponsored by the ASEM-DUO exchange programme. |
| 9 | Mr. Vikram Venkatasubramanian, Alumnus (1996 M.Sc. Batch), Founder and CEO, Nandi Security, Inc. | August 16, 2022 | An Interaction Session with Students |
| 10 | Dr. Ayalvadi Ganesh, Associate Professor in Complexity Sciences School of Mathematics, University of Bristol, UK | September 07, 2022 | Gave Talk on Gossiping in Random Graphs |
| 11 | Prof. Abhijit Champanerkar, Department of Mathematics College of Staten Island and The Graduate Center The City University of New York, USA. | September 15, 2022 | Gave Talk on Graphs, Growth and Geometry |
| 12 | Dr. Jayanth Guhan, Department of Mathematics Emory University, Atlanta, Georgia, USA | September 22, 2022 | Gave Talk on Local-global Principle for Hermitian Spaces Over Semi-global Fields |
| 13 | Prof. Jean-Marc Laheurte, Electronics, communication systems and microsystems Vice President International, Gustave Eiffel University | September 19, 2022 | For Research Collaboration |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|---|---------------------------|--|
| 14 | Dr. Asrifa Sultana, Assistant Professor, IIT Bhilai | November 01, 2022 | Gave Talk on Certain Quasi-variational Inequalities and Nash games |
| 15 | Prof. Dr. Habil Árpád Baricz, Babeş-Bolyai University, Department of Economics, Cluj-Napoca, Romania and Óbuda University, Institute of Applied Mathematics, Budapest, Hungary | October 18, 2022 | Gave Talk on Introduction to Riemann-Hilbert Problems for Classical Orthogonal Polynomials |
| | | October 19, 2022 | Gave Talk on Applications of Riemann-Hilbert Problems for Orthogonal Polynomials |
| | | October 20, 2022 | Gave Talk on Analysis of the Kaiser-Bessel Distribution |
| 16 | Dr. V G Narasimha Kumar, Associate Professor, Dept. of Mathematics, IIT Hyderabad | December 09., 2022 | Gave Talk on The Structure Of Drinfeld Modular Forms of Level 10 $O(t)$ and Applications |
| 17 | Dr. Vladimir Bobkov, Department of Computational Mathematics, Institute of Mathematics UFRS RAS Ufa, Russia. | December 15, 2022 | Gave Talk on Improved Friedrichs Inequality for a Subhomogeneous Embedding |
| 18 | Prof. Johannes Tausch, Professor, Dedman College of Humanities & Sciences, Southern Methodist University, Dallas Texas | January 09, 2023 | Gave Talk on Fast Galerkin Methods for Parabolic Boundary Integral Equations |
| 19 | Dr. Reza Naserasr, Institut de Recherche en Informatique Fondamentale Université Paris Cité, Paris, France | January 09, 2023 | Gave Talk on Winding Number and Circular 4-Coloring of (signed) Graphs |
| 20 | Prasanna Ravi, Research Associate, PACE labs (Physical Analysis and Cryptographic Engineering), Nanyang Technical University Singapore | January 09, 2023 | Gave Talk on Practical Side-Channel Analysis and Fault-Injection Analysis of Post-Quantum Lattice-based Cryptography |
| 21 | Dr. Anna Gajgiczer, Budapest University of Technology and Economics, Hungary | January 16, 2023 | Gave Talk on The History of Hedetniemi's Conjecture |
| 22 | Prof. Rajesh Mahadevan, Universidad de Concepcion, CHILE | February 14, 2023 | Gave Talk on Rearrangement Techniques, Riesz's Inequality and Some Recent Applications |
| 23 | Dr. S Sivananthan, Associate Professor, Department of Mathematics, Indian Institute of Technology Delhi | February 22, 2023 | Gave Talk on Completeness of Discrete Translates of a Function |
| 24 | Prof. Ananthnarayan Hariharan, Department of Mathematics, IIT Bombay | February 28, 2023 | Gave Talk on The Multiplicity Conjecture and its Resolution" |
| 25 | Dr. Suprio Bhar, Department of Mathematics and Statistics, IIT Kanpur, UP | January 25-30, 2023 | Research Collaboration with Dr. Barun Sarkar |
| 26 | Prof. Reza Naserasr from IRIF, Paris, France and Dr. Anna Gajgiczer from Hungary (Visit was partially supported by Office of Global Engagement with a grant of 40K towards accommodation) | January 30-March 04, 2023 | Research Collaboration With Dr. Narayanan N Supported by Indo-French Project |
| 27 | Prof Somasundaram K, Amrita Viswavidyapeetham, Coimbatore. Prof Geetha J. Amrita Viswavidyapeetham, Coimbatore. | February 13, 2023 | Research Discussions with Dr. Narayanan N and Prof Reza. Gave a Talk at Workshop on Popular Mathematics |
| 28 | Prof Sagnik Sen, IIT Dharward | February 13-15, .2023 | Research Discussions with Dr. Narayanan N |
| 29 | Prof. Apoorva Khare, IISc Bangalore | February 13-14, .2023 | Gave Talk in Popular Mathematics Workshop on Polymath: Groups with Norms, Zariski Density and Determinants |
| | | February 15, 2023 | Research Seminar on Total Positivity and Polya Frequency Sequences |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|--|----------------------|--|
| 30 | Prof. Barbara Rudiger, University of Wuppertal | February 13-14, 2023 | Talk on Boltzmann's Theory of Thermodynamics and Statistical Physics in Popular Mathematics Workshop |
| | | February 15, 2023 | Research Seminar on 'The Construction and Identification of Boltzmann Processes' |
| 31 | Dr. Narayanan N, Dept. of Mathematics, IIT Madras | February 13-14, 2023 | Talk on 'Counting Clubs in Town, Jig-saw Puzzle with Graphs' in Popular Mathematics Workshop |
| 32 | Prof. Somasundaram K, Amrita Vishwa Vidyapeetham, Coimbatore | February 15, 2023 | Research Seminar on Graph Analytics for Large Scale Networks |

4.12.6. Other Activities of the Department/Centre

| Date | Activities |
|----------------------|--|
| February 25-26, 2023 | Forays 2023 Co-ordinators: Dr. Arunkumar G Dr. SathishKumar A |
| December 03, 2022 | Mr Jeetendra Singh Head - Data Science - WNS Global Services Pvt. Ltd. Bangalore (Alumnus of M.Tech., 2000) |
| May 17, 2022 | Educational Tour And Industrial Visit by Vivekananda College , Tiruvedakam, Madurai to Department of Mathematics, IIT Madras |

4.12.6.1. Faculty Visits

| S. No. | Name of Faculty Member | Purpose of Visit | Date & Venue |
|--|--|--|--|
| 1. | Dr. V Vetrivel | BoS Meetings | April 12, 2022, SDNB Vaishnav College, Chennai |
| | | | May 05, 2022, KPR Institute, Coimbatore |
| | | | June 14, 2022, Pes University, Bangalore |
| | | | June 18, 2022, Loyola College, Chennai |
| | | | June 20, 2022, Meenakshi College for Women |
| | | | July 05, 2022, Kumaraguru College of Technology |
| | | | October 22, 2022, Loyola College, Chennai |
| | | Vice-Chancellor Nominee of the Selection Committee for the Post of Principal | July 07, 2022, in Affiliated Colleges Under University of Madras |
| | | 4 th Expert Committee Meeting for MATRICS Closure Reports | June 08-09, 2022, IIT Madras |
| | | 4 th Expert Committee Meeting of DST SERB for SRG Proposal Evaluation | June 22-24, 2022, online |
| | | Special Invitee: 4 th PAC Meeting of DST-SERB for CRG Proposal Evaluation | July 14-15, 2022, Goa |
| Selection Committee Meeting | August 20, 2022, University of Madras | | |
| VC Nominee for Principal Selection | September 9, 2022, Ewart College for women, University of Madras | | |
| Inspection Committee | September 14, 2022, AM Jain College, Chennai | | |
| Selection Committee Meeting | September 23, 2022, IIT Bhilai | | |
| Fifth Expert Committee Meeting for the Selection of NPDP | October 13-15, 2022. University of Kashmir, J&K | | |

| S. No. | Name of Faculty Member | Purpose of Visit | Date & Venue |
|--|-------------------------|---|---|
| 1 | Dr. V Vetrivel | Selection Committee Meeting | November 03, 2022. IIT Bhilai |
| | | 45th Academic Council Meeting | November 19, 2022. Stella Marys College, Chennai |
| | | Faculty Selection Committee Meeting | February 03, 2023. IIT Tirupati |
| | | | DBRAIT, Port Blair, A & N Islands. February 03, 2023 |
| | | February 24, 2023. IITD&M Kancheepuram | |
| 2. | Dr. S. Pon-nusamy | Liouville's Theorem and Power Series Event: Professor R Balakrishnan Endowment Lecture | April 26, 2022. National College, Tiruchirapalli |
| | | Analytic Functions and Power Series Event: Outreach Program in Mathematics | April 20, 2022. Sri Vijay Vidyalaya College of Arts and Science, Dharmapuri |
| | | Problems on Analytic Functions and Uniqueness Theorem Event: One Week National Level Online Short Term Training Program (STTP) titled Emerging Applications of Mathematics and Statistics in Engineering Science and Technology (EAMSEST-2022) | May 09, 2022. NIT Rourkela |
| 3. | Dr. Venkata Balaji T E | From Numbers to Geometry – I : The Beginnings of Algebra and Number Theory From Numbers to Geometry – II : The Beginnings of Topology and Analysis | May 26-27, 2022. Science Enrichment Programme IIT Madras-Pravaha-Agastya |
| | | TEW NCM Workshop on Complex Analysis and Geometry | December 15-17, 2022. MNIT Jaipur |
| | | RSIC IITM-PSBB-Sastra Selection Interviews | PSBB Nungambakkam. February 19, 2023 PSBB KK Nagar. February 25, 2023 |
| 4. | Dr. Neelesh S Upadhye | Workshop on “Mathematics for Machine Learning” | Gayathri Vidhya Parishad, Vishakapatnam. March 14-17, 2023 |
| | | Decision Trees in Decision Making | May 13, 2022. Madras Christian College |
| | | Advanced Statistical Methods in Data Science | May 22, 2022. IIT Dharwad |
| 5. | Dr. Barun Sarkar | Research Visit | May 15-22, 2022. ISI Bangalore |
| | | | October 30–November 5, 2022. IIT Kanpur |
| | | | December 6-10, 2022. ISI Bangalore |
| 6. | Dr. Arindama Singh | As Resident Faculty Delivered Lectures on Linear Algebra at MTS | June 12-July 10, 2022. IISER Kolkata |
| | | Faculty Recruitment Meeting | August 26, 2022. SN University |
| 7. | Dr. Satyajit Roy | Invited Talks in Science Academies Workshops | October 28, 2022. JIT, Coimbatore |
| | | | November 10, 2022. Govt. Science College, Tirupattur |
| 8. | Dr. Y V S S Sanyasiraju | Expert Member BoS in Mathematics | September 17, 2022. SRM Institute of Science and Technology |
| | | Expert Member BoS in Applied Mathematics | August 17, 2022. Andhra University, Visakhapatnam |
| | | Expert Member, BoS in Mathematics | October 22, 2022. RGUKT, Idupulapaya |
| | | | October 15, 2022. Sairam Engineering College, Chennai |
| | | | October 14, 2022. CBIT, Prodduturu |
| | | Expert Member, Faculty Recruitment | October 06, 2022. PSG College of technology, Coimbatore |
| October 01, 2022. NIT Kurukshetra, Kurukshetra | | | |

| S. No. | Name of Faculty Member | Purpose of Visit | Date & Venue |
|--------|------------------------|--|---|
| 9. | Dr. A K B Chand | Talk on Fractals : A Modern Tool to Study Non-linearity | October 21, 2022. Veer Surendra Sai University Of Technology Burla, Odisha |
| | | Chairman of Expert Committee for UGC | November 18-19, 2022. NPR College of Engineering & Technology, TN |
| 10. | Dr. S R Manam | Industry Expert Lecture - Applications of Complex Analysis on Fluid Flow Problem | November 15, 2022. VIT Vellore |
| 11. | Dr. A Sathish Kumar | Expert Lecture - Approximation of Functions by Sampling Operators | November 18, 2022. VIT Vellore |
| 12. | Dr. Anuj Jakhar | General Body Meeting of INYAS | February 17-19, 2023. INSA, New Delhi |
| 13. | Dr. Satyajit Roy | Invited Talk on Science Academies' Lecture Workshop on Differential Equations and Their Applications In Mathematical Modelling | January 06-07, 2023. Jamal Mohamed College (Bharathidasan University) Tiruchirappalli |
| | | Invited talk online on Quasi-linearization Technique for Solving Fluid Flow Problems in FDP on Computational Fluid Dynamics: Modeling and Applications | February 27, 2023. VIT Vellore |
| 14. | Dr. Sounaka Mishra | Seminar Assessment Committee Member in Faculty Recruitment | February 24-25, 2023. IIITDM Kancheepuram |
| 15. | Dr. Surjit Kumar | Collaborative Research Visit to Prof. Gadadhar Misra | March 03-11, 2023. IIT Gandhinagar, Gujarat |
| 16. | Dr. A K B Chand | Expert for Academic Audit | December 08, 2022. NIT Rourkela |
| | | | March 17, 2023 |
| | | BoS Meeting | Bennet University. August 21, 2022 |

4.12.6.2. Student Visits

| S. No. | Name of Student | Purpose of Visit | Date & Venue |
|--------|---|--|--|
| 1. | Bidhan Paul MA19D003 | NCM Workshop-Intersection Theory | May 2-13, 2022 IIT Bombay |
| 2. | Raja Kundu MA20D005 | NCM Workshop on Intersection Theory at IIT Bombay | May 2-13, 2022 IIT Bombay |
| 3. | Shingavekar Pratiksha Satish MA17D004 | Collaborative Research Work with Co-guide: Dr. Somnath Jha, Department of Mathematics and Statistics. 'p-Selmer Groups, Ideal Class Groups and Cube Sum Problem' (with D. Majumdar and S. Jha) | April 1-June 10, 2022 IIT Kanpur |
| 4. | V A Kandappan MA16D300 | Copper Mountain Conference on Iterative Methods 'A Robust Preconditioner for Lippmann Schwinger Equation in Two Dimensions' | April 3-08, 2022. Online April 7, 2022. Online |
| 5. | K Mohamed Harith MA20D012 | Advanced Instructional School on Algebraic Combinatorics and Spectral Graph Theory | May 30-June 18, 2022 Mepco Schlenk Engineering College, Sivakaasi |
| 6. | V A Kandappan MA16D300 | SIAM Annual Meeting, AN2022, titled, A New Preconditioner for Covariance Kernels and Green's Function in 2D | July 11-15, 2022 Online |
| 7. | Deblina Dey MA20D750 | NCM Workshop on Maximal Cohen - Macaulay Modules | July 11-16, 2022 Chennai Mathematical Institute (CMI), Chennai |
| 8. | Ganapathy K MA19D203 | NCM Workshop on Maximal Cohen - Macaulay Modules | July 11-16, 2022 Chennai Mathematical Institute (CMI), Chennai |

| S. No. | Name of Student | Purpose of Visit | Date & Venue |
|--------|------------------------------------|--|--|
| 9. | Mohit Kumar MA15D203 | International Conference on Analysis, Inverse Problems and Applications (ICAIPA-2022) titled, Recurrent Fractal Functions for α -Stable Noisy Data | July 18-21, 2022 Department of Mathematics, IIT Madras |
| 10. | Vaishnavi Gujjula MA16D301 | SIAM Annual Meeting 2022, Pittsburgh, Pennsylvania, U.S. titled, HODLRnD - A New Class of Hierarchical Matrices for Elliptic Problems in Higher Dimensions | July 13, 2022 Online Mode |
| 11. | K Mohamed Harith MA20D012 | NCMW (National Centre for Mathematics) Workshop on Maximal Cohen - Macaulay Modules | July 11-16, 2022 Chennai Mathematical Institute (CMI), Chennai |
| 12. | Mrityunjoy Ghosh MA18D001 | Research Visit | June 18-26, 2022 Nancy France |
| 13. | Supriya Karmakar MA18D201 | 1 st International Conference in Fluid, Thermal and Energy Systems (ICFTES 2022) | June 9-11, 2022 NIT Calicut |
| 14. | Anand O R MA20D006 | Summer School Workshop on Mathematical Aspects of Quantum Mechanics | June 1-12, 2022 IISc Bangalore |
| 15. | Dr. Sujoy Chakraborty, IPDF | Topics in Algebraic Geometry and Commutative Algebra Talk Titled: Brauer Group of the Moduli Stack of Stable Parabolic $PGL(r)$ -bundles Over a Curve | July 18-23, 2022 SRM University Amaravathi, Andhra Pradesh |
| 16. | Himanshu Baranwal MA20D202 | Fractal Geometry and Related Fields (FGRF-2022 WORKSHOP) | IIIT Allahabad September 25–October 1, 2022 |
| 17. | Milton Mondal MA18D017 | Under Joint Degree Programme | Swinburne University of Technology, Australia August 10, 2022-August 9, 2023 |
| 18. | Samir Mondal MA19D750 | Under the International Immersion Experience (IIE) | Department of Mathematics and Statistics, Washington State University August 14–November 18, 2022 |
| 19. | Supriyo Jana MA21D002 | Ergodic Theory and Dynamical System | TIFR-ICTS, Bangalore December 5-16, 2022 |
| 20. | Rabeetha V MA19D021 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 5-9, 2022 |
| 21. | Sivashankar B MA19d018 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 5-9, 2022 |
| 22. | Ganesh Babu R MA22D011 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 5-9, 2022 |
| 23. | K Mohamed Harith MA20D012 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 5-9, 2022 |
| 24. | Jiya Rose Johnson MA20D021 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 19-31, 2022 |
| 25. | Chinmay Ajay Tamhankar MA19D017 | Academic and Research Collaboration (with Prof. Issan Patri) Visit to (SMU) Theoretical Statistical & Mathematics Unit | ISI Delhi, New Delhi November 21-December 3, 2022 |
| 26. | Sagar Sawant MA18D015 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 19-31, 2022 |
| 27. | Deblina Dey MA20D750 | Advance Training in Mathematics, Annual School Foundation – I | Mepco Schlenk Engineering College, Sivakasi December 19-31, 2022 |
| 28. | Biplab Pramanick MA19D200 | Winter School “DEEP LEARNING” | ISI Kolkata January 6-February 4, 2023 |
| 29. | Milan Kumar Mal MA21D018 | NCM Workshop On Operator Theory and Operator Algebra | IIT Gandhinagar March 6-11, 2023 |

4.13

Department of Mechanical Engineering

4.13.1. Introduction

Mechanical Engineering is one of the major activities in the engineering profession and its principles are involved in the design, study, development and construction of nearly all of the physical devices and systems. Continued research and development have led to better machines and processes helping the mankind.

The Department of Mechanical Engineering at IIT Madras is as old as the Institute itself. Its impact on the Institute and on society is easily demonstrated by noting the alignment of the Department's evolution with key events and technological advances in the India and elsewhere. Today, the Department of Mechanical Engineering of IIT Madras attracts and features an extraordinary rich diversity and quantity of talented individuals, with nearly 750 undergraduates, 600 graduate students and over 60 faculty members. The impressive array of students makes the department as the largest in the country and one of the largest in Asia.

In addition to teaching undergraduate and graduate students, the faculty of Mechanical Engineering actively pursues research through graduate students. The current graduate students include nearly 199 Dual Degree (DD), 209 Master of Technology students (M.Tech.), 156 Master of science (by research) students (M.S.) and 300 students pursuing their doctoral programme (Ph.D.)

4.13.2. Academic Programmes

4.13.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|---|
| 1 | ME5580 | Thermal Desalination Technologies |
| 2 | ID 4490 | B. Tech. Project (ME students doing project with faculty guide(s) outside the Department) |

4.13.2.2. Students on Roll as of September 2022 and M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|------------|------------|-------------|------------|-----------------|-------------|
| B.Tech. | 220 | 218 | 163 | 150 | 7 | 758 |
| Dual Degree | - | - | 44 | 41 | 95 | 180 |
| M.A. | - | | | | | - |
| M.Sc. | - | | | | | - |
| M.Tech. | 79 | 82 | 36 (online) | | 12 | 209 |
| M.B.A. | - | | | | | - |
| M.S. | 32 | 49 | 36 | | | 117 |
| Ph.D. | 38 | 39 | 35 | 55 | 133 | 300 |
| Total | 369 | 388 | 314 | 246 | 247 | 1564 |

4.13.2.3. Endowment Prizes Instituted

| | |
|--------------------------------------|---|
| Prof. Dr BVSSS Prasad Memorial Award | A Silver Medal and Cash Award of ₹10,000 to the Best M.S. / Ph.D. Research Thesis in the Areas of Thermo-fluid Sciences Related to Turbomachinery / Fluidized Bed / Nuclear Appliances in the Department of Mechanical Engineering. |
| Prof M Ramanujam Memorial Award | A Silver Medal and Cash Award of ₹5,000 to the Student Who Secured the Highest Marks in Mechanical Operations Course. |

4.13.2.4. Students/Scholars Who Attended Conferences, Seminars and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|---------------|------------------------------|----------|--|---|---------------------------|
| Abroad | | | | | |
| 1 | Tammiseti Hari Sai Chaitanya | ME20S056 | GAMM 2023 | May 29, 2023. TU Dresden | Department |
| 2 | Abhishek Dey | ME20S018 | 10 th International Conference of Fluid Flow, Heat and Mass Transfer (FFHMT 2023) | March 06, 2023. Carleton University, Ottawa , Canada | Department |
| 3 | Chitikena Chaitanya Kishore | ME20S026 | 10 th International Conference of Fluid Flow, Heat and Mass Transfer (FFHMT 2023) | June 06, 2023. Carleton University | Department |
| 4 | Thomas Jacob | ME21D002 | New Perspectives in Active Systems | April 23, 2023. Max Planck Institute for the Physics of Complex Systems | Department |
| 5 | Kalikiri Venkata Krishna | ME19D022 | Renewable Hydrogen Energy Convention | May 22, 2023. Zagreb, Croatia | Department |
| 6 | Ankush Parmanand Shrivastav | ME21S008 | 2 nd Renewable Hydrogen Energy Convention (RH2EC-2023) | May 22, 2023. Zagreb, Croatia | Department |
| 7 | Smruti Parimita | ME18D010 | Asia-Pacific International Conference on Additive Manufacturing | June 20, 2023. Sydney | Department |
| 8 | Neha Arora | ME21S012 | OCEANS Conference and Exposition 2023 | June 04, 2023. Limerick | Department |
| 9 | Smruti Parimita | ME18D010 | 14 th International Conference on Advancements in Polymeric Materials(APM-2023) | March 16, 2023. Advanced Polymer Design and Development Research L | Department |
| 10 | Aishwarya Kumar | ME20S011 | OCEANS 2023 Limerick | June 04, 2023. Limerick | Department |
| 11 | Sanikommu Narasimha Reddy | ME16D416 | 8 th Thermal and Fluids Engineering Conference (Hybrid) | March 25, 2023. University of Maryland, College Park, MD, USA | Department |
| 12 | Trilochan Prasad Nanda | ME17D003 | NAMRC 51 | June 11, 2023. Rutgers University | Department |
| 13 | Sharmila P | ME17D044 | 8 th Thermal and Fluids Engineering Conference (ASTFE) | March 25, 2023. University of Maryland, College Park, MD, USA | Department |
| 14 | Rahul Sankarankutty | ME20S008 | ASME 2023 Turbomachinery Technical Conference & Exposition | June 25, 2023. Hynes Convention Center | Department |
| 15 | Rahul Ranjan | ME18D001 | THERMEC'2023 | July 01, 2023. Vienna, Austria | Department |
| 16 | Natraj | ME18D301 | Asia Conference on Renewable Energy And Environmental Engineering (AREEE 2023) | February 23, 2023. Nanyang Technological University, Singapore | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-----------------------------|----------|---|---|---------------------------|
| 17 | Bhavsar Divyakumar Ashit | ME21D053 | Visit to Evionix Systems | February 23, 2023. Evionix Systems | Project |
| 18 | Lalit Yadneshwar Attarde | ME21S034 | 14 th Asia-Pacific Conference on Combustion (ASPACC 2023) | May 13, 2023. Kaohsiung Exhibition Center, Kaohsiung, Taiwan | Department |
| 19 | Md Adil | ME21D004 | ASPACC 2023 | May 11, 2023. kaohsiung | Department |
| 20 | Krunal Rajeshkumar Panchal | ME18D005 | 14 th Asia-Pacific Conference on Combustion (ASPACC 2023) | May 11, 2023. Kaohsiung Exhibition Center | Department |
| 21 | Abhinav Rajan | ME18D035 | 11. European Conference on Renewable Energy Systems | May 17, 2023. University of Latvia | Department |
| 22 | Eldho Paul | ME22D005 | Robot Hands-on Training | January 21, 2023. ABB Robotics Bangalore | Project |
| 23 | Jaggannagari Sujith Reddy | ME18D011 | Indo-European Conference on Advanced Manufacturing and Materials Processing | February 05, 2023. Carmel College of Engineering and Technology, Punn | Department |
| 24 | Jai | ME18D006 | International Immersion Experience Program | February 23, 2023. Seoul National University | Project |
| 25 | Pradeev Elango | ME20D009 | GT Technical Conference | January 22, 2023. Novotel | Project |
| 26 | Sachin Kumar | ME19D414 | International Symposium on Computer Methods in Biomechanics and Biomedical Engineering (CMBBE_2023). | May 02, 2023. 155 Boulevard de l'Hôpital 75013, Paris, France | Department |
| 27 | Akhil Reddy Peeketi | ME19D752 | Research Visit | January 24, 2023. TU Eindhoven | Project |
| 28 | Rahul R | ME17D037 | 11 th International Conference on Multiphase Flow 2023, Kobe, Japan | April 01, 2023. Kobe International Conference Center | Department |
| 29 | Sachinlal A V | ME20S003 | 16 th Asia Pacific Conference for Non-Destructive Testing 2023 (APCNDT 2023) | February 27, 2023. Melbourne Convention And Exhibition Centre | Department |
| 30 | Chaudhary Rajan Hareshbhai | ME21S016 | 16 th Asia Pacific Conference for Non-Destructive Testing | February 27, 2023. Melbourne | Department |
| 31 | Bhemani Nishi Rajesh | ME21D200 | APCNDT 2023 | February 27, 2023. Melbourne Convention and Exhibition Center | Department |
| 32 | Jahidul Haque Chaudhuri | ME20D403 | International Conference on Multiphase Flow(ICMF2023) | April 01, 2023. Kobe Convention Center 6-9-1, Minatojima-Nakamach | Project |
| 33 | Sudharsan P L | ME21S035 | APCNDT 2023 | February 27, 2023. Melbourne Convention and exhibition centre | Department |
| 34 | Vipparla Srikanth | ME16D035 | 23 rd International Conference on Advances in Materials and Processing Technologies - AMPT2022 | October 09, 2022. The Grand Hotel of Bernardin | Department |
| 35 | Billa Prasanna Kumar | ME19D027 | International Conference on Multiphase Flow | April 01, 2023. Kobe Convention Center, Kobe, Japan | Department |
| 36 | Nandhakumar P | ME17D038 | International Conference on Multiphase Flow | April 01, 2023. Kobe Convention Center 6-9-1, Minatojima-nakamach | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|---------------------------------|----------|--|--|---------------------------|
| 37 | Arshdeep Singh | ME19D053 | ICMF-2023 | April 01, 2023. Kobe International conference center | Department |
| 38 | Barathula Venkata Sreeram Sarma | ME19D039 | International Conference on Multiphase Flow | April 01, 2023. Kobe Convention Center, Kobe, Japan | Department |
| 39 | Vaibhav Somaji Anuse | ME18D004 | SPARC Project | December 04, 2022. Swineburne University of Technology | Project |
| 40 | Parth Mehta | ME20S300 | MAT-2022 | September 20, 2022. Paris, held virtually | Department |
| 41 | Sachin Kumar Jain | ME18D015 | The 26 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 202) | October 22, 2022. Virtual | Department |
| 42 | Gopa Kumar S | ME18D008 | 26 th Small Powertrains and Energy Systems Technology Conference | October 30, 2022. Arcrea | Department |
| 43 | Rajesh Ranjan Ravi | ME16D037 | 13 th Pacific Rim International Conference on Waterjet Technology (PRIC2022) | November 13, 2022. Nanyang Technological University (NTU), singapore | Department |
| 44 | Rajmane Swapnil Narayan | ME20D013 | Australasian Fluid Mechanics Conference 2022 | December 03, 2022. The University of Sydney NSW | Department |
| 45 | Abhishek Kumar | ME20D402 | Australasian Fluid Mechanics Conference 2022 | December 03, 2022. University of Sydney | Department |
| 46 | Rana Jay Girishbhai | ME20S030 | Australasian Fluid Mechanics Conference 2022 | December 03, 2022. The University of Sydney | Department |
| 47 | Kushal Prasad Choudhary | ME18D018 | Australasian Fluid Mechanics Conference 2022 | December 03, 2022. Australasian Fluid Mechanics Conference 2022 | Department |
| 48 | Kali Prasad | ME17D043 | International Deep Drawing Research Group | June 05, 2022. Université Bretagne Sud | Department |
| 49 | T N Deepu Kumar | ME18D041 | The 13 th Pacific Rim International Conference on Water Jet Technology (PRIC2022) | November 11, 2022. Nanyang Technological University (NTU) @one-north | Department |
| 50 | Amit Vijay Dodmani | ME17D200 | ASPEN 2022 | November 14, 2022. Singapore | Department |
| 51 | Trilochan Prasad Nanda | ME17D003 | Travel for Immediate Repair of Machine Part | August 19, 2022. Nana Chiloda | Project |
| 52 | Kali Prasad | ME17D043 | Academic Visit | August 31, 2022. Imperial College Lonon | Project |
| 53 | Lokesh Malik | ME19D754 | Acoustofluidics 2022 Conference | October 18, 2022. University of Glasgow | Project |
| 54 | Niladri Sekhar Satpathi | ME18D752 | Acoustofluidics 2022 Conference | October 18, 2022. University of Glasgow | Project |
| 55 | Sandaram Buchaiah | ME16D021 | The 10 th International Conference on Control, Mechatronics and Automation 2022 | November 08, 2022. University of Luxembourg | Department |
| 56 | Sazid Zamal Hoque | ME18D751 | Acoustofluidics 2022 | October 18, 2022. University of Glasgow | Project |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-----------------------------|----------|---|--|---------------------------|
| 57 | Rahul Srivastava | ME20D025 | Technical Writing Workshop | July 10, 2022. Hybrid mode | Department |
| 58 | Thilagan K | ME17D045 | EUROSUN 2022 ISES and IEA SHC International Conference on Solar Energy for Building and Industry | September 24, 2022. University of Kassel | Department |
| 59 | Vijayakumar S | ME19D029 | ISES and IEA SHC International Conference on Solar Energy for Buildings and Industry | September 24, 2022. University of Kassel | Department |
| 60 | Vikram Balaji | ME18D703 | MS 2022 | November 02, 2022. Faculdade de Engenharia da Universidade do Porto | Project |
| 61 | Thulsiram Gantala | ME18D040 | International Conference on NDE 4.0 | October 23, 2022. Berlin | Department |
| 62 | Tere Rajesh Babu | ME17D019 | 23 rd International Conference on Advances in Materials and Processing Technologies | October 09, 2022. Grand Hotel Bernardin | Department |
| 63 | Vikram Balaji | ME18D703 | AMPT 2022 | October 09, 2022. Grand Hotel Bernardin, Portoroz | Project |
| 64 | Jai | ME18D006 | 1 st International Conference on Mechanics of Solids (MS 2022) | November 02, 2022. Faculty of Engineering of the University of Porto | Department |
| 65 | Tere Rajesh Babu | ME17D019 | 23 rd International Conference on Advances in Materials and Processing Technologies - AMPT2022 | October 09, 2022. The Grand Hotel of Bernardin | Department |
| 66 | Vipparla Srikanth | ME16D035 | 23 rd International Conference on Advances in Materials and Processing Technologies - AMPT2022 | October 09, 2022. The Grand Hotel of Bernardin | Department |
| 67 | Thulsiram Gantala | ME18D040 | International Conference on NDE 4.0 | October 23, 2022. Dorint Kurfürstendamm Berlin Augsburg Str. 411 | Department |
| 68 | Policherla Venkata Sai | ME17D408 | SET-2022 Conference | August 15, 2022. Halic University | Department |
| 69 | Sachin Kumar Jain | ME18D015 | 17 th IACIS International Conference 2022 | June 25, 2022. Virtual | Department |
| 70 | Pradeev Elango | ME20D009 | IGSTC Partners Meet | June 13, 2022. Scandic Hotel | Project |
| 71 | Policherla Venkata Sai | ME17D408 | SET 2022 Conference | August 13, 2022. Halic University | Department |
| 72 | Sandaram Buchaiah | ME16D021 | International Conference on Control, Robotics Engineering Technology (CRET 2022) | August 17, 2022, Pullman Paris Centre - Bercy, Paris | Department |
| 73 | Umair Hussain | ME19D704 | Society of Engineering Science Annual Technical Meeting | October 15, 2022. Texas A&M University | Project |
| 74 | Muthaiah M | ME16D415 | The 51 st International Congress and Exposition on Noise Control Engineering | October 20, 2022. Scottish Event Campus (SEC) | Department |
| 75 | Unnikrishnan Nampoothiry V | ME20S017 | GACM Colloquium 2022 | August 20, 2022. Essen, Germany | Department |
| 76 | Vinothkumar | ME15D048 | SME North American Manufacturing Research Conference (NAMRC) | June 26, 2022. Purdue University | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-------------------------------|----------|--|---|---------------------------|
| 77 | Pradeep V | ME21S068 | 16 th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics and Editorial Board | August 06, 2022. Anantara Amsterdam Grand Hotel Krasnapolsky, Amste | Department |
| 78 | Parth Mehta | ME20S300 | 3 rd Edition of Internantional Conference on Materials Science and Engineering | September 20, 2022. Hotel Campanile Roissy, Alle Des Vergers 95700 Roi | Department |
| 79 | Chayan Ranjan Das | ME17D001 | Twelfth International Conference on Fundamentals and Industrial Applications of HIPIMS 2022 | June 12, 2022. Cutlers' Hall, Church Street, Sheffield, S1 1HG, U | Department |
| 80 | Chaitanya S K | ME16D206 | INTER NOISE 2022 | August 20, 2022. Glasgow | Department |
| 81 | Sachin Kumar | ME19D414 | WMVC 2022 – 10 th International Conference on Wave Mechanics and Vibrations | July 01, 2022. Lisbon | Department |
| 82 | Kamal Kishor | ME19S073 | META 2022 | July 18, 2022. Palacio de Congresos y Exposiciones de la Costa de | Department |
| 83 | Ranjith Kumar I | ME19D016 | International Conference on Strength of Materials | June 25, 2022. Metz congres Robert Schuman | Department |
| 84 | Karthik | ME19D026 | INTER NOISE 2022 | August 20, 2022. Glasgow | Department |
| 85 | Alapati Jaswanth Kalyan Kumar | ME17D413 | INTER NOISE 2022 | August 20, 2022. Glasgow | Department |
| 86 | Chaitanya S K | ME16D206 | INTER NOISE 2022 | August 20, 2022. Glasgow | Department |
| 87 | Sahil Bharti | ME17D017 | IDDRG 22 | June 05, 2022. Lorient | Department |
| 88 | Chayan Ranjan Das | ME17D001 | Twelfth International Conference on Fundamentals and Industrial Applications of HIPIMS 2022 | June 12, 2022. Cutlers' Hall, Church Street, Sheffield, S1 1HG, U | Department |
| 89 | Chayan Ranjan Das | ME17D001 | Twelfth International Conference on Fundamentals and Industrial Applications of HIPIMS 2022 | May 12, 2022. Cutlers' Hall, Church Street, Sheffield, S1 1HG, U | Department |
| 90 | Tibin M Thomas | ME17D042 | 14 th European Fluid Mechanics Conference-EFMC14 | September 12, 2022. Megaron, Athens International Conference Centre | Department |
| 91 | Sahil Bharti | ME17D017 | IDDRG 22 | Juned 04, 2022. Loreint | Department |
| 92 | Ranjith Kumar I | ME19D016 | International Conference on Strength of Materials | June 22, 2022. Metz Congres Robert Schuman | Department |
| 93 | Jai | ME18D006 | NUMISHEET 2022: The 12 th International Conference on Numerical Simulation of 3D Sheet Metal Forming | July 09, 2022. Sheraton Centre Toronto Hotel | Department |
| 94 | Anmol Garg | ME17D012 | ASME Turbo Expo 2022 | June 12, 2022. Rotterdam Ahoy Convention Centre, Rotterdam | Department |
| 95 | Amal | ME18S037 | European Nonlinear Oscillations Conference (ENOC) | July 16, 2022. Cité Internationale Centre de Congrès | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------------|-----------------------------|----------|---|---|---------------------------|
| 96 | Kali Prasad | ME17D043 | International Deep Drawing Research Group (IDDRG) 2022 | June 05, 2022. Université Bretagne Sud, Lorient | Department |
| India | | | | | |
| 1 | Sharmila P | ME17D044 | 8 th Thermal and Fluids Engineering Conference | March 25, 2023. IIT Madras | Department |
| 2 | Velugula Ravi | ME19D407 | Project Visit-2 | March 21, 2023. Project Visit-2 | Project |
| 3 | Deepak Kumar Patel | ME21D021 | International workshop on Electrochemical Techniques for Next Generation Batteries | March 28, 2023. SRM University | Project |
| 4 | Sachin Dubey | ME21S069 | Workshop | March 08, 2023. IISc Bangalore | Project |
| 5 | Jaggannagari Sujith Reddy | ME18D011 | International Conference on Powder Metallurgy & Particulate Materials & Exhibition 2023 | March 12, 2023. Hotel The Lalit, Sahar Airport Road, Andheri (East) | Department |
| 6 | Shakti Swaroop Choudhury | ME19D753 | PM23 | March 12, 2023. Mumbai | Project |
| 7 | Smruti Parimita | ME18D010 | India-Norway Joint Workshop on Additive Manufacturing (3D printing) of Bioimplants - Academic & Ind | March 09, 2023. Indian Institute of Technology Madras | Department |
| 8 | Thulsiram Gantala | ME18D040 | Prime Minister Fellowship for Doctorial Research | February 14, 2023. IIT Delhi | Project |
| 9 | Guruchethan A M | ME17D040 | Natural Refrigerants: Applications and Policies | March 09, 2023. IISc Bangalore | Department |
| 10 | Aravind N | ME17D600 | Protecap Meeting + Encore Physiotherapy Setup | January 22, 2023. Mmmbai | Project |
| 11 | Supratim Saha | ME20D750 | Academic Visit | January 16, 2023. Kolkata | Department |
| 12 | Harikrishna R B | ME18D302 | 1 st International Conference On Green Hydrogen For Global Decarbonization | March 22, 2023. Pandit Deendayal Energy University Gandhinagar, Gu | Department |
| 13 | Sharmila P | ME17D044 | 8 th Thermal and Fluids Engineering Conference(TFEC) | March 25, 2023. IIT Madras(VIRTUAL) | Department |
| 14 | Kshitija Shivaji Mirkale | ME19D705 | IEEE APSCON 2023 | January 22, 2023. Conrad, Banglore | Project |
| 15 | Raviteja Miriyala | ME18D029 | CompFlu 2022 | December 18, 2022. IIT Kharagpur Research Parak | Department |
| 16 | Niraj Kumar | ME18D033 | ILASS-ASIA 2022: 22nd Annual Conference on Liquid Atomization and Spray Systems - Asia | October 27, 2022. IIT Indore | Department |
| 17 | P Jeyalakshmi | ME19D075 | 11 th International Conference on Industrial Tribology (ICIT) | December 11, 2022. Eros Hotel, Nehru Place, New Delhi | Project |
| 18 | Amit Yadav | ME21D408 | Conference on Fluid Mechanics and Fluid Power (FMFP) | December 13, 2022. IIT Roorkee | Department |
| 19 | Raviteja Miriyala | ME18D029 | CompFlu 2022 | December 18, 2022. IIT Kharagpur Research Park | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|----------------------------------|----------|--|--|---------------------------|
| 20 | Natraj | ME18D301 | 12 th Structural Engineering Convention, SEC 2022 | December 18, 2022. Malaviya National Institute of Technology Jaipur | Department |
| 21 | G C Akshay Kiran | ME19S015 | COPEN 2022 | December 07, 2022. IIT KANPUR | Department |
| 22 | Tere Rajesh Babu | ME17D019 | International Conference On Precision, Micro, Meso And Nano Engineering (COPEN 2022) | December 13, 2022. IIT Hyderabad | Department |
| 23 | Bhemani Nishi Rajesh | ME21D200 | NDE 2022 | December 07, 2022. Indian Institute Of Technology Kanpur | Department |
| 24 | G C Akshay Kiran | ME19S015 | COPEN 2022 | December 23, 2022. Mahatma Mandir | Department |
| 25 | Suraj Saini | ME20S031 | National Aerospace Propulsion Conference 2022 | December 07, 2022. IIT Kanpur | Department |
| 26 | Muthaiah M | ME16D415 | 4 th National Aerospace Propulsion Conference | December 17, 2022. IIT Bombay, Mumbai | Department |
| 27 | Thulsiram Gantala | ME18D040 | SICE 2022: 4 th Structural Integrity Conference and Exhibition | December 18, 2022. Indian Institute Of Technology Bombay | Department |
| 28 | Billa Prasanna Kumar | ME19D027 | 9 th International and 49 th National Conference on Fluid Mechanics and Fluid Power (FMFP) | December 13, 2022. IIT Hyderabad, Kandi, Sangareddy | Department |
| 29 | Anirban Tudu | ME17D021 | COPEN 2022 | December 13, 2022. IIT Roorkee | Department |
| 30 | Biswanath Bai | ME22S068 | IndiaTrib-2022 | December 07, 2022. IIT Kanpur | Department |
| 31 | Thomas Jacob | ME21D002 | 9 th International and 49 th National Conference on Fluid Mechanics and Fluid Power (FMFP) | December 11, 2022. Eros Hotel, Nehru Place, New Delhi | Department |
| 32 | Neeraj C S | ME21D035 | National Conference on Liquid Crystals - 2022 | December 13, 2022. IIT Roorkee | Department |
| 33 | Dasari Venkatesh | ME16D417 | National symposium on cryogenics and superconductivity 28 | December 07, 2022. Christ University, Bengaluru | Department |
| 34 | Jaggannagari Sujith Reddy | ME18D011 | 4 th Structural Integrity Conference and Exhibition (SICE 2022) | December 07, 2022. Pondicherry University | Department |
| 35 | Venkata Sai Prabhu Suraj Nanduru | ME21S071 | Industrial Visit | October 17, 2022. IIT Kharagpur | Project |
| 36 | Abhishek Kumar Sharma | ME19D017 | FMFP Conference 2022 | December 11, 2022. Indian Institute of Technology Hyderabad | Department |
| 37 | Chaudhary Rajan Hareshbhai | ME21S016 | Conference & Exhibition on Non Destructive Evaluation (NDE 2022) | November 04, 2022. Nagpur | Department |
| 38 | Sumanta Prasad Dewri | ME21D405 | 3 rd Indo-Japan Bilateral Symposium on Futuristic Materials and Manufacturing for Sustainable Development | December 13, 2022. Indian Institute of Technology Roorkee | Department |
| 39 | Darshan Dange | ME20D019 | 3 rd Indo Japan Bilateral Symposium on Futuristic Material and Manufacturing for Sustainable Development | November 23, 2022. Mahatma Mandir, Convention And Exhibition Centre, Goa | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-------------------------------|----------|---|--|---------------------------|
| 40 | Mercy Nazi Mwambegu | ME21S801 | 3 rd Indo-Japan Bilateral Symposium on Futuristic Materials and Manufacturing for Sustainable Develop | December 01, 2022. Indian Institute of Technology Madras, Chennai, India | Department |
| 41 | Ananta Kumar Das | ME17D006 | FMFP-2022 | December 01, 2022. IIT Madras, Chennai, India | Department |
| 42 | Alapati Jaswanth Kalyan Kumar | ME17D413 | Fluid Mechanics and Fluid Power (FMFP-2022) | December 01, 2022. IIT Madras, Chennai, India | Department |
| 43 | Loheshwaran C | ME21D045 | ISNT NDE2022 | December 13, 2022. IIT Roorkee | Department |
| 44 | Thulsiram Gantala | ME18D040 | NDE 2022, Conference and Exhibition on Non Destructive Evaluation 2022 | December 13, 2022. IIT Roorkee | Department |
| 45 | Neha Arora | ME21S012 | The Conference & Exhibition on Non Destructive Evaluation 2022 | November 23, 2022. Mahatma Mandir Convention & Exhibition Centre | Department |
| 46 | Anurag Dubey | ME21S019 | The Conference & Exhibition on Non Destructive Evaluation 2022 | November 23, 2022. Mahatma Mandir Convention & Exhibition Centre | Department |
| 47 | Aishwarya Kumar | ME20S011 | The Conference & Exhibition on Non Destructive Evaluation 2022 | November 23, 2022. Gandhinagar | Department |
| 48 | Kuldeep Tolia | ME21S007 | 9 th International and 49 th National Conference of Fluid Mechanics and Fluid Power (FMFP-2022) | November 23, 2022. Gandhinagar | Department |
| 49 | Sudharsan P L | ME21S035 | NDE 2022 | November 23, 2022. Gandhinagar | Department |
| 50 | Lokesh Malik | ME19D754 | IHMTC 21 Conference | December 13, 2022. Indian Insitute of Technology Roorkee | Project |
| 51 | Lokesh Malik | ME19D754 | APS DFD 22 Conference | November 23, 2022. Mahatma Mandir Convention & Exhibition Centre | Project |
| 52 | Lokesh Malik | ME19D754 | MicroTAS 22 Conference | December 16, 2021. Chennai (Virtual) | Project |
| 53 | Rana Jay Girishbhai | ME20S030 | Fluid Mechanics and Fluid Power Conference | November 19, 2022. Chennai (Virtual) | Department |
| 54 | Rajmane Swapnil Narayan | ME20D013 | 9 th International and 49 th National Conference of FMFP | October 22, 2022. Chennai | Department |
| 55 | Abhishek Kumar | ME20D402 | FMFP-2022 Conference | December 13, 2022. IIT Roorkee | Department |
| 56 | Kushal Prasad Choudhary | ME18D018 | National Conference on Fluid Mechanics and Fluid Power (FMFP) 2022 IIT Roorkee | November 13, 2022. Indian Institute of Technology Roorkee | Department |
| 57 | Ashish Kumar | ME20S039 | IndiaTrib-2022 | December 13, 2022. IIT Roorkee | Department |
| 58 | Ashutosh Panda | ME20S020 | Indiatrib Conference 2022 | December 13, 2022. IIT Roorkee | Department |
| 59 | Sushanta Kumar Sahoo | ME16D003 | International Conference On Precision, Micro, Meso And Nano Engineering At The Indian Institute Of T | December 11, 2022. New Delhi, India | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|--------------------------------------|----------|--|--|---------------------------|
| 60 | Sumanta Prasad Dewri | ME21D405 | IndiaTrib - 2022 | November 11, 2022. New Delhi | Department |
| 61 | Sharmila P | ME17D044 | FMFP-2022 | December 07, 2022. IIT Kanpur | Department |
| 62 | Guruchethan A M | ME17D040 | REFCOLD-2022 | December 11, 2022. Eros Hotel, Nehru Place, New Delhi | Department |
| 63 | Rajesh Ranjan Ravi | ME16D037 | COPEN12 | December 13, 2022. IIT Roorkee | Department |
| 64 | Kshitija Shivaji Mirkale | ME19D705 | 9 th International and 49 th National Conference of FMFP 2022 | December 07, 2022. Mahatma Mandir Convention & Exhibition Centre | Project |
| 65 | Chinmoyee Datta | ME20D401 | COPEN 22 | December 07, 2022. IIT Kanpur | Project |
| 66 | G V Balakrishna | ME19D403 | SICE 2022 | December 13, 2022. IIT Roorkee | Department |
| 67 | Rampurkar Siddhivinayak Sudhakarrrao | ME20D004 | ILASS 2022 | December 07, 2022. IIT Kanpur | Department |
| 68 | T N Deepu Kumar | ME18D041 | COPEN 12 | December 13, 2022. IIT Hyderabad | Department |
| 69 | Nitish Prasad K | ME19D408 | IndiaTrib-2022 International Conference | November 27, 2022. IIT Indore | Department |
| 70 | Madaparathi Abhilash | ME20S062 | IndiaTrib 2022 | December 07, 2022. Indian Institute of Technology, Kanpur | Department |
| 71 | Sunil Kumar Prajapati | ME18D044 | 4 th Structural Integrity Conference and Exhibition 2022 | December 11, 2022. Eros Hotel, New Delhi | Department |
| 72 | Sachin Kumar Jain | ME18D015 | 9 th International and 49 th National Conference of FMFP 2022 | December 11, 2022. Eros Hotel, Delhi | Department |
| 73 | Arshdeep Singh | ME19D053 | ILASS-AISA-2022 | December 13, 2022. IIT Hyderabad | Department |
| 74 | Anjith Kumar | ME15D201 | ILASS-ASIA 2022 | December 13, 2022. IIT Roorkee | Department |
| 75 | Ashish Kumar Vishwakarma | ME21S062 | ILASS ASIA 2022 | October 27, 2022. IIT Indore | Department |
| 76 | Samiksha Moharana | ME18D002 | SICE-2022 (4 th Structural Integrity Conference and Exhibition): | October 27, 2022. IIT Indore | Department |
| 77 | Shashi Bhushan Gunjan | ME17D002 | 12 th International Conference on Precision, Micro, Meso, and Nano Engineering (COPEN 12) | October 27, 2022. IIT Indore | Department |
| 78 | Himanshu Pandey | ME20S016 | IndiaTrib-2022 11 th International Conference on Industrial Tribology (ICIT) | December 13, 2022. IIT Hyderabad | Department |
| 79 | Sachin Kumar Jain | ME18D015 | Indo French Workshop Small Scale Hydrodynamics: Soft Matter to Bioengineering | December 07, 2022. Indian Institute of Technology Kanpur | Department |
| 80 | Smruti Parimita | ME18D010 | Bio-Remedi 2022 (International Conference on Biomaterials, Regenerative Medicine and Devices) | December 10, 2022. Eros Hotel, Nehru Place, New Delhi | Department |
| 81 | G V Balakrishna | ME19D403 | India Trib-2022 | October 16, 2022. Indian Institute of Science | Department |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance From |
|--------|-----------------------------|----------|--|---|---------------------------|
| 82 | Sunil Kumar Prajapati | ME18D044 | India Trib 2022 Conference | December 13, 2022. Indian Institute of Technology Guwahati | Department |
| 83 | Akhil Reddy Peeketi | ME19D752 | The Eighth Asian Conference On Mechanics Of Functional Materials And Structures | December 11, 2022. Eros Hotel, Nehru Place, New Delhi | Project |
| 84 | Sunil Kumar Prajapati | ME18D044 | India Trib 2022 Conference | December 10, 2022. Eros Hotel, Nehru Place, New Delhi | Department |
| 85 | Samiksha Moharana | ME18D002 | Indiatrib-2022 | December 10, 2022. IIT Guwahati | Department |
| 86 | Abhishek Maurya | ME21D012 | India Trib 2022 Conference | December 10, 2022. Eros Hotel, Nehru Place, New Delhi | Project |
| 87 | Eldho Paul | ME22D005 | IMSD-ACMD2022- International Conference | December 10, 2022. New Delhi | Project |
| 88 | Nithya Srimurugan S K | ME21D007 | Technical Writing Workshop | September 12, 2022. Bengaluru | Department |
| 89 | Umair Hussain | ME19D704 | 8 th Asian Conference on Mechanics of Functional Materials and Structures | October 15, 2022. IIT Delhi | Project |
| 90 | Ranjith Kumar I | ME19D016 | Industrial Visit | July 10, 2022. Chennai | Project |
| 91 | Ronit Kumar Shah | ME20D038 | Industrial Visit | December 10, 2022. IIT Guwahati | Project |
| 92 | Umair Hussain | ME19D704 | ME@75: Research Frontiers Conference | August 17, 2022. Intech Additive Solutions Bangalore | Project |
| 93 | Akhil Reddy Peeketi | ME19D752 | Research Visit | June 28, 2022, IISc Bangalore | Project |
| 94 | Akhil Reddy Peeketi | ME19D752 | ME@75 Research Frontiers Conference | July 10, 2022. M.S. Tools and Manufacturing Pvt. Ltd. | Project |
| 95 | Rahul R | ME17D037 | ME@75 Research Frontiers Conference | June 28, 2022. IISc Bangalore | Department |
| 96 | Akilesh G | ME19S074 | IDETC-CIE 2022 | June 16, 2022. IIT Indore | Department |
| 97 | Akilesh G | ME19S074 | IDETC-CIE2022 | June 28, 2022. Indian Institute of Science | Department |
| 98 | Rajaraman S | ME19S066 | International Design Engineering Technical Conferences & Computers and Information in Engineering Co | June 28, 2022. J N Tata Auditorium Indian Institute of Science, Bangalore | Department |

4.13.2.5. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|---|--|
| 1. | R Anureka | ME14D413 | Women Leading IITM 2023 Award | Women's Forum IIT Madras |
| 2. | D Nazeer Basha | | Best Poster Award | COPEN 12 - International Conference on Precision Engineering, Micro, Meso and Nano Engineering at IIT Kanpur |
| 3. | Arnab Chakraborty | | Innovative Student Projects Award at Master's Level | Indian National Academy of Engineering |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|---------------------------------------|----------|---|---|
| 4. | Pramod Kumbhar Yallappa | ME15D411 | Institute Research Award | IIT Madras |
| 5. | Aravind Nehrujee | ME17D600 | Newton-Bhabha Fund PhD Placement Program | Fund to work with Prof. Etienne Burdet, Head of the Human Robotics Group at Imperial College London |
| 6. | S K Chaitanya | ME16D206 | Young Professional Grant | INTERNOISE 2022, Glasgow, Scotland |
| 7. | Karthik | ME19D026 | First Place in Badminton | Tamil Nadu District Level Sports Meet for Differently Abled Persons 2021-22 |
| 8. | Mohit Kumar | ME18B016 | Scholarship for Rs. 80,000/- | OPJEMS Scholars |
| 9. | Sneha Srikanth | ME18B031 | Scholarship for Rs. 80,000/- | OPJEMS Scholars |
| 10. | Pavan Pandit | | International Immersion Experience Award | Office of Global Engagement, ICSR |
| 11. | Manikandan (2022 May Ph.D. Graduated) | | Molecular Reaction Dynamics Collection has published his Nature Sci. Reports 2021 Article as Collection Magazine Page | Nature Magazine |
| 12. | S K Chaitanya | ME16D206 | Young Professional Grant Award at InterNoise 2022, Glasgow | INCE (Institute of Noise Control Engineering) |
| 13. | Kishore Ram Sathia | ME18B085 | Research Internship for Young Academics | Ohio State University |
| 14. | Kali Prasad | ME17D043 | IEI – NMLC FCRI Excellence Awards | Institute of Engineers (India) |

4.13.2.6. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prizes & Donor | Name of Donor |
|--------|--------------------------------|----------|---|--|
| 1. | Kaushik Surendran Chettiar | ME17B054 | Prof K Gopinath And Padmini Gopinath Prize | Prof. Gopinath K |
| 2. | Mohit Kumar | ME18B016 | 1. Dr. Dinesh Balagangadhar Prize, | Endowment Prize |
| | | | 2. Dr. S Chandrasekharan Memorial Prize | Endowment Prize |
| | | | 3. Dr. Vivekanand Kochikar Award | Dr. Vivek Pai Kochikar |
| 3. | Sneha Srikanth | ME18B031 | Swati/ Jayalakshmi Memorial Award | Prof. R Nagarajan |
| 4. | Subhas Nandy | ME20M043 | 1. Sri Ramanan Ramamurti Prize | Smt. Rajeswari Ramanan |
| | | | 2. Prof. N Venkatarayulu Memorial Prize | Prof. N Venkatarayulu |
| 5. | Rizwan Km | ME20M062 | Sri Ramanan Ramamurti Prize | Smt. Rajeswari Ramanan |
| 6. | Shatakshi Sarangi | ME19B166 | MV Undergraduate Prize | Prof. Malthi Veeraraghavan & Family, Friends and Students. |
| 7. | Ayyapu Venkata Phani Gowrinath | ME17B132 | Sri Rajesh Achanta Prize | Shri Rajesh Achanta |
| 8. | Prasanna Shan-karappa Abbigeri | ME17B121 | Sri Sagar Pushpala Prize | Shri Sagar M Pushpala |
| 9. | Mohit Kumar | ME18B016 | 1. President Of India Prize | IIT Madras |
| | | | 2. Bharat Ratna M Visvesvaraya Memorial Prize | India Travel Agency, Madras |
| | | | 3. Banco Foundation Prize | Banco Foundation |
| 10. | Sneha Srikanth | ME18B031 | American Express Award | American Express India Pvt Limited |
| 11. | Kaushik Surendran Chettiar | ME17B054 | Prof. G V N Rayudu Prize | Mr. Premkumar Gogineni |
| 12. | Lakshya Shukla | ME20M086 | Prof. B Sengupto Prize | Prof. B Sengupto |

4.13.3. Faculty and Their Activities

4.13.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|------------------------------|---|
| Professors | |
| Dr. Chandramouli P (Head) | Nonlinear Dynamics, Musical Acoustics and Noise Control |
| Dr. Abhijit Sarkar | Vibration, Acoustics, Computational Methods |
| Dr. Amitava Ghosh | Active Brazing of Superabrasives and Development of Abrasive Tools, Advanced PVD Coating for Cutting Tool Applications, Advanced Machining in Micro/Meso/Macro Domain |
| Dr. Arunn Narasimhan | Heat Transfer and Fluid Flow in Biological Systems, Heat Transfer and Fluid Flow in Porous Medium, Phase Change Materials, Convection Heat Transfer, Fluid Mechanics |
| Dr. Arvind Pattamatta | Microscale Energy Transport, Phase Change Heat Transfer, Multiphase Flows, Electronics & Battery Thermal Management, Computational Fluid Dynamics & Heat Transfer |
| Dr. Ashis Kumar Sen | Micro Nano Fluidics, Micro Nano Scale Flows, Interfacial Phenomena |
| Dr. Balaji Srinivasan | Modeling and Simulation of Complex Flows, Scientific Machine Learning, High Performance Computing |
| Dr. Babu Viswanathan | CFD, High-Speed Reacting Flows, High-Performance Computing |
| Dr. Chakravarthy Balaji | Battery Thermal Management, Climate Change Studies, Data Centre and High Heat Flux Cooling Technologies, Fundamental Heat Transfer, Optimisation of Thermal Systems, Inverse Problems in Heat Transfer and Numerical Weather Prediction |
| Dr. Dhiman Chatterjee | Fluid Mechanics and Turbomachinery, Cavitation and Multiphase Flows, Renewable Energy |
| Dr. Gnanamoorthy R. | Sustainable Materials and Product Design, Sustainable Materials and Product Design, Architected Materials & Additive Manufacturing, |
| Dr. Krishnan Balasubramaniam | Nondestructive Evaluation, Materials Characterisation, Online Measurements |
| Dr. Krishna Kannan | Continuum Mechanics, Thermodynamics, Constitutive Modelling of Polymeric Materials |
| Dr. Maiya M P | CO2 Refrigeration, Sorption Technology, Metal Hydride Systems and Energy Conservation in Ventilation & Air Conditioning |
| Dr. Mallikarjuna J M | In-cylinder Flow Studies in Engines, HCCI and GDI Engines, Alternate Fuels |
| Dr. Mani A | Refrigeration, Desalination, Solar Energy |
| Dr. Narasimhan Swaminathan | Computational Materials Science and Mechanics, Radiation Damage in Materials, Multiscale Modeling of Complex Phenomenon in Nuclear and Fuel Cell Materials, Finite Element Method, Li-ion Batteries |
| Dr. Parag Ravindran | Viscoelasticity and Constitutive Modeling |
| Dr. Prabhu Rajagopal | Ultrasonic Waves for Nondestructive Evaluation, Health Monitoring and Process Control, Computational Methods for Modelling Elastic Wave Phenomena |
| Dr. Raghavan V | Numerical Modeling of Flames and Fires, Coal and Biomass Gasification, Heterogeneous Combustion |
| Dr. Raghu Prakash V | Fatigue and Fracture Mechanics, Structural Integrity Assessment, Product Design. |
| Dr. Raju Sethuraman | Computational Solid Mechanics, Fatigue and Fracture of Material |
| Dr. Ramesh A | I.C. Engine Combustion and Emissions, Electronic Engine Management, Alternative Fuels |
| Dr. Ramesh Babu N | Manufacturing Engineering—Advanced Machining Processes, Automation, Process Modeling, Precision Machine Tool Development |
| Dr. Ratna Kumar Annabattula | Stimuli-Responsive Soft Materials, Granular Materials, Coupled Problems in Mechanics |
| Dr. Samuel G L | Machining, Metrology, Micro- Manufacturing, Laser Material Processing |
| Dr. Sarit Kumar Das | Heat Exchangers, Two-phase Flow, Nano Fluids, Jet Oscillations, Nuclear Heat Transfer |
| Dr. Sathyan Subbiah | Machining, Manufacturing Science and Engineering, Extra Terrestrial Manufacturing |
| Dr. Seshadri Sekhar A | Rotor Dynamics, Condition Monitoring, Tribology |
| Dr. Shaligram Tiwari | Heat and Mass Transfer, Thermocapillary Convection, Fluid-Structure Interaction |
| Dr. Shamit Bakshi | Liquid Atomization and Spray Systems, CFD, Droplet Processes |

| Name and Qualifications | Major Areas of Specialisation |
|------------------------------|---|
| Dr. Shankar Krishnapillai | Structural Dynamics, Machine Design, Renewable Energy, Agricultural Engineering, Sustainable Technology. |
| Dr. Srinivasa Reddy K | Renewable Energies, Solar Energy, Energy Conservation, Energy Environment, Heat Transfer in Two-Phase Systems |
| Dr. Srinivasan K | Jet flow and Noise, Active and Passive Flow Control, Measurement and Instrumentation |
| Dr. Sujatha C | Vehicle Dynamics, Machinery Diagnostics, Signal Analysis |
| Dr. Sujatha Srinivasan | Assistive Devices, Movement Biomechanics, Rehabilitation Engineering |
| Dr. Sundararajan Natarajan | Computational Mechanics, Moving Boundary Problems, Composite Mechanics |
| Dr. Sundararajan T | Droplet Combustion, Supersonic Reacting Jet Flows, CFD |
| Dr. Sushanta Kumar Panigrahi | Innovative Materials Processing, Magnesium and Aluminium Technologies, Metal Matrix Composites, High Performance Sheet Developing, Sheet Metal Forming, Solid State Joining |
| Dr. Venkathathnam G | Refrigerant Mixtures, New Processes That Work With Refrigerant Mixtures, Improvement of Performance of Vapour Compression Refrigerators |
| Associate Professors | |
| Dr. Anand Krishnasamy | Low-temperature Combustion Engines, Surrogate Modelling of Automotive Fuels, Engine Emission Reduction Through Fuel Modifications |
| Dr. Anand T N C | Droplet and Spray Processes, Diagnostics for Droplets and Sprays, Experimental and CFD Studies on IC Engines |
| Dr. Anil Kumar Meena | Casting Processes, Cast Irons and Steels Manufacturing, Microstructure and Properties of ADI, Dry and Near-dry Machining Process |
| Dr. Arunachalam N | High Performance Manufacturing, Prognostics and Health Management of Engineering Systems, Diamond Nano Structures and Wafer Manufacturing |
| Dr. Hariharan K | Sheet Metal Forming, Plasticity, Fatigue and Mechanical Behaviour of Materials |
| Dr. Kameswararao Anupidi | Fluid Mechanics, Computational Fluid Dynamics, Bio-fluid Dynamics, Turbulence Modelling |
| Dr. Manivannan P V | Robotics (including Bio-inspired Robotics), Automotive Control Systems (for: Engine, Steering and Transmission Control), Autonomous Road Vehicles (Self-driving Cars) and Unmanned Aerial Vehicles (UAVs), Mechatronic Systems Design, Embedded Controller and Microcontrollers, Sensors, Instrumentation and Control |
| Dr. Manoj Pandey | Finite Element Analysis, Nonlinear Dynamic, MEMS |
| Dr. Mayank Mittal | I.C. Engines, Optical Diagnostics, Fluid Mechanics |
| Dr. Pallab Sinha Mahapatra | Surface Engineering and Wettability Patterning, Open Surface Microfluidics, Multiphase Flow, Single and Multiphase Heat Transfer |
| Dr. Piyush Shakya | Structural Health Monitoring/Condition Monitoring, Fault Diagnosis and Prognosis, Sensor Integration/Multi-sensor Data Fusion |
| Dr. Ramkumar Penchaliah | Tribology, Engine Tribology, Coatings, Bio-implants, White Etching Cracks Bearing Failures, Tribology in Machine Elements & Gearbox, FEM Wear Modelling, Corrosion and Lubrication |
| Dr. Shyama Prasad Das | Interfacial Hydrodynamics, Heat and Mass Transfer, Turbomachines |
| Dr. Sivasrinivasu Devadula | Abrasive Waterjet Machining, Machine Tools, Multi-objective Optimization, Mathematical Modelling, Simulation and Control of Machining Processes/Machine Tools |
| Dr. Somashekhar S Hiremath | 1. Micro-machining, 2. Fluid Power System Design 3. Additive Manufacturing of Bio-inspired Cellular Structure 4. Bio-inspired Textured Tool to Machine Difficult to Cut Engineering Materials 5. Robotics 6. System Modeling and Simulation |
| Dr. Sourav Ratshit | Multibody Dynamics, Topology Optimization, Robotics |
| Dr. Srikrishna Sahu | Sprays, Multi-phase Flows, Optical Diagnostics |
| Dr. Varunkumar S | Computational Mechanics, Moving Boundary Problems, Composite Mechanics |
| Assistant Professors | |
| Dr. Advait Sankar | Translational Research on Renewable Energy Storage Systems, Machine Learning Applications Towards Energy Systems and Fluid Flow, EV Thermal Management and Fluid Flow Diagnostics |
| Dr. Krithika Narayanaswamy | Chemical Kinetic Modeling, Reduction and Optimization of Reaction Mechanisms for Combustion Applications, 0D and 1D Reactive Flow Simulations |

| Name and Qualifications | Major Areas of Specialisation |
|--------------------------|--|
| Dr. Manish Anand | Mechatronics, Biomechanics, Dynamics |
| Dr. Sateesh Gedupudi | Boiling Heat Transfer, Heat Exchangers, Natural Circulation Loops and Heat Transfer in Buildings. |
| Dr. Vishal V R Nandigana | Artificial Intelligence, Membrane Technology, Nanofluidics and Microfluidics |
| Dr. Vishwanath K | Turbomachinery Noise |
| Dr. Vimal Edachery | Sustainable Tribology, Eco-Friendly Lubrication, Electric Vehicle Lubrication, Corrosion, Engineered Micro-Nano Surfaces, Tribology of 2D Nano-Materials, Implant Biomaterials |

4.13.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|---|---|--|
| Conferences | | | |
| 1. | Anand T N C (Program Chair for the Conference) | 22 nd Annual Conference on Liquid Atomization and Spray Systems Asia (ILASS ASIA 2022) | October 28-30, 2022. Indore, India |
| 2. | Sujatha Srinivasan | EMPOWER 2022 | October 13-15, 2022. IITMRP |
| 3. | R Gnanamoorthy | 3 rd Indo Japan Bilateral Symposium on Futuristic Materials and Manufacturing for Sustainable Development Goal | December 2-3, 2022. Online |
| Seminars | | | |
| 1. | GL Samuel (Convenor) | 4 th IRIS Webinar Series - Centre of Excellence on Advanced Laser Material Processing | October 14, 2022. (Online) |
| Workshops | | | |
| 1. | M P Maiya and Dr. Y Siva Kumar Reddy (PDF) | CO ₂ Refrigeration Systems: Fundamentals, Advancements and Applications | October 10-14, 2022. (Online) |
| 2. | M P Maiya and Pramod Kumar | SPARC Workshop on Natural Refrigerants: Applications and Policies | March 10, 2023. IISc Bangalore |
| Short-term Courses | | | |
| 1. | Abhijit Sarkar | Continuing Education Program for Engineers from Brakes India Pvt Ltd | October 27-29, 2022. |
| 2. | Piyush Shakya | Basics of Reliability and Bearing Design | February 4-7, 2023. SONA BLW Precisions Forgings Ltd |

4.13.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|------------------|------------------------|--|---|------------------------|
| Workshops | | | | |
| 1. | M P Maiya | One Day Workshop on Smart Energy Technologies for Buildings | Hotel Hyatt, Chennai - 600018 | April 9, 2022. |
| 2. | Sundararajan Natarajan | CSF Workshop on Generalized Barycentric Coordinates in Computer Graphics and Computational Mechanics | Ascona, Switzerland | June 1-4, 2022. Online |
| 3. | M P Maiya | SPARC Workshop on Natural Refrigerants: Applications and Policies | Faculty Hall, Main Building, IISc Bangalore - 560012, India | March 10, 2023. |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|-------------------------|---|--|--------------------------|
| Seminar | | | | |
| 1. | GL Samuel | Interaction for International Relations | National Institute of Technology, Matsue, Japan | April 27, 2022. |
| 2. | M P Maiya | BoS Meeting | Department of Mechanical Engineering, Presidency University, Bangalore | April 22, 2022. |
| 3. | | ACRESERVE 2022-23 | IIT Madras, India | October 01, 2022. |
| 4. | | Angan 2022 | Hotel Ashok, New Delhi | September 14-16, 2022. |
| 5. | R Gnanamoorthy | MEXT Inter-University Exchange Project Kick off meeting | Nagaoka University of Technology, Japan | December 16, 2022. |
| 6. | Gnanamoorthy | Chairman & Panel Member: Sustainable Regional Materials | CSIR CISST Trivandrum | March 15, 2023. |
| 7. | M P Maiya | Clean Cooling Opportunities for India: The INDEE+project contribution | Bombay Exhibition Center, Mumbai | March 14, 2023. |
| Symposia | | | | |
| 1. | Ratna Kumar Annabattula | International Symposium on Nonlocal Mechanics Approaches for Modelling Localised Deformation NMAML D 2022 | IIT Hyderabad, India | June 7-8, 2022. |
| Conferences | | | | |
| 1. | Abhijit Sarkar | ME@75, Nonlinear Vibration of Cyclically Symmetric Structure With Contact | IISc, Bangalore | June 29-July 01, 2022. |
| 2. | Dhiman Chatterjee | ME@75, Flow Over An Axisymmetric Blunt Cylinder: Effect of Cavitation on Drag and Sound Level | IISc, Bangalore | June 29-July 01, 2022. |
| 3. | Shyama Prasad Das | ME@75, Pressure and Temperature Evolutions During Sloshing in LN2 Tank | IISc, Bangalore | June 29-July 01, 2022. |
| 4. | GL Samuel | Opportunities for Manufacturing Engineers in Surface Engineering | Schaeffler, ICSR, IIT Madras | June 06, 2022. |
| 5. | Ratna Kumar Annabattula | IMPLAST 2022 | IIT Madras | August 21-26, 2022. |
| 6. | M.P.Maiya | 15 th IIR-Gustav Lorentzen Conference on Natural Refrigerants | Trondheim, Norway | June 13-15, 2022. |
| 7. | Sathyan Subbiah | North American Manufacturing Research Conference (NAMRC) 50 | Purdue University, USA | June 27 - July 01, 2022. |
| 8. | K Hariharan | 23 rd International Conference on Advances in Materials & Processing | Portoroz, Slovenia | October 10-14, 2022. |
| 9. | G L Samuel | 23 rd International Conference on Advances in Materials & Processing | Portoroz, Slovenia | October 10-14, 2022. |
| 10. | Anand T N C | 22 nd Annual Conference on Liquid Atomization and Spray Systems Asia (ILASS ASIA 2022) | Indore, India | October 28-30, 2022. |
| 11. | Sujatha Srinivasan | EMPOWER 2022 | IITMRP | October 10-14, 2022. |
| 12. | Vishal Nandigana | APS Four Corners Section 2022 Meeting | Albuquerque, New Mexico, USA | October 10-14, 2022. |
| 13. | Ratna Kumar Annabattula | Structural Integrity Conference and Exhibition (SICE-2022) | IIT Hyderabad, India | December 14-16, 2022. |
| 14. | | The Asia-Pacific Workshop on Mechanical Behaviour of Complex Systems | Chinese Society of Theoretical and Applied Mechanics, China (Online) | November 06, 2022. |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|--------------------------|---|--|-----------------------------|
| 15. | Narasimhan Swaminathan | Structural Integrity Conference and Exhibition (SICE-2022) | IIT Hyderabad, India | December 14, 2022. |
| 16. | R Gnanamoorthy | 3 rd International Conference on Future Technologies in Manufacturing, Automation, Design and Energy | NIT Puducherry | December 16, 2022. |
| 17. | R Gnanamoorthy | International Tribology Conference, Taiwan | Taiwan Society of Tribology, | November 2022. |
| 18. | | 11 th International Conference on Industrial Tribology (ICIT) Tribology for Energy, Environment and Society, | IIT Delhi | December 15, 2022. |
| 19. | Dhiman Chatterjee | FMFP 2022 | IIT Roorkee | December 14-16, 2022. |
| 20. | Sarit K Das | 67 th ISTAM Conference | IIT Mandi | December 14-16, 2022. |
| 21. | Shyama Prasad Das | 23 rd Australasian Fluid Mechanics Conference | University of Sydney | December 4-8, 2022. |
| 22. | Vimal Edachery | IndiaTrib2022, 11 th International Conference on Industrial Tribology (ICIT) | IIT Delhi | December 12-14, 2022. |
| 23. | K Anand | 27 th National Conference on Internal Combustion Engines and Combustion | VIT Vellore | November 06, 2022. |
| 24. | | International Conference on Precision Meso Micro Nano Engineering | IIT Kanpur | December 8-10, 2022. |
| 25. | C Sujatha | International Conference on Vibration Engineering and Technology of Machinery | Institute of Engineering, Pulchowk Campus, Nepal | December 15-17, 2022. |
| 26. | | International Conference on Vibration Engineering and Technology of Machinery | Institute of Engineering, Pulchowk Campus, Nepal | December 15-17, 2022. |
| 27. | G L Samuel | ICMDM 2023 | Anna University, Chennai, TN | February 23-25, 2023. |
| 28. | Sushanta Kumar Panigrahi | NANOSPD-8 | Indian Institute of Science, Bengaluru | February 28-March 04, 2023. |

4.13.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-------------------------|---|--|-----------------|
| 1. | MP Maiya | Contribution of HVAC Systems in Airborne Disease Control - Indo-Canadian Joint Workshop | VIT Vellore | April 16, 2022. |
| 2. | Ratna Kumar Annabattula | What is Literature Review? (to the newly admitted research scholars of GITAM University) | GITAM University | Junbe 02, 2022. |
| 3. | Sundararajan Natarajan | Advances in Computational Mechanics | BITS Pilani | May 28, 2022. |
| 4. | R Gnanamoorthy | Panel Chair and Brief on Towards Sustainability National Coir Conclave | Coimbatore | May 4-5, 2022. |
| 5. | Somashekhar S Hiremath | Current and Future Research Perspectives for Intelligent Manufacturing System in Industry 4.0 | Vigyan Utsav Celebration on the theme Future Technologies organised by Tamilnadu State Council for Science and Technology, Chennai | May 11, 2022. |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|--------------------------|---|--|----------------------------|
| 6. | Somashekhar S Hiremath | Chief Guest and Delivered Inaugural Address and Technical Talk on Micromachining – A Break Through Technology for Miniaturization of Products, Processes and Research Opportunities | A Five Day Online Short Term Course (STC) on Micromachining Technologies for Industrial Applications, Organised by Department of Mechanical Engineering, NIT Uttarakhand | May 9-13, 2022. |
| 7. | Somashekhar S Hiremath | Micromachining a Technology for Miniaturization | One Week National Level Online Faculty Development Programme on Current Trends in Manufacturing, organised by the Department of Mechanical Engineering, S.J.M. Institute Of Technology, Chitradurga - 577502 | June 13-17, 2022. |
| 8. | Shamit Bakshi | Evaporation Induced Flow Around a Pendant Droplet Evaporating in Atmospheric Condition | University of Stuttgart, Germany and Università di Trento, Bergamo, Italy | June 10, 2022. |
| 9. | C Balaji | Science of Climate Change | LPSC, Valiamala | July 26, 2022. |
| 10. | C Balaji | Foundations of Data Science and Machine Learning for Mechanical Engineers | Amity University | August 3, 2022. |
| 11. | Amitava Ghosh | New Generation Diamond Grinding Tools for High Productivity | MIT, Kochi | July 08, 2022. |
| 12. | G L Samuel | Advanced Laser Material Processing | IIT Kharagpur | August 29, 2022. |
| 13. | Sushanta Kumar Panigrahi | Potential of Innovative Processing on both Process and Structural Efficiency | Vellore Institute of Technology (VIT), Vellore | October 12, 2022. |
| 14. | Amitava Ghosh | Emerging Trends in High Speed Machining and Micromachining | Vel-Tech, Chennai | September 10, 2022. |
| 15. | | Surface Integrity in High Speed Machining | Department of Mechanical Engineering, Anna University, Chennai | September 14, 2022. |
| 16. | G L Samuel | Digital Manufacturing and Industry 4.0 (ATAL sponsored Faculty Development Programme) | Maturi Venkata Subba Rao (MVSR) Engineering College, Naderdul, Hyderabad | October 18, 2022. |
| 17. | Sujatha Srinivasan | Innovation for Inclusion | Portescap Engineering Team, Mumbai | September 15, 2022. Online |
| 18. | | Kadam Knee Design Journey | Mobility India, Bengaluru | September 08, 2022. Online |
| 19. | M P Maiya | Thermal Comfort | NIT Mizoram, | September 08, 2022. |
| 20. | | Chief Guest Address, ACRESERVE 2022-23 | IIT Madras, ICSR Auditorium, IIT Madras | October 01, 2022. |
| 21. | K Hariharan | Energy Assisted Forming | Univ of Salerno, Italy, Industrial Engineering Department | November 11-13, 2022. |
| 22. | | Electroplasticity | Mechanical Department | November 23, 2022. |
| 23. | Piyush Shakya | Condition Monitoring in Rolling Element Bearings | SRM Institute of Science and Technology, Mechanical Engineering Department, SRM, Chennai | November 25, 2022. |
| 24. | | Artificial Intelligence and Machine Learning for Bearings | SAE India (Southern Section), Easwari Engineering College, Chennai | December 12, 2022. |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|--------------------------|---|--|---------------------|
| 25. | Piyush Shakya | Condition Monitoring of Bearings | Department of Mechanical Engineering, Motilal Nehru National Institute of Technology Allahabad, Uttar Pradesh. | December 12, 2022. |
| 26. | Ratna Kumar Annabattula | Materials Selection for Mechanical Design | Naval Institute of Aeronautical Technology, Southern Naval Command, Kochi | November 28, 2022. |
| 27. | Sushanta Kumar Panigrahi | Potential and Innovation of Light Weight Magnesium and Aluminium Technologies | University Conference Hall, Ecole Centrale Nantes, France | December 01, 2022. |
| 28. | Amitava Ghosh | The Micro Grinding Process And The Next Generation Micro-grinding Tools | Haldia Institute of Technology, West Bengal | November 25, 2022. |
| 29. | Sourav Rakshit | Topology optimization in Natural Circulation Loops | Bhabha Atomic Research Center, Trombay, Mumbai | December 27, 2022. |
| 30. | Abhijit Sarkar | Python Computation in Mechanics | Department of Mechanical Engineering, Ramco Institute of Technology, Chennai | December 20, 2022. |
| 31. | GL Samuel | Metrology | COPEN - 12 at IIT Kanpur | December 09, 2022. |
| 32. | GL Samuel | Industrial and Medical Applications of Additive Manufacturing Processes | Ahalia School of Engineering and Technology. Palakkad | January 10, 2023. |
| 33. | Sourav Rakshit | Topology Optimization: A Brief Introduction With Applications | Indira Gandhi Center for Atomic Research, Kalpakkam, India | January 27, 2023. |
| 34. | Sushanta Kumar Panigrahi | High Performance Sheet Manufacturing: Fundamentals to Advancement | Mahatma Gandhi Mission's College of Engineering & Technology, Navi Mumbai | January 30, 2023. |
| 35. | Manoj Pandey | Robust Reduced Order Model Generation for Nonlinear Mechanical Systems | Department of Mechanical Engineering Ohio State University, USA | November 16, 2022. |
| 36. | Ratna Kumar Annabattula | Optimizing Pharmaceutical Manufacturing Processes With Particle Simulation | Indira College of Pharmacy Pune | February 6-9, 2023. |
| 37. | GL Samuel | Digital Twins of Autonomous Robots in Autonomous Factories | Finnish Indian Consortia for Research and Education | March 23, 2023. |
| 38. | M.P.Maiya | Introduction to Natural Refrigerants | IISc Bangalore | March 10, 2023. |
| 39. | Sushanta Kumar Panigrahi | Role of Material Processing on Structural Efficiency on Defence Materials | IIT BHU | March 04, 2023. |
| 40. | Sujatha Srinivasan | Innovation for Inclusion, Engineering for Empowerment | BITS-Pilani, Goa campus | March 10, 2023. |

4.13.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|-----------------|-------------------------------|----------------------|---|--------------|
| 1. | G L Samuel | Kunibiki Messe, Matsue, Japan | April 24 – 29, 2022. | 16 th International Conference on Laser Ablation | Institute |
| 2. | M P Maiya | NTNU Trondheim Norway | June 13-15, 2022. | GL2022 – 15 th IIR-GUSTAV Lorentzen Conference On Natural Refrigerants | Institute |
| 3. | A Ramesh | Frankfurt, Germany | June 14-15, 2022. | IGSTC Partners Meet | Institute |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|--------------------------|--|--------------------------------|---|--|
| 4. | M P Maiya | NTNU, Trondheim, Norway | June 15, 2022. | SPARC Project Meeting | Institute |
| 5. | K Hariharan | Italy, Czech Republic, France | October 07-December 01, 2022. | IoE Mobility Grant | IIT Madras |
| 6. | | Ecole Nantes France, | | | |
| 7. | GL Samuel | University of Twente, Netherlands University of Miskolc, Hungary | November 21-December 07, 2022. | IFI-Funded Research Trip to France for Indian Faculty | University & Scientific Cooperation Institut Français in India (IFI) |
| 8. | | | | | |
| 9. | Sushanta Kumar Panigrahi | Ecole Nantes France | November 27-December 03, 2022. | Collaborative Research | Embassy of France |
| 10. | C Sujatha | Nepal | December 13-18, 2022. | Paper Presentation at Conference | PCF |

4.13.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date of Award |
|----------------|----------------------------|--|--|---|-------------------------------|
| Honours | | | | | |
| 1. | Sarit Kumar Das | The First Occupant of the V. Balakrishnan Chair | | | June 30 2022 - March 31 2026. |
| 2. | Sujatha Srinivasan | Senior Faculty Grant | Pravartak Tech Foundation | | November 2022. |
| Awards | | | | | |
| 1. | Sujatha Srinivasan | National Tech Excellence Award 2022 | Technology Development Board, DST | Woman Scientist in Translational Research (Senior) | May 2022. |
| 2. | Prabhu Rajagopal | Best Invention | | HomoSep – Replacement of Manual Scavengers With Machines | June 2022. |
| 3. | Shaligram Tiwari | Subject Editor | Current Science Journal | - | June 2022. |
| 4. | Amitava Ghosh and scholars | Outstanding Research work and Presentation | Indian Machine Tool Manufacturers Association (IMTMA), Bengaluru | Outstanding Research Work and Presentation in the field of Metal Cutting at IMTEX&TOOLTECH 2023 | January 2023. |
| 5. | Sathyan Subbiah | Finalist, Bluesky Award Competition | SME (co-sponsored by NSF) | One-page Idea of Next Gen Manufacturing Research | July 2022. |
| 6. | Sujatha Srinivasan | NeoMotion (startup from R2D2, of which I am a co-founder) Won the Most Impactful Startup Award | Assistech Foundation | At the 5 th EMPOWER Conference at IIT Madras Research Park October 14, 2022. | September 2022. |
| 7. | Vimal Edachery | Young Tribologist Award | TTRF Japan | Excellence in Tribology Research for Young Researchers | December 2022. |
| 8. | Krishnan Balasubramanian | Trademark has been registered for Application entitled “aiSURAN” in class 7 & 12 | Trade Marks Registry, Gol | aiSURAN | December 2022. |

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date of Award |
|--------|---|--|---|---|----------------|
| 9. | Srikrishna Sahu and his MS Scholar: Arnab Chakraborty | Innovative Project Award 2022 | Indian National Academy of Engineering (INAE) | | February 2023. |
| 10. | Amitava Ghosh | 2 ^{www} Prize for Innovations Being Displayed in IMTEX 2023 | Bangalore International Exhibition Centre. | Innovations Being Displayed in IMTEX 2023 | February 2023. |
| 11. | Prabhu Rajagopal and his IITM students team | First Place Artificial Intelligence at the 1st Convoive | Pan IIT ML/AI Hackathon in Collaboration with CISCO | Sentiment Analysis of Customer Feedback | February 2023. |

4.13.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Fellowship & Year of Admission |
|---------------|------------------------|---|
| INAE | | |
| 1 | Sujatha Srinivasan | Fellowship Plus Grant From Development of New Orthotic Knee, February 02, 2023. |
| Others | | |
| 1 | Sivasrinivasu Devadula | DST-IITM Pravartak Technologies Foundation, 2022. |

4.13.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|------------------------|--------------------------|---|
| 1. | Prof. Shaligram Tiwari | Subject Editor | Current Science Journal |
| 2. | C Balaji | Editor-in-Chief | International Journal of Thermal Sciences, Elsevier |
| 3. | Ashis Kumar Sen | Associate Editor | Journal of Fluids Engineering |
| | | Editor | Transaction of INAE |
| 4. | Sujatha Srinivasan | Executive Editor | Research Directions: Bioelectronics, a New Cambridge University Press Journal |
| 5. | Arvind Pattamatta | Executive Editor | Editorial Board of the Journal Interfacial Phenomenon and Heat Transfer Published by Begell House Inc |

4.13.4. Design and Development Activities

4.13.4.1. Brief and Specific Details of Process, Instruments, Equipment and Software Designed and Developed

| S. No. | Name of Faculty | Details of Task/Activity |
|--------|------------------|--|
| 1. | G L Samuel | Prediction of Machining Quality and Tool Wear in Micro-Turning Machine Using Machine Learning Models, "Advances in Micro and Nano Manufacturing and Surface Engineering" |
| 2. | Vishal Nandigana | Completion of Soft Lab Software, Completion of AISoft 2 for Windows |

4.13.4.2. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|---|---------------------|
| 1. | Custom Designed Liquid State Mg Extrusion Machine | 20 |
| 2. | Microwave Custom Unit With Loading Capability | 21 |
| 3. | 3D Microscope | 43 |
| 4. | Advanced PVD Conformal-coating System | 57 |
| 5. | Nanosecond Laser | 50 |
| 6. | 2kW Continuous Laser | 65 |
| 7. | High Temperature Tube Furnace | 34 |
| 8. | EDM Machine | 7.5 |
| 9. | Solar Trough Collector | 1 |
| 10. | Microforming Machines | 10 |
| 11. | Dynamic Signal Analyser | 11.5 |
| 12. | COMSOL | 30.7 |
| 13. | Digital Storage Oscilloscope | 5 |

4.13.5. Patents

4.13.5.1. Patents Filed

| S. No. | Faculty | Title |
|--------|--------------------------|---|
| 1. | Anand K | A dynamic fuel blending system for internal combustion engines and a method thereof |
| 2. | Arunachalam N | Method for communication in a multi-transmission/reception point system |
| 3. | Arunachalam N | Method of preparing antibacterial graphene coatings on nitinol substrate |
| 4. | Arunachalam N | Acoustophoresis assisted fluid jet polishing |
| 5. | Chandramouli P | Intruded curved neck compact helmholtz resonator |
| 6. | Gnanamoorthy R | Apparatus for measurement of tribological quantities for electromechanically loaded contacts |
| 7. | Gnanamoorthy R | Integrated additive manufacturing of multi-requirement products using multiple materials |
| 8. | Krishnan Balasubramaniam | A system and method for ultrasound imaging using arbitrary virtual array sources of aperture excitation |
| 9. | Krishnan Balasubramaniam | Novel edge wave acoustic microscopy (ewam) based methods using highly-curved-limited aperture film based ultrasonic transducers |
| 10. | Krishnan Balasubramaniam | Staircase magnetostrictive patch (scamp) transducer |
| 11. | Manish Anand | Mass afforestation drone |
| 12. | Prabhu Rajagopal | Seismobrick unit cell for protection of buildings and equipment against low-frequency seismic surface disturbances |
| 13. | Prabhu Rajagopal | A system and method for ultrasonic far-field super resolution imaging using hyperlens and waveguide |
| 14. | Prabhu Rajagopal | A device for high resolution imaging using off the shelf ultrasonic probes |
| 15. | Prabhu Rajagopal | Secure and interoperable federated blockchain health record ecosystem |
| 16. | Prabhu Rajagopal | A system and method for secure management of electronic health and medical records. |
| 17. | Ramesh A | Controlling temperature of a glow plug during operation in a hot surface ignition engine |
| 18. | Ramesh A; Mayank Mittal | A fuel injection system for a direct injection internal combustion engine and a method of control thereof |

| S. No. | Faculty | Title |
|--------|--------------------------|---|
| 19. | Sarit Kumar Das | An organic nanofluid for cooling of battery stack and a method of manufacture thereof |
| 20. | Sathyan Subbiah | A system and method for measuring cutting-edge radius of edged tool |
| 21. | Seshadri Sekhar A | A vehicle for power generation, transmission and storage |
| 22. | Shankar Krishnapillai | Mango seed decorticator |
| 23. | Shankar Krishnapillai | A modular transportation system |
| 24. | Somashekhar S Hiremath | Method and apparatus for synthesizing in-situ multi-metallic nanoparticles through polarity switching in pulsed erosion machining process |
| 25. | Somashekhar S Hiremath | Bio-inspired textured turning tool for sustainable machining of difficult to machine materials |
| 26. | Somashekhar S Hiremath | A system and a method for manufacturing a cost-effective triply periodic minimal surface structure |
| 27. | Somashekhar S Hiremath | A positive displacement pump and a method of fabrication thereof |
| 28. | Somashekhar S Hiremath | A system and method for bionic impact absorption device |
| 29. | Somashekhar S Hiremath | A system and method for a hydraulic flow divider |
| 30. | Srikrishna Sahu | System for treatment of exhaust gases of diesel engines |
| 31. | Srinivasa Reddy K | Offshore floating wave - solar hybrid energy converter system and method thereof |
| 32. | Sushanta Kumar Panigrahi | A method of producing high performance magnesium alloy sheets |
| 33. | Sushanta Kumar Panigrahi | A modular micro bending apparatus |
| 34. | Sushanta Kumar Panigrahi | A manufacturing method to develop high performance bimetallic sheets |
| 35. | Sushanta Kumar Panigrahi | A method for producing high performance cryo-ufg bimetallic composite sheets |

International Patents Filed

| S. No. | Faculty | Title |
|--------|---|---|
| 1. | Krishnan Balasubramaniam | System and method for remotely monitoring health of a structure |
| 2. | Krishnan Balasubramaniam | A system and a method for detecting and characterizing a defect in an object using guided wave inspection |
| 3. | Krishnan Balasubramaniam | A system for monitoring flow of fluid through a pipeline |
| 4. | Krishnan Balasubramaniam | Staggered magnet array (sma) based electromagnetic acoustic transducer (emat) |
| 5. | Krishnan Balasubramaniam; Prabhu Rajagopal | A modular underwater vehicle assembly and method thereof |
| 6. | Krishnan Balasubramaniam | An apparatus for determining surface temperature of an object and a method thereof |
| 7. | Ramesh A; Mayank Mittal | A fuel injection system for a direct injection internal combustion engine and a method of control thereof |
| 8. | Ramesh A | A fuel injection system for a direct injection internal combustion engine and a method of control thereof |
| 9. | Sushanta Kumar Panigrahi | Method of making aluminium brazing sheet |
| 10. | Seshadri Sekhar A; Prasad B V S S S | A method for determining an initial clearance of a turbomachinery seal |

4.13.5.2. Patents Awarded

Indian Patents Granted

| S. No. | Faculty | Title |
|--------|--|---|
| 1. | Anand K | Electronic Variable Valve Actuation (EVA) System for Advanced Combustion Engines |
| 2. | Anand T N C | A fueling system for an SI engine |
| 3. | Ashis Kumar Sen | Sorting of deformable objects at a fluid-fluid interface in a polymer microchannel |
| 4. | Ashis Kumar Sen | Method for blood plasma separation based on acoustocapillary and asymmetric capillary flow |
| 5. | Ashis Kumar Sen | An integrated opto-microfluidic platform for real-time detection of gases in biosamples and liquids |
| 6. | Krishnan Balasubramaniam | Novel segmented strip design for a magnetostriction sensor (MsS) using amorphous material for long range inspection and structural health monitoring at high temperatures |
| 7. | Krishnan Balasubramaniam; Prabhu Rajagopal | A method of manufacturing a slit mask for in-situ laser ultrasonic inspection of additively manufactured components" |
| 8. | Krishnan Balasubramaniam | Integrated thermocouple waveguide sensor system and method to measure physical properties of waveguide material and surroundings |
| 9. | Prabhu Rajagopal | Design of an underwater remote operated vehicle capable of performing ultrasonic NDE of submerged sub-sea pipeline structures |
| 10. | Prabhu Rajagopal | Flexible ribbed bar waveguide array transducer add-on for ultrasonic guided wave generation |
| 11. | Prabhu Rajagopal | System and method for ultrasonic inspection of curved surfaces |
| 12. | Prasad B V S S S | Inflatable Borewell Rescue Device with Improved Holder Mechanism |
| 13. | Ramesh A | Deep lip Twin chamber: DI Diesel Engine Combustion Bowl (DLTCCB) |
| 14. | Ramesh Babu N | Methods for reducing thermal drift of wheel spindle in a grinding machine |
| 15. | Seshadri Sekhar A, Prasad B V S S S | A method for determining an initial clearance of a turbomachinery seal |
| 16. | Somashekhar S Hiremath | Method and apparatus for synthesizing in-situ multi-metallic nanoparticles through polarity switching in pulsed erosion machining process |
| 17. | Somashekhar S Hiremath | Bio-inspired textured turning tool for sustainable machining of difficult to machine materials |
| 18. | Soundarapandian S | A method and system for generating a digital model of a complex shaped structure |
| 19. | Srinivasa Reddy K | A system for smart and sustainable devices (SSD) for PPE waste treatment and method thereof |
| 20. | Sujatha C | Split fifth wheel coupling |
| 21. | Sujatha Srinivasan | Supportive walker with integrated seating mechanism |
| 22. | Sundararajan T | A rotating spindle type fluid atomizer for spray atomization |
| 23. | Sundararajan T | An air swirler fuel atomizer assembly with variable hub to tip aspect ratio |
| 24. | Sushanta Kumar Panigrahi | A low-cost portable device for evaluating stretch formability at varying temperatures and strain-paths |
| 25. | Sushanta Kumar Panigrahi | A method of producing high performance magnesium alloy sheets |
| 26. | Sushanta Kumar Panigrahi | A micro deep drawing apparatus |
| 27. | Varunkumar S | Self-sustained controlled oxidative flash de-volatilization system for Biochar synthesis |

International Patents Granted

| S. No. | Faculty | Title |
|--------|--------------------------|---|
| 1 | Krishnan Balasubramaniam | Sizing or remnant thickness in pipes and plates using cutoff properties by widening excitation bands of frequency and wavelength. |

4.13.6. Research and Consultancy

4.13.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|--|----------------|----------------------|--------------------------|
| 1. | Establishing Solid State and Liquid State Based Novel Manufacturing Technologies for Recycling Magnesium in to High Performance Sheets | May 31, 2022- May 30, 2025. | SERB | 67.67 | Sushanta Kumar Panigrahi |
| 2. | Non-Classical Techniques for Three Dimensional Phase Field Modelling of Fracture | September 07, 2021-September 06, 2023. | DSTX | 12.45 | Sundararajan Natarajan |
| 3. | Research and Development of Low GWP Chemicals Including Blends Thereof, To Be Used As Alternatives to Substances Controlled Under The Montreal Protocol | October 20, 2022-October 19, 2027. | MEFC | 50.00 | Venkata-rathnam G |
| 4. | Enhancing the Accuracy Of Roboforming Through Prediction and Compensation of Elastic Behavior Using Artificial Intelligence Techniques | December 14, 2022-December 13, 2025. | DSTX | 100.86 | Hariharan |
| 5. | Utilization of Green Ammonia (A Hydrogen Energy Carrier) in Spark Ignition Engines with Range Extension using Green Hydrogen and Engine Modifications for Stationary Applications | January 04, 2023-January 03, 2025. | SERB | 22.37 | Mayank Mittal |
| 6. | Maritime Experiments to Maritime Experience | February 01, 2023-January 31, 2026. | ETWO | 1540.93 | Sriram V |
| 7. | Pravartak Research Grant for Dr Sujatha Srinivasan | November 01, 2022-October 30, 2023. | IIPT | 6.00 | Sujatha Srinivasan |
| 8. | Use of Ultrasound Contrast Agents in Detecting Early Stages of Atherosclerosis | January 23, 2023-January 22, 2026. | DSTX | 13.50 | Dhiman Chatterjee |
| 9. | Development of Optimal Spray Technology Using Rotary Atomizers For Improved Desalination And Brine Disposal Systems | March 06, 2023-March 05, 2026. | DSTX | 86.36 | Srikrishna Sahu |
| 10. | Design and Development of Multi-annular Burner Handling Fuel Blends For Direct Flame Impingement Heat Transfer Application | March 23, 2023-March 21, 2026. | SERB | 30.08 | Raghavan V |
| 11. | Green Synthesis of Robust Surfaces For Sustained Drop Condensation And Anticing Applications: Experiments and Data-driven Modelling | March 10, 2023-March 09, 2026. | SERB | 38.59 | Pallab Sinha Mahapatra |
| 12. | Development of a Functionally Gradient ZrSi(N,O) Corrosion-resistant Coating to Improve Tribocorrosion Performance on Ti6Al4V for Hip Implants | February 20, 2023- February 19, 2026 | SERB | 45.14 | Ramkumar P |

4.13.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | PI Name | Agency Name | Title | Sanction Value (INR lakh) |
|--------|--------------------------|---|---|---------------------------|
| 1. | Sujatha C | Caterpillar India Private Limited | Dynamics Experiments Laboratory | 2.95 |
| 2. | Sujatha C | J V S Switch Gears LLP | Seismic and Mechanical Tests on 132kV Current Transformer and 132 kV Inductive Voltage Transformer | 9.91 |
| 3. | Sujatha C | Pragati Electricals Private Limited | Seismic Test on 132kV Current Transformer | 4.13 |
| 4. | Sujatha C | Switchgears & Structural (India) Private Limited | Seismic Withstand Test On The 420kV Double Break Disconnecter | 5.02 |
| 5. | Sujatha C | Siemens Limited | Seismic Test on 145 kV CB Gang Operated Mechanism And 420 kV CB Independent Pole Operated Mechanism | 8.26 |
| 6. | Sujatha C | Lamco Industries Private Limited | Bending Test on 390kV 20kA Polymer Surge Arrester. | 1.42 |
| 7. | Sujatha C | Switchgear Manufacturing Company Private Limited | Seismic Test on 245kV Double Break Disconnecter | 5.00 |
| 8. | Piyush Shakya | SAS Hydel Projects Private Limited | Bearing Fault Diagnosis for Hydel Power Plant | 2.36 |
| 9. | Chandramouli P | Mehta & Padamsey Insurance Surveyors & Loss Assessors Private Limited | Root Cause Analysis of Syn-gas Compressor Failure | 3.54 |
| 10. | Krishnan Balasubramanian | Hanon Automotive Systems India Private Limited | XCT Analysis for Components | 5.90 |
| 11. | Shankar Krishnapillai | Power Press Engineers India Private Limited | Design of winch car chassis | 2.12 |
| 12. | Prakash Maiya M | Gujarat Metro Rail Corporation (GMRC) Limited | Technical Audit of TVS/ECS Work of Ahmadabad Metro | 11.80 |
| 13. | Dhiman Chatterjee | Sumangala Steel Private Limited | Evaluation of Pollution Control System at Sumangala Steel Pvt Ltd | 3.54 |
| 14. | Sujatha C | Elektrolites (Power) Private Limited | Seismic Test on 400kV 3150A DBCR Isolator | 5.02 |
| 15. | Sujatha C | GR Power Switchgear Limited | Seismic Test on HDB Isolator | 5.07 |
| 16. | Chandramouli P | Ge T&D India Limited | Seismic Test of 245 kV Circuit Breaker | 4.13 |
| 17. | Sujatha C | Lamco Industries Private Limited | Seismic Test On Seismic Tests on 624 kV and 396 kV Arresters | 7.96 |
| 18. | Dhiman Chatterjee | Banyan Hydraulics and Projects Private Limited | Slurry Pump Test Rig. | 9.44 |

4.13.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-----------------|---|--|----------------------|
| 1. | Ramkumar P | Repeatability Experiments for High Frequency Impact WEA | Kluber Lubrication Munchen SE & CO.KG | 5.26 |
| 2. | Arunachalam N | Design and Development Roll Forming Machine for Honeycomb Semicell Structures – Proof of Concept Through Scale Down Model | Chennai Labb | 4.21 |
| 3. | Shamit Bakshi | Measurement of CNG Spray Using Schlieren Imaging | Maruti Suzuki India Limited | 21.48 |
| 4. | Manivannan P V | Design and Development of Prototype Projection And Vision Based Single Plane Inspection System for the HVAC System | Hanon Automotive Systems India Private Limited | 29.08 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--------------------------|--|---|----------------------|
| 5. | Krishnan Balasubramanian | Evaluation and Documentation Support of Establishment of Feasibility for PAUT/TOFD Inspection in lieu of RT for Navy Submarine Weld Inspection | Ministry of Defence | 369.39 |
| 6. | Manivannan P V | Development of Model Predictive Control(MPC) Based Dynamic Controller for PFBR Steam Generator Inspection System(PSGIS) Robotic Arm Path Planning and Control in Real Time | Indira Gandhi Centre For Atomic Research | 48.85 |
| 7. | Dhiman Chatterjee | Development of Coatings for Reduction of Cavitation-induced Noise in Marine Propeller | National Physical & Oceanographic Laboratory | 47.77 |
| 8. | Krishnan Balasubramanian | Feasibility Evaluation for Thermography | Sterlite Technologies Limited | 10.38 |
| 9. | Ramkumar P | To Study Surface Mining Drill Motor Table Pad Wear Behaviour and Develop Life Prediction Numerical Model | Caterpillar India Engineering Solutions Private Limited | 9.32 |
| 10. | Varunkumar S | Development of a Solid-sorbents Based CO2 Capture System | FLSmidth Private Limited | 5.00 |
| 11. | Amitava Ghosh | Development of DCMS or Hipims Coating Recipe for Various Cutting Tool Applications | Addlife Coating Systems Private Limited | 18.59 |
| 12. | Varunkumar S | Further Studies on Continuous Clay Calcination in a Biomass-Fired Mildburner | FLSmidth Private Limited | 36.82 |
| 13. | Shankar Krishnapillai | Design and Testing of High-Pressure Testing Chamber | Norinco Private Limited | 5.81 |
| 14. | Saritkumar Das | Nano-fluid and Microchannel Options to Enhance Cooling Capacity and Effectiveness of Critical Components of Wafer Fabrication Equipment | Lam Research Corporation | 40.39 |
| 15. | Mayank Mittal | Characterization of Electric Vehicle Motor Drive and Charging Loads | Dewetron GMBH | 1.30 |
| 16. | Balaji Srinivasan | Using Physics Informed Extreme Learning Machines (PIELM) to Drive Sustainability in Compute | Intel Corporation | 124.50 |
| 17. | Shankar Krishnapillai | Design Analysis of Sugar Mill Headstock | Fives Cail KCP Limited | 4.96 |
| 18. | Venkatarathnam G | Machine Learning Model for Thermal Correlations | Valeo India Private Limited | 9.44 |
| 19. | Shankar Krishnapillai | Design and Performance Analysis of Electricwinch | Tridel Technologies Private Limited | 9.97 |
| 20. | Pallab Sinha Mahapatra | Liquid Imbibition And Capillary Drainage | Reynolds Pens India Private Limited | 9.43 |
| 21. | Shankar Krishnapillai | Research and Development of Gas Gun | Akiro Protech Private Limited | 35.68 |
| 22. | Raghavan V | Convective-diffusive Transport of Refrigerant Leak in Air-conditioner Systems | Lennox India Technology Centre Private Limited | 11.80 |
| 23. | Chandramouli P | Improved Sound Blanket for Compressor | Lennox India Technology Centre Private Limited | 6.51 |
| 24. | Ramkumar P | Evaluate Tribological Performance of Polymer Materials Against Steel With Different Greases | ZF Commercial Vehicle Control Systems India Limited | 1.67 |
| 25. | Srinivas Reddy K | Investigation of Thermal Properties of Thermal Interface Materials for Ola EV | Ola Electric Technologies Private Limited | 2.83 |
| 26. | Samuel G L | Development of Technology to Machine Composite Materials | Meera Lasers Solution Private Limited | 8.00 |
| 27. | Srinivas Reddy K | Investigation of Thermal Conductivity of Light-Weight Gypsum Boards With Different Formulations | Saint - Gobain India Private Limited | 4.93 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|------------------|---|---|----------------------|
| 28. | Srinivas Reddy K | Design of Green Hydrogen Production From Saline Water | Lakshmi International Building Materials Private Limited | 8.12 |
| 29. | Prabhu Rajagopal | Feasibility of Guided Ultrasound For Predicting Train Approach on Rail Tracks | TVM Signalling And Transportation Systems Private Limited | 46.96 |
| 30. | Ramkumar P | Wear Coefficient and Performance of Different Materials for Grader | Caterpillar India Engineering Solutions Private Limited | 4.42 |
| 31. | Ramkumar P | Sliding Wear Performance of Excavator Bucket Materials: Phase - III | Caterpillar India Engineering Solutions Private Limited | 12.76 |
| 32. | Shamit Bakshi | Modeling Electrostatic Spray Paint Process with Rotating Cups | Ford Motor Private Limited | 25.90 |
| 33. | Anand K | Testing of Diesel with and without Additive in an Internal Combustion Engine | Golden Energy Refineries | 1.36 |

4.13.6.4. Retainer Consultancy (Ongoing & New)

| S. No. | PI Name | Title | Agency Name | Sanction Value (INR lakh) |
|--------|------------------|---|-----------------------------------|---------------------------|
| 1. | Venkatarathnam G | Design of a Low Temperature Plant Growth Chamber | Scigenics Biotech | 7.08 |
| 2. | Saritkumar Das | Retainer Consultant for Strategic Planning at Nims University Rajasthan, Jaipur | Nims University Rajasthan, Jaipur | 60.00 |
| 3. | Prabhu Rajagopal | Technical Support Towards Homosep Robot Field Deployment | Solinas Integrity Private Limited | 21.00 |
| 4. | Venkatarathnam G | Guidance for Chiller Design For A New Plant | Sundaram Clayton Limited | 7.08 |

4.13.6.5. Faculty Members' Participation With Other Institutions Under MoU

| S. No. | Name of Faculty | Participation Details | Name of University/Institution Which Has MoU |
|--------|------------------------|--|--|
| 1. | G L Samuel | Strategic Partnership between Centrale Nantes and Indian Institute of Technology Madras For Joint Research in the Area of Additive Manufacturing | Prof. Jean-Yves Hascoet and Prof. Marya, Centrale Nantes, France |
| 2. | Sundararajan Natarajan | Joint Ph.D. Programme | Ecole Centrale de Nantes |
| 3. | | Co-supervision | University of Oxford |
| 4. | | VAJRA Host Faculty | University of New South Wales, Sydney |
| 5. | | Research Collaboration | University of Luxembourg |
| 6. | G L Samuel | Research Collaboration | Hokkaido University |
| 7. | K Srinivasan | Ph.D. Scholar Mr. Sreeram B (ME19D039) selected for Joint Degree Programme at NTU Singapore | NTU Singapore |
| 8. | Sujatha Srinivasan | Signed MoU | Global Rainbow Foundation, Mauritius |

4.13.7. Distinguished Visitors to the Department

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|---|--------------------------------|---|
| 1. | Prof. Subha Kampaty, Professor and Program Director MS Engineering Mechanical Engineering, Milwaukee School of Engineering, USA | August 16, 2022. | Talk on 'Engineering Education – Practices and Perspectives' |
| 2. | Prof Surendar Marya, Ecole Centrale Nantes France | October 29– November 13, 2022. | Applied Magnesium Research Group; Explore Joint Research |
| 3. | Prof. Guoxing Lu, Associate Dean, Swinburne University, Melbourne, Australia | September 01, 2022. | Visit R2D2 |
| 4. | Prof. Marcus Pandy, University of Melbourne | September 10-12, 2022. | Discuss thesis submission of joint doctoral scholar in MIPA program |
| 5. | Dr. Samsul Ekram (Head – Engineering - Portescap India) | September 27, 2022. | Visit R2D2 |
| | Amitava Sur (MD – Portescap India) | | |
| | Usha Vandavasi (Director Finance and CFO - Portescap India) | | |
| | Dr. Ankit Dalal (Principal Engineer, RnD, Portescap India) | | |
| 6. | Mr. Praveen Kumar, GM, ALIMCO | October 04, 2022. | Visit R2D2 |
| 7. | Dr. Armoogum Parasuramen, Founder, Global Rainbow Foundation, Mauritius | October 06, 2022. | Discuss MoU with R2D2 to be signed at EMPOWER 2022 |
| 8. | Prof. Cathy Holloway, Academic Director, Global Disability Innovation Hub, UCL, UK | October 12-14, 2022. | Visit R2D2, keynote speaker at EMPOWER 2022 |
| 9. | Yosuke Ishikawa, Nippon Foundation, Japan | October 14, 2022. | Visit R2D2 |
| 10. | Prof. Miyashita Y, Nagaoka Univ of Technology, Japan | December 02, 2022. | Joint Research Project Discussions |
| 11. | Prof. Ramesh Raghevendra, SEAM Centre Director & Founder of 3DWIT South Eastern Applied Materials (SEAM) Research Centre, South East Technological University (SETU), Waterford X91TX03, IRELAN | December 02, 2022. | Joint Research Project Discussions |
| 12. | Prof Guillaume Racineux, Ecole Centrale Nantes, France | October 29– November 13, 2022. | Collaborative Research |
| 13. | Prof. Surendar Marya, Ecole Centrale Nantes, France | October 29– November 13, 2022. | Collaborative Research |
| 14. | Dr. Jose C Redondo Martinez, University of Leon | February 10, 2023. | Visit R2D2 |
| 15. | Harish Iyer (Dy. Director), Ms Krishna, Amrita Sekhar (Sr. Program Director), Bill & Melinda Gates Foundation | February 21, 2023. | |
| 16. | Professor Dan Parsons (Pro-VC for Research and Innovation) and Prof. Bala Vaidyanathan (Coordinator of the Loughborough-Asia Materials Partnership (LAMP) programme), Loughborough University, UK | February 24, 2023. | |
| 17. | Prof. Ramin Sedaghati, Prof. Muthukumaran Packirisamy Concordia University | February 27, 2023. | |
| 18. | Levent Yarar, Senior Director of Strategic Partnerships, Wharton Interactive | February 28, 2023. | |

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|---------------|---|----------------------|---|
| 19. | Shiori Hirose, Japan Hokudai university | March 01, 2023. | Visit R2D2 |
| 20. | Prof. Rajesh Bhooshan, Dean of Academics, NIT Manipur | March 06, 2023. | |
| 21. | Hon. Minister Stephen Noel Dawson MLC, Minister for Innovation, Digital Economy and Medical Research, Western Australia | March 24, 2023. | |
| 22. | Prof. Brad MacKay, Deputy Principal and Vice- Principal (International Strategy and External Relations) University of St. Andrews | March 27, 2023. | |
| 23. | Prof. Komatsu, Prof. Fukumoto and Prof. Kano, Nagaoka UT Japan | March 17, 2023. | Research Collaboration Architected & Sustainable Materials and Design Group |
| 24. | Prof. Bijwe J, Professor IIT D | February 28, 2023. | Research Collaboration Architected & Sustainable Materials and Design Group |

4.14

Department of Metallurgical and Materials Engineering

4.14.1. Introduction

One of the oldest departments of IIT Madras, the Department of Metallurgical and Materials Engineering (MME), was established in 1959 as the Department of Metallurgy. It was renamed as the Department of Metallurgical and Materials Engineering in 2003. The Department offers B.Tech., M.Tech., M.S. and Ph.D. degree courses, and is actively engaged in research, education and industrial consultancy. Its teaching, research, and consultancy activities cover a broad spectrum ranging from conventional metallurgy to frontiers of materials science and engineering. The Department is respected for its strong linkages with industry and expertise in industrial metallurgy. Over the years, it has hosted excellent research infrastructure in the broad areas of material science and engineering, such as materials processing (forming, joining, casting, particulate processing and nanostructured materials), characterization (X-ray diffraction, electron microscopy, and thermal analysis), mechanical testing, corrosion engineering, surface engineering, computational materials science, and electronic materials. The Department continues to strive for excellence and realizing its vision of becoming a pioneering department in the areas of materials science and engineering, while consolidating its strength in traditional areas of metallurgical engineering.

4.14.2. Academic Programmes

The Department offers B.Tech., M.Tech., M.S. and Ph.D. programmes.

4.14.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|---|
| 1 | ID6108 | Process and Design for Additive Manufacturing |
| 2 | MM5565 | Machine Learning in Material Science |
| 3 | MM5530 | Hydrogen Assisted Green Steelmaking |

4.14.2.2. New Lab(s) Established

Material Informatics Laboratory (for Artificial Intelligence / Machine Learning in Materials Science)

4.14.2.3. Students on Roll as of September 2022 + M.S. & Ph.D Admission in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & extended | Total |
|--------------|------------|------------|-----------|-----------|-------------------|------------|
| B.Tech. | 68 | 70 | 44 | 36 | 7 | 225 |
| Dual Degree | - | - | 22 | 15 | 25 | 62 |
| M.Tech. | 26 | 27 | 1 | 2 | 1 | 57 |
| M.S. | 12 | 12 | 9 | 4 | - | 37 |
| Ph.D. | 30 | 28 | 23 | 16 | 74 | 171 |
| Total | 136 | 137 | 99 | 73 | 107 | 552 |

4.14.2.4. Endowment Prize Instituted

Shankari Subramanyam Impact Grant (SSIG)

Background:

This grant is provided by Dilip Subramanyam, B. Tech, Metallurgy, IIT Madras 1977, in loving memory of his mother, who passed away in 2006. The grant is to be set up in the amount of \$250,000. It is anticipated that the investment of these funds will provide at least Rs. 10 Lakhs annually to the Department of Metallurgical & Materials Engineering.

Purpose:

This grant aims to provide funds annually or semi-annually to researchers in the Department of Metallurgical and Materials Engineering to further collaborative research within the institute and industry in India and overseas. It is anticipated that this process will increase the visibility and strength of the Department over time and help retain value both in terms of faculty and its ability to attract students. At the donor's request, an advisory board exists to guide the Department in its decision-making process to make the most effective use of grants to achieve the above-stated purpose. The department head can appoint a small group of faculties to interact with the advisory board to understand the implications of the various projects brought forward for consideration. Members of the board are typically alumni of the Department.

Advisory Board Members:

The initial board members are Mr. MM Murugappan (former chairman of The Murugappa Group, Chennai, INDIA), Dr. Pinakin Chaubal (CTO, Arcelor Mittal Steel, East Chicago, IL, USA, IIT Madras alumnus 1978), Prof. Shraavan Kumar (Brown University, Providence, Rhode Island, USA, IIT Madras Alumnus 1979), Dr. C. Narayan (IBM Research, San Jose, CA, IIT Madras Alumnus 1978), Dr. Shubha Kumar (IIT Madras Alumna 1994, Distinguished Alumna, 2022). In consultation with the advisory board, the Department head can appoint additional new members from time to time to maintain reasonable strength of numbers.

4.14.2.5. Students/Scholars Who Attended Conference, Seminar and Symposia in India and Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue |
|--------|---------------------------------|----------|---|---|
| 1 | Prasenjit Singha | MM17D024 | International Conference on Artificial Intelligence and Speech Technology (AIST) 2022 | May 16-18, 2022. Pittsburgh, USA (Online) |
| 2 | V S Hariharan | MM18D401 | CALPHAD XLIX | May 22-27, 2022. Stockholm, Sweden |
| 3 | Sufyan M Shaikh | MM17D202 | CALPHAD XLIX | May 22-27, 2022. Stockholm, Sweden |
| 4 | S S Lokesh Vendra | MM16D017 | Poster Presentation: Materials Research Society Spring Meeting & Exhibit | May 23-25, 2022. (Virtual event) USA |
| 5 | V S Hariharan | MM18D401 | Eurosuperalloys 2022 Conference | September 18-22, 2022. Bamberg, Germany |
| 6 | Uday Pratap Singh | MM18D032 | Eurosuperalloys 2022 Conference | September 18-22, 2022. Bamberg, Germany |
| 7 | M V S S Raghunath Sharma | MM16D400 | Facile Synthesis of Centrifugally Spun Tantalum Oxynitrides as Electrocatalysts for Hydrogen Evolution Reaction, Material Science and Engineering Congress | September 2022, Darmstadt, Germany |
| 8 | Abishek M | MM19D751 | Can in-situ Transformation of Precursor Derived LaxCy to Nanocrystalline La(OH)3 Provide Pathways for Electrocatalytic H2 Evolution? Materials Science and Engineering Congress | September 27-29, 2022. Technical University of Darmstadt, Germany |
| 9 | S S Lokesh Vendra | MM16D017 | Improved Electrochemical Performance of Ti Modified Amorphous Silicon Oxycarbide (Si(Ti) OC) From Pyrolysis of a Single Source Precursor, Materials Science and Engineering Congress Team | September 27-29, 2022. Technical University of Darmstadt, Germany |
| 10 | Tatavarthi Veera Venkata Ramana | MM17D408 | Enhancing the Thermoelectric Figure of Merit of Cu2Se Superionic Conductor Via Ni and Te Co-doping, MSE Congress DGM International Conference | September 27-29, 2022. Darmstadt, Germany |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue |
|--------|-----------------------------|----------|---|---|
| 11 | Kousik Papakollu | MM18D004 | Vanadium Modified Silicon Oxycarbides as Electrocatalysts for Oxygen Reduction Reaction in Alkaline Media, Materials Science and Engineering (MSE) Congress | September 27-29, 2022. Darmstadt, Germany |
| 12 | Ankit Bansal | MM21S007 | National Conference on Multidisciplinary Design, Analysis, and Optimization [NCMDAO-2022] | September 15-17, 2022. IIT Bombay |
| 13 | Shivam Kumar Dwivedi | MM20S015 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 14 | Kotha Tejaswi | MM18D029 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 15 | Uday Pratap Singh | MM18D032 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 16 | Venkata Ramana | MM17D408 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 17 | Kousik Papakollu | MM18D004 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 18 | V S Hariharan | MM18D401 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 19 | Gourav Mundhra | MM17D409 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 20 | Bhaskar Siva kumar | MM16D415 | IIM-ATM 2022: Annual Technical Meeting - Indian Institute of Metals | November 13-16, 2022. Hyderabad |
| 21 | Swati Suman | MM21D050 | Institute of Electrical and Electronics Engineers International Conference on Emerging Electronics (IEEE ICEE) | December 11-14, 2022. |
| 22 | Arasakumaran K | MM22S006 | IIT Kharagpur Research Park | December 19-21, 2022. |
| 23 | Sai Supriya Lakshmi | MM22S005 | International Conference on Energy Conversion and Storage 2023 | January 18-20, 2023. IIT Madras |
| 24 | Mainak Saha | MM18D704 | International conference on Electron Microscopy & XLI Annual Meeting of Electron Microscope Society of India (EMSI-2023). | February 09, 2023. University of Delhi |

4.14.2.6. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|--|---|
| 1 | V S Hariharan | MM18D401 | Larry Kaufman Scholarship and CALPHAD Best Poster Award | The Minerals, Metals & Materials Society (TMS) |
| 2 | Sufyan M. Shaik | MM17D202 | Larry Kaufman Scholarship | The Minerals, Metals & Materials Society (TMS) |
| 3 | Anbuthangam | MM16D302 | Poster Award at 33 rd International Symposium on Chromatography | International Symposium on Chromatography (ISC) |
| 4 | Hariharan V S | MM18D401 | Poster Presentation Winner at the Indian Institute of Metal | Indian Institute of Metals |
| 5 | Kousik Papakollu | MM18D004 | 3 rd in Poster Presentation at the Indian Institute of Metal | Indian Institute of Metals |
| 6 | Bhaskar Sivakumar | MM16D415 | Oral Presentation Winner at the Indian Institute of Metal | Indian Institute of Metals |
| 7 | Manish Nandakumar Borse | MM19D752 | Poster Presentation Runner Up at 8 th International Conference on Nanostructured Materials by Severe Plastic Deformation (NanoSPD8) | IISc, Bangalore |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|---|--|
| 8 | Achintya Kumar Patra | MM17D410 | Commendation Award in Paper Presentation at 8 th International Conference on Nanostructured Materials by Severe Plastic Deformation (NanoSPD8) | IISc, Bangalore |
| 9 | Anbuthangam Ashokan | MM16D302 | Best Paper Award at International Symposium on Chromatography (ISC2022) | ISC2022, Budapest, Hungary |
| 10 | B Manaswini | MM21M011 | DAAD-KOSPIE Scholarships (PG) | Karlsruhe Institute of Technology, Germany |
| 11 | Alekhya Konda | MM21M028 | DAAD-KOSPIE Scholarships (PG) | Technical University Darmstadt |
| 12 | Abhiram Kavikondala | MM21M010 | DAAD-KOSPIE Scholarships (PG) | RWTH Aachen, Germany |
| 13 | Sayantan Mondal | MM18B101 | DAAD-KOSPIE Scholarships (PG) | Technical University Darmstadt, Germany |
| 14 | Yogitha B M | MM18B007 | MITACS Program | Ryerson University, Toronto, Canada |
| 15 | Vir Karan | MM19B057 | MITACS Program | University of Alberta, Edmonton, Alberta, Canada |
| 16 | Ayesha Ulde | MM19B021 | MITACS Program | École de technologie supérieure, Montréal, Canada |
| 17 | Shashwat Patel | MM19B053 | MITACS Program | University of British Columbia, Vancouver, Canada |
| 18 | Nagappan N | MM19B040 | MITACS Program | Western University, London, Canada |
| 19 | Hrishabh Srivastava | MM19B033 | MITACS Program | University of British Columbia, Vancouver, Canada |
| 20 | Bipin V | MM19B005 | MITACS Program | University of Victoria, British Columbia, Canada |
| 21 | Pragalbh Vashishtha | MM19B012 | India Connect | Nanyang Technological University, Singapore |
| 22 | Swathi E | MM16D002 | Indo-German Science and Technology (IGSTC) Industrial Fellowship 2022 | Fraunhofer Institute for Applied Polymer Research, Germany |

4.14.2.7. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prizes | Name of Donor |
|--------|-----------------------------|-----------|--|-----------------------------|
| 1 | Santhra Krishnan P | MM21D009 | Prime Minister's Research Fellowship (PMRF) | Ministry of Education (MoE) |
| 2 | Lalith Kumar Bhaskar | MM15D404 | Institute Research Award | IIT Madras |
| 3 | Y Sai Swaroop Sarma | MM21D300 | (PMRF) | MoE |
| 4 | Ramesh Radhakrishnan | MM20D306 | (PMRF) | MoE |
| 5 | Sabyasachi Panda | MM22D005 | (PMRF) | MoE |
| 6 | Lasya Peela | MM22D011 | (PMRF) | MoE |
| 7 | Nithin M | MM16D301 | Institute Research award | IIT Madras |
| 8 | Aparna M L | MM18D301 | Institute Research award | IIT Madras |
| 9 | Balamurugan L | MM21S401 | Most Promising Startup in the Institute | IIT Madras |
| 10 | Sourav Ghosh | MM17D202 | Sudharshan Bhat Memorial prize | IIT Madras |
| 11 | M Venkatramanan | MM18BD009 | B. Krishnamurthy Award and Vijay Jagannathan Award | IIT Madras |

4.14.3. Faculty and Their Activities

4.14.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|--|---|
| Professors | |
| N V Ravi Kumar, Ph.D. (MPI-Stuttgart and University of Stuttgart, Germany) [HoD] | Processing & Characterization of Precursor Derived Ceramics. Atomistic Design/Molecular Design/Microstructure Design for the Development of High Performance Ceramics, Investigation of Thermal and Mechanical Properties and Correlation with Structure |
| M Balasubramanian, Ph.D. (IIT Madras) | Advanced Ceramics and Composites, Nanocomposites Processing, Materials Characterisation |
| S S Bhattacharya, Ph.D. (IIT Madras) | Nanocrystalline Materials—Synthesis, Consolidation, Characterisation and Property Evaluation, Superplasticity of Materials (Analytical and Experimental), Superplastic Forming, Advanced Materials Testing |
| S Ganesh Sundara Raman, Ph.D. (IIT Madras) | Fatigue and Fracture of Metallic Materials and their Weldments, Fretting Fatigue, Fretting Wear, High-Temperature Deformation, Coatings, Thermal Spray Processing, Surface Engineering |
| K C Hari Kumar, Ph.D. (IIT Delhi) | Computational Thermodynamics and Kinetics, ab initio Calculations of Thermochemical and Thermophysical Properties |
| M Kamaraj, Ph.D. (IIT Madras) | High-temperature Deformation Studies on Steels/Super Alloys, Hot-corrosion Studies, Surface Technology, Development of Wear Surfacing Materials, Tribological Studies on Weld Deposits/Coatings/Composites, Failure Analysis |
| BS Murty, Ph.D. (IISc, Bengaluru) (On lien – currently at IIT Hyderabad) | Nanocrystalline Materials, Bulk Metallic Glasses, High-entropy Alloys, Composites, Phase Transformations, Electron Microscopy, Atom Probe Tomography |
| G Phanikumar, Ph.D. (IISc, Bengaluru) | Solidification Using Electromagnetic Levitation and Melt Spinning, Transport Phenomena in Manufacturing Processes, Microstructure Simulation and Characterisation |
| Prathap Haridoss, Ph.D. (University of Wisconsin-Madison, USA) | Production and Characterisation of Carbon Nanotubes, Synthesis of CdS Nanocrystals, CO-tolerant PEM Fuel Cell Catalysts |
| Ranjit Bauri, Ph.D. (IISc, Bengaluru) | Metal Matrix Composites, Aluminium Alloys, Solid Oxide Fuel Cells |
| V. Sampath, Ph.D. (IISc, Bengaluru) | Shape Memory Alloys/Smart Materials, Composite Materials, Powder Metallurgy, Structure–Property Correlations in Materials |
| S Sankaran, Ph.D. (IIT Kanpur) | Mechanical Behaviour of Materials, Electron Microscopy, Structure–Property Correlations |
| Somnath Bhattacharyya, Ph.D. (MPI-Stuttgart and University of Stuttgart, Germany) | Studying Correlation of the Structure and Chemistry of Materials at Atomic Scale with Physical Properties Using Transmission Electron Microscopy, Development of New Methodology Related to TEM/STEM to Study Materials, Studying Nano-bio Conjugation Using Electron Probe |
| V Subramanya Sarma, Ph.D. (IIT Madras) | Materials Processing, Development, Characterisation and Microstructure, Mechanical Property Correlations in Engineering Materials |
| Uday Chakkingal, Ph.D. (Rensselaer Polytechnic Institute, USA) | Metal Forming and Material Processing, Severe Plastic Deformation Processes, Aluminium Alloys, Sheet Metal Forming |
| Associate Professors | |
| Ajay Kumar Shukla, Ph.D. (IIT Kanpur) | Process Modelling, Control and Optimisation of Iron and Steel Making, Computational Thermodynamics and its Application to High-temperature Metallurgical Processes, Heat and Mass Transfer |
| Anand K Kanjarla, Ph.D. (Katholieke Universiteit Leuven Belgium) | Microstructural Approach to Mechanics of Materials, Finite Element Method and Fast Fourier Transform Approach to Crystal Plasticity (CPFEM and CPFFT), Plastic Anisotropy and Crystallographic Texture, Microstructure Evolution in Irradiated Systems |

| Name and Qualifications | Major Areas of Specialisation |
|--|--|
| (Katholieke Universiteit Leuven Belgium) | Microstructural Approach to Mechanics of Materials, Finite Element Method and Fast Fourier Transform Approach to Crystal Plasticity (CPFEM and CPFFT), Plastic Anisotropy and Crystallographic Texture, Microstructure Evolution in Irradiated Systems |
| Lakshman Neelakantan, Ph.D. (MPIE Dusseldorf and RUB, Bochum, Germany) | Corrosion Characteristics, Smart Coating for Corrosion Protection, Electro-Dissolution, Planarisation and Deposition |
| Manas Mukherjee, Ph.D. (Technical University Berlin, Germany) | Metal Foam Production and Characterisation, Physics of Foaming, X-ray Tomography, Solidification |
| Murugaiyan Amirthalingam, Ph.D. (Delft University of Technology, Netherlands) | Welding Metallurgy, Welding Processes Development, Steels Product Development, in situ 3D Synchrotron X-ray Diffraction and Additive Manufacturing |
| Parasuraman Swaminathan, Ph.D. (University of Illinois, Urbana-Champaign, USA) | Printed Electronics, Vapour-deposited Thin Films and Nanoparticles, Optical and Electrical Properties of Doped Metal Oxides, Photovoltaics |
| K G Pradeep, Ph.D (MPIE-Düsseldorf and RWTH Aachen University, Germany) | Combinatorial Alloy Design, Atom Probe Tomography and Field Ion Microscopy, Magnetic Materials, Thin Films and Hard Coatings, Correlative Microscopy, Amorphous and Nanocrystalline Materials Mechanical Behaviour of Materials |
| K Ravi Sankar, Ph.D. (IISc, Bengaluru) | High-temperature Deformation, Super Plasticity, Nanocrystalline Materials, Size Effects in Plastic Deformation |
| Sabita Sarkar, Ph.D. (IISc, Bengaluru) | Process Modelling/Design of Metallurgical and Chemical Processes, Modelling and Simulation of Flows Through Packed Beds, Fluidised Beds, Heat and Mass Transfer, Granular Flows, Multi-Phase Flows, Reacting Flows |
| Sreeram K Kalpathy, Ph.D. (University of Minnesota, USA) | Soft Matter: Colloid and Polymer Science, Interfacial Fluid Mechanics, Physical Chemistry of Surfaces, Coating and Printing Methods |
| Srinivasa Rao Bakshi, Ph.D. (Florida International University, Miami, USA) | Thermal Spraying, Carbon Nanotube-reinforced Composites, Microstructure Property Correlations at Different Length Scales, Nuclear Materials |
| Tiju Thomas, Ph.D. (Cornell University, USA) | Energy Materials, Environmental Remediation Materials [Nitrides, Oxynitrides, Oxides (in nano, meso and bulk forms)], Photofunctional Materials (for solar cells, photocatalytic applications), Optical Materials and Devices, Surfaces, Interfaces and Transformation of Nanostructures, Green Approaches to Functional Nanomaterials |
| Assistant Professors | |
| Bhuvanesh Srinivasan, Ph.D. (CNRS-University of Rennes, France) | Thermoelectric Materials and Devices for Energy Harvesting Applications |
| Hema Prabha, Ph.D. (IISc, Bengaluru) | Microscopy, Solar Cells |
| Rohit Bhatra, Ph.D. (University of Connecticut, USA) | Materials Informatics and Machine Learning based Materials Design and Optimization |
| Satyesh Kumar Yadav, Ph.D. (University of Connecticut, USA) | Physics and Chemistry of Materials from First-Principles Electronic Structure Modelling, First-Principles Thermodynamics, Modelling of Materials Using Quantum Mechanics Derived Potentials, Understanding Structure, Property, and Processing Relation of Materials |
| Visiting Faculty | |
| R Gopalan, Ph.D. (IIT Madras) [Visiting Professor] | Magnetic Materials, Thermo-electric Materials, Fuel Cells |
| T S Sampath Kumar, Ph.D. (IISc. Bengaluru) [Emeritus Professor] | Nanostructured Biomaterials, Antimicrobial Ceramics and Delivery Systems, Value-added Biomaterials from Natural Wastes |
| New Young International Faculty Member | |
| Shotaro Tada, Ph.D. (Nagoya Institute of Technology, Japan) | Organic Inorganic Synthesis, Polymer Derived Ceramics, Catalysis, Nanocomposites |

4.14.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|------------------|--------------------------------------|---|-----------------------|
| Seminars | | | |
| 1 | Ravi Kumar NV | Pushing the Boundaries of Micro-Fabrication and Micromechanics | April 20, 2022. |
| 2 | Ravi Kumar NV | Electrocatalysis at Solid-Gas and Solid-Liquid Interfaces | April 22, 2022. |
| 3 | Ravi Kumar NV | Sustainability Research: A Computational and Materials Perspective | September 12, 2022. |
| 4 | K G Pradeep | An Introduction to CAMECA Atom Probe Tomography (APT) Technology and Recent Applications | September 20, 2022. |
| 5 | Ravi Kumar NV | Chain Entanglements in Monodisperse Melts and Binary Blends | September 21, 2022. |
| 6 | Ravi Kumar NV | Advanced Ceramics under Extreme Conditions | December 5-6, 2022. |
| 7 | V Subramanya Sarma | Recent Advances (software & hardware) in EBSD | February 01, 2023. |
| 8 | Ravi Kumar NV | Understanding Material Synthesis and Material Degradation at the Atomic Scale: Two Sides of the Same Coin | February 06, 2023. |
| 9 | Srinivasa Rao Bakshi | Coatings & Surface Engineering Spanning Metals, Ceramics & AI | February 24, 2023. |
| 10 | Murugaiyan Amirthalingam | Additive Manufacturing of Advanced Ceramics: The Art of the Possible | February 27, 2023. |
| 11 | Somnath Bhattacharya | Materials and Interfaces in Electrochemical Energy Conversion: Understanding and Control | March 16, 2023. |
| 12 | Ravi Kumar NV | Innovations in Halide Perovskites Processing to Extend Solar Cell Life | March 20, 2023. |
| 13 | V. Subramanya Sarma | B2 Precipitation-strengthened Refractory Compositionally Complex Ta-Mo-Ti-Cr-Al Alloys | March 23, 2023. |
| 14 | KC Hari Kumar | Design of New Alloys and Post-Processing Operations for Additive Manufacturing Using a CALPHAD-based ICME Framework | March 24, 2023. |
| 15 | Bhuvanesh Srinivasan and Rohit Batra | Industrial Research and Career Opportunities for Researchers in an Industry | March 25, 2023. |
| Symposia | | | |
| 1 | S Sankaran | Advanced Microscopy & its Applications in Materials Science | November 08-10, 2022. |
| Workshops | | | |
| 1 | Sreeram K Kalpathy | Science and Magic Workshop by Prof. Anil Kumar, Dept. of Chemistry, IIT Bombay. | May 17, 2022. |
| 2 | V Sampath | Recent Trends in Shape Memory Alloys | February 09-10, 2023. |
| 3 | Ravi Kumar NV | Atomistic Modeling of Earth Abundant Electrocatalysts | 27-28 April 2022 |
| 4 | Kamaraj M | Thermal Spray Coatings and Applications | October 26, 2022. |
| 5 | Murugaiyan Amirthalingam | Advanced Welding, Additive Manufacturing and High Strain Rate Forming Processes. | November 11, 2022 |
| 6 | V Subramanya Sarma | Texture, Microstructure and Grain Boundary Analysis | November 14-15, 2022. |
| 7 | Ravi Kumar N V | Advanced Ceramics under Extreme Conditions | December 5-6, 2022. |
| 8 | S Sankaran | X-ray, Synchrotron and Neutron Diffraction and their Application in Materials Science | February 21-24, 2023. |
| 9 | Ravi Kumar NV | Diffusion Property Correlations in Compositionally Complex Alloys | March 6-8, 2023. |

| S. No. | Coordinator(s) | Title | Period |
|--------------------|--------------------------|--|-----------------------|
| 10 | Ravi Kumar NV | Recent Advances in Precursor Derived Ceramics: Innovations and Translational Research (PDC-IT) & Ceramic Technologies for Futuristic Mobility | March 8-10, 2023. |
| 11 | Murugaiyan Amirthalingam | Additive Manufacturing (3D Printing) of Bioimplants - Academic & Industry Perspectives | March 10-11, 2023. |
| Short-term Courses | | | |
| 1 | Hari Kumar K C | Thermo-Calc and Tools, (50 h of lecture, ~25 participants) (done under CCE) at Tata Steel, Jamshedpur. | February-July 2022. |
| 2 | Ravi Kumar N V | GIAN Course: Polymer-derived Ceramics (PDC) Technology Course Instructor: PD Dr. rer. nat. habil. Günter Motz, Head of Polymer Derived Ceramics Group & Chair of Ceramic Materials Engineering, University of Bayreuth, German | November 21-28, 2022. |
| 3 | Parasuraman Swaminathan | GIAN Course: METAL OXIDE SEMICONDUCTORS Course Instructor: Prof. Celso Manuel Aldao Department of Physics, School of Engineering, University of Mar del Plata, Argentina | December 5-9, 2022. |

4.14.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences, Training Attended by the Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|----------|----------------------|--|--|-----------------------|
| Seminars | | | | |
| 1. | Gandham Phanikumar | Opportunities for DS / AI in 3D Printing of Metallic Materials | RBCDSAI, IIT Madras | September 24, 2022 |
| 2. | Rohit Batra | Accelerating Materials Discovery Using Computations and Machine Learning | RBCDSAI, IIT Madras | September 24, 2022 |
| 3. | Manas Mukherjee | Metal Foams: Processing, Properties and Applications | IIT Bhubaneswar | November 12-13, 2022 |
| 4 | Tiju Thomas | Computer Assisted and Active Co-operative Learning in the Context of Physics Education | SRM Institute of Science and Technology | November 17, 2022 |
| 5 | Rohit Batra | Accelerating Materials Discovery Using Computations and Machine Learning | IIT Jodhpur | November 21, 2022 |
| 6 | Rohit Batra | Accelerating Materials Discovery Using Computations and Machine Learning | IIT Delhi | November 23, 2022. |
| 7 | S Sankaran | 3 rd Generation Advanced High Strength Steels: Innovation in Heat Treatment Processes & Opportunities | Ashok Leyland Pvt. Ltd | November 25, 2022. |
| 8 | Ravi kumar N V | Skill Development: From an Idea to Prototype | NIT Nagaland | November 26-30, 2022. |
| 9 | Ravi kumar N V | Entrepreneurship in Materials Engineering Challenges & Opportunities | NIT Trichy | November 30, 2022. |
| 10 | Bhuvanesh Srinivasan | Insights on Thermoelectrics & Career Opportunities in Research | Vellore Institute of Technology, Vellore | December 02, 2022. |
| 11 | Ravi Kumar N V | Advanced Ceramics: New Technology applications | 1 st Advanced Materials Summit 2022 - CII, Session- 7 | December 03, 2022. |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|--|---|---|------------------------|
| 12 | Sreeram K Kalpathy | Features of Liquid Phase Deposition of Soft Thin Film Coatings onto Permeable or Porous Solids | IIT Kharagpur Research Park, Kolkata | December 19-22, 2022. |
| 13 | V Sampath | Functional Fatigue Behaviour of Binary NiTi SMA - Effect of Partial Transformation Cycling | IISc Bengaluru | December 21-23, 2022. |
| 14 | Rohit Batra | Active Learning for Efficient Materials Discovery | EESTER-2023, SRMIST & IIT Madras | January 04-12, 2023. |
| 15 | Ravi Sankar Kottada | Widening the Choice of Build Materials for Metal Additive Manufacturing | 3D Techno Symposium, Bengaluru | February 17, 2023. |
| 16 | Bhuvanesh Srinivasan | Chaired a Technical Session for 2 nd International Conference on Materials, Design and Manufacturing Process [ICMDM 2023]” | College of Engineering Guindy, Anna University | February 24, 2023. |
| 17 | Ajay Kumar Shukla | Decarbonisation Potential in Steel Industries: A Way Forward Towards Green Steelmaking | Recent Advancements in Iron & Steel Industries and Emerging areas (RAISE-2023), CSIR-IMMT Bhubaneswar | February 24, 2023. |
| 18 | V Subramanya Sarma | Effect of Strain Rate on the Retained Austenite Stability in Medium Mn Steel | 8 th International Conference on Nanostructured Materials by Severe Plastic Deformation (NanoSPD8), IISc Bengaluru | February 26, 2023. |
| 19 | Ravi Sankar Kottada | Elevated Temperature Deformation Behaviour of Additively Manufactured Alloys | Department of Mechanical Engineering IIT BHU, Varanasi | 28 February 2023 |
| 20 | Ajay Kumar Shukla | Extraction of Critical Minerals: A General Overview | India Australia Joint Workshop on Critical Minerals Research for Sustainable Green Energy organized by Department of Earth Sciences, IIT Bombay | March 3-4, 2023. |
| Conferences | | | | |
| 1 | Ravi Kumar N V | International Conference on Innovative Materials in Extreme Conditions (IMEC2022) | Belgrade, Serbia | March 22-23, 2022. |
| 2 | Hari Kumar K C | APDIC Meeting | Attended online, Stockholm, Sweden | May 27, 2022. |
| 3 | Ravi Shankar Kottada | International Conference on Strength of Materials | Metz, FRANCE | June 26–July 01, 2022. |
| 4 | Ravi Kumar N V | 6 th Conference on Serbian Society for Ceramic Materials (6-CSCS-2022) | Belgrade, Serbia | June 28-29, 2022. |
| 5 | V.Sampath | 7 th International Conference on Materials Engineering and Smart materials (ICMESM-2022) | London, UK | July 12-14, 2022. |
| 6 | Gandham Phanikumar Ravi Sankar Kottada Sabita Sarkar S Sankaran Subramanya Sarma V | Advances in Materials: Processing, Challenges & Opportunities | IIT Roorkee | October 17-19, 2022. |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|--|--|----------------|-----------------------|
| 6 | Murugaiyan Amirthalingam Bhuvanesh Srinivasan Ravi Kumar N V Ravi Sankar Kottada Lakshman Neelakantan Kamaraj M S Sankaran Gandham Phanikumar K G Pradeep V Sampath | Indian Institute of Metals - ATM 2022: Annual Technical Meeting | IIM, Hyderabad | November 13-16, 2022. |

4.14.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|----------------------|--|---|---------------------|
| 1 | Tiju Thomas | IEEE Distinguished Lecture on Materials Designed for Sustainable Future | Online, MSRIT | April 04, 2022. |
| 2 | Uday Chakkingal | An Overview of the Tube Hydroforming Process at Workshop on Engineered Tubes for Automobile Industry | Online | May 20, 2022. |
| 3 | Bhuvanesh Srinivasan | Thermoelectrics for Energy Harvesting | Indian Institute of Information Technology Design & Manufacturing Kancheepuram (IIITDM) | July 30, 2022. |
| 4 | Ravi Sankar Kottada | Deformation Behavior of Additively Manufactured High Temperature Alloys | The Aeronautical Society of India, Bangalore | Aug 17-18, 2022. |
| 5 | Bhuvanesh Srinivasan | Nanostructuring Strategies for Thermoelectric Materials | Bandung Institute of Technology (ITB), Indonesia | September 22, 2022. |

4.14.3.5. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By |
|--------|--|--|--|
| 1 | Kamaraj M | E. G. Ramachandran Institute Chair | IIT Madras |
| 2 | Somnath Bhattacharyya | Otto Moensted Visiting Professorship | Otto Moensted Foundation |
| 3 | Murugaiyan Amirthalingam | Best Teacher Award [MME], For Excellence in Teaching For The Year 2022 | Indian Institute of Technology, Madras |
| 4 | Kamaraj M | IIM Distinguished Educator Award For The Year 2022 | Indian Institute of Metals |
| 5 | Ranjit Bauri Srinivasa Rao Bakshi Ganesh Sundara Raman S Kamaraj M | Top 2% Scientists (Globally) | Stanford University |

4.14.3.6. Fellowships of Academies and Professional Societies

| Name of Fellowship | Name of Faculty | Year of Admission |
|--|-------------------|-------------------|
| INAE | B S Murty | 2007 |
| INSA | B S Murty | 2013 |
| vw | | |
| FIMSA (Fellow of International Medical Sciences Academy) | T S Sampath Kumar | 2007 |
| FIAS (Fellow of Indian Academy of Sciences) | B S Murty | 2008 |
| FASM (Fellow of ASM International, USA) | B S Murty | 2010 |
| FBOA (Fellow of Society of Biomaterials and Artificial Organs) | T S Sampath Kumar | 2011 |
| FAPAM (Fellow of Asia Pacific Academy of Materials) | B S Murty | 2013 |
| FIIM (Fellow of Indian Institute of Metals) | B S Murty | 2015 |
| FAPAS (Fellow of Andhra Pradesh Academy of Sciences) | B S Murty | 2016 |
| FASM (Fellow of ASM International, USA) | M Kamaraj | 2018 |
| FIWS (Fellow of Indian Welding Society) | M Kamaraj | 2018 |
| FIE (Fellow of Institution of Engineers) | M Kamaraj | 2017 |
| FTWAS (Fellow of The World Academy of Sciences) | B S Murty | 2018 |
| FIIM (Fellow of Indian Institute of Metals) | M Kamaraj | 2019 |
| Fellow of the Academy of Sciences, Chennai | Tiju Thomas | 2022 |
| Fellow of the International Association of Advanced Materials (Sweden) | Tiju Thomas | 2022 |

4.14.3.7. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|--------------------------|---|--|
| 1 | V Sampath | Guest Editor | Materials Today Proceedings: International Conference on Processing and Characterization of Materials (ICPCM 2022) |
| 2 | Ravi Kumar N V | Editorial Advisory Board Member | Editorial Advisory Board of the Transactions of the Indian Ceramic Society |
| 3 | Uday Chakkingal | Associate Editor | Journal of Indian Academy of Sciences |
| 4 | Murugaiyan Amirthalingam | Chairman | Technical Committee, Indian Institute of Welding |
| 5 | Murugaiyan Amirthalingam | Principal Reviewer and Corresponding Editor | Welding in the World. |
| 6 | Tiju Thomas | Early Career Editorial Board Member | Chemical Engineering Journal |
| 7 | K G Pradeep | Frontiers | Metals and Alloys |
| 8 | K G Pradeep | Associate Editor | Physical Metallurgy |

4.14.4. Design and Development Activities:

4.14.4.1. Brief and Specific Details of Process/Instruments/Equipment/Software Designed and Developed

1. Environmental Chamber: GSC Global Make GSC-CTC-004C-2223 Climatic Test Chamber 125 L, capable of maintaining temperature in the range 25 - 75 °C, and relative humidity range 30% - 95%.
2. 8-axis Fanuc fully integrated arc-wire DED additive manufacturing system for large area metal printing.
3. High speed precision abrasive cutting machine by Chennai Metco Private Limited (BAINCUT - HSS Plus)
4. Vat photo polymerization-based 3D printer by Formlabs Form 3 and a printer

4.14.4.2. New Facilities Added or Major Equipment Procured

| S. No. | Name of Equipment |
|--------|---|
| 1 | Combinatorial Alloy Design Facility |
| 2 | Environmental Chamber |
| 3 | Arc-wire DED additive manufacturing system |
| 4 | Concentrated Solar Power Pilot Plant (custom-built) |
| 5 | Impedance Analyzer |
| 6 | High Speed Precision Abrasive Cutting Machine |
| 7 | Vat Photo Polymerization-based 3D Printer |

4.14.5. Patents

4.14.5.1. Patents Awarded

| S. No. | Name of Faculty and Other Contributors | Topic of Patent |
|--------|---|---|
| 1 | Nithin M Manas Mukherjee Basavaraj M Gurappa | Method for preparation of porous mullite ceramic from Pickering emulsion Indian Patent No. 379956 (granted on 25 October 2021) US Patent No. US 2022/0227671 A1 (granted on 21 July 2022) |
| 2 | Parasuraman Swaminathan Debdutta Ray Nitheesh Mukundan Nair | A conducting electrochromic composite of metallic nanowires and multi-colored thermochromic materials Indian Patent No. 401967 (granted on 16 June 2022) |
| 3 | L. Neelakantan M. Mukherjee A. Ganapathi | An alternative chemical method for faster and reproducible patination process for the alloys used in Bidriware, Indian Patent No. 407564 |
| 4 | Tiju Thomas | Electrochemical semi-cylindrical cell Indian Patent |
| 5 | Sahoo Lipak Kumar Sabita Sarkar Barode, Jayant | System and method for producing magnetite from red mud using two stage reactors Indian Patent No. 410117 |
| 6 | TS Sampath Kumar Mukesh Doble Vimal Kumar Dewangan | A process for fabrication of pure/macroporous apatitic (cdha) bone cement for non-load bearing orthopaedic applications Indian Patent No. 410938 |
| 7 | T.S. Sampath Kumar R. Jayasree K. Pavani Siva Kavya | An improved bioceramic mineral releasing bioactive tetracalcium phosphate cements and method of producing the same from egg shells waste Indian Patent No. 419821 |
| 8 | P Swaminathan L Neelakantan Manasa Adavalli | AO template assisted synthesis process coupled with alkali etching to develop zinc oxide branched super structure Indian Patent No. 421576 |

4.14.6. Research and Consultancy:

4.14.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|---|--|----------------------|---|
| 1 | Farmer-friendly, Point of Use, Portable Heavy Metal Sensors for Agricultural Soil: Proof of Concept and Field Testing | April-July 2022 | RuTAG: Tamil Nadu | 0.9 | Sreeram K Kalpathy Tiju Thomas |
| 2 | Portable Sensors With Cellphone Interfacing for Heavy Metal Detection in Water and Soil | Approved in November 2022, Project start date yet to be defined | Ministry of Education, Government of India | 53.48 | Sreeram K Kalpathy Tiju Thomas |
| 3 | Plasmonic Solar Distillation of Agro-waste Contaminated Water and Sludge Valorization Via Amorphous Carbon Production | Approved in November 2022, Project start date yet to be defined | Ministry of Education, Government of India | 73.03 | Sreeram K Kalpathy Tiju Thomas |
| 4 | Repository of High Performance Phase-Field Solvers for Microstructure Simulation (MicroSim) | | National Supercomputing Mission | 25.486 | Abhik Choudhury(IISc) M.P.Gururajan Prita Pant (IIT Bombay) Saswata Bhattacharyya (IIT Hyderabad) Gandham Phanikumar (IIT Madras) Venkatesh Shenoi (C-DAC Pune) Vaishali Shah (Savitribai Phule Pune University) |
| 5 | High Performance Transition Metal Oxynitrides and Doped Rare Earth Based Materials as Electrodes for Supercapacitors | March 09, 2022 - March 09, 2025 | Department of Science & Technology | 30.21 | Tiju Thomas |
| 6 | Through Process Modeling of DS/SC Superalloy Turbine Blades Processed Using Modified Bridgman Route - validation With CMSX-4 Alloy | July 20, 2022- July 19, 2026. | Aeronautics Research & Development Board | 69.46 | Gandham Phanikumar Narasimhan Swaminathan |
| 7 | Computation Driven Design of Entropy Stabilized Fluorite Structured Ceramics and Nanocrystalline Coatings | September 22, 2022- September 21, 2025. | Department of Science and Technology | 12.15 | Hari Kumar K C Ravikumar N V |
| 8. | Understanding The Role of Local Microstructure On The Fatigue Crack Growth Using Crystal Plasticity Finite Element Modelling | December 01, 2022 - November 30, 2024. | Science and Engineering Research Board | 22.37 | Kanjarla Anand Krishna |
| 9 | Correlative Microscopy of Grain Boundaries in NdFeB Magnets Decorated by Combinatorially Designed Low Melting Eutectics | December 01, 2022 - November 30, 2024. | Science and Engineering Research Board | 22.37 | Pradeep K G |
| 10 | Optimization of the Post Build Heat Treatment Schedule to Achieve Balanced High Temperature Mechanical Properties While Mitigating Mechanical Anisotropy in Additively Manufactured Inconel 718 | January 09, 2023 - January 08, 2025 | Indian Space Research Organisation | 30.65 | Ravi Sankar K Durga Janaki Ram Gabbita Murugaiyan Amirthalingam |

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|--|---|----------------------|-----------------------------------|
| 11 | Cold Spray Deposition of Driving Band for ERFB Projectile | February 17, 2023 - February 16, 2025. | Armament Research Board | 67.82 | Srinivasa Rao Bakshi Kamaraj M |
| 12 | Electro-thermo-Chromic Touch Displays | February 21, 2023 - February 20, 2024 | Technology Information Forecasting and Assessment Council | 9.60 | Parasuraman Swaminathan |
| 13 | Combinatorial Design of Low-melting Eutectics for Grain Boundary Decoration Towards Development of Advanced Permanent Magnets | March 07, 2023 - March 06, 2026 | Science and Engineering Research Board | 53.72 | Pradeep K G |
| 14 | Flexible Ceramic Fiber Based Triboelectric Nanogenerators for Wearable Smart Gadgets | March 15, 2023 - March 14, 2026 | Science and Engineering Research Board | 55.66 | Ravi Kumar N V |

4.14.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--|---|-----------------------------|----------------------|
| 1 | Ravi Sankar Kottada | Optimization of the Post-build Heat Treatment Schedule to Achieve Balanced High-temperature Mechanical Properties While Mitigating Mechanical Anisotropy in Additively Manufactured Inconel 718 | ISRO | 34.44 |
| 2 | Sreeram K Kalpathy | Morphology Prediction Maps for Coating of Colloidal Suspensions: Role of Wettability, Solvent Evaporation, Rheology, and Particle Size | Saint Gobain Research India | 19.72 |
| 3 | Murugaiyan Amirthalingam (MME) Ravi Sankar Kottada (MME) G Saravana Kumar (ED) | Additive Manufacturing of Forging Tooling, Heat Treatment Fixture and End Components | Super Auto Forge Pvt. Ltd. | 58.93 |
| 4 | Ravikumar N V | Laboratory for High Performance Ceramics | Common Code | 5.00 |
| 5 | Ravikumar N V | Laboratory for High Performance Ceramics | Common Code | 5.00 |
| 6 | Sankaran S | Central Electron Microscopy Facility -Phase II | Common Code | 5.00 |
| 7 | Sankaran S | Central Electron Microscopy Facility -Phase II | Common Code | 5.00 |
| 8 | Satyesh Kumar Yadav | Magnetron Sputtering Materials Design Lab | Common Code - Consultancy | 5.00 |

4.14.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------------|--|---|----------------------|
| 1 | Parasuraman Swaminathan | Development of Connectors, Heaters, and Antennas for Automotive Applications | Saint Gobain India Private Limited (Research and Development) | 20.06 |
| 2 | Parasuraman Swaminathan | Smart Windshield -Wireless Powering of Systems and Integration of Sensors and Displays | Saint Gobain India Private Limited (Research and Development) | 108.47 |
| 3 | Subramanya Sarma V | Study on Non-metallic Inclusion (NMI) Evolution in Cr-Mo grade and SAE 52100 Bearing Steel and Improving Steel Cleanliness | SLR Metaliks Limited | 41.21 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|--------------------------|---|---|----------------------|
| 4 | Kamaraj M | Development of Improved Silt and Cavitation Erosion Resistance Coatings for Hydro Turbine Components | Satluj Jal Vidyut Nigam (SJVN) Limited | 26.28 |
| 5 | Somnath Bhattacharyya | Substructural Mapping of Defect Activity in IN 718 Creep Welds | Council Of Scientific and Industrial Research | 3.00 |
| 6 | Murugaiyan Amirthalingam | Role of Copper Feedstock Texture and Microstructure on the Failure During Wire Drawing | Aditya Birla Science and Technology Company Private Limited | 9.77 |
| 7 | Murugaiyan Amirthalingam | Bronze Metallurgy Consultancy for Statue of Oneness | L&T Construction Buildings & Factories | 28.82 |
| 8 | Kanjarla Anand Krishna | Crystal Plasticity Modeling of Tensile Behavior of Sanicro 625 at Different Temperatures | Alleima EMEA AB | 11.85 |
| 9 | Pradeep K G | Atom Probe Tomography Measurement on Combinatorial melt High Entropy Alloys | Indian Institute of Petroleum | 11.80 |
| 10 | Sreeram K Kalpathy | Morphology Prediction Maps for Coating of Colloidal Suspensions: Role of Wettability, Solvent Evaporation, Rheology and Particle Size | Saint Gobain Research India Limited | 19.72 |
| 11 | Manas Mukherjee | Development of Porous Alumina and Porous Borosilicate Bricks | BMW Steels Ltd | 24.54 |

4.14.6.4. Retainer Consultancy (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-----------------|---|---|----------------------|
| 1 | Ranjit Bauri | Application of Hydrogen in Aluminium Castings and Other Materials | Filt Red India Technologies Private Limited | 3.54 |

4.14.6.5. Exchange Programmes with Other Universities including Institutions/ Universities under MoU

- Prof. Phanikumar established an Exchange programme under the MOU signed between IITM and Jimma University, Ethiopia.
- Prof. Bhuvanesh Srinivasan established an Exchange programme under the MOU signed between IITM and NIMS, Japan.

4.14.6.6. Faculty Members' Participation With Other Institution Under MoU:

| S. No. | Faculty Champion | Participation Details | Name of University/Institution Which has MoU |
|--------|----------------------|--|--|
| 1 | Bhuvanesh Srinivasan | MoU & International Co-operative Graduate Program (IGCP) | National Institute for Materials Science (NIMS), Japan |
| 2 | Gandham Phanikumar | MoU | Jimma University, Ethiopia |

4.14.7. Distinguished Visitors to the Department

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|--|-----------------------|---|
| 1 | Dr. Rajaprakash Ramachandramoorthy, Max Planck Institut fuer Eisenforschung GmbH, Germany. | April 20, 2022. | Delivered Lecture on Pushing the Boundaries of microfabrication and micromechanics |
| 2 | Dr. Aman Bharadwaj, University of Cologne, Germany | April 22, 2022. | Delivered Lecture on Electrocatalysis at Solid-Gas and Solid-Liquid Interfaces |
| 3 | Dr. Heechae Choi, Group Leader at Institute of Inorganic Chemistry, University of Cologne, Germany. | April 27-28, 2022. | Workshop on Atomistic Modeling of Earth Abundant Electrocatalysts |
| 4 | Dr..Amritha Rammohan, Account Technologist, Applied Materials | June 14, 2022. | Interacted with our students |
| 5 | Dr. David N Seidman, Walter P. Murphy Professor, Northwestern University, Department of Materials Science and Engineering, Evanston Founding Director, 2004, Northwestern University Center for Atom-Probe Tomography (NUCAPT) | July 16, 2022. | 4 th Annual Lecture Series of NFAPT – I: Identification of Structural Instabilities, and their Influence on Microstructural Evolution, in Titanium Alloys |
| 6 | Dr. Mattias Thuvander, Head of the Division of Microstructure Physics, Chalmers University of Technology Gothenburg, Sweden | July 16, 2022. | 4 th Annual Lecture Series of NFAPT – II: Atom Probe Tomography Studies on Irradiation Induced Damages in Steels, Zirconium Alloys and Other Nuclear Materials |
| 7 | Prof. Arvind Agarwal, Chairman and Professor, Department of Mechanical and Materials Engineering (MME), Florida International University | July 20, 2022. | Interacted with our faculties |
| 8 | Dr. Chandrasekhar (Spike) Narayan COO, IBM Almaden Research Centre, San Jose | September 12, 2022. | Delivered a Lecture on Sustainability Research: A Computational and Materials Perspective” |
| 9 | Dr. Peter H Clifton, Global Product Sales Leader for APT, CAMECA Inc. | September 20, 2022. | Delivered a Seminar on An Introduction to CAMECA Atom Probe Tomography (APT) Technology and Recent Applications |
| 10 | Dr. Satish Sukumaran, Associate Professor in Yamagata University, Japan | September 21, 2022. | Delivered a Lecture on Chain Entanglements in Monodisperse Melts and Binary Blends |
| 11 | Ms. Shuba Kumar, Managing Director, Natesan Synchrocones P. Ltd, Chennai | September 22, 2022. | Recipient of Distinguished Alumnus Award 2022 And Interacted with Students and Faculty of the Department |
| 12 | Dr. Madhusudhan Reddy, Director, Defence Metallurgical Research Laboratory | September 29, 2022. | Interacted with Faculty on enhancing the already existing collaborations with DMRL |
| 13 | Dr. Debashish Bhattacharjee, Vice President, New Materials Business, TATA STEEL | October 14, 2022. | Dr. Placid Rodriguez Memorial Lecture - 2022 |
| 14 | Dr. R. Ratheesh, Director, Center for Materials for Electronics Technology (C-MET), Hyderabad | October 14-15 , 2022. | Interacted with Faculty Members & Students |
| 15 | Dr. Christopher C. Berndt, Director of Surface Engineering for Advanced Materials (SEAM), Swinburne University, Australia and Distinguished Professor, IIT Madras | October 26, 2022. | One-day Workshop on Thermal Spray Coatings and Applications |
| 16 | Prof. Sundar V Atre, Director, Kentucky MBDA Advanced Manufacturing Center, University of Louisville, USA | November 01, 2022. | Visiting as a part of IoE Mobility Initiatives (Vajra Level) |
| 17 | Prof. Celso Manuel Aldao, University of Mar del Plata, Argentina | November 06, 2022. | Application of the Law of Mass Action in Tin Oxide Gas Sensors |

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|--|-----------------------|--|
| 18 | <p>Prof. Joachim Mayer, RWTH Aachen and Director of the Ernst Ruska-Centre for Microscopy and Spectroscopy with Electron at Jülich, Germany</p> <p>Prof. Gerhard Wilde, Director Institute of Materials Physics University of Münster, Germany</p> <p>Prof. Rafal E Dunin-Borkowski, Director Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons jülich, Germany</p> <p>Dr. Stefan Zaefferer, Senior Scientist Max Planck institute Erforschung GmbH, Düsseldorf Germany</p> <p>Prof. Christoph Koch, Institut für Physik, Humboldt-Universität zu Berlin, Germany</p> <p>Prof. Joerg Jinschek, Technical University of Denmark (DTU) Fysive Denmar</p> <p>Prof. Francisco Morales, Instituto Universitario de Investigación en Microscopia Electrónica y Materiales (IMEYMAT), Universidad de Cádiz, Cádiz</p> | November 08-10, 2022. | Symposium on Advanced Microscopy & its Applications in Materials Science An event organized by pCoE of Advanced Microscopy and Materials - IoE initiative of IIT Madras |
| 19 | <p>Prof. Guillaume Racineux, Ecole Centrale Nantes, France</p> <p>Prof. Surendar Marya, Ecole Centrale Nantes, France</p> | November 11, 2022. | Interacted with the Faculty members of MME |
| 20 | <p>Prof. Gerhard Wilde</p> <p>Dr. Stefan Zaefferer</p> <p>Prof. Joachim Mayer</p> <p>Top Electron Microscopists from Germany</p> | November 11, 2022. | Interacted with MME Faculty Members |
| 21 | <p>Prof. G. Racineux, Ecole Centrale Nantes France</p> <p>Prof. S. Marya, Ecole Centrale Nantes France</p> <p>Prof. Sundar Atre, University of Louisville USA</p> | November 11, 2022. | Half-day Workshop on Advanced Welding, Additive Manufacturing and High Strain Rate Forming Processes. |
| 22 | <p>Dr. Stefan Zaefferer, Max-Planck-Institut für Eisenforschung (MPIE), Germany</p> | November 14-15, 2022. | 2-day Workshop on Texture, Microstructure and Grain Boundary Analysis, ECCI 2-day Workshop on Texture, Microstructure and Grain Boundary Analysis, ECCI |
| 23 | <p>Dr. Rajiv Shekhar, Director, IIT (ISM) Dhanbad</p> | November 22, 2022. | Interacted with Students & Faculty Members |
| 24 | <p>Dr. Pawan Goenka, Chairman of the Board of Governors of IIT Madras</p> | November 24, 2022. | Visited Laser Powder Bed Fusion Lab to get briefed on research activities on Additive Manufacturing for Mobility and Biomedical Industries |
| 25 | <p>Dr. Sirish Namilae, Professor in Aerospace Engineering, Embry-Riddle Aeronautical University</p> | November 26-27, 2022. | Interacted with the Faculty Members of MME |
| 26 | <p>Dr. Pinakin Chaubel, Vice President & Group CTO, ArcelorMittal</p> | December 30, 2022. | Interacted with the Faculty Members of MME |
| 27 | <p>Mr. Dilip Subramaniam</p> | January 27, 2023. | Donated Around 2 crores Under Shankari Subramanyam Impact Grant (SSIG) |
| 28 | <p>Prof. Rene de Cloe, Applications Specialist, Ametek - EDAX</p> | February 01, 2023. | Delivered Lecture on Recent Advances (software & hardware) in EBSD |
| 29 | <p>Prof. Rishi Raj, Ceramic Materials Scientist University of Colorado Boulder, USA</p> | February 06, 2023. | Interacted with Students & Faculty Members |

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|---|-----------------------|---|
| 30 | Dr. Arun Devaraj, Chief Material Scientist-Physical Metallurgy, Physical & Computational Sciences Directorate, Pacific Northwest National Laboratory (PNNL), Richland, Washington | February 06, 2023. | Delivered Lecture on Understanding Material Synthesis and Material Degradation at the Atomic Scale: Two Sides of the Same Coin |
| 31 | Team from Shell | February 06, 2023. | Materials for New Energy, and Polymer/Composites |
| 32 | Prof. R K Ray, Retired Professor, IIT Kanpur | February 10, 2023. | Interacted with Faculty |
| 33 | Prof. Narasi Sridhar, Research Professor, Materials Science and Engineering Department, Ohio State University | February 20, 2023. | Interacted with Faculty |
| 34 | Prof. a. D. Dr. Heinz-Gunter Brokmeier, Institute of Materials Science and Engineering Institute of Materials Science and Engineering Department TEXMAT-Clausthal University of Technology and Helmholtz Zentrum Hereon, Germany | February 21-24, 2023. | Workshop on X-ray, Synchrotron and Neutron Diffraction and their Application in Materials Science |
| 35 | Prof. Hakan Engqvist Division Head, Division Head, Uppsala University, Sweden | February 23, 2023. | Interacted with Faculty |
| 36 | Prof. Tanvir Hussain, Professor of Coatings and Surface Engineering EPSRC (Engineering and Physical Sciences Research Council) Research Fellow in Advanced Ceramics Associate Head, Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham | February 24, 2023. | Delivered Lecture on Coatings & Surface Engineering Spanning Metals, Ceramics & AI |
| 37 | Prof. Tanvir Hussain, Professor of Coatings and Surface Engineering EPSRC (Engineering and Physical Sciences Research Council) Research Fellow in Advanced Ceramics Associate Head, Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham | February 27, 2023. | Delivered Lecture on Additive Manufacturing of Advanced Ceramics: The Art of the Possible |
| 38 | Prof. Bala Vaidhyanathan, Department of Materials, Loughborough University, United Kingdom | February 27, 2023. | Delivered Lecture on Additive Manufacturing of Advanced Ceramics: The Art of the Possible |
| 39 | Prof. Vidar F Hansen Dr. Mona W Minde Dr. Wakshum Mekonnen Tucho University of Stavanger, Norway | March 06-11, 2023 | Interacted with Faculty Members, Delivered Talks in India-Norway Joint workshop |
| 40 | Prof. Dr. rer nat. Jan Philipp Hofmann Head, Surface Science Laboratory Department of Materials and Earth Sciences, Technical University of Darmstadt, | March 16, 2023. | Delivered a Talk on Materials and Interfaces in Electrochemical Energy Conversion: Understanding and Control |
| 41 | Prof. Shrikant Joshi Professor University West, Sweden | March 20, 2023. | Interacted with Faculty Members & visited Surface Engineering Laboratory, Department of MME |
| 42 | Dr. Srinivas Yadavalli Postdoctoral Fellow Department of Mechanical Engineering University of Michigan | March 20, 2023. | Delivered a Lecture on Innovations in Halide Perovskites Processing to Extend Solar Cell Life |
| 43 | Prof. Martin Heilmier Karlsruhe Institute of Technology Germany | March 23, 2023. | Interacted with Faculty Members & Delivered a Lecture on B2 Precipitation-strengthened Refractory Compositionally Complex Ta-Mo-Ti-Cr-Al Alloys |

| S. No. | Name of the Visitor and Designation | Date of Visit | Purpose of Visit |
|--------|--|-----------------|---|
| 44 | Dr. Soumya Sridar Research Assistant Professor, Physical Metallurgy & Materials Design Laboratory, Department of Mechanical Engineering and Materials Science, University of Pittsburgh, USA | March 24, 2023. | Delivered a Technical Talk on Design of New Alloys and Post-processing Operations for Additive Manufacturing Using a CALPHAD-based ICME Framework |
| 45 | Dr. Vijay Sarathy Growth Leader, Technology Incubation General Electric | March 25, 2023. | Delivered a Talk on Industrial Research and Career Opportunities for Researchers in an Industry |

4.14.8. Other Activities of the Department/Centre

4.14.8.1. Results Obtained in Research Work (from M.S. & Ph.D. theses) of Scholars/Faculty

- Mr. Sourav Ghosh looked into the materials forecasts and performance evaluation of cerium-based oxides and oxynitrides for high-performance supercapacitors.
- Mr. U Naveen Kumar investigated Chromium and Cobalt based oxynitrides as durable electrode materials for supercapacitors: materials development, device fabrication and performance evaluation.
- Melwin Sajan looked at how hot stamping grade steels with boron added behaved during phase transformation and hot deformation.
- Ms. Kousika A investigated Atomistic studies of stoichiometry and defect chemistries on ABO₂N (A=Ba, Ca, Sr and B= Nb, Ta) perovskite oxynitrides.
- On the alloy 2195 Al-Cu-Li, Mr. Agilan M looked over welding and weldability studies.
- Mr. Rahul sathyanath explored coating flows and features of liquids, suspensions, and polymers near porous substrates.
- Mr. Ummen sabu investigated the development of hierarchical ceramics by bio-templating.
- Mrs. Aamey Anupam looked over Developing thermal spray high entropy alloys for bond coat applications.
- Mr. Ramakrishnan R explored Atomistic simulation studies on solidification of Ni based binary alloys.
- Mrs. Sruthi K investigated Economical, Robust & Novel Alternative Diecast Processed Standalone Monolithic Gas Diffusion Media for Proton Exchange Membrane Fuel Cell (PEMFC).
- Mr. Lalith kumar looked into Methodology to estimate single crystal elastic constants from polycrystalline materials – A case study with an entropy stabilized transition metal oxide.
- Mrs. Swathi E explored photoresponsive properties of azo-polyurea and its blends with potential use in light-assisted patterning.
- Mr. Georgy Kurian K investigated Optimisation of Aluminium alloys for foaming using magnesium blowing agent.
- Mr. Behara Santosh Kumar probed Amphoteric behavior of rare-earth elements in NaO.5BiO.5TiO₃ phosphor: experiments and theory.
- Mr. Venkat Appala Narasayya Ch explored Processing of in-situ aluminum foam-filled steel tubes.
- Mr. Chiranjit Roy investigated synthesis and characterization of max phases and their 2d derivative mxenes.
- Mr. Darshan Chalapathi investigated Micromechanics of duplex stainless steels: Experiments and crystal plasticity modelling.
- Mr. Sanket Thakre probed Materials informatics enabled quantification of structure-property correlations: Application to DP steels.
- Ms. Kamini looked into fretting wear and sliding wear studies on surface-modified Ti-6Al-4V.
- Mr. Karthik G explored synthesis of complex pyrochlores and its effect on mechanical properties of stainless steel 316L austenitic rods.
- Mr. Priyesh P investigated Ti-Zr-Cu-Ni-Al thin film metallic glasses as scratch and corrosion resistant protective coatings.

- Mr. Swaminathan G looked over Functional fatigue behavior of Ni and Ti-based shape memory alloys under thermal and thermomechanical cycling conditions.
- Ms. Maheswari probed Theoretical and experimental investigation on physical metallurgy aspects of Quench and Partitioned (Q&P) steels.
- Mr. Rahul Bhattacharya investigated the effect of Cr and Al on phase constitution and high temperature oxidation behaviors of Al-Co-Cr-Fe-Ni high entropy alloys.

4.14.8.2. Socially Relevant Activities Carried Out by the Department

| S. No. | Event | Date |
|--------|---|---|
| 1 | IIT Madras - University of Wollongong Summer School – 2022 Total participants – 12 students from UoW Australia and Conducted by 2 professors from UoW and 6 from IITM Funded by the New Colombo Plan mobility programme of Govt. of Australia and Institute of Eminence grant of IIT Madras (Both Cultural and Technical events were held) | July 4-15 , 2022 |
| 2 | Prof. Brahm Prakash Memorial Material Quiz 2022 Jointly by METSA, Department of Metallurgical and Materials Engineering and IIM Chennai Chapter. Preliminary round: November 03, 2022. | Preliminary round: November 03, 2022. Final round of quiz was conducted at IGCAR Kalpakkam on November 10, 2022. |
| 3 | Meta Night was conducted by Department of Metallurgical & Materials Engineering Student association, MetSa | November 25, 2022. |
| 4 | Meta Premier League: To bridge the gap between students of different programs, faculty, staff members & to increase interaction between them. | January 21-22, 2023. |

4.14.8.3. Major Infrastructure Developments Made in the Department

Seminar Hall of the Department is now capable of conducting hybrid mode of meetings and seminars.

4.15

Department of Ocean Engineering

4.15.1. Introduction

The Ministry of Education and Social Welfare, as per the decision of Council of Indian Institute of Technology, established the Ocean Engineering Centre of IIT Madras in 1977 based on the recommendation of the committee headed by Dr Y. Nayudamma. The Department is to act as a Centre of Excellence for advancing the frontiers of science and to provide breakthrough technology and develop education and training programmes in the field of ocean engineering. A national advisory committee consisting of the representatives of the then Ministry of Education and institutions such as the Council of Scientific and Industrial Research (CSIR), University Grants Commission (UGC), Department of Science & Technology (DST), Oil and Natural Gas Corporation (ONGC) and Engineers India Limited (EIL), other IITs and user industries with the Director, IIT Madras as the chairman monitored the progress of the department over the years. A review committee headed by Prof. M.G.K. Menon also reviewed the progress of the Department in 1982, and its recommendation has since been implemented towards progress of the Department as an independent Centre of Excellence. Even since, several peer reviews were done and recommendations were implemented. The last review of the Department was done in 2013. The recommendations of this review have also been implemented by the Department.

4.15.2. Academic Programmes

The following academic and research programmes are offered by the department.

| | | |
|---|----------------|--|
| 1 | B.Tech. | Naval Architecture and Ocean Engineering |
| 2 | M.Tech. | Ocean Structures |
| 3 | M.Tech. | Ocean Technology (Up – MOES) |
| 4 | M.Tech. | Petroleum Engineering |
| 5 | M.S. and Ph.D. | Ocean Engineering |

4.15.2.1. Students on Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & Others | Total |
|--------------|-------------------|------------------|-----------|-----------|-----------------|------------|
| B.Tech. | 81 | 76 | 46 | 60 | 10 | 273 |
| Dual Degree | - | - | 26 | 10 | 26 | 62 |
| M.Tech. | 44 (OE-29, PE-15) | 37 (OE-28, PE-9) | 1 | 3 | 1 | 86 |
| M.S. | 10 | 14 | 11 | 5 | 2 | 42 |
| Ph.D. | 17 | 21 | 15 | 21 | 77 | 151 |
| Total | 152 | 148 | 99 | 99 | 116 | 614 |

4.15.2.2. Endowment Prizes Instituted

| S. No. | Roll No. | Name of the Student | Prize Name | Programme |
|---------------------------|----------|-------------------------------|---|-----------|
| Institute Day 2022 | | | | |
| 1 | NA18B003 | Ms. Karthiyalini | Prof. K Gopinath And Padmini Gopinath Prize | B. Tech. |
| 2 | NA17B117 | Mr. Vaigandla Ashish | Poovai T R Srinivasan & S Alamelu Award | DD |
| 3 | OE20M001 | Mr. Manish Verma | Prof. Vallam Venkataswamy Prize | M.Tech. |
| 4 | OE20M030 | Ms. Anulekha Majumdar | Subrath Kumar Malik Prize | M.Tech. |
| 5 | PE20M003 | Mr. Patel Dhaval Arvindbhai | Prof. M S Ananth Prize | M.Tech. |
| Convocation 2022 | | | | |
| 1 | NA18B003 | Ms. Karthiyalini | American Bureau Of Shipping Prize | B. Tech. |
| 2 | NA17B004 | Ms. Mansi Khandelwal | Goodearth Shipbuilding Pvt.Ltd.Prize | DD |
| 3 | NA17B112 | Mr. Manoranjan J | Class NK-100 Prize | DD |
| 4 | OE20M010 | Mr. Mohammed Iqbal | American Bureau Of Shipping Prize | M.Tech. |
| 5 | OE20M022 | Mr. Inamder Eshan Hemant | 1. Prof. K A V Pandalai Prize 2. Institute Merit Prize | M.Tech. |
| 6 | PE20M009 | Mr. Patel Mohit Bhupendrabhai | Sri R R P Sinha & Vimla Devi Prize | M.Tech. |
| 7 | OE18D003 | Mr. Karthik Ramnarayan S | Prof. Vallam Sundar Prize | Ph.D. |

4.15.2.3. Students/Scholars Who Attended Conference, Seminar and Symposia in India & Abroad

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|---------------|-----------------------------|----------|--|--|---------------------------|
| Abroad | | | | | |
| 1 | Ms. Nandhini D | OE19D022 | Presented a Poster with a Summary of Research Objectives and Work Plan at the DAAD Conference of International Scientific Cooperation for the World of Tomorrow: Global Centres for Health and Climate | September 6 and 7, 2022. Berlin | IIT Madras |
| 2. | Ms. Akshaya T R | OE18D702 | Training: Webinar on Strengthening National Oil Spill Preparedness & Response in Environmentally Sensitive Areas by United Nations Environment Programme | September 22, 2022 | IIT Madras |
| 3. | Ms. Akshaya T R | OE18D702 | Influence of Collision Kernel on the Aggregation Kinetics of Marine Oil Snow (Ms. Akshaya T R) Conference Details: International Oil Spill Science Conference 2022 (IOSSC), co-hosted by the Multi-Partner Research Initiative of Fisheries and Oceans Canada (DFO), Industry Technical Advisory Committee (ITAC), and Oil Spill Research Group of Concordia University. | October 4-7, 2022. Halifax, Canada (Hybrid Mode) | IIT Madras |
| 4. | Mr. Doddamani Hithaish | OE18D005 | The 9 th Asian Joint Workshop on Thermophysics and Fluid Science (AJWTF2022) | November 27-30, 2022. Utsunomiya, Japan | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date & Venue | Financial Assistance from |
|--------------|-----------------------------|----------|--|--|---------------------------|
| India | | | | | |
| 1. | Mr. Santosh Kumar B. | OE18D028 | Long Term Impacts of Climate Change on Reinforced Concrete Berthing Structures. IAHR-APD 23rd Congress | Chennai, 14-17 December, 2022. | IIT Madras |
| 2. | Ms. Gracy Margaret Mary R | OE18D024 | Coastal Morphological Changes Due to the Nivar Cyclone on the East Coast of India. IAHR-APD 23rd Congress | Chennai, 14-17 December, 2022. | IIT Madras |
| 3. | Mr. Suman Kumar | OE22D012 | Study of Hydrodynamic Forces Acting on a Heaving Point Absorber Wave Energy Converter, PiCET-2022 (Parul University International Conference on Engineering and Technology), | May 20-21, 2022. Vadodara, Gujarat, India. | IIT Madras |
| 4. | Mr. Wasim Raza | | Design and Analysis of Novel Twisted Pinfin Hybrid Heat Sink for Hotspot Thermal Management at International Conference on Advances in Heat Transfer and Fluid Dynamics AHTFD-22 | December 1-3, 2022. Aligarh, India | IIT Madras |
| 5. | Mr. Suman Kumar | OE22D012 | Wave-Structure Interaction Dynamics of a Point Absorber Wave Energy Converter, The 9th International and 49th National Conference on Fluid Mechanics and Fluid Power | December 14-16, 2022. Roorkee, India | IIT Madras |
| 6. | Mr. Rahu Ram | OE20S030 | Effect of Cavity Tip on the Performance of a Wells Turbine, The 9th International and 49th National Conference on Fluid Mechanics and Fluid Power, | December 14-16, 2022. Roorkee, India. | IIT Madras |
| 7. | Ms. Vijay Lakshmi | OE21D019 | Possibility of Tidal Farms for the Gulf of Kutch, ASME 42nd International Conference on Ocean, Offshore & Arctic Engineering (OMAE2023), | June 11-16, 2023. Melbourne, Australia. | IIT Madras |

4.15.2.4. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize Awarded By |
|--------|-----------------------------|----------|-------------------------------|--|
| 1 | Mr. Satyajit Chowdhry | OE19D013 | Best Paper Presentation Award | Indian Institute of Chemical Engineers |
| 2. | Mr. Ashok Kumar | OE15D021 | Pyrgotelies Zoitos Prize | The Cyprus Marine and Maritime Institute |
| 3. | Mr. Karthikeyan | OE14D009 | IEI Young Engineers(2021-22) | Institution of Engineers India |
| 4. | Mr. Tapas Das | OE15D016 | IEI Young Engineers(2022-23) | Institution of Engineers India |

4.15.2.5. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prizes | Name of Donor |
|--------|-----------------------------|----------|---------------------------|---------------|
| 1. | Mr. Anulekha Majumdar | OE20D201 | Subrath Kumar Malik Prize | IIT Madras |
| 2. | Ms. Kathayani | OE19S027 | Institute Research Award | IIT Madras |

4.15.3. Faculty and Their Activities

4.15.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|---------------------------------|--|
| Professors | |
| Prof. S Nallayarasu (Head) | Analysis and Design of Offshore Structures, Wave Structure Interaction Hydrodynamic Response of Spar Hulls Damping Elements in Floating Systems |
| Prof. K Murali | Computational Hydrodynamics, Sediment Transport and Dredging ,Multiphase Flows |
| Prof. SA Sannasiraj | Wave-structure Interaction , Breaking Waves, Numerical Modeling of Nonlinear Wave Propagation, Climate Change Adaptation of Coastal Infrastructures |
| Prof. Rajiv Sharma | Analysis, Design and Production of Marine Structures; Modeling and Simulation; and Fluid Mechanics for High Pressure and Temperature |
| Prof. Srinivasan Chandrasekaran | Nonlinear Dynamic Analysis of Offshore Structures, Earthquake-resistant Analysis and Design of Structures, Base-isolated Structures, Semi-active Damping Devices for Response Control of Structures, Wave Energy Devices |
| Prof. P Shanmugam | Oceanography, Coastal Zone Management, Ocean Optics and Imaging, Satellite Oceanography / Ocean Remote Sensing, Radiative Transfer Modelling and Algorithm Development |
| Prof. R Panner Selvam | Stochastic Modelling and Simulation Analysis, System Identification; Nonlinear Dynamical fluid Structure Systems – Applications in Ocean and Wind Engineering |
| Prof. P Ananthkrishnan | Water Wave Mechanics, Ship Hydrodynamics, Dynamical Oceanography, Ocean Energy Conversion, Air-Sea Interaction, Hydro-Elasticity, Numerical Methods for Nonlinear Wave-Body Interaction Problems, Computational Ocean Acoustics |
| Prof. Abdus Samad | Renewable Energy, Marine Energy, Wave Energy, Tidal Energy. Fluid Machinery, Turbomachinery, Design Optimization, Computational Fluid Dynamics |
| Prof. G Suresh Kumar | Fluid Flow Through Fractured Reservoirs; Non-Isothermal Single And Multi- Phase Fluid Flow; Thermal/Chemical/Biological Enhanced Oil Recovery; Fluid Flow Through Shale Gas Reservoirs; Pressure Transient Analysis: Fractured Reservoirs; Onshore Oil Spill; Offshore Oil Spill; Hydraulic Fracturing; Shale Gas Production; Coal Bed Methane Production; Groundwater And Contaminant Transport; Fractured Geothermal Reservoir. |
| Prof. Nilanjan Saha | Offshore Wind And Wave Energy, Dynamics Of Offshore Structures, Extreme Value Statistics And Fatigue, Nonlinear Methods In Ocean Engineering, Offshore Soil-Structure Interaction, Stochastic Processes, Filtering And Identification |
| Prof. V Sriram | Computational Hydrodynamics Wave Structure Interactions Experimental Hydrodynamics Extreme Waves, Flooding |
| Prof. Rajesh R Nair | Petroleum, Geomechanics, Fracturing and Recovery Process, Geostatistics for Reservoir Modeling and Seismic Characterization and Near Surface Geophysics Including Ground Penetrating Radar Data Analysis and Seismic Refraction. |
| Associate Professors | |
| Dr. R Vijayakumar | Green Ship Initiatives, Ship-Helo Interactions, Hydro-Acoustic Analysis |
| Dr. Deepak Kumar | Structural Dynamics, Random Vibration, Nonlinear Dynamics, Stochastic Control and Stability, Time-frequency Domain Analysis, Structural Dynamics Experiments |
| Dr. Tarun K Chandrayadula | Underwater Acoustics, Signal Processing, Propagation Modeling |

| Name and Qualifications | Major Areas of Specialisation |
|---|---|
| Dr. Suresh Rajendran | Numerical Modelling of Fluid-structure Interaction, Nonlinear Ship Dynamics and Hydrodynamics, Hydroelasticity, Maneuvering in Waves, Parametric Rolling of Ships |
| Assistant Professors | |
| Dr. Abhilash Sharma | Autonomous Vessels, AI for Autonomy, Hydrodynamics |
| Dr. K Narendran | Experimental and Computational Hydrodynamics Marine Renewable Energy Fluid- and Wave-Structure Interaction |
| Dr. K G Vijay | Fluid-Structure Interaction Wave Energy Converters Floating Offshore Wind Turbines |
| Dr. Arjun Jagannathan | Hydrodynamics, CFD, Ocean Modelling, Turbulence, Numerical Methods and Naval architecture |
| Adjunct Faculty | |
| Prof. Philip Liu, NUS | Coastal Engineering |
| Prof. Shiqiang Yan, City, UoL | Computational Hydrodynamics |
| Prof. Alex Babanian, Univ. of Melbourne | Extreme wave structure interaction |
| Prof. Pierre Ferrant, ECN | Naval systems |
| Prof. Thorsten Stoesser, UCL | Large Eddy Simulations |
| Prof. G Ducrozet, ECN | Wave statistics, HOS |
| Prof. Richard Manasseh, Swinburne University. | Fluid flow |

4.15.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|--|--|--|
| Conferences | | | |
| 1. | Prof. Nilanjan Saha and Prof. S A Sannasiraj | Organized the International Conference on Offshore Geotechniques, ISOG 2022, December 5-7, 2022. IIT Madras | December 5-7, 2022. IIT Madras |
| 2. | Prof. S A Sannasiraj, Prof. B S Murty & Prof. R Pannarselvam | Organized the International Event, 23rd Congress of the IAHR APD 2022 December 14-17, 2023. IIT Madras. | December 14-17, 2023. at IIT Madras |
| 3. | Prof. S Nallayarasu | PAN-IIT Research Program, Collaborated with ONGC and Developed Structural Integrity Management System (SIMS) | November 24, 2022. IIT Madras |
| 5. | Dr. R Vijaykumar | NRB Hydrodynamic Panel Workshop on March 23, 2023. | March 23, 2023. IIT Madras |
| 9. | Prof. S A Sannasiraj | Organized the Third Transfer Workshop on Coastal Protection for Island Countries, Mauritius. | February 28- March 02, 2023. University of Mauritius |
| 10. | Prof. Abdus Samad | Member of the Organising Committee 3rd Congress of the International Association for Hydro-Environmental Engineering and Research – Asia Pacific | December 04-07, 2022. Chennai. |
| 11. | Prof. Abdus Samad | Technical Committee International Scientific and Programme Committee (ISPC), Conference on Modelling Fluid Flow (CMFF'22), | August 30 – September 2, 2022. Budapest, Hungary. |
| Seminars | | | |
| 1. | Prof. Abdus Samad | Member of the Organizing Committee ISOG 2022- Indian Symposium for Offshore Geotechnics | December 04-07, 2022. IIT Madras |
| 2. | Prof. Abdus Samad | Scientific Committee 32nd Symposium on Hydraulic Machinery and Systems, Roorkee, India | September 11-14, 2024. IIT Roorkee |

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|---|---|--|
| Workshops | | | |
| 1. | Prof. V Sriram Prof. SA Sannasiraj, Prof. K Murali Prof. V Sundar Prof. R Sundaravadivelu | Organized the IoE Workshop on 3rd NEMWSI, December 12-13, 2022. IIT Madras | December 12-13, 2022. IIT Madras |
| 2. | Prof. SA Sannasiraj | Organized the One-day Transfer Workshop on Textile Technology and its Application in lieu of Climate Change Under ABCD-DAAD Centre on December 13, 2022. | December 13, 2022. IIT Madras |
| Short-term Courses | | | |
| 1. | Dr. Suresh Rajendran | Organised Short Term Course on Exploring the Blue Frontier with Marine Robots: Theory and Practice | August 08-16, 2022. IIT Madras |
| 2. | Dr. R Vijaya Kumar | Short Term Course Conducted on Introduction to Naval Architecture and Shipbuilding Course for L&T Shipbuilding | December 12-22 and December 28, 2022. IIT Madras |
| 3. | Prof. SA Sannasiraj | GIAN Course on MetOcean Science and Engineering, December 4-13, 2023. IIT Madras with Foreign Faculty, Prof. Alexander Babanin, University of Melbourne, Australia and Host Faculty | December 04-13, 2023. IIT Madras |
| Training Events | | | |
| 1 | Prof. P Shanmugam | UAV Drone with Hyperspectral Imaging Systems Training | September 05-08, 2022. Chennai |
| 2. | Prof. Murali | Entry Level Pilot Training-IMU & IIT Madras Programmes | March 21-25, 2022. June 24, 2022. September 21-30, 2022. January 18-27, 2023. |

4.15.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Coordinator(s) | Title | Institution | Period |
|--------------------|---|---|------------------------------------|-------------------------------|
| Workshops | | | | |
| 1. | Prof. Abdus Samad | Academic Auditor | AMET University | June 2022 |
| Conferences | | | | |
| 1. | Prof. V Sundar | To discuss the possible future cooperation to develop joint research projects (Partial financial assistance from project) | University of Tel Aviv, Israel | October 29–November 04, 2022. |
| 2. | Prof. Sannasiraj S A and Prof. Murali | Long Term Impacts of Climate Change on Reinforced Concrete Berthing Structures. | IAHR-APD 23 rd Congress | December 14-17, Chennai, |
| 3. | Prof. Sannasiraj S A and Prof. Sundar V | Coastal Morphological Changes Due to the Nivar Cyclone on the East Coast of India. | IAHR-APD 23 rd Congress | December 14-17, Chennai, |

4.15.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|----------------------|--|---|--------------------|
| 1. | Dr. R Vijaya Kumar | Invited Lecture for Continued Education Program on Advance in Hydrodynamics . | Naval Science & Technological Laboratory (NSTL) | December 09, 2022. |
| 2. | Prof. S A Sannasiraj | Invited Talk on Coastal Protection And Shoreline Management In Msp, Workshop on Marine Spatial Planning. | Tamilnadu at National Centre of Coastal Research, Chennai | January 10, 2023. |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-------------------------|--------------------|--|--------------------------|
| 3. | Prof. R Sundaravadivelu | Outreach Programme | Department of Civil Engineering College of Engineering Trivandrum | March 14, 2023. |
| 4. | Dr. Suresh Rajendran | Outreach Programme | Government Engineering College, Thrissur and Cochin University of Science and Technology | March 27-28, 2023. |
| 5. | Prof. Sriram V | Outreach Programme | NIT Trichy | March 27, 2023. |
| 6. | Prof. Sannasiraj S A | Outreach Programme | Thiagarajar College of Engineering, Madurai. | March 21, 2023. |
| 7. | Prof. Abdus Samad | Invited Lecture | International Conference on Advances in Heat Transfer and Fluid Dynamics AHTFD-22 | December 1-3, Aligarh |
| 8. | Prof. Abdus Samad | Invited Lecture | Department of Petroleum Engineering, Chandigarh University | April 23, 2022. |
| 9. | Prof. Abdus Samad | Invited Lecture | International Conference on Science, Technology and Sustainability, ICSTS-2022 | November 05-06, 2022. |
| 10 | Prof. V Sriram | Invited Lecture | 6 th CMHL Symposium 2023 | January 14, 2023. |

4.15.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding From |
|--------|----------------------|---------------------------------|--------------------------|--|--------------------------------------|
| 1. | Dr. Suresh Rajendran | Portugal | June 26 – July 09, 2022. | Collaboration with Institute of Systems and Robotics, Instituto Superior Tecnico in the Field of Marine Robotics | ASME-DUO India fellowship + Projects |
| 2. | Prof. Sundar V | Taipei, Taiwan | November 27-30, 2022 | To Deliver a Lecture on Ocean Wave Energy and Visit Their Hydrodynamic Testing Facilities | IIT Madras |
| 3. | Prof. Sundar V | Bangkok, Thailand | December 01-03, 2022 | To Participate in the Water Security and Climate Change (WSSC) Conference | IIT Madras |
| 4. | Prof. Suresh Kumar G | Dehradun, India (UPES and DITU) | March/April 2023 | Outreach Programme | IIT Madras |
| 5. | Prof. Abdus Samad | BUET, Dhaka, Bangladesh | December 21-22, 2022. | International Conference on Marine Technology | IIT Madras |
| 6 | Prof. V Sriram | ECN Nantes, EDF, Paris | July 01-17, 2022. | Collaboration With ECN on WASANO Project | ECN and IIT Madras |

4.15.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded By | Awarded For | Date of Award |
|----------------|-----------------|----------------------------------|---------------------------------------|--|-----------------|
| Honours | | | | | |
| 1. | Prof. V Sundar | Distinguished Alumnus Award 2022 | College of Engineering (CEG), Guindy. | Distinguished Alumnus Award 2022 under the Category by the Renowned Professor from an Academic Institute | April 30, 2022. |
| Awards | | | | | |
| 1. | Prof. V Sriram | DFG-Mercator Fellowship | LuH and DFG | Contribution in Hydrodynamics | 2023 |

4.15.3.7. Fellowships of Academies and Professional Societies

| Name of Fellowship | Name of Faculty | Year of Admission |
|--------------------|-------------------|-------------------|
| ASME | Prof. Abdus Samad | 2023 |
| IMechE | Prof. Abdus Samad | 2023 |
| IE-India | Prof. Abdus Samad | 2023 |
| ISSMO | Prof. Abdus Samad | 2023 |
| NSFMFP | Prof. Abdus Samad | 2023 |

4.15.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|---------------------|--------------------------|--|
| 1 | Prof. Abdus Samad | Editor | Energies (Special Issue: Heat Transfer and Fluid Flow in Heat Exchangers and Sustainable Energy Systems), 2022 |
| 2 | Prof. V Sriram | Associate Editor | International Journal of Offshore and Polar Engineering, 2023 |
| 3 | Prof. V Sriram | Editorial Board Member | Ocean Engineering, 2023 |
| 4 | Prof. S Nallayarasu | Associate Editor | Journal of Offshore Mechanics and Arctic Engineering, 2022 |
| 5 | Prof. Rajiv Sharma | Associate Editor | Ships and Offshore Structure, 2022 |

4.15.4. Design and Development Activities

| S. No. | Design | Faculty |
|--------|--|--------------------|
| 1 | A Wave Energy Coinverter was Developed and Tested at Tuticorin Port in November 2022 | Prof. Abdus Samad |
| 2 | Developed a Vending Cart with RuTAG | Prof. Rajiv Sharma |

4.15.5. Patents

4.15.5.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|--------|-----------------|---|
| 1. | Vijaykumar R | System and Method for Strain Measurement for Underwater Composite and Flexible Propellers |

4.15.5.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|--------------------|---|
| 1 | Jitendra S Sangwai | Apparatus for carrying out continuous passive mixing and/or chemical reactions for multiphase/multispecies fluids |
| | | SMART LowSal injection fluids for oilfield application to recover crude oil from the matured reservoir |
| 2. | Rajesh R Nair | Apparatus for carrying out continuous passive mixing and/or chemical reactions for multiphase/multispecies fluids |
| 3. | Sundaravadivelu R | Foldable Torpedo Anchor (FOTOAN) |
| 4. | Murali K | Desalination apparatus and method for obtaining desalinated water for floating platforms, coastal communities and islands |
| 5. | Abdus Samad | An apparatus to convert bidirectional linear motion to unidirectional rotary motion |

4.15.6. Research and Consultancy

4.15.6.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR lakh) | Co-ordinators |
|--------|---|----------------------------------|------------------------------|----------------------|---|
| 1 | Applications of IITM-RANS3D for Ship Slamming and Motion Responses | 2022-2025 | Naval Research Board | 49.73 | Dr. V Sriram, Dr. Vijayakumar |
| 2 | Development of a Numerical Method for Calculating the Anti-symmetric Responses of Flexible Ship Hulls and Large Floating Offshore Structures and the Experimental Investigation of Slamming Loads | March 15, 2023-March 14, 2026 | SERB-DST | 23.86 | Dr. Suresh Rajendran |
| 3 | A Cooperative Positioning, Tracking and Control of Heterogeneous Marine Vehicles in Ocean Environment | August 08 2022-August 07, 2023. | IIT Madras | 9.72 | Dr. Suresh Rajendran |
| 4 | Advanced Ship Manoeuvring Prediction based on Machine Learning and Artificial Intelligence for Autonomous Ship Navigation | March 15 2019-September 30, 2023 | Ministry of Education | 43.13 | Dr. Suresh Rajendran, Ranjith Mohan |
| 5 | Development of Guidance and Control Systems for Sea Going Autonomous Surface Vehicles (ASV) | March 15 2019-September 30, 2023 | Ministry of Education | 40.13 | Dr. Suresh Rajendran, Ranjith mohan |
| 6 | Development of a Wave Energy System | 2022-2023 | Australian Consulate General | 8.77 | Prof. A Samad |
| 7 | Disinfecting Indoor Air Against Diseases Such as COVID-19 and TB in Cities in the Indian Subcontinent | 2021-2023 | Royal Academy of Engineering | 76 | Prof. A Samad, Eldad Avital, Nithya Venkatesan, Himanshu Agarwal |

4.15.6.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|--|----------------------|
| 1 | Sannasiraj S A | Rites Limited | Preparation of DPR for the development of naval base infrastructure in Myanmar | 189.98 |
| 2 | Nallayarasu S | Avineon India Private Limited | Detailed Engineering for (Secondary Steel) Scarborough MRU & PWT Module Project | 43.96 |
| 3 | Sundaravadivelu R | Fishery Engineering Division | Conducting bathymetry survey for facilitating MarineBuoy System Offshore of Rushikulya river Bar mouth - | 5.90 |
| 4 | Nallayarasu S | Gujarat Maritime Board | Validation, Revision to Cost Estimate, Detailed Design and Drawings and Preparation of tender and bid valuation for the work of Fishery Harbour Project at Madhvad, Gir Somnath, Gujarat | 212.40 |
| 5 | Nallayarasu S | Gujarat Maritime Board | Validation, Revision to Cost Estimate, Detailed Design and Drawings and preparation of tender and bid valuation for the work of Fishery Harbour Project at Veravel, Gir Somnath, Gujarat | 177.00 |
| 6 | Sundaravadivelu R | Garrison Engineer (I) R & D Chandipur | Consultancy For Provision of 4 Nos of Additional Opsat 7000M, 9000M, 11000M, 13000M at Range Road, PXE Chandipur | 7.00 |
| 7 | Sundaravadivelu R | Executive Engineer, Fishery Engineering Division, Bhubaneswar | Conducting bathymetry survey for facilitating MarineBuoy System Offshore of Devi river Bar mouth | 5.90 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|--|----------------------|
| 8 | Nallayarasu S | NOV Intervention and Stimulation Equipment | Engineering Consultancy services for Buzios FPSO Project | 22.52 |
| 9 | Nallayarasu S | Indian Oil Corporation Limited | Verification of HDD design of (stress analysis) various Product pipeline at railway crossing in 0-5.5km of Chennai-Asanur Section | 9.44 |
| 10 | Nallayarasu S | Jawaharlal Nehru Port Trust | Detailed Engineering for upgradation/improvement of Water Supply System, Storm Water Drainage System and Rain Water Harvesting of JNPT Township – Phase I Development | 100.30 |
| 11 | Nallayarasu S | Mumbai Port Trust | Engineering Investigation and validation of variation for TCB at Pir Pau, MBPT | 42.48 |
| 12 | Nallayarasu S | Petro6 Engineering and Construction Private LIMITED | DSF-II Block KG/OSDSF/GSKW/2018 - Phase 1- PRE-FEED FOR JACKETS AND DECKS | 23.60 |
| 13 | Nilanjan Saha | Dibang Infra Projects Private Limited | Assessment of Pasonallah Guide Bund performance and Design for additional Spurs | 7.08 |
| 14 | Sannasiraj S A | Executive Engineer Fishing Harbour Project Division Chennai | Construction of fish landing centre at Thazhanguda in Cuddalore district | 10.62 |
| 15 | Nallayarasu S | NOV Intervention and Stimulation Equipment | Fatigue Analysis and Fire\Blast Analysis for Sea Water Treatment (SWT) Module -Mero 4 project | 45.40 |
| 16 | Murali K | Malabar International Ports and SEZ Limited | Review of the preliminary design of the Stone Column foundation proposed for the breakwaters for Development of a deep-water port at Azhikkal in Kannur District of Kerala | 23.60 |
| 17 | Sundar V | Indian Oil Corporation Limited | Consultancy for Internal Shore Protection Works at LPG Import Terminal, Ernakulam (LITE) | 11.62 |
| 18 | Sundaravadivelu R | Executive Engineer, Drainage Division | Project Management Consultancy Services for the work "Preparation of DPR for construction of groins and river mouth dredging of Bahada Nalla near Haripur and Bahana Nalla near Markandi for operation of fish Landing Centres in Gopalpur Constituency of | 82.60 |
| 19 | Sannasiraj S A | Andaman Lakshadweep Harbour Works | Conducting a third party check for the project work on Restoration of breakwater at Kalpeni | 28.32 |
| 20 | Sannasiraj S A | Meka Infrastructure Private Limited | Stability of intake and outfall pipelines at 150 MLD desalination plant at Nemmeli | 4.72 |
| 21 | Vijaykumar R | Alyash Marine Consultant | CFD simulation of catamaran Hull | 2.53 |
| 22 | Sundaravadivelu R | Afcons Infrastructure Limited | Construction of jetties at Agalega Island - NDT test and Repair Methodology report | 9.00 |
| 23 | Sannasiraj S A | Authentic Construction Company Limited | Project Management Consultant for submarine cable laying project in Myanmar | 85.10 |
| 24 | Nallayarasu S | Chennai Port Trust | Detailed Engineering for Connectivity of O-Yard road and Spending beach road near BD II backup area at Chennai Port | 14.16 |
| 25 | Sundar V | Kerala State Coastal Area Development Corporation Limited | Preparation of a "Sustainable development Plan for Kollam Beach" | 11.51 |
| 26 | Sundaravadivelu R | Visakhapatnam Port Trust | Condition assessment and Construction of Sardar Vallabhal Patel bridge at Visakhapatnam Port Trust | 70.80 |
| 27 | Sundaravadivelu R | Visakhapatnam Port Trust | Providing PMC for Construction of Storage Sheds in port area - 400m x 40m x 17m including necessary drains and roads | 82.60 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|--|---|----------------------|
| 28 | Sundaravadivelu R | Marinetek India Services Private Limited | Conducting the numerical model studies of mooring piles in Kakkanad terminal of Kochi Water Metro | 5.90 |
| 29 | Sundaravadivelu R | Afcons Infrastructure Limited | Construction of jetties at Agalega Island Rehabilitation of Berthing Jetty works & report | 9.00 |
| 30 | Sundaravadivelu R | Vizhinjam International Seaport Limited | Development of Vizhinjam International Deepwater Seaport - Contract for the Services of Independent Engineer | 46.73 |
| 31 | Sundaravadivelu R | PWD Executive Engineer R C Divn Trichy | Proof check of Design Calculation for Mayannur Barrage-Cauvery river | 17.70 |
| 32 | Sundaravadivelu R | Port Office Moti Daman Jetty Daman | Carry out study for dredging at Damangangaestuary at Daman port | 10.62 |
| 33 | Krishnankutty P | Larsen & Toubro Limited | Hydrostatic and stability check of floatable doors | 11.80 |
| 34 | Sannasiraj S A | Andhra Pradesh Maritime Infrastructure Development Corporation Limited | Planning and design of fishing harbours at Budugatlapalem, Pudimadaka, Biyyaputhippa, Kothapatnam and Vadarevu | 383.50 |
| 35 | Nallayarasu S | Maharashtra Maritime Board | Detailed design for RO-RO facility at Kashid, Raigad Dist | 35.40 |
| 36 | Nallayarasu S | Mumbai Port Trust | Detailed engineering for construction of new fish jetty with approach trestle at Mallet Bunder, Mazgoan | 226.56 |
| 37 | Nilanjan Saha | Reliance Industries Limited | Marine Study of Exposed condition of buried sea bed Naphtha pipeline at Suvali Beach-Hazira | 19.77 |
| 38 | Sundaravadivelu R | Executive Engineer Fishing Harbour Project Division Nagapattinam | Preparation of Techno Economic Feasibility Report and Detailed Project Report for Development of Fish Landing Centre at Samandanpet village in Nagapattinam District | 15.00 |
| 39 | Sundar V | Kerala Irrigation Infrastructure Development Corporation Limited | Construction of Groyne Field at Ambalappuzha, Arattupuzha, Pathiyankara, Vattachal and Kattoor in Alappuzha District-IIT Madras Site Inspection | 1.65 |
| 40 | Nallayarasu S | Jawaharlal Nehru Port Trust | Detailed Feasibility study and assessment of additional pipelines from BPCL Jetty to Tank farm for common user basis | 70.80 |
| 41 | Murali K | Cochin Shipyard Limited | Technical study on management of siltation at CSL quay side including monitoring of project site and numerical modeling | 49.90 |
| 42 | Sundar V | Harbour Engineering Department | Rivertraining work at Shinya in Kasargod district - Vetting of Model study | 3.54 |
| 43 | Nallayarasu S | Petro6 Engineering And Construction Private Limited | Study on Deck Extension & Modular crane installation for CTU operations at RC & RD platform & Feasibility Study on Well Reinstallation at RF platform (30" well conductors) | 23.60 |
| 44 | Sundaravadivelu R | Visakhapatnam Port Trust | Repairs to the pockets along the SL canal jetty by providing S/H sheet pile wall to avoid crosion of bund | 9.44 |
| 45 | Sundaravadivelu R | Visakhapatnam Port Trust | PMC services for the Project Construction of Cruise Terminal Berth and Terminal Building at Channel Berth in outer harbour of Visakhapatnam Port | 69.81 |
| 46 | Nallayarasu S | Maharashtra Maritime Board | Wave data collection at the existing ferry jetty at Mandwa | 17.70 |
| 47 | Nallayarasu S | Maharashtra Maritime Board | Detailed design for providing link-span and pontoon at Dighi Jetty, Raigad | 35.40 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|--|----------------------|
| 48 | Nallayarasu S | Chennai Port Trust | Detailed Engineering for Development of Bunker Barge Berth - phase II | 11.80 |
| 49 | Nallayarasu S | Garrison Engineer Naval Services Kochi | Structural Assessment of 25 T Fixed Crane installed at NSRY,Kochi | 17.70 |
| 50 | Sundaravadivelu R | C R Narayana Rao Consultants Private Limited | Proof Checking of Structural Design Vetting of Academics Research block, Food court and Hostel Block | 3.48 |
| 51 | Nallayarasu S | Deendayal Port Trust | Dredged Spoil Dispersion Study at Ro-Ro Berth at Pipavav | 23.60 |
| 52 | Nallayarasu S | Afcons Infrastructure Limited | PreBid Structural Engineering for DUDP wellhead platforms. | 15.34 |
| 53 | Sannasiraj S A | Executive Engineer Fishing Harbour Project Division Chennai | Construction of fish landing centre and shore protection works at ten coastal stretches in Chengalpattu district | 108.56 |
| 54 | Sannasiraj S A | Executive Engineer Fishing Harbour Project Division Chennai | Construction of fish landing centre and permanent stability of bar mouth - Shore protection and training wall design | 74.93 |
| 55 | Sannasiraj S A | Ciel ET Terre Solar Private Limited | Wave breaker prototype 3D basin test | 12.39 |
| 56 | Sannasiraj S A | Larsen & Toubro Limited-Construction- Heavy Civil Infra IC | Design of floating breakwater system at Vishakhapatnam | 16.52 |
| 57 | Murali K | Garrison Engineer (I) (CG) Chennai | Structural Audit of CG Jetty and some MD ACCN at ICGS Mandapam | 26.10 |
| 58 | Nallayarasu S | Deendayal Port Trust | Detailed Financial viability study for Dahej Ro-Ro Terminal | 23.60 |
| 59 | Nallayarasu S | Deendayal Port Trust | Feasibility study for handling 40foot container at Ro-Ro Berth at Ghogha | 11.80 |
| 60 | Suresh Rajendran | Seaconvoy System Engineering Private Limited | Design of active anti-roll tank for naval vessels | 4.72 |
| 61 | Sundaravadivelu R | HaskoningDHV Consulting Private Limited | Detailed Design of Ramapatnam Port, Andhra Pradesh | 88.50 |
| 62 | Sundaravadivelu R | Fishery Engineering Division | Vetting of design of FLC at Sorana, Kalpadaghat & Kasia and FH at Asaranga in the State of Odisha. | 37.80 |
| 63 | Nallayarasu S | Jawaharlal Nehru Port Trust | Dispersion of Silt during dredging from Burrow Pit areas identified by JNPA Survey agency | 21.24 |
| 64 | Nallayarasu S | Jawaharlal Nehru Port Trust | Design of additional facilities for ALCJ for capacity augmentation and safety | 35.40 |
| 65 | Sundaravadivelu R | Sanjay Construction company | Consultancy services as proof check consultant for EPC contract for Construction of Inter-Model IWT Terminal at Kalughat, Bihar (IWAI) | 11.80 |
| 66 | Nallayarasu S | NOV Intervention and Stimulation Equipment | Engineering Consultancy services for Design of Lifting Davits (2 Nos) and Davit Arms (2 Nos)-Mero4 Project | 15.92 |
| 67 | Sundaravadivelu R | Geometry Construction Company | Construction of break water, marine structure with allied civil works, dredging and reclamation for Fishing Harbour at Kulai, Mangalore | 23.60 |
| 68 | Sundaravadivelu R | Kakinada SEZ Limited | Consultancy services to review the parameters of hydraulics, assess the drain network, hydraulic flows and earth work fill quantity" in Kakinada SEZ, East Godavari District, Andhra Pradesh | 11.80 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|--|--|----------------------|
| 69 | Nallayarasu S | Petro6 Engineering and Construction Private Limited | Detailed Engineering for Well Reinstallation at RF platform (30" well conductors) | 15.86 |
| 70 | Nallayarasu S | Afcons Infrastructure Limited | Prebid Structural Engineering for Mumbai High Redevelopment and BS-17 Field Development Project (MHRD-V and BS-17 Project) | 14.16 |
| 71 | Sundaravadivelu R | IMC Limited | Kakinada E-4/Design Engineering Consultancy (DEC) Services/Ground Improvement works for Tank foundation | 5.31 |
| 72 | Sundaravadivelu R | Executive Engineer Fishing Harbour Project Division Nagapattinam | Modernisation of Nagapattinam Fishing Harbour in Nagapattinam District | 10.62 |
| 73 | Sundaravadivelu R | Aarvee Associates Architects Engineers & Consultants Private Limited | Proof checking of detailed design of RoRo cum GCB-II for Kamarajar Port Limited | 2.95 |
| 74 | Murali K | Corporation Of Chennai Storm Water Drainage Department | Conducting Marine EIA study and Conservation Plan for Turtle Nesting in the project vicinity | 23.60 |
| 75 | Sundaravadivelu R | Executive Engineer Fishing Harbour Project Division Nagapattinam | Construction of Fishing Harbour at Vallapallam in Nagapattinam District | 10.62 |
| 76 | Suresh Rajendran | Defence Bioengineering and Electromedical Laboratory | Evaluation of design of 3 men life raft/dinghy and its stability under various conditions | 16.56 |
| 77 | Nallayarasu S | Deendayal Port Trust | Detailed Feasibility Study for Passenger Ferry from Kandla to Other Minor Ports in Gujarat | 59.00 |
| 78 | Shanmugam P | Oil and Natural Gas Corporation Limited | Study to Identify Areas of Subsidence if any due to the Exploration and Exploitation of Hydrocarbons at the established Monitoring stations in the Deltaic Areas of KGPG Basin using SAR Interferometry techniques | 53.63 |
| 79 | Sundaravadivelu R | Chennai Petroleum Corporation Limited | Consultancy services for Mitigation study to prevent flooding of CPCL LPG bulk loading facility & Green Belt area of CPCL. | 10.62 |
| 80 | Sannasiraj S A | Fishing Harbour Project Division | Preparation of DPR for shore protection works and construction of Fish Landing Centre at Mandapam North in Ramanathapuram district | 10.62 |
| 81 | Sannasiraj S A | Fishing Harbour Project Division | Preparation of DPR for Shore Protection Works and Construction of Fish Landing Centre at Mandapam South in Ramanathapuram District | 10.62 |
| 82 | Murali K | GHCL Limited | Technical Evaluation of Sea Water Intake and Outfall | 32.45 |
| 83 | Sundaravadivelu R | Torrent Gas Chennai Private Limited | Proof checking of HDD pipeline crossing under railway track at KM15/900-16/000 Between Ambattur (ABU) - Thirumullaivoyal (TMVL) Stations | 2.95 |
| 84 | Murali K | Mahindra Consulting Engineers Limited | Structural design vetting of water utility structures for the development of Food Park in Tindivanam | 5.90 |
| 85 | Murali K | Corporation Of Chennai Storm Water Drainage Department | Review of Detailed Project Report for "Construction of Integrated Storm Water Drain in Kosasthalaiyar Basin in the extended areas of Greater Chennai Corporation | 19.47 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|---|----------------------|
| 86 | Sundaravadivelu R | Syama Prasad Mookerjee Port, Kolkata | PMC Services for sample replacement of the existing sliding ways plates at inner & outer lock gates of lock entrance of Haldia Dock Complex Kolkata | 38.35 |
| 87 | Murali K | SRM Construction | Pre & Post Dredge bathymetry survey and quantity calculation report for dredging work at Thengapattinam Fishing Harbour, Kanyakumari | 8.26 |
| 88 | Nallayarasu S | Indian Oil Corporation Limited | Verification of HDD design of (stress analysis) various Natural gas pipeline under city gas distribution project of IOCL at Coimbatore (Irugur Chainage 474/000-200) | 8.85 |
| 89 | Nallayarasu S | Deendayal Port Trust (Kandla Port Trust) | Review of Master Plan 2047 for Deendayal Port. | 17.70 |
| 90 | Sundaravadivelu R | Tractebel Engineering Private Limited | Vetting the Design of Long beam-2 of IOC captive POL/LPG Marine jetty at Kamarajar Port, Ennore | 5.90 |
| 91 | Rajesh R Nair | VEH Shreshta Energy Private Limited | Seismic and Geotech Analysis for our Kasar Site, Maharashtra | 11.80 |
| 92 | Sannasiraj S A | Cochin Shipyard Limited | Condition assessment and structural audit of dry docks at CSL-Kolkata shipyard unit (CKSRU) | 26.90 |
| 93 | Sundaravadivelu R | Coastal Marine Construction & Engineering Limited | Consultancy charges for vetting of Design & Drawing of structure on the flat rock located in the Andaman Sea off Port Blair for Director General Light house & Light Ships | 5.90 |
| 94 | Sannasiraj S A | Chennai Petroleum Corporation Limited | Carrying out met-ocean data for offshore crude oil pipelines laying for the Cauvery basin refinery project | 4.48 |
| 95 | Sundaravadivelu R | National Institute Of Ocean Technology | Vetting design for pipeline trestle with seawater intake caisson for proposed Ballest water Treatment technologies - Test facility (BWTT-TF) at seafront facility, Pamanji village Nellore. | 10.62 |
| 96 | Murali K | Cochin Shipyard Limited | Cochin Shipyard Limited - Evaluation of the Startups | 143.00 |
| 97 | Sannasiraj S A | Public Works Department | Consultancy services for the construction detailing and mitigation measures during construction activity | 45.14 |
| 98 | Sannasiraj S A | Public Works Department | Effective securing Khukri ship at Diu | 19.47 |
| 99 | Nallayarasu S | Deendayal Port Trust (Kandla Port Trust) | Coastal protection using sea wall for Muldwarka port (within Harbour) | 35.40 |
| 100 | Sundar V | Kerala State Coastal Area Development Corporation Limited | Development of fish landing centre at Chillakal in Kollam District. | 7.01 |
| 101 | Sundar V | Harbour Engineering Department | Mathematical model study of proposed river training works at Shiriya, Kasaragod district. | 4.00 |
| 102 | Sundaravadivelu R | Kerala Maritime Board | Consultancy services for Renovation/Repair Reconstruction of valiathura and Thalassery Piers/Jetties of Kerala Maritime Board, Thiruvananthapuram | 59.00 |
| 103 | Nallayarasu S | Valdel Engineers And Constructors Private Limited | Engineering Consultancy services for Fatigue Analysis of Barossa FPSO Module | 7.08 |
| 104 | Sundaravadivelu R | Visakhapatnam Port Authority | PMC for Construction of covered storage shed of size 200X30X17m at R-2 area of Visakhapatnam Port including necessary roads, drains, water supply, - mist and electrification. | 57.70 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|---|---|----------------------|
| 105 | Sundaravadivelu R | Visakhapatnam Port Authority | PMC for Construction of covered storage shed No.1 of size 400X40X17m at R-11 area in Visakhapatnam Port | 54.28 |
| 106 | Sannasiraj S A | Machilipatnam Port Development Corporation Limited | Detailed modelling studies for Disaster Management covering the aspects of flooding due to cyclone and develop mitigation strategy to prevent flooding | 7.08 |
| 107 | Sundaravadivelu R | The Directorate of Light House & Lightships | Design of Sea Protection wall at Kovilthottam Lighthouse | 38.94 |
| 108 | Nallayarasu S | Petro6 Engineering and Construction Private Limited | Detailed Engineering for RH platform 3 Slot Extension with ILJU installation | 11.61 |
| 109 | Nallayarasu S | Chemplast Sanmar Limited | Detailed Feasibility study for berthing 20,000 DWT Vessels at Karaikal Marine Facilities | 29.50 |
| 110 | Nallayarasu S | Gujarat Maritime Board | Project Management Consultancy (PMC) for Fishery Harbour Project at Suthrapada (Offshore Package 1), Gir Somnath District, Gujarat | 847.24 |
| 111 | Nallayarasu S | Gujarat Maritime Board | Project Management Consultancy (PMC) for Fishery Harbour Project at Veraval Phase II (Offshore Package 1), Gir Somnath District, Gujarat | 769.36 |
| 112 | Nallayarasu S | Gujarat Maritime Board | Project Management Consultancy (PMC) for Fishery Harbour Project at Madhwad (Offshore Package 1), Gir Somnath District, Gujarat | 783.52 |
| 113 | Nallayarasu S | Paradip Port Trust | Review of Master Plan 2047 for Paradip Port | 17.70 |
| 114 | Murali K | National Institute Of Ocean Technology | Establishment of Virtual simulator for submerged vehicle | 1528.34 |
| 115 | Sundaravadivelu R | Ellath Infrastructure Private Limited | Vetting of construction methodology for construction of intake well at Madikheda, Shivpuri, Madhya Pradesh | 10.62 |
| 116 | Sannasiraj S A | Vishwa Samudra Ports | Testing of Development of Armour Block - Bhavanapadu Port | 29.50 |
| 117 | Sannasiraj S A | Samudra Consultants Private Limited | Hydrodynamic modelling and design of hammer head for the fishing harbour at Umarsadi | 14.75 |
| 118 | Nilanjan Saha | Garware Technical Fibres Limited | Providing vetting of design & final BOQ & site visits for the slope protection work of RIL HMD site. | 14.16 |
| 119 | Nallayarasu S | Nov Process and Flow Technologies AS | Engineering Consultancy services for Valhall Project | 26.45 |
| 120 | Sannasiraj S A | ITD Cementation India Limited | Construction methodology for the placement of accrodpoce placement for offshore breakwater | 23.60 |
| 121 | Sannasiraj S A | Oil and Natural Gas Corporation Limited | Expert consultancy services for the pipeline stability analysis due to soil subsistence at Onshore Gas Terminal Yanam, ONGC | 80.89 |
| 122 | Vijayakumar R | Mazagon Dock Shipbuilders Limited | Model testing, hydrostatic studies, hydrodynamic studies, and propeller design of Y-51008 | 175.82 |
| 123 | Sundaravadivelu R | Deloitte Touche Tohmatsu India LLP | PMC services for carrying out Bathymetry survey and preparation of detailed Technical Feasibility report at Coastline in PM Lanka, Narsapuram, District west Godavari | 16.52 |
| 124 | Sannasiraj S A | Executive Engineer Fishing Harbour Project Division Chennai | Construction of fish landing centre -shore protection an stability of bar mouth at Ekkiyarku ppam, Periyakuppam, Pudhukuppam, Vellar, killai and Pillaichavadi in Villupuram and Cuddalore Districts, Tamilnadu | 74.93 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|-------------------|--|--|----------------------|
| 125 | Sundaravadivelu R | Megha Engineering and Infrastructures Limited | Consultancy services as Third party Reviewer towards Review of civil, Structural, Electro-mechanical & Infrustrumentation works for development of "Construction of Greenfield port at Machilipatnam. | 88.50 |
| 126 | Nallayarasu S | Gujarat Maritime Board | Model Study for the Breakwater Cross Sections for the work of development of Fishery Harbour at Madhwad Dis. Gir Somnath | 28.32 |
| 127 | Sundaravadivelu R | Rail Vikas Nigam Limited | Providing the Independent Engineer (IE) services towards Development of the Uthuru Thila Falhu (UTF) harbour project in Maldives proof check. | 70.80 |
| 128 | Nallayarasu S | Kutch Chemical Industries Limited | Pre-Feasibility Report for Seawater Intake at Kutch for EIA Approval | 29.50 |
| 129 | Nallayarasu S | Larsen & Toubro Limited | Feasibility study to establish greenfield jetty at Hazira to handle break bulk cargo | 17.70 |
| 130 | Nallayarasu S | Ertha Energy | Pre-bid Structural Engineering for MA, PA Wellhead Platform and BH Riser platform | 82.31 |
| 131 | Sundaravadivelu R | Deendayal Port Authority | Construction of port Craft jetty with allied facilities at Tuna-Tekra | 96.76 |
| 132 | Murali K | Corporation Of Chennai Storm Water Drainage Department | Vetting of design of storm water drain in M2 component in Kovalam basin | 37.76 |
| 133 | Sriram V | Chennai Petroleum Corporation Limited | Consultancy to carry out damage assessment of 20 inch CPCL pipeline and oil spill studies near Karaikal Port Tamil Nadu, India | 23.60 |
| 134 | Sannasiraj S A | WRD(PWD) -Thamiraparani basin division | Vetting the structural design of tail end check dams at Confluence points of Thambraparani river with sea at Mukkani village | 5.90 |
| 135 | Nilanjan Saha | Ellath Enterprises | Vetting of construction methodology for construction of intake well at Hazaribagh, Madhya Pradesh | 7.08 |
| 136 | Nilanjan Saha | Larsen & Toubro Limited | Madikheda Multi Village Rural Water supply scheme | 2.95 |
| 137 | Sundaravadivelu R | Hooghly Oil and Gas Terminal Private Limited | Detailed Design Engineering consultancy (DEC) services for design of Oil jetty at HOGTPL as per the scope of HOGTPL | 112.10 |
| 138 | Sundaravadivelu R | Public Works Department | PMC services for the Extension of jetty at Vivekanadha Rock memorial. | 28.32 |
| 139 | Sundaravadivelu R | Divi's Laboratories Limited | Consultancy services for jetty works we are pleased to issue the work order for PMC towards jetty repair works | 35.40 |
| 140 | Sannasiraj S A | West Coast Marine Yacht Services Private Limited | Proof check the floating jetty design for Indian coast guard station at Dahanu | 6.00 |
| 141 | Nallayarasu S | Syama Prasad Mookerjee Port, Kolkata | Proof Checking/Vetting of Detailed Project Report, Design and drawings for Container International Transshipment Terminal at Galathea Bay, Great Nicobar Island | 53.10 |
| 142 | Sundaravadivelu R | Garrison Engineer (Project) (Navy & Cost Guard) | Provn of River Bank protection and other associated works at services selection board, Kolkata, Diamond Harbour. | 31.86 |
| 143 | Nilanjan Saha | Ministry of External Affairs | Providing Engineering consultancy validation/ calculation check for already quantity based on available records (raw data, all Bathemetric surveys XYZ format, Daily dredging sheets, DLM record for all type of dredgers) Myanmar Part - I. | 29.50 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------------|-------------------|---|---|----------------------|
| 144 | Nilanjan Saha | Ministry of External Affairs | Providing Engineering consultancy validation/ calculation check for already quantity based on available records (raw data, all Bathemetric surveys XYZ format, Daily dredging sheets, DLM record for all type of dredgers) Myanmar Part - II. | 53.10 |
| 145 | Sundaravadivelu R | Highways Department | Vetting of construction of Marine Arch Bridge connecting Vivekanandha Rock memorial and Ayyan Thiruvalluvar statue located at Kanniyakumari | 5.90 |
| 146 | Sundaravadivelu R | Chennai Petroleum Corporation Limited | Consultancy services to carry out study on damages in CPCL desalination intake well, Kattupalli | 14.25 |
| 147 | Nallayarasu S | Deendayal Port Authority | Detailed Design, Drawings, Estimates, Tender and monitoring work for Modification to existing Pontoon and Linkspan and standby pontoon at Ghogha RoRo Terminal | 265.50 |
| 148 | Sannasiraj S A | Fishing Harbour Project Division | Detailed project report on the Improvements to the fish landing centre at seven coastal stretches at Kurumpanai, Melamanakudi, Kelamanakudi, Puthenthurai, Kesavan puthenthurai, Simon colony and Kodimunai villages | 67.26 |
| 149 | Sundaravadivelu R | Executive Engineer, Fishery Engineering Division, Bhubaneswar | PMC for the work" Establishment of Fishing Harbour at Chandipur (Balaramgadi) in Balasore District, Odisha | 79.65 |
| 150 | Sannasiraj S A | Fishing Harbour Project Division | Detailed project report on model studies for fish landing centre at Aruvikkarai, Tirunelveli district | 11.80 |
| 151 | Murali K | Department of Fisheries and Fishermen Welfare | Preparation of Techno-Economic Feasibility Report and EIA study for construction of Bait curve in Puducherry Region | 79.06 |
| 152 | Sannasiraj S A | Vishwa Samudra Ports | Third party review of all technical design documents for the development of Bhavanapadu port | 88.50 |
| 153 | Sannasiraj S A | Indian Port Rail & Ropeway Corporation Limited | Proof checking the design and drawing of shore protection work in connection with modernisation and upgradation of fishing harbour at Paradip | 4.72 |
| 154 | Nilanjan Saha | Vijay Nirman Company Private Limited | Review of design and drawings for construction of buildings over suspended slab and connected services of IN-ICG-Jetty at Visakhapatnam, DGNP(V) | 10.62 |
| 155 | Sundaravadivelu R | HaskoningDHV Consulting Private Limited | Proposal for review of Model Studies carried out for the proposed Outer Harbour DPR project for DGNP-Vizag | 17.70 |
| 156 | Nallayarasu S | Deendayal Port Trust | Project Management Consultant (PMC) for the work of "Maintenance Dredging at Periphery of Landing Pontoon of Ro-Pax Facility at Dahej Terminal | 31.86 |
| 157 | Nallayarasu S | Indian Oil Corporation Limited | Verification of HDD design of (stress analysis) 2 x 30" Product pipeline from Kamarajar Port, Ennore to CPCL crossing Railway line between Atthipattu and Ennore stations in Chennai – Gudur Section | 11.21 |
| 158 | Nallayarasu S | Nhava Sheva Distribution Terminal Private Limited | Consultancy services for modification to existing Ro-Ro / RoPax berth / Shallow water berth for berthing of additional liquid cargo vessel in short term – Phase I | 47.20 |
| Total | | | | 10143.22 |

4.15.6.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR lakh) |
|--------|------------------|---|------------|----------------------|
| 1. | Suresh Rajendran | Evaluation of Design of 3 Men Life Raft/Dinghy and its Stability Under Various Conditions | DEBEL-DRDO | 14.03 |

4.15.7. Distinguished Visitors to the Department

| S. No. | Visitor's Name and Designation | Date of Visit | Purpose of Visit |
|--------|---|--------------------------------|--|
| 1. | Prof. Antonio Pascoal, Institute of Systems and Robotics, Instituto Superior Tecnico, University of Lisbon, Portugal | July 26–August 24, 2022. | Special Lecture in Short Term Course on Exploring the Blue Frontier with Marine Robots: Theory and Practice |
| 2. | Dr. Ananth Wuppukondur, Postdoctoral Research Fellow, School of Civil Engineering at The University of Queensland (UQ), Australia | August 29, 2022. | Special Seminar on Modelling Tsunami Propagation, Overtopping and Bridge Pier Scour in Coastal Rivers. |
| 3. | Prof. V S Raju | September 9, 2022. | General Discussion with Faculty |
| 4. | Dr. Philip L-F Liu | September 30–October 31, 2022. | Vajra Faculty |
| 5. | Tamil Nadu Government School Students from Madurai | October 3, 2022. | Visited to OE Wave Basin. |
| 6. | Dr. Muthukumar Narayanswamy | January 5, 2023 | [Seminars] [Technical Talk] Assessment of Compound Flood Hazards in Coastal Areas Due to Storm Surge and Precipitation |
| 7. | Prof. Trilochan Sahoo | January 30, 2023 | Seminars [Technical Talk] Recent Developments on the Blocking Dynamics of Flexural Gravity Waves |
| 8. | Prof. M Arockiasamy, FAU | December 23, 2022 | Academic Matter Discussion With Faculty and Students |
| 9. | Prof. Thorsten Stoesser | February 1–17, 2023 | SPARC project |

4.15.8. International Collaboration Achievements by the Department

| S. No. | Name of the Student | Purpose of Visit | Date & Venue |
|--------|---------------------|---------------------------------|---|
| 1 | Doddamani Hithaish | Student exchange (IGCS funding) | December 2021–April 2022. Otto von Guericke University Magdeburg, Germany |

4.16

Department of Physics

4.16.1. Introduction

The Department of Physics was established in 1959. The department conducts research in many frontier areas in the sylvan campus of IIT Madras.

4.16.2. Academic Programmes

The Department of Physics offers a variety of programmes. It offers the undergraduate programme B.Tech. (Engineering Physics) in coordination with the Department of Electrical Engineering; three master's programmes, namely Dual Degree (B.S.+ M.S.), M.Sc., and IDDD in Quantum Science and Technology; and M.Tech. programmes in Physics as well as the regular doctoral research (Ph.D.) program.

4.16.2.1. New Courses Introduced

| S. No. | Course No. | Title |
|--------|------------|-------------------|
| 1 | PH5820 | Classical Physics |

4.16.2.2. Students On Roll as of September 2022 + M.S. & Ph.D. Admissions in January 2023

| Programme | I Year | II Year | III Year | IV Year | V Year & extended | Total |
|--------------|------------|------------|-----------|-----------|-------------------|------------|
| B.Tech. | 43 | 43 | 32 | 24 | 6 | 148 |
| Dual Degree | 14 | 12 | 18 | 15 | 17+3 | 79 |
| M.Sc. | 51 | 47 | - | - | 6 | 104 |
| M.Tech. | 9 | 4 | - | - | 5 | 18 |
| Ph.D. | 40 | 23 | 42 | 46 | 38+40 | 229 |
| IPDF | 7 | 5 | 1 | 4 | 3 | 20 |
| Total | 164 | 134 | 93 | 89 | 118 | 598 |

4.16.2.3. Students/Scholars Who Attended Conferences, Seminars and Symposia Abroad or in India

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|---------------|-----------------------------|----------|---|-----------------------------------|---------------------------|
| Abroad | | | | | |
| 1 | Saroj Kumar Barik | PH16D056 | 739. Wilhelm und Else Heraeus-Seminar conference titled 'New Frontiers at Heavy Ion storage Rings: From Atomic Collisions to Many-Body Systems' at Physikzentrum Bad Honnef (DPG) | June 20-24, 2022. Honnef, Germany | None |
| 2 | Anita | PH15D203 | International Conference on High Energy Physics (ICHEP) 2022 | July 6-13 2022. Bologna, Italy | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|---------------------------------------|----------|--|---|---------------------------------|
| 3 | Sreya Suresh | PH17D046 | Strongly Correlated Electron Systems (SCES) 2022 | July 24–29, 2022. University of Amsterdam (The Netherlands) | IIT Madras |
| 4 | Sreejith PK | PH15D036 | SCES 2022 | July 24–29, 2022. University of Amsterdam (The Netherlands) | IIT Madras |
| 5 | Nisha Ranjan | PH16D300 | Friction and Wear across Scales Conference | August 15–18, 2022. Switzerland | IIT Madras |
| 6 | Anamika Ghosh | PH16D200 | 73 rd Annual Meeting of the International Society of Electrochemistry | September 12–16, 2022. online | IIT Madras |
| 7 | Dhanya AR | PH17D305 | 73 rd Annual Meeting of the International Society of Electrochemistry | September 12–16, 2022. online | IIT Madras |
| 8 | Sana Fathima TK | PH17D201 | 73 rd Annual Meeting of the International Society of Electrochemistry | September 12–16, 2022. online | IIT Madras |
| 9 | Pranati Jana | PH20D021 | 2022 Asia-Europe-Pacific School of High-Energy Physics | October 5–18, 2022. Korea | IIT Madras Alumni Office |
| 10 | Anamika Ghosh (Abstract No. P1-19) | PH16D200 | 11 th International Conference on Fine Particle Magnetism 2022 (ICFPM 2022) | October 6–21, 2022. Yokohama, Japan | IIT Madras |
| 11 | Debashish Patra (Abstract No. P1-17) | PH19D031 | 11 th International Conference on Fine Particle Magnetism-2022 | October 6–21, 2022. Yokohama, Japan | IIT Madras |
| 12 | Anamika Ghosh | PH16D200 | 11 th International Conference on Fine Particle Magnetism | October 6–21, 2022. Yokohama, Japan | IIT Madras |
| 13 | Debashish Patra (Abstract No. APA-12) | PH19D031 | 64 th Annual Conference on Magnetism and Magnetic Materials 2022 | October 31–November 4, 2022. Minneapolis, USA | Online |
| 14 | Tulika Agrawal | PH18D010 | Optoelectronics Research Centre (ORC) Southampton under Immersion program | November 20, 2022–February 14, 2023. University of Southampton Highfield Campus | IITM |
| 15 | Soumen Pradhan | PH16D044 | MRS Fall Meeting 2022 | December 6–8, 2022. Boston (US) | IIT Madras |
| 16 | Ganapati Dash | PH21D050 | CERN experimental work | January 26–March 31, 2023. Geneva Switzerland | Alumni Office and external fund |
| 17 | Pranati Jana | PH20D021 | CERN experimental work | January 26–March 31, 2023 Geneva Switzerland | Alumni Office and external fund |
| 18 | Sana Fathima TK | PH17D201 | 10 th international conference on advanced materials and nanotechnology, 2022 | February 7–10, 2023. Rotorua, New Zealand | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------------|-------------------------------------|----------|--|--|---|
| 19 | PK Jesla | PH18D059 | Poster presentation on 'Magnetic properties of a multicomponent intermetallic compound Tb _{0.25} Dy _{0.25} Ho _{0.25} Er _{0.25} Al ₂ ' at the International Conference on Strongly Correlated Electron Systems (SCES 2022) | July 24-29, 2022. Amsterdam | IIT Madras |
| 20 | Namitha Dsouza | PH19D023 | 29 th International Conference on Amorphous and Nanocrystalline Semiconductors (ICANS 29). (Virtual mode, Oral Presentation) | August 23-26, 2022. Nanjing, China | Department of Science & Technology (Govt. of India) IITM Solar Energy Harnessing Centre (DSEHC) project |
| 21 | Rajesh Kanakala | PH18D051 | 29 th International Conference on Amorphous and Nanocrystalline Semiconductors (ICANS 29). (Virtual mode, Oral Presentation) | August 23-26, 2022. Nanjing, China | DSEHC project |
| India | | | | | |
| 1 | Debashish Patra (Abstract No. A001) | PH19D031 | 66 th DAE Solid State Physics Symposium-2022 Birla Institute of Technology Mesra, Ranchi, Jharkhand | December 18-22, 2022 | IIT Madras |
| 2 | Gaurav Sharma | PH19D203 | Department of Atomic Energy-Board of Research in Nuclear Sciences High Energy Physics (DAE-BRNS HEP) Symposium | December 12-16, 2022. IISER Mohali | Project |
| 3 | Ansu Johnson | PH19D007 | DAE-BRNS HEP Symposium | December 12-16, 2022. IISER Mohali | IIT Madras |
| 4 | Sana Fathima TK | PH17D201 | Conference on Advances in Catalysis for Energy and Environment & CO ₂ India Network 1 st Annual Meet | October 31- November 4 2022. Tata Institute of Fundamental Research (TIFR), Mumbai, India. | IIT Madras |
| 5 | Dhanya AR | PH17D305 | Online International Conference on H ₂ & CO ₂ | November 17-19, 2022. Virtual mode, S&T digital LLP | IIT Madras |
| 6 | Sadana Verma | PH18D030 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | Department |
| 7 | Mobassir Ameen | PH19D032 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | Department |
| 8 | Samadhan Kamble | PH19D032 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | Department |
| 9 | Pranati Jana | PH20D021 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | IISER Mohali |
| 10 | Ganapati Dash | PH21D050 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | Department |
| 11 | Anusree Vijay | PH22D032 | DAE-BRNS 2022 | December 12-16, 2022. IISER Mohali | Department |
| 12 | Mobassir Ameen | PH19D032 | ICFA School on Instrumentation | February 12-25, 2023. TIFR | ICFA School |
| 13 | Samadhan Kamble | PH19D032 | ICFA School on Instrumentation | February 12-25, 2023. TIFR | ICFA School |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|---------------------------|
| 14 | Abhaya Prasada Mohapatra | PH20D035 | Poster presentation titled 'Crystal structure and magnetism of rare earth intermetallic compound Dy _{0.33} Ho _{0.33} Er _{0.33} Ni' in the International Conference on Materials, Properties, Measurements and Applications (ICMPMA 2022) Organised by the Fatima Mata National College, Kollam, Kerala | May 9-13, 2022. Online | None |
| 15 | PK Jesla | PH18D059 | Poster presentation titled 'On the magnetic properties of rare-earth intermetallic compound GdNi: Effect of Yttrium substitution at the Gd-site' in the International Conference on Materials, Properties, Measurements and Applications (ICMPMA 2022) Organised by the Fatima Mata National College, Kollam, Kerala | May 9-13, 2022. Online | None |
| 16 | Raghunath Pradhan | PH18D026 | Presented a talk at Hot QCD Matter 2022, Goa University | May 12-14, 2022 Goa | None |
| 17 | Subash Chandra Behera | PH18D015 | Presented a talk at Hot QCD Matter 2022, Goa University | May 12-14, 2022. Goa | None |
| 18 | Abhaya Prasada Mohapatra | PH20D035 | Poster presentation titled 'Understanding the magnetism of multicomponent rare earth intermetallic compound Tb _{0.33} Ho _{0.33} Er _{0.33} Ni' in the International Conference on Magnetism and Magnetic Materials (MMM 2022) | October 31-November 4, 2022. Online | None |
| 19 | Kaushik Paul | PH19D018 | Poster presentation titled 'Spin effects in eccentric higher modes from inspiralling compact binaries upto 2PN order' at the Young Astronomers Meet 2022 | November 9-13, 2022. Nainital | None |
| 20 | Divyajyoti | PH19D057 | Poster presentation titled 'Getting ready for eccentric binaries in gravitational waves: Are we there yet?' at the Young Astronomers Meet 2022 | November 9-13, 2022. Nainital | None |
| 21 | Anusree Vijay | PH22D032 | Poster presentation titled 'Characterization of proto-type silicon sensor for CMS detector' at XXV DAE-BRNS HEP Symposium 2022 | December 12-16, 2022. IISER, Mohali | None |
| 22 | Hari K | PH18D009 | Attended conference at IISER, Kolkata and presented poster titled 'Tidal vs absolute acceleration effects in Unruh - De Witt detectors' at the 32nd Meeting of the Indian Association for General Relativity and Gravitation (IAGRG) | December 19-22, 2022. IISER, Kolkata | None |
| 23 | Dr. Leelashree | PH22R005 | User Awareness Workshop for Utilization of Indo-Italian High-Pressure Diffraction Beamline at 'Electra Synchrotron' | December 29-30, 2022. Bharathidasan University, Trichy | None |
| 24 | Akshara Dadhich | PH19D055 | International Union of Materials Research Societies-International Conference in Asia (IUMRS-ICA) 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 25 | Akshara Dadhich | PH19D055 | World Conference on Thermoelectrics (WCT) 2023 | March 14-18, 2023. Jaipur National University, Jaipur (Rajasthan) | UGC Contingency |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|--|---------------------------|
| 26 | Kaushalya Kumari | PH19D067 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 27 | Kaushalya Kumari | PH19D067 | International Conference on Laser Deposition (iCOLD) 2023 | March 23-25, 2023. Defence Institute of Advanced Technology (DIAT) Pune | IIT Madras |
| 28 | Ravindra Kumar | PH17D204 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 29 | Ravindra Kumar | PH17D204 | i-COLD 2023 | March 23-25, 2023. DIAT Pune | IIT Madras |
| 30 | Sreejith PK | PH15D036 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 31 | Sreejith PK | PH15D036 | i-COLD 2023 | March 23-25, 2023. DIAT Pune | IIT Madras |
| 32 | Subhajit Chatterjee | PH18D202 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 33 | Sreya Suresh | PH17D046 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 34 | Sreya Suresh | PH17D046 | i-COLD 2023 | March 23-25, 2023. DIAT Pune | IIT Madras |
| 35 | Rahul Raj | PH19D068 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 36 | Rahul Raj | PH19D068 | i-COLD 2023 | March 23-25, 2023. DIAT Pune | IIT Madras |
| 37 | Manab Mandal | PH19D035 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 38 | Tridip Kundu | PH200754 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 39 | Jayanta Jana | PH19D039 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 40 | Soumen Pradhan | PH16D044 | IUMRS-ICA 2022 | December 19-23, 2022. IIT Jodhpur (Rajasthan) | IIT Madras |
| 41 | Soumen Pradhan | PH16D044 | i-COLD 2023 | March 23-25, 2023. DIAT Pune | IIT Madras |
| 42 | PK Jesla | PH18D059 | Poster presentation titled 'On the magnetic properties of rare-earth intermetallic compound GdNi: Effect of Yttrium substitution at the Gd-site' in the International Conference on Materials, Properties, Measurements and Applications (ICMPMA 2022) | May 9-13, 2022. Fatima Mata National College, Kollam, Kerala (Online) | IIT Madras |
| 43 | PK Jesla | PH18D059 | Poster presentation titled 'Magnetic, transport and magnetocaloric properties of multicomponent rare earth intermetallic compound $Gd_{0.2}Tb_{0.2}Dy_{0.2}Ho_{0.2}Er_{0.2}Al_2$ ' at the 33 rd AGM of MRSI and the 4 th Indian Materials Conclave (IUMRS-ICA 2022) | December 19-23, 2022. IIT Jodhpur | Institute |
| 44 | Mitali Madhusmita Prusty | PH18D052 | Oral presentation titled 'Magnetic and magnetocaloric properties of melt-spun AlFe2B2 nanostructures' in the 7 th International Conference on Nanoscience and Nanotechnology (ICONN 2023) | 27 th to 29 th March 27-29, 2023. SRMIST, Chennai (Online) | IIT Madras |

| S. No. | Name of the Student/Scholar | Roll No. | Name of the Conference/Seminar/Symposium/Workshop | Date and Venue | Financial Assistance from |
|--------|-----------------------------|----------|---|---|---------------------------|
| 45 | Rajesh Kanakala | PH18D051 | ISSMD 2022 (Oral presentation) | December 16–18, 2022. KIIT, Bhubaneswar, Odisha | IIT Madras |
| 46 | Md. Seraj Uddin | PH16D052 | ISSMD 2022 (Poster presentation) | December 16–18, 2022. KIIT, Bhubaneswar, Odisha | IIT Madras |
| 47 | Namitha Dsouza | PH19D023 | ISSMD 2022 (Oral presentation) | December 16–18, 2022. KIIT, Bhubaneswar, Odisha | IIT Madras |
| 48 | Rajesh Maurya | PH19D065 | ISSMD 2022 (Poster presentation) | December 16–18, 2022. KIIT, Bhubaneswar, Odisha | IIT Madras |

4.16.2.4. Students/Scholars Who Won Outside Prizes and Awards

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize awarded by |
|--------|-----------------------------|----------|--|---|
| 1 | Anamika Ghosh | PH16D200 | Best oral presentation award, 'Thermally exfoliated (Ni-Fe) oxide/rGO for efficient production of H ₂ from the electrolysis of seawater', 5 th workshop on Hydrogen: Shades and Applications. | Centre for Fuel Cell Technology (CFCT), International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), IITM Research Park |
| 2 | Anamika Ghosh | PH16D200 | Best poster award and student grant (¥30,000), 'Tuning of magnetic interactions in Fe ₃ O ₄ nanocomposites', 11 th International Conference on Fine Particle Magnetism (ICFPM 2022), October 16–21, 2022, Japan. | Institute of Electrical and Electronics Engineers (IEEE) Magnetic Society |
| 3 | Bibekananda Das | PH16D004 | Best poster presentation in Research Conclave 2022 on 'Recent Trends and Developments in Nanotechnology' organised by the IEEE Nanotechnology Council, IIT Patna held during May 5–7, 2022. | IEEE Nanotechnology Council, IIT Patna |
| 4 | Suhail Ahmad Rather | PH18D018 | Golden KCIK Award 2021 shared with 4 other student co-authors of the paper 'Thirty-six Entangled Officers of Euler: Quantum Solution to a Classically Impossible Problem' which settled one of the 5 prized outstanding problems in quantum information theory as put out by KCIK. | National Quantum Information Center (KCIK) at the Uniwersytet Gdanski, Poland |
| 5 | Saroj Kumar Barik | PH16D056 | Received the Best Poster Prize in the International Conference on 'New Frontiers at Heavy Ion Storage Rings: From Atomic Collisions to Many-body Systems', held in Germany and work appeared in Astrophysical Journal. | Germany |
| 6 | Shanmuga Priya K | PH17D202 | Poster Prize award at Frontiers in Materials for Technological Applications (FIMTA-2022) August 3–5, 2022 for the paper entitled 'Impact of external electric field on the physical properties of ferroelectric oxide'. | Council of Scientific and Industrial Research (CSIR)– Institute of Minerals and Materials Technology (IMMT), Bhubaneswar |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize awarded by |
|--------|-------------------------------------|--|--|---|
| 7 | Shanmuga Priya K | PH17D202 | 2 nd Best Oral Presentation Award at Student Research Symposium (SRS '22), August 10-11, 2022 for the paper entitled 'Fabrication of organic ferroelectric diisopropylammonium bromide (DIPAB) film for self-powered photodetector characteristics'. | IEEE chapters (Nanotechnology Council [NTC], Electron Devices Society [EDS] & Sensor Council), IIT Indore |
| 8 | Ramya Krishna Battulla (ID) | PH17D303 | Best paper award for oral presentation entitled 'Precursor tuning for post-treatment free MAPbI ₃ films for efficient and stable perovskite solar cells'. | 8 th International Conference on Advances in Energy Research (ICAER-2022), organised by IIT Bombay virtually from July 7-9, 2022 |
| 9 | Ayan Kumar Nai | PH20D047 | First Prize for poster on experimental quantum photonics titled 'Weak Coherent Beams and Photon Statistics'. The work details the indigenous development of ab-initio instrumentation for quantum photonic technologies to measure photon stats, sub-Poissonian photon distributions and entangled photons in the lab. | INAE-SERB Conclave, (Indian National Academy of Engineering and DST-Science & Engineering Research Board, IITJodhpur |
| 10 | Dr. Nasima Khatun, Institute PDF | PH19IPF04 | Best Paper Presentation Award for paper titled 'In situ construction of semiconductor nanocomposite (TiO ₂ /g-C ₃ N ₄) to amplify photoelectrochemical water splitting performance'. | 4 th International Conference on Current Trends in Materials Science and Engineering 2022 (CTMSE-2022), July 28-30, 2022, Kolkata |
| 11 | Amogh, Adithya, Amrit, Nidhi, Arjun | EP19B018, EP20B005, PH20B001, PH20B009, EE20B016 | IITM Team Horizon secured 3 rd place among 16 national-level teams. | Guru Dhvani 2021: Probing the Signals from Jupiter – Antenna Design Challenge |
| 12 | Lavudya Devendar | PH17D044 | Best Paper Award for poster presentation titled 'Intercalated Water Mediated Electromechanical Response of Graphene Oxide Films on Flexible Substrates'. | 2 nd International Conference on 'Advancements in Material Science and Technology - iCAM 2022' organised by Sathyabama Institute of Science & Technology, Chennai in association with Alexander Dubček University of Trenčín, Slovakia, November 2-4, 2022 |
| 13 | Debojyoti Ray Chawdhury | PH21D014 | Best Paper Award for poster presentation entitled 'Studies of light upconverting particle-coupled-micro-cavity pumped with near IR lasers'. | National Laser Symposium (NLS) 31, IIT Kharagpur, December 3-6, 2022 |
| 14 | Sanket Kumar | PH18D013 | Best Presentation Award for talk titled 'Desiccation cracks in colloidal films'. | 5 th International Conference on Soft Materials, Jaipur, December 11-16, 2022 |
| 15 | Soumen Pradhan | PH16D044 | Best Poster Award titled 'Magneto-resistance and magnetocapacitance study in K _{0.5} Na _{0.5} NbO ₃ /La _{0.67} Sr _{0.33} MnO ₃ superlattices'. | 33 rd AGM of MRSI and the 4 th Indian Materials Conclave (IUMRS-ICA 2022), IIT Jodhpur, December 19-23, 2022 |
| 16 | Tulika Agarwal | PH18D010 | Best Poster Award for the title 'Studies of light upconverting particle-coupled-microcavity pumped with near IR lasers'. | National Laser Symposium (NLS) 31, IIT Kharagpur, December 3-6, 2022 |
| 17 | Subhajit Chatterjee | PH18D202 | Best Poster Award titled 'Surface transfer doping in hydrogen-terminated diamond with MoO ₃ for high-power electronics'. | 33 rd AGM of MRSI and the 4 th Indian Materials Conclave (IUMRS-ICA 2022), IIT Jodhpur, December 19-23, 2022 |

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Prize awarded by |
|--------|-----------------------------|----------------------|--|---|
| 19 | Bibekananda Das | PH16D004 | Best Poster Presentation Award in the Research Conclave during Feb 10-12, 2022 organized by the Academic Council, IIT Indore on the title "Fabrication and magneto-transport characterization of La _{0.7} Sr _{0.3} MnO ₃ /ZnO heterostructures" | Research Conclave organised by the Academic Council, IIT Indore, February 10-12, 2022 |
| 21 | P Induja Suhail Ahmad | PH17D302 PH18D018 | Bagged the prestigious Keshav Ranganath (KR) & Institute Research (IR) Awards for research excellence. | Endowment Price |
| 22 | Sourav Kumar Kajli | PH15D037 | Best Oral Presentation Award. | 2 nd Virtual International Conference on Hierarchically Structured Materials (ICHSM 2022), organised by SRM University, Chennai, March 24-25, 2022 |
| 23 | Akshara Dadhich | PH19D055 | Best poster award | WCT 2023 |
| 24 | Sreya Suresh | PH17D046 | Best poster award | iCOLD 2023 |
| 25 | Subhajit Chatterjee | PH18D202 | Best poster award | IUMRS-ICA 2022 |
| 26 | Soumen Pradhan | PH16D044 | Best poster award | IUMRS-ICA 2022 |

4.16.2.5. Students/Scholars Who Won Institute Convocation/Institute Day Prizes

| S. No. | Name of the Student/Scholar | Roll No. | Name of Prize | Name of Donor |
|--------|-----------------------------|----------|---|-----------------|
| 1 | Sayak Guha Roy | PH17B004 | Mr. S Venkitaramanan, IAS Retd Prize | Endowment Prize |
| 2 | Rishi Raj | PH18B006 | Electronics For You | Endowment Prize |
| 3 | Gaurav Milind Vaidya | PH18B008 | Shri Jandhyalaya Lakshmi Kantham & Smt. Sitamahalakshmi Prize | Endowment Prize |
| 4 | Saurav Mishra | PH20C038 | Chilukuri Ramasatry Memorial Prize | Endowment Prize |
| 5 | Aswathi Sampanraj | PH20M004 | Mrs. Lakshmi Ravikumar Memorial Prize | Endowment Prize |
| 6 | Rohan R Narayan | EP18B028 | Shri Jandhyala Lakshmi Kantam & Smt. Sitamahalakshmi Prize | Endowment Prize |
| 7 | Ram Balaji S | EP18B032 | Hema Balasubramanian Excellence Award | Endowment Prize |
| 8 | Sayak Guha Roy | PH17B004 | Prof. J Sobhanadri Prize | Endowment Prize |
| 9 | Vidushi Chaudhary | PH20M014 | Shri Krishnamurthy Sundarambal Prize | Endowment Prize |
| 10 | Saurav Mishra | PH20C038 | Prof. Chilukury Rama Sastry Memorial Prize | Endowment Prize |
| 11 | Shashank Gandhi | PH20C040 | Shri. Jandhyala Lakshmi Kantam & Smt. Sitamahalakshmi Prize | Endowment Prize |
| 12 | Sutapa Dey | PH16D010 | Mrs. Abayambal & Mr. Natarajan Award | Endowment Prize |
| 13 | Ragavendra HV | PH16D018 | Prof. A L Lashkar Prize | Endowment Prize |
| 14 | Rahul VR | PH17D023 | Prof. A L Lashkar Prize | Endowment Prize |
| 15 | Saroj Kumar Barik | PH16D056 | Keshav Ranganath Award | Endowment Prize |
| 16 | Biprojit Sana | PH16D053 | Institute Research Award | Institute |
| 17 | Mayank Gupta | PH16D203 | Institute Research Award | Institute |

4.16.3. Faculty and Their Activities

4.16.3.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|--------------------------------|---|
| Professors | |
| Dr. Arul Lakshminarayan (Head) | Quantum Information, Complex Quantum Systems, Mathematical Physics |
| Dr. Aravind G | Autoionisation and Autodetachment Resonances in Atomic, Molecular and Cluster Systems |
| Dr. Dillip Kumar Satapathy | Experimental Soft Condensed Matter Physics, X-Ray and Neutron Characterisation of Materials, Organic and Hybrid Thermoelectrics |
| Dr. Ganesan A R | Applied Optics, Holography, Adaptive Optics |
| Dr. Harish Kumar N | Superconductivity, Spintronics, Novel Magnetic Materials |
| Dr. James Frederick Libby | Experimental High Energy Physics, Experimental Particle Physics |
| Dr. Jatindra Kumar Rath | Photovoltaics, Nanomaterials, Chemical Vapour Deposition (CVD) |
| Dr. Kasiviswanathan S | Near- and Far-Field Response of Plasmonic Structures, Films of Transparent Oxide and Ternary Semiconductors, Systems Exhibiting Quantum Coherence |
| Dr. Krishnamurthy CV | Non-Destructive Evaluation, Microstructural Modelling, Light Scattering |
| Dr. Lakshmi Bala S | Quantum Dynamics and Dynamical Systems |
| Dr. Manoj Gopalakrishnan | Theoretical Biological Physics, Stochastic Processes, Statistical Mechanics |
| Dr. Manu Jaiswal | Experimental Condensed Matter Physics, Graphene and 2D Systems, Confined Water |
| Dr. Markandeyulu G | Magnetism, Magnetic Materials |
| Dr. Murugavel P | Multiferroic Oxides, Photo-Ferroelectricity, Energy Storage Materials |
| Dr. Nirmala R | Rare Earth Intermetallics |
| Dr. Prafulla Kumar Behera | Experimental High Energy Physics, Detector Development and Instrumentation |
| Dr. Prahallad Padhan | Magnetic Materials and Heterostructures, Spintronic Devices |
| Dr. Prasanta Kumar Tripathy | String Theory, High Energy Physics |
| Dr. Prem B Bisht | Ultrafast Laser Spectroscopy, Fluorescence Microscopy |
| Dr. Rajesh Narayanan | Condensed Matter Theory |
| Dr. Ramachandra Rao MS | Correlation Effect in Metal Oxide and Doped Diamond; Electrical, Optical and Magnetic Properties of Metal Oxide Thin Films; Nanostructures and Photovoltaic Materials |
| Dr. Ranjit Kumar Nanda B | Condensed Matter Physics |
| Dr. Santhosh PN | Multiferroics, Layered Oxide Materials, CuO-based Nanomaterials |
| Dr. Satyanarayana MV | Quantum Optics, Laser Physics, Photonics |
| Dr. Sethupathi K | Experimental Condensed Matter Physics, Magnetic Oxide Materials, and Cryogenic Insulation |
| Dr. Somnath Chanda Roy | Experimental Materials Science; Nanomaterials and Thin Films; Nanotechnology for Energy and Environment |
| Dr. Srinivas V | Magnetic Materials |
| Dr. Sriramkumar L | Gravitation and Cosmology |
| Dr. Subramanian V | Microwave Techniques; Propagation and Devices Dielectrics; Multiferroics |
| Dr. Sudakar Chandran | Materials for Energy Applications, Defect-Structure Property Correlations, Multifunctional Materials |
| Dr. Sunil Kumar PB | Soft Condensed Matter Physics, Biological Physics, Computational Physics |
| Dr. Suresh Govindarajan | String Theory |
| Dr. Vijayan C | Nano-Photonics, Light-Matter Interaction |
| Associate Professors | |
| Dr. Ashwin Joy | Soft Condensed Matter Theory |
| Dr. Ayan Mukhopadhyay | Theoretical Physics; Quantum Field Theory and String Theory; Quantum Many-Body Systems |

| Name and Qualifications | Major Areas of Specialisation |
|---|---|
| Dr. Basudev Roy | Soft Condensed Matter Physics, Optics, Optical Tweezers |
| Dr. Dawood Kothawala | Semi-Classical Gravity, Quantum Mechanics of Black Holes, QFT with Minimal Length Scale |
| Dr. Jayeeta Bhattacharyya | Semiconductors, Optical Spectroscopy, THz Spectroscopy |
| Dr. Mahaveer Kumar Jain | Semiconductors, Photovoltaics, Chemical Sensors |
| Dr. Panchanana Khuntia | Experimental Condensed Matter Physics |
| Dr. Pattabiraman M | Experimental Atomic Physics, Quantum Optics, Magnetometry |
| Dr. Prabha Mandayam | Quantum Information and Computing, Quantum Optics |
| Dr. Sivarama Krishnan | Femtosecond Dynamics, Photonics, Quantum Dynamics |
| Dr. Sunethra Ramanan | Nuclear Structure, Renormalization Group/Effective Field Theory Approaches, Neutron Star Physics |
| Dr. Vaibhav Madhok | Quantum Information Theory, Chaos and Complex Systems |
| Dr. Yasir Iqbal | Theoretical Condensed Matter Physics, Strongly Correlated Systems, Frustrated Magnetism |
| Assistant Professors | |
| Dr. Abhishek Misra | Electrical Transport in Quantum Materials, Device Physics, Nanoelectronics |
| Dr. Chandra Kant Mishra | Gravitational Waves |
| Dr. Prabhat Ranjan Pujahari | Experimental High Energy Physics |
| Dr. Prasanta Kumar Muduli | Quantum Devices, Quantum Material, Weyltronics, Dirac Fermions, Topological Antiferromagnetic Spintronics |
| Dr. Rajesh Singh | Soft Matter |
| Dr. Ravichandran Shivanna | |
| Dr. Samir Choudhuri | 21-cm Cosmology, Cosmic Dawn and Epoch of Reionization, Low-Frequency Radio Astronomy, Diffuse Synchrotron Emission |
| Dr. Siddharth Dhomkar | Optically Active Defect Spins, Magnetic Resonance, Machine Learning for Quantum Control, Scanning Confocal Fluorescence Microscopy |
| Dr. Shanthanu Mukherjee | Condensed Matter Theory |
| Dr. Vidya Praveen Bhallamudi (ID) | Condensed Matter Physics Magnetism, Magnetic Resonance, Optics |
| Young International Faculty | |
| Dr. Nicolas Gheeraert | Circuit quantum electrodynamics (QED), Spin-Boson Model, Quantum Information |
| Distinguished Professors | |
| Prof. G Bhaskaran, IMSC, Chennai | Condensed Matter Physics and Strongly Correlated Materials |
| Prof. Ramamurti Shankar | Theoretical Particle Physics and Condensed Matter Physics |
| Visiting Faculty | |
| Dr. Srinivasan Krishnamurthy, Emeritus Scientist, SRI International, Menlo Park, CA | Dielectric Metamaterials, Nonlinear Absorption and High-Intensity Light Propagation in Semiconductors, High-Field Transport in Submicron Devices, and Optical Properties of Semiconductors, Modelling molecular-beam epitaxy (MBE) Growth |
| Visiting Faculty Fellows | |
| Steve Arnold (New York) | June 20–August 22, 2022 |
| Surendra Singh (Arkansas) | February 8–April 30, 2022 |
| Periasamy A (Virginia) | December 15, 2022–January 15, 2023 |
| Emeritus Professors | |
| Dr. S Ramaprabhu | 1. Alternative Energy Applications (Hydrogen Production And Conversion, Hydrogen Storage, PEM Fuel Cells) 2. Energy Storage Applications (Batteries And Supercapacitors) 3. Sensors (Biosensors, Gas Sensors And Strain Sensors) |
| Dr. Neelima M Gupte | Nonlinear Dynamics, Statistical Physics |
| Adjunct Faculty | |
| Prof. V Balakrishnan, IIT Madras | Dynamical Systems, Quantum Dynamics and Stochastics |

| Name and Qualifications | Major Areas of Specialisation |
|---|---|
| Prof. Shanker Balasubramanian, University Distinguished Professor, Michigan State University, USA | Applied Electromagnetics, Computational Electromagnetics, Non-Linear Materials |
| Dr. Rajeev Pattathil, Rutherford Appleton Laboratory | Novel Accelerator Science |
| Prof. Peter van Straten, Utrecht University | Optics and Photonics |
| Prof. Sampath Kumaran, Distinguished Professor, Tata Institute of Fundamental Research, Mumbai | Magnetism, Superconductivity, Physics of d- and f-Electron Systems (Oxides and Intermetallics), Kondo Lattices, Geometrically Frustrated Magnetism, Spin-Chain Magnetism, Multiferroics, Nanomagnetism |
| Prof. Werner Paulus, Professor, University of Montpellier | Non-Stoichiometric Oxides, Low-T Reactivity of Solids, Materials for Energy Storage and Transformation |
| Prof. Prellier Wilfrid, Director, Laboratoire de Cristallographie et Sciences des Matériaux (CRISMAT) | Thin Film |
| Prof. Miryala Muralidhar, Dy. President, Shibaura Institute of Technology (SIT), Tokyo, Japan | Superconductors, Magnetisation |
| Prof. Bent Weber, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore | Electronic Properties of Novel Two-Dimensional and Topological Materials, Quantum Information Processing Science and Technology, Nanoelectronics and Quantum Device Physics, Structural and Electronic Characterisations of Materials using Scanning Probe Microscopy |
| Prof. Murukeshan, Director, Centre for Optical and Laser Engineering, Nanyang Technological University, Singapore | Optical Engineering, Optomechanics |
| Prof. Dr. Ronny Thomale, Julius Maximilian's University of Würzburg, Germany | Theoretical Condensed Matter Physics, Strongly Correlated Electron Systems |
| Dr. K Lakshmi Ganapathi | Nanoelectronics Devices; Device Physics; 2D Materials and High- κ Dielectrics Integration; Thin Films Synthesis, Properties and Applications |
| DST Ramanujan Fellow | |
| Dr. Pramoda Kumar Nayak | Two-Dimensional Materials, Topological Insulators, Quantum Dots, van der Waals Heterostructures, Novel Superconducting Materials |

4.16.3.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences organised by Faculty Members

| S. No. | Coordinator(s) | Title | Period |
|--------------------|---|---|---------------------|
| Conferences | | | |
| 1 | Dr. Prabha Mandayam | Progress in Quantum Science and Technologies | January 23-27, 2023 |
| 2 | Dr. Suresh Govindarajan & Dr. Ayan Mukhopadhyay | Black Holes and Gauge Theories with Holographic Enlightenment, at the Centre for Strings, Gravitation and Cosmology, IIT Madras & Southampton Theory Astrophysics and Gravity (STAG) Research Centre, University of Southampton | January 2-5, 2023 |
| Seminars | | | |
| 1 | Dr. Nirmala R | Served as a Chair for the session on 'Magnetic Materials' in the International Conference on Materials, Properties, Measurements and Applications (ICMPMA) 2022 | May 9-13, 2022 |
| 2 | Dr. Ravichandran Shivanna | Delivered talk titled 'Elucidating nanoscale optoelectronics in novel semiconductor devices with ultrafast spectroscopy', IIT Madras, Chennai | January 25, 2023 |

| S. No. | Coordinator(s) | Title | Period |
|---------------------------|--|---|----------------------|
| 3 | Prof. Rajesh Singh | Statistical mechanics of active particles with phoretic and hydrodynamic interactions, IIT Madras, Chennai | August 10, 2022 |
| 4 | Prof. Prasanta Kumar Muduli | Giant transverse transport effects in topological quantum magnets, IIT Madras, Chennai | August 17, 2022 |
| 5 | Prof. Siddharth Dhomkar | Quantum Diamonds are Forever! IIT Madras, Chennai | February 22, 2023 |
| 6 | Prof. Samir Choudhuri | Seeing the universe through 21-cm radiation, IIT Madras, Chennai | March 1, 2023 |
| Symposia | | | |
| 1 | Dr. Dawood Kothawala | In-house Symposium on Quantum Probes and the Architecture of Spacetime | February 1, 2023 |
| Workshops | | | |
| 1 | Dr. Prabha Mandayam | Training Programme on Quantum Cryptography and Quantum Algorithms - Centre for Quantum Information, Communication and Computing (CQICC) | October 17-22, 2022 |
| Short-term Courses | | | |
| 1 | Jim Libby + 9 National and International Faculty | Future Flavours: Prospects for Beauty, Charm and Tau Physics (Online) – International Centre for Theoretical Sciences (ICTS) | April 25–May 6, 2022 |

4.16.3.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|--------------------|-------------------------|--|--|-----------------------------|
| Workshops | | | | |
| 1 | Samir Choudhuri | Workshop on ‘21-cm Cosmology in the Square Kilometre Array Era’ | ISI-Kolkata | October 31–November 4, 2022 |
| 2 | Mr. D Suresh | Attended 2 nd Workshop on Cryogenics Facility Management at TIFR | Mumbai | January 4-1, 2023 |
| Seminars | | | | |
| 1 | Dr. Sudakar Chandran | Special seminar titled ‘Electrospun nanowires and core-shell heterostructures for improving the electrochemical properties of cathode for Li-ion batteries’ at the International Webinar on Emergent Materials for Energy Storage and Sensing (EMESS 2022) | CSIR-IMMT in association with Shiv Nadar University, Greater Noida | May 12, 2022 |
| Colloquia | | | | |
| 1 | Dr. Arul Lakshminarayan | ICTS Bangalore Colloquium on the ‘36 Entangled Officers of Euler’ | International Centre for Theoretical Sciences (ICTS) Bangalore | June 6, 2022 |
| Conferences | | | | |
| 1 | Jim Libby | Horizons in Accelerators, Particle/Nuclear Physics and Laboratory-based Quantum Sensors for HEP/NP | ICTS | November 14-17, 2022 |
| 2 | Jim Libby | Particle Physics: Phenomena, Puzzles, Promises | ICTS | November 21-24, 2022 |
| 3 | Jim Libby | Department of Atomic Energy–Board of Research in Nuclear Sciences High Energy Physics (DAE-BRNS HEP) Symposium | IISER Mohali | December 12-16, 2022 |
| 4 | Samir Choudhuri | Frontiers in Cosmology | Raman Research Institute, Bangalore | February 20-24, 2023 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|----------------------------|--|--|----------------------|
| 5 | Dr. Rajesh Singh | Soft Matter Young Investigators Meet 2022 | Mysore | June 15-17, 2022 |
| 6 | Dr. Dillip K Satapathy | Soft Matter Young Investigators Meet 2022 | Mysore | June 15-17, 2022 |
| 7 | Dr. CV Krishnamurthy | Non Destructive Evaluation 2022 | Mahatma Mandir Convention & Exhibition Centre, Gandhinagar | November 24-26, 2022 |
| 8 | Dr. Dillip Kumar Satapathy | Visiting a Group at the Institute of Physics and attending the golden jubilee of his alma mater | Bhubaneswar | January 3-8, 2023 |
| 9 | Dr. Arul Lakshminarayan | International Conference on Complex Quantum Systems | Mumbai | January 18-20, 2023 |
| 10 | Dr. Ayan Mukhopadhyay | Conference on Relativistic Hydrodynamics and project discussion | Kolkata | February 2-6, 2023 |
| 11 | Dr. Shantanu Mukherjee | Attended the Physical Research Laboratory (PRL) Conference of Condensed Matter Physics | Ahmedabad | February 6-7, 2023 |
| 12 | P B Sunil Kumar | Frontiers in Active and Soft Matter | TIFR Hyderabad | February 10-11, 2023 |
| 13 | Dr. Jayeeta Bhattacharyya | 2 nd National Physics Meet | Kalyani | February 16-20, 2023 |
| 14 | Dr. Ayan Mukhopadhyay | Visited Department of Physical Sciences Day 2023 of IISER Kolkata Conference | Kolkata | February 17-18, 2023 |
| 15 | Prof. Siddharth Dhomkar | Quantum Diamonds are Forever! | | February 22, 2023 |
| 16 | Dr. Sivarama Krishnan | National Conference on Atomic and Molecular Physics Origin of Amolecular life in space: new frontiers | Indian Society of Atomic and Molecular Physics (ISAMP) Thiruvananthapuram | February 22-23, 2023 |
| 17 | R. Nirmala | Presented a talk titled 'Towards understanding the magnetic ground state of spinel oxide CuAl ₂ O ₄ ' at the Physics of Strongly Correlated Electron Systems (PSCES 2023) conference | IISER Pune | March 15-17, 2023 |
| 18 | Jatin Rath | Indo-German Workshop on Developments in Established and Emerging Photovoltaic Technologies (DEEPT 2023) (Invited talk) | SRM, Chennai | March 13-15, 2023 |
| 19 | Jatin Rath | International Symposium on Semiconductor Material and Devices (ISSMD 2022) (Invited talk) | KIIT, Bhubaneswar | December 16-18, 2022 |
| 20 | Jatin Rath | International e-Symposium on Plasma for Energy (ISPE 2022) (Invited talk) | SRM Institute of Science and Technology (SRMIST) (Indo-UK) | December 5-6, 2022 |
| 21 | Jatin Rath | National Conference on Modern Functional Materials (NCMF-2023) (Keynote speech) | Sri Sai Ram Engineering College, Chennai | March 23-24, 2023 |
| 22 | Jatin Rath | 2 nd Indo-Japan Joint Workshop on Photovoltaics (IJWP -2023) (Invited talk) | Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai | March 9, 2023 |
| 23 | Jatin Rath | 7 th International Conference on Nanoscience and Nanotechnology (ICONN 2023) (Keynote speech) | SRMIST, Chennai, India | March 27-29, 2023 |
| 24 | Jatin Rath | National Conference on Advances In Solar Energy Materials (ASEM - 2023) (Invited talk) | Banaras Hindu University, Varanasi | March 16-18, 2023 |

| S. No. | Name of Faculty | Title | Institution | Period |
|--------|------------------|---|--|----------------------|
| 25 | Jatin Rath | Brainstorming Workshop on Solar PV Technology (Department of Science and Technology) (Session chair and invited talk) | Jamia Millia Islamia, New Delhi, India | December 21, 2022, |
| 26 | Jatin Rath | International Conference On Nanotechnology: Opportunities And Challenges (ICNOC-2022) (Invited Talk) | Jamia Millia Islamia, New Delhi, India (Online) | November 28-30, 2022 |
| 27 | Dr. Manu Jaiswal | Heat Transport in Two-dimensional Crystals: Many Twists and Turns (Keynote Lecture) | iCAM 2022, organised by Sathyabama Institute of Science and Technology, Chennai in association with Alexander Dubček University of Trenčín, Slovakia | November 2-4, 2022 |
| 28 | Dr. Manu Jaiswal | New-age Aerogels as Thermal Super-insulators for Green Infrastructure (Invited Talk) | 3 rd Indo-Japan Bilateral Symposium | December 2, 2022 |

4.16.3.4. Special Lectures Delivered by Faculty in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------------|--|---|---------------------|
| 1 | Dr. V Subramanian | Microwave Propagation: Photonic Crystals and Metamaterials | Ramco Institute of Technology, Rajapalayam | June 2022 |
| 2 | Dr. V Subramanian | Magnetoelectric Composites for Energy Harvesting Applications | CSIR-IMMT, Bhubaneswar | August 2022 |
| 3 | Dr. V Subramanian | Magnetoelectric Composites | New Horizon College of Engineering, Bangalore | August 2022 |
| 4 | Dr. Jim Libby | Flavour Physics in India | TIFR | February 21, 2023 |
| 5 | Dr. Sivarama Krishnan | Invited talk at the International Conference on Laser Deposition | Defence Institute of Advanced Technology (DIAT), Pune | March 2023 |
| 6 | Dr. Sivarama Krishnan | Invited talk at the panel discussion on Astrophysical Origins of Life, organised by ISRO | Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram | February 2023 |
| 7 | Dr. Prasanta Kumar Muduli | Invited talk on Advanced Magnetic Materials and Applications | IIT Hyderabad | July 29, 2022 |
| 8 | Dr. Prasanta Kumar Muduli | Invited talk on Indo-Japan Workshop on Interface Phenomena for Spintronics, School of Physical Sciences | National Institute of Science Education and Research (NISER), Bhubaneswar | March 8-10, 2022 |
| 9 | Dr. Prasanta Kumar Muduli | Invited talk on Online Spintronics Workshop | IIT Delhi | July 14-16, 2022 |
| 10 | Dr. Prasanta Kumar Muduli | Invited talk on Frontier Problems in Nanomagnetism and Spintronics | IIT Gandhinagar | February 9, 2023 |
| 11 | Dr. Ashwin Joy | Invited talk in a domestic conference on 'Statistical Physics and Complex Systems' | IIT Kharagpur | July 8-20, 2022 |
| 12 | Dr. CV Krishnamurthy | Invited talk under the Faculty Development and Training Program conducted by Anna University, Guindy, Chennai, RMD & RMK Engineering Colleges, Kavaraipettai, Tamil Nadu | Anna University, Guindy | November 2022 |
| 13 | Dr. Lakshmi Bala S | Seminar speaker at the University of Hyderabad | Hyderabad | January 19-20, 2023 |

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|-----------------|--|---|--------------------------------|
| 14 | Dr. Yasir Iqbal | Delivered a seminar titled ‘Pinch-points to half-moons and up in the stars: the kagome skymap’ | Bhubaneswar | February 16–17, 2023 |
| 15 | Jatin Rath | Online Training Programme on ‘Silicon Heterojunction Solar Cells Technology’ | Bharat Heavy Electricals Limited (BHEL) | 27 th December 2022 |

4.16.3.5. Visits Abroad by Faculty

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|-----------------------|-------------------------------------|------------------------|--|----------------|
| 1 | Jim Libby | Italy | July 6–17, 2022 | ICHEP conference track convener and seminar and Istituto Nazionale di Fisica Nucleare (INFN) Trieste | CPDA and INFN |
| 2 | Jim Libby | Japan | February 12–20, 2023 | Belle II collaboration meeting – talk and chair sessions | Institute |
| 3 | Sunethra Ramanan | France | June 25–July 11, 2022 | Collaborative visit | CEFIPRA |
| 4 | Dr. Sivarama Krishnan | Prague, Czechia | February 2022 | Led a research campaign at Extreme Light Infrastructure (ELI) | IOE |
| 5 | Dr. Sivarama Krishnan | Aarhus University, Denmark | June 2022 | Co-led a research campaign at the ASTRID synchrotron | Project |
| 6 | Prafulla Kumar Behera | Switzerland | July 22–August 8, 2022 | Research | DST |
| 7 | Prafulla Kumar Behera | Greece | July 16–22, 2022 | Meeting | DST |
| 8 | Ramaprabhu S | USA/Atlanta | March 4–April 5, 2022 | Discussion on collaborative projects; invited talk in Physics Department, Spelman College, Atlanta, USA | Project |
| 9 | Chandra Kant Mishra | Japan /Osaka | May 1–29, 2022 | Visit to collaborator's lab on an IoE project | Project |
| 10 | Yasir Iqbal | Japan/Okayama | May 6–June 3, 2022 | Collaborative Research under Japan Society for the Promotion of Science (JSPS) Invitational Fellowship for Research in Japan (Fellowship ID S21120) and delivering a talk at the Condensed Matter Theory seminar | Project |
| 11 | Sivarama Krishnan | Italy/Trieste | May 15–July 21, 2022 | Photophysics of Superfluid He nanodroplets | CPDA & Project |
| 12 | Ramachandra Rao MS | France/ Montpellier | May 21–June 4, 2022 | Visit to the University of Montpellier, France and Master in Materials Science powered by Large scale Facilities (MaMaSELF) Status Meeting at Rigi Kulm, Switzerland | Project |
| 13 | Ayan Mukhopadhyay | France and Austria/Paris and Vienna | June 4–July 26, 2022 | CEFIPRA project visit as PI, SEWM 2022 conference, research visit to TU Wien | Project |
| 14 | Yasir Iqbal | Germany/ Würzburg | June 17, 2022 | Discussions on ongoing collaborative research projects on the Keldysh development of the pseudo-fermion functional renormalization group method, and its application to 3D frustrated magnets | Project |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|---------------------|---|-------------------------------|--|--|
| 15 | Yasir Iqbal | France/Paris and Cargèse | June 20–July 8, 2022 | International Conference on ‘Highly Frustrated Magnetism’ (Paris, France) and School/Workshop on ‘Topological Phases in Condensed Matter and Ultracold Atoms Systems’ at the Institute d’Etudes Scientifiques de Cargèse (Corsica, France) | CPDA & Project |
| 16 | Prabhat Pujahari | USA/East Lansing | July 16–24, 2022 | WPCF 2022 Conference | Online/CPDA |
| 17 | Prabhat Pujahari | Switzerland/Geneva | August 4–September 5, 2022 | CMS experiment at CERN | Project |
| 18 | Neelima M Gupte | United Kingdom/Aberdeen | August 19–28, 2022 | Dynamics Days | Without Institute Financial Assistance |
| 19 | Dawood Kothawala | Italy, Austria/Castiglione, Bologna, Vienna | September 18–October 6, 2022 | 1. Tenth International Workshop Decoherence, Information, Complexity and Entropy (DICE) 2022. 2. Collaborative visit to INFN Bologna and the Institute for Quantum Optics and Quantum Information (IQOQI), Vienna. | CPDA & Project |
| 20 | Jatindra Kumar Rath | Italy/Milan | September 24–October 9, 2022 | 8 th World Conference on Photovoltaic Energy Conversion in Milan, Italy | Project |
| 21 | Yasir Iqbal | France/ Bordeaux | October 17–19, 2022 | Indo-French workshop ‘Novel Phases of Matter in Frustrated Magnets’ | Project |
| 22 | Prabhat Pujahari | Italy/Sicily | October 22–29, 2022 | Excited QCD 2022 | Online/CPDA |
| 23 | Arul Lakshminarayan | South Korea/Daejeon | November 7–11, 2022 | Dynamics Days Asia Pacific | CPDA |
| 24 | Ramachandra Rao MS | France/Montpellier | November 19–27, 2022 | Teaching & discussion of ongoing joint research at the University of Montpellier under the Erasmus-Mundus programme | Project |
| 25 | Yasir Iqbal | Italy/Trieste | November 23–December 21, 2022 | Simons Associate of the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy | Project |
| 26 | Ayan Mukhopadhyay | South Africa/Johannesburg | December 3–10, 2022 | 12 th Johannesburg Workshop on String Theory | CPDA |
| 27 | Sivarama Krishnan | Singapore | December 3–13, 2022 | Asian Symposium on Intense Lasers 12 | CPDA |
| 28 | Ramachandra Rao MS | Japan/Tokyo | December 4–13, 2022 | Event at Shibaura Institute of Technology (SIT), Tokyo | Project |
| 29 | Jatindra Kumar Rath | Belgium/Genk | January 5–15, 2023 | To visit the Thin Film PV group at the Interuniversity Microelectronics Centre (IMEC) on invitation to discuss perovskite solar cell fabrication | Project |
| 30 | Sivarama Krishnan | Czechia/Prague | January 17–February 12, 2023 | Time-resolved spectroscopy with He nanodroplets | CPDA Project |
| 31 | Suresh Govindarajan | Japan/Chiba | February 12–18, 2023 | Geometry and Automorphicity of Supersymmetric Partitions | CPDA |
| 32 | Prabhat Pujahari | Switzerland/Geneva | February 24–March 11, 2023 | Compact Muon Solenoid (CMS) experiment at the Conseil Européen pour la Recherche Nucléaire (CERN) | Project |

| S. No. | Name of Faculty | Country Visited | Date | Purpose of Visit | Funding from |
|--------|-----------------------|-------------------------------------|------------------------|--|----------------|
| 33 | Shantanu Mukherjee | Denmark/ Copenhagen | March 1-May 11, 2023 | Research Collaboration under High Risk High Reward grant | Project |
| 34 | Yasir Iqbal | United States of America/ Las Vegas | March 6-10, 2023 | American Physical Society (APS) March Meeting 2023 | Project |
| 35 | Prafulla Kumar Behera | Austria/ Oberurgl | March 22-April 9, 2023 | ALpine Particle physics Symposium (ALPS) 2023, 26-31 Mar 2023 University Center Oberurgl, Oberurgl (Austria) | CPDA & Project |
| 36 | Murugavel P | Israel/Tel-Aviv | March 26-30, 2023 | The 15 th International meeting on Ferroelectricity | CPDA |

4.16.3.6. Honours and Awards Obtained by Faculty

| S. No. | Name of Faculty | Name of Award | Awarded by | Awarded for | Date of Award |
|---------------|-----------------|---------------------------------|---------------|---------------------|-----------------|
| Awards | | | | | |
| 1 | Dr. Basudev Roy | IISER Kolkata Alumni Award 2022 | IISER Kolkata | Academic excellence | January 2, 2022 |

4.16.3.7. Fellowships of Academies and Professional Societies

| S. No. | Name of Faculty | Year of Admission |
|--------|---------------------|---|
| 1 | Prof. S Ramaprabhu | Elected as Fellow of the National Academy of Sciences, India (NASI) |
| 2 | Dr. P B Sunil Kumar | Elected as a Fellow of the Indian National Science Academy |
| 3 | Dr. Prem B Bisht | 2021 (Senior member, Optica, formerly OSA) |

4.16.3.8. Journal Editorial Boards

| S. No. | Name of Faculty | Position (Editor/Member) | Journal Name |
|--------|-----------------------|---------------------------------|--|
| 1 | V Subramanian | Guest Editor | Special Issue: Electromagnetic Metasurfaces and Metamaterials: From Design to Applications, Materials MDPI, St. Alban-Anlage 66, 4052 Basel, Switzerland |
| 2 | Prafulla Kumar Behera | Editorial Board Member | Physics |
| 3 | Dr. Manu Jaiswal | Editorial Board Member | Journal of Physics D: Applied Physics Institute of Physics (IOP) UK |
| 4 | Dr. Harish Kumar | Editorial Board Member | International Journal of Modern Physics B and Modern Physics Letters B World Scientific Publishing Co. Ltd. |
| 5 | R Nirmala | Advisory Editorial Board Member | Journal of Magnetism and Magnetic Materials Publisher: Elsevier |
| 6 | R Nirmala | Guest Editor | Special Issue on 'Materials for Energy Conversion and Storage', Journal of Alloys and Compounds Publisher: Elsevier |
| 7 | Jatin Rath | Editor | Journal of Materials Science: Materials in Electronics, SpringerNature UK |

4.16.4. Design and Development Activities

4.16.4.1. New Facilities Added and Major Equipment Procured

| S. No. | Name of Equipment | Value (INR Lakh) |
|--------------|--|------------------|
| 1. | Adsorber for Cryomech Compressor: PT 410 Reliquifier With Installation | 4.76 |
| 2. | Kyocera MultifunTION Copier Machine (Q3) | 7.45 |
| 3. | Electronic Components (Audio) | 13.37 |
| 4. | Sony VPL CWZ10 Multimedia Projector Ceiling Mount Kit EMCEE200 Halltech AV (Video) | 14.93 |
| 5. | Personal Computers and Printers | 29.39 |
| Total | | 69.89 |

4.16.4.2. Patents

4.16.4.2.1. Patents Filed

| S. No. | Name of Faculty | Topic of Patent |
|------------------------------------|---|---|
| Indian | | |
| 1 | Ramaprabhu S | An Electrolyser System with Nonprecious Electrocatalysts for Green H ₂ Production by Electrolysis Of Water |
| 2 | Pramoda Kumar Nayak; Vidya Praveen Bhallamudi | Process for Fabricating Heterostructures with Two-Dimensional Materials |
| 3 | Sudakar Chandran | An Electrode Active Material for Improving Electrochemical Performance of Lithium-Ion Batteries |
| 4 | Pramoda Kumar Nayak; Abhishek Misra | Method to Synthesize a Rhombohedral (R) Phase Transition Metal Dichalcogenide (Tmd) and its Implementations Thereof |
| 5 | Dillip Kumar Satapathy | A System and Method for Manufacturing a Cassava Starch-Based Vapor-Responsive Soft Actuator |
| International Patents Filed | | |
| 6 | Ramaprabhu S | Pressure Sensitive Adhesive Tape Based Flexible Strain Sensor and Method of Preparation Thereof |

4.16.4.2.2. Patents Awarded

| S. No. | Name of Faculty | Topic of Patent |
|--------|--|--|
| 1 | Sudakar Chandran | Inorganic Quantum Dots and Organic Fluorophore Based Hybrid Composite for White Light Emission |
| 2 | Ramaprabhu S | Binary Reaction Embedded Anode for High Current Density and Long Cycle Life Lithium Ion Battery |
| 3 | Sudakar Chandran; Birabar Ranjit Kumar Nanda | Method for Maximising Current Density and Voltage in Oxygenvacancy Controlled Bismuth Ferrite Based Thin Film Solar Cells |
| 4 | Ramachandra Rao M S | Method to Realize Highly A-Axis Oriented Aluminium Nitride (AlN) Thin Films on Mo Coated Si Substrate by Reactive Rf Magnetron Sputtering |
| 5 | Ramachandra Rao M S; K Lakshmi Ganapathi | A Process for Generating Broadband White Light from Polycrystalline Yttrium Iron Garnet and a Product thereof |
| 6 | Basudev Roy | Field Effect Transistors and Method of Development thereof |
| 7 | Ramaprabhu S | Sodium-Ion Conducting Solid Electrolyte Membrane and Battery thereof |
| 8 | Ramaprabhu S | An Electrolyser System with Non- Precious Electrocatalysts for Green Hydrogen Production by Electrolysis Of Water Patent Number: 419116, January 24, 2023 |
| 9 | Ramaprabhu S | Graphene Based Hydrogen Storage Nanomaterial |
| 10 | Ramaprabhu S | High Performance Electrocatalyst for Proton Exchange Membrane Fuel Cell Application |

| S. No. | Name of Faculty | Topic of Patent |
|---------------------------------------|---|---|
| Patents with other Departments | | |
| 11 | Srinivasa Murthy B; Ramachandra Rao M S (MM & PH) | Metallic Glass Based Protective Decorative Thin Film Coating and Method of Producing the same |
| 12 | Anil Prabhakar; Prabha Mandayam (EE & PH) | System for Plug-And-Play Differential Phase Encoded Measurement-Device-Independent Quantum Key Distribution |

4.16.5. Research and Consultancy

4.16.5.1. Sponsored Research Projects (Ongoing & New)

| S. No. | Title | Period | Funding Agency | Amount (in INR Lakh) | Co-ordinators |
|--------|--|---------|--|----------------------|------------------------------------|
| 1 | Investigation on electromagnetic wave propagation in a photonic crystal having temporal dependence of impedance | 2022–25 | SERB | 43.78 | V Subramanian and CV Krishnamurthy |
| 2 | Development of nanocomposites for electrical insulation in harsh environment and for EMI shielding | 2022–25 | Board of Research in Nuclear Sciences (BRNS) | 40.07 | R Sarathi and V Subramanian |
| 3 | Development of an absorption-enhanced multilayered structure for reducing electromagnetic interference in power electronics | 2023–26 | SERB | 60.00 | R Jayaganthan and V Subramanian |
| 4 | Microwave and millimetre-wave studies: IOE Phase 2 | 2023–26 | IIT Madras | 500.00 | CV Krishnamurthy and V Subramanian |
| 5 | Microwave and millimetre-wave studies: IOE Phase 1 | 2020–23 | IIT Madras | 120.00 | CV Krishnamurthy and V Subramanian |
| 6 | Dissociative ionisation and photo detachment of interstellar molecules and chiral anions | 2023–25 | Indian Space Research Organisation (ISRO) | 27.00 | Aravind G |
| 7 | Construction of a collinear velocity map imaging spectrometer | 2023–26 | SERB | 49.55 | Aravind G |
| 8 | September 2022 LIGO-Virgo-Kagra Conference, United Kingdom (September 12–16, 2022) | 2022–23 | SERB | 1.96 | Chandra Kant Mishra |
| 9 | Identifying the signatures of quantum gravity through quantum entanglement | 2023–25 | SERB | 22.37 | Dawood Kothawala |
| 10 | Indian Participation in the CMS Experiment at CERN: Maintenance, operation and upgradation | 2022–27 | DSTX | 1226.00 | Jim Libby |
| 11 | Flexocaloric effect on flexible single crystalline ferroelectric oxide thin film | 2023–26 | SERB | 47.89 | Murugavel P |
| 12 | Study of multicaloric effect in low-dimensional mixed spinel oxide systems for solid state refrigeration and energy storage applications | 2022–24 | SERB | 22.37 | Nirmala R |
| 13 | Multicomponent magnetic materials: Tuning the functionality and understanding the magnetic ground-state | 2023–26 | SERB | 37.40 | Nirmala R |
| 14 | Synthesis and physical properties of some novel geometrically frustrated quantum magnets | 2023–24 | SERB | 22.37 | Panchanana Khuntia |

| S. No. | Title | Period | Funding Agency | Amount (in INR Lakh) | Co-ordinators |
|----------------|--|---------|---|----------------------|-----------------------------|
| 15 | Synthesis and investigation of quantum spin liquid materials | 2023-26 | SERB | 115.10 | Panchanana Khuntia |
| 16 | Weak radiative decays of heavy flavour mesons | 2022-25 | SERB | 10.05 | Prafulla Kumar Behera |
| 17 | Quantum device with weyl semimetals | 2022-24 | SERB | 28.71 | Prasanta Kumar Muduli |
| 18 | Thermodynamics of active matter: Role of fluid-mediated interactions | 2022-24 | SERB | 21.26 | Rajesh Singh |
| 19 | National Centre for the Creation of State of-the-art Facilities for Lab Grown Diamond Technologies | 2022-27 | Ministry of Commerce and Industry (MOCI) | 24296.00 | Ramachandra Rao MS |
| 20 | DST-Materials MAP | 2022-25 | DSTX | 55.85 | Ranjit Kumar Nanda |
| 21 | 4d/5d transition metal ion-based ordered double perovskite thin films on (111) oriented substrates: Novel strongly correlated oxides | 2023-26 | SERB | 40.19 | Santhosh P N |
| 22 | Attosecond quantum electronics of van der Waals systems | 2022-25 | SERB | 55.34 | Sivarama Krishnan |
| 23 | Probing the phase of reheating through primordial black holes, dark matter, and gravitational waves | 2023-25 | SERB | 22.37 | Sriramkumar L |
| 24 | Testing flavours of the early universe beyond vanilla models with cosmological observations | 2022-25 | CEFI | 28.06 | Sriramkumar L |
| 25 | All-inorganic solid-state integrated halide perovskite (X)-ferroelectric-oxide (O) bulk heterojunction (XOBHJ) solar cells | 2022-25 | SERB | 109.31 | Sudakar Chandran |
| 26 | CsPbBr ₃ perovskite/transition metal dichalcogenides based composite solar cell for enhanced power conversion efficiency | 2022-25 | SERB | 10.05 | Sudakar Chandran |
| 27 | 11th International Conference on Highly Frustrated Magnetism 2022 (HFM 22) | 2022-23 | SERB | 1.06 | Yasir Iqbal |
| 28 | Development of RT Na-S solid electrolyte battery | 2022-23 | Hella India Automotive | 18.41 | Ramaprabhu (Prof. Emeritus) |
| 29 | Development of Li-S solid electrolyte battery | 2022-23 | M/S Electrodrive Powertrain Solutions Pvt Ltd | 17.70 | Ramaprabhu (Prof. Emeritus) |
| 30 | Development of Fe-S solid state battery | 2022-23 | Sai pet preforms | 14.16 | Ramaprabhu (Prof. Emeritus) |
| 31 | Glass transition and turbulence in active fluids | 2022-23 | SERB | 26,51,000 | Ashwin Joy |
| Ongoing | | | | | |
| 32 | 2D semiconductor heterostructure devices for next generation electronics | 2017-23 | DST | 94.91 | Dr. Lakshmi Ganapathi K |
| 33 | A Novel Paradigm for Strongly Correlated Systems - Ramanujan Fellowship | 2017-23 | DST | 38.00 | Ayan Mukhopadhyay |
| 34 | Investigation of effect of carbon quantum dots on carrier generation in organic semiconductor thin films for photovoltaic applications | 2021-24 | Council of Scientific and Industrial Research | 17.28 | Jayeeta Bhattacharyya |

| S. No. | Title | Period | Funding Agency | Amount (in INR Lakh) | Co-ordinators |
|--------|--|---------|---|----------------------|--------------------------|
| 35 | Thermoelectric power studies on materials showing simultaneous magnetic and crystal structural transitions | 2019–23 | Council of Scientific & Industrial Research | 13.00 | Nirmala R |
| 36 | Quantum information technologies with nitrogen vacancy and magnetic resonance | 2020–24 | DST | 502.14 | Bhallamudi Vidya Praveen |
| 37 | Quantum emitters based on atomic defects in diamond and 2D materials | 2020–24 | MHRD | 97.27 | Bhallamudi Vidya Praveen |
| 38 | Reprogrammable polymer-based soft actuators | 2020–24 | MHRD | 49.88 | Dillip Kumar Satapathy |
| 39 | Whispering gallery-enabled light scattering: Achieving enhanced efficiency in perovskite quantum dot sensitised mesoporous metal oxide whisperonic solar cells | 2020–24 | MHRD | 99.41 | Sudakar Chandran |
| 40 | Development of large area two-dimensional layered quantum material for memristor applications | 2020–24 | MHRD | 99.48 | Abhishek Misra |
| 41 | Glass transition and turbulence in active fluids | 2020–23 | SERB | 26.51 | Ashwin Joy |
| 42 | Intertwining crystal and orbital symmetries to explore novel nontrivial electronic phases | 2021–24 | SERB | 35.35 | Ranjit Kumar Nanda |
| 43 | Modelling strong electron-phonon interactions in systems with emergent order? | 2020–23 | SERB | 6.60 | Shantanu Mukherjee |
| 44 | Numerical investigations of quantum spin liquids in SU (N) antiferromagnetic models | 2021–24 | Indo French Centre for the Promotion of Advanced Research | 17.79 | Yasir Iqbal |
| 45 | Pairing in neutron-star matter with renormalization-group based low-momentum interactions | 2020–25 | Indo French Centre for the Promotion of Advanced Research | 21.71 | Sunethra Ramanan |
| 46 | Correlated quantum materials: Exploring spin transport properties in non-stoichiometric iridium oxide thin films and single crystals | 2020–23 | Indo French Centre for the Promotion of Advanced Research | 74.11 | Ramachandra Rao MS |
| 47 | Novel non-perturbative approaches to strongly-coupled QCD matter | 2020–23 | Indo French Centre for the Promotion of Advanced Research | 29.89 | Ayan Mukhopadhyay |
| 48 | Rheological studies of activity of the cell membrane, cytoplasm and organelles using new rotational mode of probing in optical tweezers | 2021–25 | Wellcome Trust | 317.43 | Basudev Roy |
| 49 | Development of high performance and low-cost boron-doped diamond electrodes for waste water treatment | 2020–23 | Kapindra Precision Engineering Pvt Ltd | 39.70 | Ramachandra Rao MS |
| 50 | Development of technology and processes to produce nanomaterials, nanocomposites, nanocoatings, nanolubricants and nanoceramics | 2021–23 | Tube Investments of India Ltd | 109.26 | Ramachandra Rao MS |
| 51 | Tribological devices by ultrashort laser pulse texturing: High-throughput and precision | 2021–24 | DST | 89.15 | Sivarama Krishnan |

| S. No. | Title | Period | Funding Agency | Amount (in INR Lakh) | Co-ordinators |
|--------|---|---------|-------------------------------------|----------------------|---------------------|
| 52 | Sublattice distortion tailored A ₂ B'B''X ₆ (A=Cs, B'= Ag, Na; B''=In, Bi, Sb); X =Cl, Br) inorganic perovskites for optoelectronic and photovoltaic applications | 2022-25 | SERB | 47.78 | Sudakar Chandran |
| 53 | Quest for low-field large magnetoresistance at room temperature and quantum effect in the La _{0.7} Sr _{0.3} MnO ₃ - LaAlO ₃ superlattice | 2022-25 | SERB | 31.85 | Prahallad Padhan |
| 54 | Investigation on electromagnetic wave propagation in a photonic crystal having temporal dependence of impedance | 2022-25 | SERB | 43.78 | Subramanian V |
| 55 | VAJRA Visiting Faculty - Prof. Sashi Satpathy | 2022-25 | SERB | 32.00 | Ranjit Kumar Nanda |
| 56 | Study of self-powered wearable tribo-electric nano generator fabrics with different contact modes | 2021-24 | SERB | 10.05 | Sudakar Chandran |
| 57 | Development of novel 2D organic-inorganic hybrid halide perovskite materials for efficient photovoltaic applications | 2021-24 | SERB | 10.05 | Jatindra Kumar Rath |
| 58 | Investigations on 2D vanadium carbide MXene (V ₂ CT _x) nanosheets for sensing non-polar gases and volatile organic compounds at room temperature | 2022-24 | SERB | 22.37 | Ramaprabhu S |
| 59 | Nano, micro whispers and their applications in imaging technologies | 2022-25 | SERB | 18.03 | Prem B Bisht |
| 60 | Dynamical signatures of quantum spin liquids in frustrated magnets | 2022-24 | I-HUB Quantum Technology Foundation | 15.00 | Yasir Iqbal |
| 61 | Synthesis and characterisation of hexagonal boron nitride ceramic aerogels as thermal insulation layer for future space missions | 2021-23 | ISRO | 22.92 | Manu Jaiswal |

4.16.5.2. Industrial Consultancy Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR Lakh) |
|--------|------------------------|---|---------------------------|----------------------|
| 1 | Abhishek Misra | RAMAN Facility (TFL-2DMRI) | Common Code | 5.00 |
| 2 | Abhishek Misra | RAMAN Facility (TFL-2DMRI) | Common Code | 5.00 |
| 3 | Arul Lakshminarayan | Raman Spectrometer | Common Code | 5.00 |
| 4 | Dillip Kumar Satapathy | XRD Measurements at Advanced X-ray Scattering Laboratory | Common Code | 5.00 |
| 5 | Dillip Kumar Satapathy | XRD Measurement at Advanced X-ray Scattering Laboratory -Phase II | Common Code | 5.00 |
| 6 | Dillip Kumar Satapathy | Testing at Soft Materials Laboratory: External Testing | Common Code - Consultancy | 5.00 |
| 7 | Dillip Kumar Satapathy | Testing at Soft Materials Laboratory: Internal Testing | Common Code - Consultancy | 5.00 |
| 8 | Ramachandra Rao MS | Testing internal samples with various sophisticated instruments: Phase II | Common Code - Consultancy | 5.00 |
| 9 | Ramachandra Rao MS | Testing external samples with various sophisticated instruments: Phase II | Common Code - Consultancy | 5.00 |

| S. No. | Name of Faculty | Title | Industry | Amount (in INR Lakh) |
|----------------|-------------------|--|-------------|----------------------|
| Ongoing | | | | |
| 10 | Murugavel P | Dielectric relaxation spectroscopic measurements at Physics Dept. facility | Common Code | 5.00 |
| 11 | Murugavel P | Dielectric relaxation spectroscopic measurements at Physics Dept. facility: IT | Common Code | 5.00 |
| 12 | Sivarama Krishnan | Femto Science Facility | Common Code | 5.00 |
| 13 | Sivarama Krishnan | Femto Science Facility | Common Code | 10.00 |
| 14 | Subramanian V | Measurements at Microwave Frequencies (Phase II) | Common Code | 5.00 |

4.16.5.3. RBIC Projects (Ongoing & New)

| S. No. | Name of Faculty | Title | Industry | Amount (in INR Lakh) |
|--------|------------------|---|---|----------------------|
| 1 | Prem B Bisht | Development of laser measurement devices | Laser Science Services India Pvt. Ltd. | 4.00 |
| 2 | Krishnamurthy CV | Numerical modeling of ultrasonic defect response and its subsequent effect on probability of detection (POD) in a polycrystalline nickel-based superalloy | Defence Metallurgical Research Laboratory | 74.23 |
| 3 | Ramaprabhu S | Development of solid-state Li-S battery with novel magnetic α -Fe ₂ O ₃ nanoparticles decorated ECNT/S as cathode | Electrodrive Powertrain Solutions Pvt. Ltd. | 17.70 |
| 4 | Ramaprabhu S | Development of rechargeable Fe-S battery | Sai Pet Preforms | 14.16 |
| 5 | Ramaprabhu S | Development of solid-state room-temperature Na-S battery with novel two-layer cathode | Hella India Automotive Pvt. Ltd. | 18.41 |

4.16.5.4. Exchange Programmes with Other Universities including Institutions/ Universities under MoU

| S. No. | Roll No. | Name | Purpose | University |
|--------|----------|---------------|-------------------------|---------------------------------|
| 1. | PH21M008 | Saketh Ravuri | DAAD Exchange Programme | RWTH Aachen University, Germany |

4.16.6. Distinguished Visitors to the Department

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|---|------------------------------|---|
| 1 | Dr. Michael Urban | January 21– February 4, 2023 | Collaborative visit (Centre Franco-Indien pour la Promotion de la Recherche Avancée, CEFIPRA) |
| 2 | Prof. Karlo Penc, Wigner Research Centre for Physics, Budapest. | April 20, 2022 | Brahmagupta Colloquium |
| 3 | Prof. Satyajit Banerjee, IIT Kanpur | August 3, 2022 | Brahmagupta Colloquium |
| 4 | Prof. Barry Sanders, University of Calgary, Canada | October 26, 2022 | Brahmagupta Colloquium |
| 5 | Prof. Ronny Thomale, Julius-Maximilians University of Wurzburg, Germany | November 2, 2022 | Brahmagupta Colloquium |
| 6 | Prof. José A Hoyos, Universidade de São Paulo | January 18, 2023 | Brahmagupta Colloquium |
| 7 | Prof. GV Pavan Kumar, IISER, Pune | February 8, 2023 | Brahmagupta Colloquium |
| 8 | Rahul Nandkishore, University of Colorado | April 8, 2022 | Seminar |
| 9 | Rupak Mukherjee, Princeton University, USA | April 18, 2022 | Seminar |

| S. No. | Visitor's Name & Designation | Date of Visit | Purpose of Visit |
|--------|---|--------------------|-------------------------------------|
| 10 | Alonso Corona Chavez, National Institute for Astrophysics, Optics and Electronics | May 24, 2022 | Seminar |
| 11 | Dr. Dhavala Suri, Technical University of Munich, Germany | July 27, 2022 | Seminar |
| 12 | Dr. Disha Bhatia, The Institute of Mathematical Sciences | July 28, 2022 | Seminar |
| 13 | Dr. Joseph Ivin Thomas, Employees' State Insurance Corporation (ESIC) Medical College, Hyderabad | July 29, 2022 | Seminar |
| 14 | Professor Arthur R McGurn, Professor Emeritus of Physics, Western Michigan University | August 5, 2022 | Seminar |
| 15 | Dr. Sivasurender Chandran, Department of Physics, Indian Institute of Technology Kanpur | August 23, 2022 | Seminar |
| 16 | Prof. V Balakrishnan, Adjunct Professor, Physics, IIT Madras. | September 1, 2022 | Seminar |
| 17 | Dr. Ravi Kunjwal, F.R.S.- FNRS Postdoctoral Researcher | September 9, 2022 | Seminar |
| 18 | Prof. Subhasis Chattopadhyay, VECC Kolkata | September 14, 2022 | Seminar |
| 19 | Dr. Srabani Kar, Postdoctoral researcher, Engineering Design, IIT Madras | September 14, 2022 | Seminar |
| 20 | Dr. Pradip Laha, Department of Optics, Palacky University, Olomouc, Czechia | September 26, 2022 | Seminar |
| 21 | Dr. Romolo Marcelli, Group Leader, Microwave Micro- and Nano-System Technology Group, Consiglio Nazionale delle Ricerche (CNR), Italy | September 29, 2022 | Seminar |
| 22 | Prof. Dragomir Neshev, Director, Australian Research Council (ARC) Centre of Excellence for Transformative Meta-Optical Systems | October 7, 2022 | Seminar |
| 23 | Prof. G Aravind, Indian Institute of Technology Madras | October 12, 2022 | Seminar |
| 24 | Dr. Gokul Subramanian Ravi, Post-Doctoral Fellow, University of Chicago | October 28, 2022 | Seminar |
| 25 | Dr. J Jayabalan, Faculty of Physics and Centre for Nanointegration (CENIDE), University of Duisburg-Essen, Lotharstr. 1, 47057 Duisburg, Germany. | November 21, 2022 | Seminar |
| 26 | Prof. Ashwin K Iyer, Vice Chair (Undergraduate), Department of Electrical and Comp | November 22, 2022 | Seminar |
| 27 | Bohnishikha Ghosh, University of Warsaw | January 12, 2023 | Seminar |
| 28 | Dr. Meghna Bhattacharya, Fermi National Laboratory, USA | January 24, 2023 | Seminar |
| 29 | Dr. Banasree Sadhukhan, KTH Royal Institute of Technology, Material and Nanophysics group | January 30, 2023 | Seminar |
| 30 | Prof. Uriel Frisch, Observatoire de la Côte d'Azur, Nice, France | January 30, 2023 | Seminar |
| 31 | Prof. Kausik Majumdar, Department of Electrical Communication Engineering (ECE), IISc Bangalore | February 7, 2023 | Seminar |
| 32 | Prof. Mayank Shrivastava, Associate Professor, Division of Electrical, Electronics, and Computer Sciences (EECS), IISc. | February 21, 2023 | Seminar |
| 33 | Dr. Parveen Kumar, Department of Condensed Matter Physics, Weizmann Institute of Science, Rehovot, Israel | February 28, 2023 | Seminar |
| 34 | Dr. Hemant Kumar Mishra, Post-doctoral fellow at Cornell University | March 1, 2023 | Seminar |
| 35 | Günther Turk, Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge | March 3, 2023 | Seminar |
| 36 | Dr. Chandan Samanta, The Institute of Photonic Sciences (ICFO), Spain | March 7, 2023 | Seminar |
| 37 | Prof. P Ramadevi, Indian Institute of Technology Bombay | March 29, 2023 | Lakshmi Raman Memorial Lecture 2023 |

4.16.7. Other Activities of the Department

4.16.7.1. Results Obtained in Research Work (from M.S. & Ph.D Theses) of Scholars/Faculty

- Viswanathan P L, Ph.D. student in the department, who is jointly guided by Dr. Sunethra Ramanan and Dr. Michael Urban (IJC Lab Orsay), has the following publication mentioned as 'Editor's Suggestion' in Physical Review C: 'Equation~of state of superfluid neutron matter with low-momentum interactions,' *Phys. Rev. C* 107 (2023), 025804. doi:10.1103/PhysRevC.107.025804

4.16.7.2. Socially Relevant Activities Carried Out by the Department

The **Sange Muzhangu Program** was conducted as a part of the commemoration of the Golden Jubilee of the Muthamil Mantram. It hosted a Tamil programme for three days named for 78 government school students from Madurai from October 1-3, 2022). The students visited many labs, including our department, as a part of the program.



4.16.7.3. Students' Research Activities under International Exchange Programmes

| S. No. | Name of the Student | Purpose of Visit | Venue | Date |
|--------|---------------------|---------------------|--|-------------------------|
| 1 | Subhendu De | Research Activities | Experiment: Two-Colour Coherent Diffraction Imaging of Helium Nanodroplet Dynamics European X-Ray Free-Electron Laser Facility (XFEL), Hamburg, Germany | May 30–June 6, 2022 |
| 2 | Subhendu De | Research Activities | Experiment: Core-shell Spectroscopy in Doped He Droplets Elettra Synchrotron, Trieste, Italy | June 6–25, 2022 |
| 3 | Subhendu De | Research Activities | Experiment: Interatomic Coulombic Decay in Large He Droplets Aarhus University, Denmark | June 25–August 24, 2022 |
| 4 | Keshav Sishodia | Research Activities | Max Plank Institute of Nuclear Physics, Heidelberg, Germany | 2022–23 |
| 5 | Keshav Sishodia | Research Activities | Elettra Synchrotron, Trieste, Italy | May–June 2022 |
| 6 | Keshav Sishodia | Research Activities | European XFEL, Hamburg, Germany | May 28–June 10, 2022 |
| 7 | Keshav Sishodia | Research Activities | Institute/Conference visited, Aarhus University, Denmark | 2022–23 |
| 8 | Keshav Sishodia | Research Activities | Institute/Conference visited for Extreme Light Infrastructure, Beamlines, Dolní Břežany, Czechia | February 2–14, 2023 |

4.16.7.4. New Faculty Appointments and Retirements

In the year 2022-23, three new Assistant Professors, namely Dr. Samir Choudhuri, Dr. Ravichandran Shivanna, and Dr. Siddharth Dhomkar joined the Department. Dr. Dillip Kumar Satapathy, Dr. Manu Jaiswal, and Dr. Prahallad Padhan were promoted as Professors. Dr. Ashwin Joy, Dr. Ayan Mukhopadhyay, Dr. Basudev Roy, Dr. Panchanana Khuntia, Dr. Sunethra Ramanan, Dr. Vaibhav Madhok, and Dr. Yasir Iqbal were promoted as Associate Professors. Dr. Lakshmi Bala S retired in the month of March 2023.

4.16.7.5. Degrees Awarded This Year

The department awarded 1 Joint Ph.D., 4 Dual Degree Ph.D., 10 Ph.D., 10 M.Tech., 32 M.Sc., 26 Dual Degrees (B.S.+ M.S.), and 22 B.Tech. degrees.

The Department Degree Distribution Programme (D3P) of 2022 was conducted on July 13, 2022. The event was addressed by the Head, Prof. Arul Lakshminarayan, and presided over by the Chief Guest, Prof. M. Lakshmanan, Professor of Eminence and DST-SERB Distinguished Fellow, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirappalli. A total of 85 students were awarded their degrees at the D3P ceremony.

4.16.7.6. Major Infrastructure Developments Made in the Department

Some of the infrastructure development activities undertaken were revamping the Department Computer Facility (DCF) Lab, Seminar Hall, and implementing hybrid classrooms.



Seminar Hall



DCF Lab



6th Physics In-House Symposium, April 22-23, 2022

5

Sophisticated Analytical Instrument Facility

5.1. Introduction

The Sophisticated Analytical Instrument Facility (SAIF), established with financial support from the Department of Science and Technology, provides sophisticated instruments and equipment to students, scientists, researchers and faculty members from IIT Madras as well as academia, educational institutions, national laboratories, R&D establishments and industries from all over India in general and south India in particular. Its primary purpose is to enable the scientific community to collect data and carry out analysis using extremely sophisticated analytical equipment for advanced research at very nominal rates.

SAIF also undertakes, on request, servicing of sophisticated analytical instruments at other institutions and provides training in the operation and maintenance of such equipment. In addition to offering training and hands-on experience, SAIF periodically conducts workshops, seminars and conferences to disseminate information on new trends in sophisticated instrumentation and methods. Students from educational institutions, colleges and schools visit SAIF regularly to gain exposure to the use of sophisticated instruments for analysis.

The SAIF does not have any academic programmes, as it is purely a service Centre/Facility.

5.2. Faculty and their Activities

5.2.1. Faculty

| Name and Qualifications | Major Areas of Specialisation |
|--|--|
| Professor | |
| Prof. SS Bhattacharya, Ph.D. (Head) | Nanocrystalline Materials—Synthesis and Characterisation, Superplasticity—Theoretical and Experimental, Metal Forming |
| Adjunct Professor | |
| Prof. S. Subramanian, Ph.D. | Nuclear Magnetic Resonance Spectroscopy, Electron Spin Resonance Spectroscopy |
| Senior Technical Officers | |
| C Baby, Ph.D. | Nuclear Magnetic Resonance Spectroscopy, Liquid Chromatography-High Resolution Mass Spectrometry (LC-HRMS), Gas Chromatography-Mass Spectrometry (GC-MS) |
| KV Rama, Ph.D. | Analytical Chemistry, Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES), Thermal and Elemental Analyses |
| Technical Officer | |
| Sudhadevi Antharjanam, Ph.D. | Single Crystal X-ray Diffractometry, Optical Spectroscopy |
| Junior Technical Superintendent | |
| NK Gopinath, M.Sc., M.Phil. | Thermogravimetry |
| Junior Technicians | |
| P Thiruppathi, IEEE | Electronics and Instrumentation |
| A Varalakshmi, M.Sc. | Chemistry, Liquid Chromatography-Mass Spectrometry (LC-MS), GC-MS |
| PV Narayanan, M.Sc. | Physics, VSM |

5.2.2. Short-term Courses, Workshops, Seminars, Symposia and Conferences Organised by Faculty Members/Officials

| S. No. | Coordinator(s) | Title | Period |
|------------------|---------------------------|---|-----------------------------------|
| Workshops | | | |
| 1 | Dr. Sudhadevi Antharjanam | Workshop on Single crystal X-Ray Diffraction Analysis | October 17-31, 2022 |
| 2 | Dr. C Baby | Workshop-cum-Training program on GC-MS | February 8, 2023 |
| 3 | Dr. C Baby | Workshop-cum-Training program on LC-MS | February 2, 2023 & March 21, 2023 |

5.2.3. Short-term Courses, Workshops, Seminars, Symposia, Conferences and Training Events Attended by Faculty Members/ Officials in Academic Institutions and Public Sector Undertakings

| S. No. | Name of Faculty | Title | Institution | Period |
|------------------|---------------------------|---|-----------------|-------------------|
| Workshops | | | | |
| 1. | Dr. Sudhadevi Antharjanam | Single Crystal X-ray Data Analysis using Wingx and Shelx Softwares; Structure Solution Case Studies | IIT Gandhinagar | March 15-21, 2023 |

5.2.4. Special Lectures Delivered by Faculty/ Officials in Other Institutions

| S. No. | Name of Faculty | Topic of Lecture | Institution | Date |
|--------|---------------------------|---|---|------------------|
| 1 | Dr. Sudhadevi Antharjanam | Basics of Single Crystal X-ray Diffraction Analysis | Amrita School of Pharmacy, Kochi, Kerala | August 16, 2022 |
| 2 | Dr. C Baby | Thermal Analysis and its Applications | Department of Energy and Environment, NIT Tiruchirappalli | January 23, 2023 |

6.1

Centre for Outreach and Digital Education

The Centre for Outreach and Digital Education (CODE) is the Centre which coordinates all non-campus academic & outreach activities from IIT Madras. This was formerly called the Centre for Continuing Education (CCE).

6.1.1. Introduction

The Centre for Continuing Education (CCE) was established at IIT Madras in June 1986 and it was renamed as Centre for Outreach and Digital Education (CODE) in May 2022 with an expanded mandate of digital education. The Centre supports faculty members in meeting the following objectives of IIT Madras:

- Providing knowledge-based technological services to satisfy the needs of society and industry
- Helping build national capabilities in science, technology, humanities, management, education and research
- Effectively participating and contributing to the Institute's commitment of providing a broad base of learning opportunities through the following major activities:
 - Conducting Ph.D. programme under the Quality Improvement Programme (QIP) sponsored by the AICTE
 - Conducting short-term courses (STCs) sponsored by the All India Council for Technical Education (AICTE)
 - Writing books under the Book Writing Scheme
 - Conducting Continuing Education Programmes (CEPs) for professionals from Industry
 - Developing and conducting User-Oriented Programmes (UOPs) for specific industries through which their engineers acquire higher degrees (M.Tech.)
 - Developing and conducting web-enabled M.Tech. programmes for industries.
 - Conducting courses under National Programme on Technology-Enhanced Learning (NPTEL)
 - Recording important activities through the facilities in the Central Photographic Section
 - Conducting conferences/seminars/workshops/symposia
 - Allotment of ISBN numbers for textbooks and other publications of faculty members
 - Conducting courses under Global Initiative of Academic Networks (GIAN) sponsored by the Ministry of Education
 - Conducting courses under IIT-Professor Assisted Learning (IIT-PAL)

6.1.2. Quality Improvement Programme

The Faculty Development activities under AICTE that are funded by the Ministry of Education are geared to ensure quality, relevance, excellence, and equity in technical education by supporting activities under the Quality Improvement Programme (QIP) scheme. Deputation to the academic programmes (mainly to Ph.D.) of the Institute facilitates the career development of the faculty members of AICTE-approved technical institutions in the country.

Since the time of inception of the programme till 2022-2023, 576 faculty members from other institutions have obtained Ph.D. degrees and 610 faculty members have obtained M.Tech. degrees.

Table 6.1.1. No. of Quality Improvement Programmes

| Period | Ph.D. | | | M.Tech. | | |
|-----------------|---------------|-------------|-------------|----------|-------------|---------|
| | Admitted | No. on Roll | Awarded | Admitted | No. on Roll | Awarded |
| 2022-2023 | 22 | 50 | 8 | -- | -- | -- |
| Since Inception | 724 (702 +22) | — | 576 (568+8) | 643 | — | 610 |

6.1.3. Continuing Education Programmes

Several short-term courses (STCs) were organised for professionals from industry and R&D establishments on a need basis. The programmes were tailor-made to suit the requirements of industries. From their inception in 1980 to 2022-2023, 1,764 (1,713+51) STCs have been conducted, benefitting 5,42,471 (5,40,564+1907) participants. In 2022-2023, 51 STCs were conducted. The following table lists these STCs:

Table 6.1.2. List of CEPs 2022-23

| S No | Department/s | Coordinator/s | Title of the Proceedings | Duration | No. of Participants |
|------|--------------------------------|---------------------------------|---|---|---------------------|
| 1 | Management Studies | Prof. Nandan Sudarsanam | An Overview of Applied Data Science | April 11-15, 2022 | 20 |
| 2 | Ocean Engineering | Prof. Srinivasan Chandrasekaran | Advanced Design of Steel Structures for L&T Engineers | May 23, 2022 & June 02, 2022 May 28, 2022 & June 4, 2022 | 15 |
| 3 | Central Workshop | Prof. Balaganesan | Employability Skills of Engineering Graduates | June 1, 2022– July 31, 2022 | 16 |
| 4 | Biotechnology | Prof. Smita Srivastava | IITM Ayurtech 2022 - Lecture Series | June 20–25, 2022 | 119 |
| 5 | Electrical Engineering | Prof. Shanthi Pavan | Delta-Sigma Data Converters | June 13–24, 2022 | 60 |
| 6 | Computer Science & Engineering | Prof. Sarathy R | Summer Program on Science, Technology, Engineering and Mathematics (STEM) | June 20–25, 2022 | 118 |
| 7 | Management Studies | Prof. Nandan Sudarsanam | Applied Data Science | July 4, 2022 to Aug 31, 2022 | 15 |
| 8 | Management Studies | Prof. Nandan Sudarsanam | Data Science for Financial Surveillance | July 4, 2022 to September 30, 2022 | 60 |
| 9 | Electrical Engineering | Prof. Shanthi Pavan | Delta-Sigma Data Converter Design | July 6–20, 2022 | 60 |
| 10 | Electrical Engineering | Prof. Lakshminarasamman | Grid-Connected Inverters: Operation and Control | July 6–8, 2022 | 38 |
| 11 | Management Studies | Prof. Arun Kumar G | Management Development Program for IRS Officers | July 6–8 , 2022 | 24 |
| 12 | Ocean Engineering | Prof. Panner Selvam | Refresher Course on Dredging and Mining | July 18–22 , 2022 | 31 |
| 13 | Engineering Design | Prof. Shankar Ram CS | Vehicle Dynamics | August 3, 2022– October 12, 2022 | 15 |
| 14 | Computer Science & Engineering | Prof. Arun Rajkumar | A Short Introduction to Machine Learning | August 8, 2022– September 22, 2022 | 45 |
| 15 | Ocean Engineering | Prof. Srinivasan Chandrasekaran | HSE Management for L&T Engineers | August 17–26, 2022 | 20 |
| 16 | Mechanical Engineering | Prof. Abhjit Sarkar | Short Course for M/S Brakes India on Basics of Mechanical Engineering | September 15, 2022– November 30 , 2022 | 25 |
| 17 | Management Studies | Prof. Arshinder Kaur | Lean Management and Value Stream Mapping | October 8–11, 2022 | 22 |
| 18 | Civil Engineering | Prof. Ashwin Mahaligam | Mentoring and Augmenting Planning Skills: 12 | November 14, 2022– February 17, 2023 | 25 |
| 19 | Physics | Prof. Prabha Mandayam | Quantum Cryptography and Quantum Algorithms | October 17–21, 2022 | 31 |
| 20 | Applied Mechanics | Prof. Manivannan | Foundation Course in Augmented Reality and Virtual Reality | October 17, 2022– December 24, 2022 | 39 |
| 21 | Electrical Engineering | Prof. Shanthi Pavan | Advanced Analog Circuit Design | October 19, 2022 | 60 |

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| S No | Department/s | Coordinator/s | Title of the Proceedings | Duration | No. of Participants |
|------|---|---------------------------------|---|---|---------------------|
| 22 | Civil Engineering | Prof. Benny Raphael | Online Workshop on Construction Automation and Robotics | October 22–29, 2022 January 22, 2023 | 108 |
| 23 | Management Studies | Prof. Nandan Sudarsanam | Tenets of Management | November 5, 2022– December 3, 2022 | 25 |
| 24 | Management Studies | Prof. Thenmozhi M | Project Leadership and Management Development Program | November 14–23, 2022 | 20 |
| 25 | Metallurgical and Materials Engineering | Prof. Gandham Phanikumar | Training on Modeling and Simulation using ICWE | November 17, 2022– January 17, 2023 | 12 |
| 26 | Bio Technology | Prof. Mahdulika Dixit | Institutional Ethics Committee: Training program on Bioethics and Research | November 28, 2022– December 2, 2022 | 40 |
| 27 | Bio Technology | Prof. Karthick Raman | Data Science Applications in Genomics and Drug Discovery | November 28, 2022– December 9, 2022 | 18 |
| 28 | Library | Prof. Ramamurthy | 8 th Annual meeting of All IIT Librarians | December 2–3, 2022 | Nil |
| 29 | Physics | Prof. Vaibhav Madhok | Winter School on Advanced Quantum Computing | December 5–16, 2022 | 75 |
| 30 | Ocean Engineering | Prof. Vijaykumar R | Naval Architecture GET Lecture | December 12–28, 2022 | 35 |
| 31 | Engineering Design | Prof. Srikanth Sridharan | Overview of Power Electronics and Motor Drives for Electrified Vehicle Technology | December 20–21, 2023 | 20 |
| 32 | Mechanical Engineering | Prof. Mayank Mittal | Hydrogen Energy based Combustion Engines, and Electric and Hybrid Powertrains and Control | July 2, 2023 | 20 |
| 33 | Electrical Engineering | Prof. Sarathy R | Workshop on fundamentals of Electronics | January 5, 2023– February 2, 2023 | 80 |
| 34 | CEC | Prof. Bobby George | Essential Skills for Employability of Engineering Graduates | January 9, 2023– February 28, 2023 | 17 |
| 35 | Ocean Engineering | Prof. Srinivasan Chandrasekaran | Certification training program for EDRC Engineers | January 18–20, 2023 | 25 |
| 36 | Engineering Design | Prof. Shankar Ram CS | eMobility and Electric Vehicle Engineering | September 15, 2022 – November 30, 2022 | 75 |
| 37 | Applied Mechanics | Prof. Babji Srinivasan | Business Analytics Model | February 1, 2023– March 15, 2023 | 40 |
| 38 | Mechanical Engineering | Prof. Piyush Shakya | Basics of Reliability and Bearing Design | February 3–15, 2023 | 30 |
| 39 | Engineering Design | Prof. Venkatesh Balasubramanian | Construction Safety | March 8, 2023 | 72 |
| 40 | Aerospace Engineering | Prof. RI Sujith | Online Course in Thermoacoustic Instability | February 15, 2023– March 9, 2023 | 15 |
| 41 | Ocean Engineering | Prof. SA Sannasiraj | Flood Pollution Assessment and Impact Knowledge Transfer | February 22–24, 2023 | 11 |
| 42 | Civil Engineering | Prof. Mathava Kumar | Membrane-Based Technologies for Water Purification | February 25, 2023 | 4 |
| 43 | Management Studies | Prof. Thillai Rajan A | Management Development and Training Program | February 27, 2023– March 3 2023 | 40 |
| 44 | Electrical Engineering | Prof. Shanthi Pavan | Practical Design of Data Converters | February 28, 2023– March 10, 2023 | 60 |
| 45 | Bio Technology | Prof. Karthick Raman | Introduction to Synthetic Biology | March 2–15, 2023 | 8 |
| 46 | Management Studies | Prof. Nargis Pervin | Workshop on Becoming a Software Product Manager | March 8, 2023 | 24 |

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| S No | Department/s | Coordinator/s | Title of the Proceedings | Duration | No. of Participants |
|--------------|------------------------|---------------------------------|--|---|---------------------|
| 47 | Mechanical Engineering | Prof. Abhijit Sarkar | Training program on Vehicular Vibration | April 28–29, 2023, May 5–6, 2023, May 12–13, 2023, May 19–20, 2023 | 20 |
| 48 | Electrical Engineering | Prof. Ganti Radha krishnan | 5G Introduction to ITS Trainees | March 13–17, 2023 | 10 |
| 49 | Engineering Design | Prof. Shankar Ram CS | Sizing of Electrified Powertrains | March 27, 2023 | 40 |
| 50 | Management Studies | Prof. Vijiyaalakshmi | Re-Energizing the Classroom! Through the Use of Gamification and Experiential Activities in Management Education | March 13–17, 2023 | 61 |
| 51 | Engineering Design | Prof. Venkatesh Balasubramanian | Capacity Building for Scientific Road Crash Investigation | March 28–30, 2023 | 44 |
| Total | | | | | 1907 |

6.1.4. User-Oriented Programmes

The User-Oriented Programmes (UOPs) are designed to suit the requirements of industrial organisations. Two-year M.Tech. programmes are being organised to meet the specific needs of the associated industries. So far, 28 programmes have been conducted or are being conducted by the Departments of Civil Engineering, Ocean Engineering, Mechanical Engineering, Engineering Design, and Management Studies.

Table 6.1.3. List of User-Oriented Programmes (UOPs)

| S. No. | Department/s | Coordinator/s | Title of the Proceedings | Project No. |
|--------|--------------------|------------------------------|--|-------------------------------|
| 1 | Management Studies | Arshinder Kaur, Lata Dyaram | VLM Project | CCE/UoP/28/PG-PEX-VLM/21-22 |
| 2 | Civil Engineering | K Ramamurthy, Koshy Varghese | Construction Technology & Management (CT&M) | CCE/CEP/UoP/24/KR&KV/CE/19-20 |
| 3 | Civil Engineering | K Ramamurthy, Koshy Varghese | Construction Technology & Management (CT&M) | CCE/CEP/UoP/26/KR&KV/CE/20-21 |
| 4 | Civil Engineering | Rupen Goswami | Post-Graduate Diploma in Bridge Engineering (PGDPBE) | CCE/CEP/UoP/27/RG/CE/21-22 |

6.1.5. Web-enabled M.Tech. Programmes for Industries

IIT Madras has been actively interacting with leading industries through R&D, consultancy projects and continuing education programmes. IIT Madras has come up with web-based M.Tech. programmes with adequate opportunity for student and teacher interaction. In these programmes, post-class interaction is facilitated by an effective course management platform. Candidates have to take approved core and elective courses of their choice and can complete the entire M.Tech. programme at their own pace. On completion of each course, a certificate will be awarded, and on finishing the required credits in different categories, the candidate will be eligible for a Master's degree. The candidate may also do a set of laboratory experiments and projects as defined by the curriculum.

Seven programmes jointly worked out with industries by the concerned departments have been approved by the Senate. The details are given in the table below. The web-enabled M.Tech. (Automotive Technology) course was started in May 2017. Five automotive industries sponsored 29 students for this course in the first year. This was followed by two other courses offered by the Department of Electrical Engineering, namely M.Tech. (VLSI) with 27 students and M.Tech. (Communication Systems Engineering) with 49 students. The second batch of students joined the M.Tech. (Automotive Technology) programme in November 2018. Two more automotive industries sent their candidates for this programme for the second batch. The second batch of students joined the M.Tech. (VLSI) and M.Tech. (Communication Systems Engineering) programmes in September 2018. A new web-enabled programme, M.Tech. (Information Security) was started in September 2018 with 33 students. A new web-enabled programme, M.Tech. (Aerospace Engineering) was started in August 2021 with 20 students.

Table 6.1.4. List of Senate-approved Web-enabled M.Tech Programmes for Industries

| S. No. | Department | Title |
|--------|---------------------------------------|--|
| 1 | Aerospace Engineering | Aerospace Engineers |
| 2 | Aerospace Engineering | Ammunition Technology |
| 3 | Computer Science and Engineering | M.Tech in Computer Science and Engineering with Specialisation in Information Security |
| 4 | Electrical Engineering | Master's in Communications Systems Engineering |
| 5 | Electrical Engineering | Master's in M.Tech. Integrated Circuits and Systems |
| | Electrical Engineering | Master's in Multi Media Signal Processing |
| | Electrical Engineering | Master's in Micro Electronics |
| | Inter Disciplinary with Physics Dept. | Master's in Quantum Science & Technology |
| 6 | Mechanical Engineering | Automotive Technology |
| | Mechanical Engineering | Mechanical Design |
| 7 | Chemical Engineering | Industrial Artificial Intelligence |

Table 6.1.5. Earnings from Web-enabled M.Tech. Programmes for Industries

| Department | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Companies | Total Earnings (in INR) | No. of Faculty |
|--------------------------|------|------|------|------|------|------|---|-------------------------|----------------|
| Aerospace Engineering | - | - | - | - | 20 | 58 | HAL, Airbus Munitions | 3.1 crore | 6 |
| EE-Comm | 50 | 50 | 24 | 16 | 34 | 18 | Silabs India, Synopsys India, Qualcomm India, Cypress Semi-Con, Valeo India, Analog Devices India, Signalchip Innovations, Sankalp Semicon, Electronics Centre of Excellence, Cyient Ltd., Open-Silicon Research Pvt.Ltd., Infineon Tech, Synatics, NXP, BEL, TI, Indian Space Research Organisation (ISRO), Tata Elxsi, Keysight | 23.2 crore | 16 |
| EE-ICS | 29 | 25 | 23 | 33 | 38 | 38 | | | |
| EE-Multi | - | 1 | 8 | 7 | 7 | - | | | |
| EE-Micro | - | - | - | 20 | 4 | 26 | | | |
| Interdisciplinary-QS | - | - | - | - | 6 | - | Honeywell, Gartner, Hindustan Computers Limited (HCL) | 12 lakh | 2 |
| CS-Information Security | - | 29 | 30 | 23 | 23 | 27 | Synopsys, Qualcomm India, Cypress Semicon, Valeo India, Analog Devices India, Open-Silicon Research, Infineon Tech, NXP, BNY Mellon Tech, Radisys India, Seimens, Tata Elxsi, Apexon | 7.6 crore | 7 |
| ME-Automotive Technology | 29 | 21 | 15 | - | 7 | - | Bharat Electronics Limited (BEL), Tractors and Farm Equipment Limited (TAFE), Bosch Daimler, Lam Research, Siemens Gamesa, Mahindra And Mahindra, Delphi TVS Fca Engineering India Sundaram Clayton | 3.9 crore | 13 |
| ME-Mechanical Design | - | - | - | 21 | 19 | - | | 2.5 crore | |
| Artificial Intelligence | - | - | - | - | - | 50 | Tata Consultancy Services (TCS), Virtusa | 1.8 crore | 9 |

6.1.6. Global Initiative of Academic Networks

The Government of India approved a new programme, Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs internationally to encourage their engagement with the institutes of higher education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform and elevate India's scientific and technological capacity to global excellence. Under this scheme, 05 courses (listed below) were conducted along with accomplished researchers and technologists from all over the globe from April 1, 2022 to March 31, 2023. The status of the proposals for GIAN courses from IIT Madras as on March 31, 2023 is indicated in the following tables.

Table 6.1.6. GIAN Courses During 2022-23

| S. No. | GIAN Course Title | Host Faculty | Duration of the Course | No. of Weeks | No. of Participants |
|--------|---|-------------------------------|------------------------|--------------|---------------------|
| 1 | Metocean Science and Engineering | Prof. Sannasiraj | December 4-13, 2022 | 2 | 31 |
| 2 | Metal Oxide Semiconductors: Theory And Applications | Prof. Parasuraman Swaminathan | December 5-9, 2022 | 1 | 38 |
| 3 | Polymer Derived Ceramics (PDC) Technology: Basics and Applications as Coatings, Ceramic Fibres and Composites | Prof. Ravi Kumar | November 21-28, 2022 | 1 | 19 |
| 4 | CMOS ALL-Digital and Subsampling Phase-Locked Loops | Prof. S. Anirudhan | December 12-16, 2022 | 1 | 12 |
| 5 | Fundamentals of Dispersed Multiphase Flow: Theoretical Analysis | Prof. S. Pushpavanam | February 21-25, 2023 | 1 | 41 |

6.1.7. Conferences

IIT Madras has instructed faculty members (vide circular No. F.R.150/3/2011 dated March 31, 2011) to register all national and international conferences, workshops, seminars, symposiums, and other such events organized by them with the CODE. The following programmes were registered with the CODE in 2022-2023:

Table 6.1.7. GIAN Courses During 2022-23

| S. No. | Coordinator | Department | Title | Period | No. of Participants |
|--------|---|---|--|-----------------------|---------------------|
| 1 | R Sarathi | Electrical Engineering | Emerging Trends in Transformer Insulation adopting Green Technologies | April 16, 2022 | 35 |
| 2 | Balaji Narashiman, Venkataraman Srinivasan, Indumathi Nambi | Civil Engineering | One-day National Seminar on Advances in Water Resources Planning and Management | May 22, 2022 | 45 |
| 3 | R Radha | Mathematics | International Conference on Analysis, Inverse Problems and Applications | July 18-21, 2022 | - |
| 4 | Nirav Patel, Asokan Thodiyath | Engineering Design | One day Workshop on Medical Robotics | August 13, 2022 | 50 |
| 5 | Jane Prasad, Devendra Jalihal | Registrar Office Electrical Engineering | Training for National Institute of Communication Finance (NICF) Office Trainees | August 16-19, 2022 | 30 |
| 6 | Merin Simi Raj, Avishek Parui | Humanities and Social Sciences | Memory in a Digital Age | August 23-25, 2022 | 25 |
| 7 | Edamana Prasad | Chemistry | Chemistry In-House Symposium | September 14, 2022 | 400 |
| 8 | R Sarathi | Electrical Engineering | Outreach Program for Women Researchers on Research Initiatives in the Area of High Voltage Engineering at IIT Madras | September 24-25, 2022 | 11 |
| 9. | Prakash Maiya M, Promod Kumar, Armin Hafner | Mechanical Engineering | CO ₂ Refrigeration Systems: Fundamentals, Advancements and Applications | October 10-14, 2022 | 65 |

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| S. No. | Coordinator | Department | Title | Period | No. of Participants |
|--------|--|---|---|--------------------------------|---------------------|
| 10 | Ashok Jhunjhunwala, Anupama Thomas, Anil Prabhakar, Sujatha Srinivasan | Electrical and Mechanical Engineering, | EMPOWER 2022 | October 13–15, 2022 | 105 |
| 11 | G Rajesh | Aerospace Engineering | 24 th International Shock Interaction Symposium | October 17–21, 2022 | 22 |
| 12 | Sriram V, SA Sannasi Raj | Ocean Engineering | Ecological Engineering Design of Coastal Structure as Mitigation Measures due to Coastal Erosion and Flooding. | October 27, 2022 | 5 |
| 13 | Karthick Raman, Ashmitha Aravindan | Biotechnology | Microbiomes in Environment, Space and Human Health | October 31–November 2, 2022 | 77 |
| 14 | Sankaran S | Metallurgical & Materials Engineering | Advanced Microscopy and its Application in Materials Science | November 8–10, 2022 | 38 |
| 15 | Shankar Krishnapillai, Piyush Shakhya | Mechanical Engineering | National Symposium on Vibrations: Modelling and Measurement | November 26, 2022 | 14 |
| 16 | Shiva Nagendra SM | Civil Engineering | Indian International Conference on Air Quality Management 2022 (IICAQM 2022) | November 28 - December 2, 2022 | 95 |
| 17 | Somnath Chanda Roy | Physics | Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI) | December 1–7, 2022 | 30 |
| 18 | R Gnanamoorthy, M Kamaraj | Ocean Engineering | 3 rd Indo-Japan Bilateral Symposium: Futuristic Materials and Manufacturing for Sustainable Development Goals | December 2–3, 2022 | 34 |
| 19 | T Pradeep, Rajnish Kumar | Chemistry | Molecular Materials and Functions: An IIT Madras Conference 2022 | December 5–7, 2022 | 68 |
| 20 | Rajagopalan Srinivasan, Niket Kaisare, Babji Srinivasan | Chemical Engineering, Applied Mechanics | 10 th Asian Symposium on Process Systems Engineering | December 11–14, 2022 | 82 |
| 21 | Sriram V, SA Sannasi Raj, V Sundar, Sundaravadivelu, K Murali | Ocean Engineering | Numerical and Experimental Modelling of Wave-structure Interaction (NEM-WSI) | December 12–13, 2022 | 43 |
| 22 | Hema A Murthy | Computer Science and Engineering | Comp Music workshop 2022: Introduction to Computational Musicology, a Carnatic Music perspective | December 12–16, 2022 | 27 |
| 23 | Sridharakumar Narasimhan | Chemical Engineering | The Eighth Indian Control Conference (ICC-8) | December 14–16, 2022 | 83 |
| 24 | Sayan Gupta | Applied Mechanics | Symposium on Epidemic Modelling | February 1–2, 2023 | 38 |
| 25 | T Pradeep, Ligy Philip | Chemistry | Water for Life: An IIT Madras Conference 2022 | December 15–17, 2022 | 42 |
| 26 | Jayalal Sarma, Meghavan Nasre | Computer Science and Engineering | 42 nd IARCS Annual (International) Conference on Foundations of Software Technology and Theoretical Computer Science One satellite workshop Workshop on Fine Grained Complexity and Cryptography One co-located Event: SAT+SMT Workshop | December 15–20, 2022 | 75 |
| 27 | Jyothiramyia Tripathy | Humanities and Social Sciences | The Uses of Indian Aesthetics | December 17–19, 2022 | 52 |

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| S. No. | Coordinator | Department | Title | Period | No. of Participants |
|--------|--|---------------------------------------|--|---------------------------------------|---------------------|
| 28 | HSN Murthy, David Kumar, Devapraksh Muniraj | Aerospace Engineering | MTP-Symposium on UAV-Electronics (SUAVE) | December 26, 2022– January 1, 2023 | 7 |
| 29 | Shivananju BN, Prem B Bisht | Electrical Engineering | International Conference in Advanced Biomedical Imaging | January 9–11, 2023 | 71 |
| 30 | Ranjit Kumar Nanda B, P Murgavel | Physics | International School and Conference on Evolution of Electronic Structure Theory & Experimental Realization (EESTER-2023) | January 9–12, 2023 | 150 |
| 31 | Kothandaraman Ramanujam, Venkatakrisnan, Satyanarayanan Seshadri | Chemistry, Mechanical Engineering | International Energy Conversion and Storage Conference (IECS-2023) | January 18–20, 2023 | 505 |
| 32 | Arul Lakshminarayan, Nicolas Gheeraert, Krishan Jaganathan | Physics, Electrical Engineering | Progress in Quantum Science and Technologies | January 23–27, 2023 | 126 |
| 33 | Radhakrishana G Pillai | Civil Engineering | 6 th One-day workshop on Corrosion Control in Concrete Structures (C3S) | January 30, 2023 | 65 |
| 34 | Radhakrishana G Pillai, Ravindra Gettu | Civil Engineering | Young Researchers Symposium (YRS) on Technologies for Low-carbon Lean Construction - 2023 (in association with RILEM) | January 31, 2023 | 70 |
| 35 | Radhakrishna G Pillai, Nikhi Bugalia | Civil Engineering | 2 nd International Workshop on Technologies for Low-carbon and Lean Construction (TLC2). | February 1–2, 2023 | 72 |
| 36 | Radhakrishana G Pillai, Ravindra Gettu | Civil Engineering | 1. SPARC Workshop on Sustainability & Durability of Reinforced Concrete Systems 2. Workshop on Textile Reinforced Concrete (TRC). | February 3, 2023 | 72 |
| 37 | Arijit Dey | Mathematics | A Conference in Algebraic Geometry | February 6–11, 2023 | 60 |
| 38 | Meher Prasad A, PK Aravindan | Civil Engineering | Technical Symposium on Structural Engineering: The Way Forward. | February 9–10, 2023 | 180 |
| 39 | Barun Sarkar | Mathematics | Popular Mathematics | February 13–15, 2023 | 200 |
| 40 | K Muralai, Sannasiraj SA, MA Atmanand | Ocean Engineering | OCEANS 2022 CHENNAI | February 14–17, 2023 | - |
| 41 | Deepa Venkitesh, Shanthi Pavan | Electrical Engineering | PMRF Annual Symposium | February 17–18, 2023 | 265 |
| 42 | Rajesh Kumar | Humanities and Social Sciences | Panini and Foundations of Language Studies | February 17–18, 2023 | 28 |
| 43 | Deleep.R.Nair, Amitava Das Gupta | Electrical Engineering | Indo-French Workshop on Microwave and Photonics Technologies | February 20–22, 2023 | 80 |
| 44 | Ravi Kumar | Metallurgical & Materials Engineering | Precursor Derived Advanced Ceramics for Energy, Environment and Healthcare | March 8–10, 2023 | 20 |
| 45 | Manu Santhanam | Civil Engineering | Workshop on Advances in 3D Concrete Printing | March 17–18, 2023 | 95 |
| 46 | Indumathi Manivannan Nambi | Civil Engineering | Circular Economy in Sanitation Projects: Water, NPK Fertiliser, Energy & Carbon Recovery | March 22, 2023 | 37 |
| 47 | Vijayakumar R | Ocean Engineering | NRB Hydrodynamics Panel Seminar | March 24, 2023 | 20 |

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| S. No. | Coordinator | Department | Title | Period | No. of Participants |
|--------------|----------------------------------|---------------------------|--|----------------------------|---------------------|
| 48 | Devendra Jalihal, R Venkatesh | Electrical Engineering | Joint Indo-Japanese Smart City Conference 2023 | March 29–31, 2023 | 46 |
| 49 | Nikhil Bugalia | Civil Engineering | Civil Engineering Association Festival 2023 | March 31– April 2, 2023 | 420 |
| Total | | | | | 4180 |

6.1.8. NPTEL: A Joint Initiative of the IITs and IISc

The NPTEL project, funded by the MHRD, was initiated in 2003 by 7 IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras, and Roorkee) to provide quality education to anyone interested in learning from the IITs with the funding from the Ministry of Education, Govt. of India. IIT Madras is the Coordinating Institute of this multi-institutional project.

6.1.8.1. Courses Developed

Together, several Web and Video-based materials for basic sciences, humanities, management, and engineering courses have been developed. Since 2003, a total of 2657 courses have been developed (Web courses 434 and Video courses 2223) in association with 65 partnering Institutes including IIT/Indian Institutes of Science (IISc)/Indian Institute of Information Technology (IIIT) / Indian Institutes of Science Education and Research (IISER)/ Indian Institute of Mathematical Sciences (IMSc) / Indian Statistical Institute (ISI) etc. NPTEL courses are used extensively by the students and faculty members across the world to further their knowledge on various subjects. The learning material is supplemented with references and recommended reading material and contains self-assessment quizzes for students. The online web portal <http://nptel.ac.in> has more than 471 million+ views. NPTEL Youtube channel (<http://www.youtube.com/iit>) is the most subscribed educational channel, with 1.5 million+ channel subscribers, 819 million+ views, 50000+ hours of Video.

6.1.8.2. NPTEL Online Courses (NOC)

Since 2014, online courses of 4, 8, and 12-weeks duration are being offered typically on topics relevant to students in all years of higher education along with basic core courses in sciences, humanities, management, and engineering. Currently the courses are offered from January or July through the SWAYAM portal (<https://swayam.gov.in/>). Any interested learner can join and learn from the course absolutely free of cost. An in-person proctored examination conducted at the end of the course provides an opportunity to get certified through participating institutions and industry. Since March 2014 till the ongoing Jan 2023 semester, 4707 courses have been offered in which 2,33,05,599 learners enrolled and 31,95,706 learners registered for the certification exam. During the ongoing Jan-Apr 2023 semester alone, a total of 34,75,440 students enrolled and 5,16,054 registered for the exams for the 665 courses. During Jul-Oct 2023 semester, 695 courses are being planned to be offered.

6.1.8.3. Role of CCE of IIT in NOC

The CCE of the participating institute holds the administrative control of the NPTEL online courses offered by that institute. Besides financial management of the program at the Institute level, the final course completion certificates are also issued by the Institute concerned jointly signed by the Chairman, CCE and the Institute NPTEL Co-ordinator.

6.1.8.4. Live Sessions by NPTEL Course Instructors and PMRF Scholars

In order to address the course related queries of the learners, 436 Faculty driven live interactive sessions were organized through YouTube during Jan-Dec 2022. Additionally, 4686 problem solving sessions pertaining to the contents of the week were organized during the same period through PMRF Scholars to answer any additional questions or doubts.

6.1.8.5. Transcripts and MP3 Versions of Video Lectures

All NPTEL video lectures are transcribed and edited so that students can access the content in a video lecture as textual material (in PDF format). The same text is also used for subtitling the video lectures. The audio of a video lecture is extracted as an MP3 file, which is small in size compared to the corresponding video lecture. This file, coupled with the text transcript, serves as a good educational resource. So far, more than 99,500 lectures have been transcribed and more than 80,152 (verified and unverified) videos are available with subtitles in English. The transcript files can be accessed through the URL <https://nptel.ac.in/course.html>.

6.1.8.6. Translation of Text Transcripts to Local Languages

To assist and ease the transition of the learners who had undergone their schooling in their regional language, NPTEL has initiated translation of course content into 11 different Indian languages, viz. Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, and Telugu. This endeavor ensures better and effective knowledge transfer, as it helps the learners to understand better by seeing the subtitles of the video in their native language as well as improve their English skills as the instructor speaks in English. Translated versions of lectures in various languages are available on SWAYAM and NPTEL portal (<https://nptel.ac.in/translation>) as PDF transcripts, ebooks, subtitles below the videos, scrolling text below videos, and in some cases as audio files. A total of 19010 hours of lectures of 880 courses have so far been translated into regional languages.

6.1.8.7. Use of NPTEL Video and Web Material as GATE Preparation Aids

Considering the importance of GATE as a qualifying exam for graduate studies as well as an opportunity for jobs in Public Sector Undertakings (PSUs), NPTEL has developed a dedicated portal for GATE preparation with the repository of relevant courses. The portal started with CSR support from Amadeus Labs Bengaluru and provides mapping of GATE syllabus with the NPTEL videos, thereby lowering the reliance of aspirants on coaching institutes. Currently GATE syllabuses of 10 disciplines have been mapped with the NPTEL contents. In addition to the portal, the video solutions are also made available for the public through the YouTube channel NPTEL GATE Preparation. The channel with 3.5K subscribers has been loaded with more than 200 hours of video. A question bank with more than 1000 questions for each GATE subject has been prepared for the Electrical Engineering, Electronics and Communication Engineering, & Mechanical Engineering departments for the students to take up mock tests. (<https://gate.nptel.ac.in/>)

6.1.8.8 NPTEL Local Chapters (LCs)

To encourage more students to participate in the NPTEL Online Courses, SWAYAM-NPTEL local chapters are being formed in colleges/Universities with the approval of their management. These local chapters provide a platform for continuous engagement of the learners with NPTEL thus providing opportunities for mentoring support for the students, fee waiver for the needy students of LCs and implementation of credit transfer. Today there are 5592 SWAYAM-NPTEL local chapters, out of which 5544 are based in India and 48 located abroad. Approximately 85% of the total course enrollments are from the local chapter colleges. (<https://nptel.ac.in/localchapter>)

6.1.8.9. NPTEL Awareness Workshops

Workshops are routinely conducted for students and faculty members of other institutes to create awareness about NPTEL. The participants are briefed on features of NPTEL MOOCs, online certification process, domain certificate, credit transfer mechanism, different other initiatives of NPTEL like Soft Skill training, internship opportunities, FDP certification, supporting SPOCs for attending conferences, Special lectures by industry experts etc. So far 269 workshops have been conducted with more than 2,00,000 teachers and students attending the same. During the pandemic, e-workshops were conducted for the faculty and students. (<https://nptel.ac.in/workshops>)

6.1.8.10. NPTEL Lab Workshops

Many colleges across the country, be it engineering or science, particularly in colleges from Tier 2 and Tier 3 towns have poor facilities in terms of laboratories for performing experiments. To provide an opportunity for the NPTEL course toppers with an experience of world class facilities that might motivate them further, week long laboratory workshops have been conducted at some of the top institutes, such as the IITs, IISERs and IIITs. A total of 24 lab workshops have been organized so far. (<https://nptel.ac.in/workshops>)

6.1.8.11. Collaboration with Industry

NPTEL is working towards bringing in an industry perspective to its technically rich courses which led to the inception of NPTEL Industry Associate (NIA) program. With an aim to bridge the gap between academia and industry, NPTEL partners with the organizations in a mutually beneficial manner by offering the courses jointly, upskilling and reskilling of the existing industrial workforce etc. Supporting fee waiver for the needy students through CSR initiatives, internships, job opportunities for the course toppers, mock interviews by the industry experts are also being explored as part of this association. NPTEL is currently engaged with 90 industry partners. (<https://nptel.ac.in/nia>)

6.1.8.12. NPTEL Stars

The ‘NPTEL Stars’ initiative was launched in 2019 to recognize the learners who continue with their learning in NPTEL for a long time. The learners are categorized into 7 categories (Domain Scholars, Superstars, Evangelists, Motivated Learners, Enthusiasts, Discipline Stars, and Believers) depending on the number of courses completed within a specified timeframe and the performance. During Jan-Dec 2022, 467 learners completed the specified hours of learning from a particular area earning domain certification. (<https://nptel.ac.in/nptelstars>)

6.1.8.13. Soft Skills Training

In addition to improving the technical skills of the learners through online courses, soft skill training of up to 2 weeks duration is also imparted for the students of Local Chapter colleges free of cost to improve their employability. Assessment of employability, online interactive sessions on Communication Skills, Writing Skills, Resume Building, Interpersonal Skills, and the Importance of Social Networking in the context of job search, online mock interviews are conducted as part of this program. A total of 3787 students from 229 colleges have been certified on successful completion of the training program. (<https://nptel.ac.in/localchapter>)

6.1.8.14. Internships

Internship opportunities with the course instructors are arranged for the topper students of NPTEL online certification exams. Internships of 4/6/6/10/12 weeks duration is arranged in the Institute. The faculty is attached to provide an opportunity for the students to interact with the instructor and be motivated to pursue higher studies or identify projects that they may want to be part of at the Institute. So far 213 students have completed internships. (<https://nptel.ac.in/internship>)



6.2

Office of Industrial Consultancy and Sponsored Research (IC&SR)

6.2.1. Introduction

The Office of Industrial Consultancy and Sponsored Research (IC&SR) at IIT Madras continues to foster and promote research activities as well as relationships with industries and other organisations from both India and abroad, since its inception in 1973.

The IC&SR Office facilitates the Institute faculty members' active participation in various interactive programmes organised for the benefit of the industries and the Institute. It also plays a proactive role in providing legal support for MoUs with funding agencies, intellectual property protection, and commercialisation. In addition, it provides administrative support for carrying out consultancy and sponsored research projects, particularly in project staff recruitment and related establishment activities, the maintenance of accounts, and funding agencies' compliance such as the issuing of UCs and statements of account, GST, TDS, and the purchase of equipment and consumables.

Some of the major activities of the IC&SR Office are:

- Sponsored research programmes
- Consultancy projects: research-based, retainer, and institutional
- Collaborative projects with organisations and industries in India and foreign countries
- Managing ISRO-IITM Space Technology Cell projects and other cells' projects.
- IP protection (patenting) and technology transfer
- Faculty and student entrepreneurship and incubation
- Faculty research enhancement: new faculty initiation and seed grants, exploratory research, support for sustaining research, Institute Research and Development Award, funding for maintenance of equipment
- Common research facilities: procurement, installation and access to users through IC&SR's Equipment Reservation System (ERS) portal
- Facilitation of international research collaborations
- Centres of Excellence in frontier areas
- Facilitation of industry-institute research interactions
- Outreach: Participation in R&D events; communicating R&D activities through print and social media



6.2.2. IC&SR Golden Jubilee Celebrations

In the year 2022–23, the IC&SR completed 50 years of meritorious service to the Institute and the society at large. As part of its Golden Jubilee celebrations, the IC&SR organised several events and carried out activities during this year.



- ✦ A main event was organised on February 16 2023. The Director, Prof. V Kamakoti, was Chief Guest. Faculty members, former Directors, Deans (IC&SR) and Officers participated in the function and shared their thoughts on the IC&SR's progress and contributions towards advancing the Institute's R&D over 50 years. As part of this event, a panel discussion called 'The Vision of Four' was held, featuring four generations of IIT Madras directors and moderated by Prof. Mahesh Panchagnula, Dean (A&CR).



- ✦ Focused department-wise industry meetings were organised for five departments during Financial Year (FY) 2022–23 to enhance industry interactions with the departments and the Institute. During these meetings, R&D Expos focusing on the departments' R&D activities were also organised.

- ✦ The 2023 IC&SR wall calendar, with details on the history, milestones, and activities of the IC&SR over the last 50 years, was prepared and distributed to all project staff members and department offices.

- ✦ As part of its Golden Jubilee celebrations, the Centre for IC&SR was renamed the 'Office of Industrial Consultancy and Sponsored Research', to reflect the nature of its activities and to differentiate it from other centres of focused research (approved by the Deans' Committee in its 38th meeting, held on December 1, 2022).

6.2.3. Main Functionaries and Officers

| Designation | Name |
|-----------------------------|--|
| Dean (IC&SR) | Prof. Ravindra Gettu (up to June 30, 2022) |
| | Prof. Manu Santhanam (since July 1, 2022) |
| Associate Dean (IC&SR) | Prof. Manu Santhanam (up to June 30, 2022) |
| Deputy Registrar (IC&SR) | Mr. Thangapandian P (since March 3, 2023) |
| Assistant Registrar (IC&SR) | Mr. Vijay Shankar (up to March 10, 2023) |
| Chief Manager (Technical) | Dr. Arumugam V |
| Chief Manager (Admin) | Mr. Chidambaram K |
| Chief Manager (IT) | Mr. Ilayaraja E |
| Chief Manager (F&A) | Mr. Ravi Sadagopan |
| Chief Manager (Legal) | Mr. Bimalendu Sahu |
| Legal Advisor (IPM) | Ms. Sumitha Vibhu |

6.2.4. Research and Innovation Awards Received During the Year

In the academic year 2022-23, IIT Madras received the following awards in recognition of its quality research, innovation, entrepreneurship and technology transfer, among others:



- a) **The National Institutional Ranking Framework (NIRF)** is awarded by the Ministry of Education, Government of India. IIT Madras was placed **first in the Overall Category** of the India Rankings 2022 for the fourth consecutive year (2019 to 2022), **first in the Engineering Category** for the seventh consecutive year (2016 to 2022), and **second in the Research Institution Category**.



- b) **National Intellectual Property Awards 2021 & 2022:** IIT Madras was conferred the National Intellectual Property Awards 2021 and 2022 by the Department of Industrial Policy & Promotion of the Ministry of Commerce & Industry, Government of India, in the category of **Top Indian Academic Institution for Patents Filing, Grant & Commercialization**, recognising their economic significance. The award, consisting of a trophy, a citation, and a cash prize of INR 1 lakh, was presented to Prof. V Kamakoti, Director, IIT Madras by Mr. Piyush Goyal, Hon'ble Union Minister of Commerce and Industry, Consumer Affairs, Food and Public Distribution and Textiles, Government of India at a ceremony held on October 15, 2022 in New Delhi.



- c) **CII Industrial Intellectual Property Awards 2022:** This award was given by the Confederation of Indian Industry (CII) for the Best Patent Portfolio (2017-22). IIT Madras won in the category of academic institutions. This award was bestowed during the 8th International Conference on IPR held virtually on November 18, 2022.

6.2.5. Funds Received for R&D Activities

IIT Madras received funds for sponsored projects, consultancy projects and royalty receipts for technology transfer from various funding agencies, industries, and other organisations. The funds received during Financial Year (FY) 2022-23 are listed below.

| R&D Activity | Number of Projects | Received Amount (in INR lakh) |
|--|--------------------|-------------------------------|
| Sponsored Research Projects | 692 | 44,858.87 |
| Industrial Consultancies | 710 | 13,827.05 |
| Research-based Industrial Projects | 372 | 8,711.98 |
| Corporate Social Responsibility Projects | 80 | 6,618.26 |
| Technology Transfer Projects | 19 | 142.94 |
| Total | 1873 | 74,159.10 |

6.2.6. Sponsored Research

During FY 2022–23, **239** sponsored research projects with a total sanctioned value of **INR 57,764.69 lakh** were sanctioned for the Institute by various government agencies, industries and other organisations from both India and abroad. These projects are being executed by 169 faculty members serving as Principal Investigators (PIs). The details of the sanctioned projects agency-wise (number and sanctioned value) are given below:

6.2.6.1. Sponsored Research Projects Sanctioned During FY 2022–23

| S. No. | Agency Name | No. of Projects | Sanction Value (in INR lakh) |
|--------|---|-----------------|------------------------------|
| 1 | Ministry of Education (Including Institution of Eminence [IoE]) | 19 | 36120.94 |
| 2 | Honeywell and other organisations (Digital Education) | 10 | 4378.72 |
| 3 | Science and Engineering Research Board | 96 | 2900.36 |
| 4 | Department of Science & Technology | 21 | 2747.48 |
| 5 | Ministry of Electronics & Information Technology | 3 | 2054.42 |
| 6 | Ministry of Defence | 1 | 1486 |
| 7 | Karkinos Healthcare Private Limited | 1 | 1230.08 |
| 8 | Ministry of Road Transport and Highways | 1 | 1192 |
| 9 | Ministry of Housing and Urban Affairs | 1 | 958 |
| 10 | Defence Research and Development Organisation | 4 | 940.05 |
| 11 | Google Asia Pacific Pvt. Ltd. & other agencies | 2 | 857.29 |
| 12 | Wellcome Trust | 1 | 361.16 |
| 13 | Indian Space Research Organisation | 8 | 262.23 |
| 14 | Conference (various agencies) | 14 | 248 |
| 15 | Tamil Nadu Health System Reform Program | 1 | 200 |
| 16 | Department of Biotechnology | 2 | 158.56 |
| 17 | Directorate General of Hydrocarbons | 1 | 155.82 |
| 18 | US Army International Technology Center Pacific | 1 | 120.69 |
| 19 | Armament Research Board | 2 | 108.75 |
| 20 | Naval Research Board | 2 | 97.31 |
| 21 | Continuing Education Programmes (varu) | 3 | 96.74 |
| 22 | Ubifly Technologies Private Limited | 1 | 89 |
| 23 | IITM Pravartak Technologies Foundation | 7 | 82.8 |
| 24 | Board of Research in Nuclear Sciences | 2 | 71.18 |
| 25 | Aeronautics Research & Development Board | 1 | 69.46 |
| 26 | IBM Canada Limited | 1 | 63.13 |
| 27 | Asia-Pacific Network for Global Change Research (APN) | 1 | 57.11 |
| 28 | Ministry of Environment, Forest and Climate Change | 1 | 50 |
| 29 | Technology and Action for Rural Advancement | 1 | 47.23 |
| 30 | Intuitive Surgical Operations, Inc. | 1 | 44.46 |
| 31 | Institute for Development & Research in Banking Technology | 1 | 42.06 |
| 32 | Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy | 1 | 41.49 |
| 33 | All India Council for Technical Education | 1 | 37.5 |
| 34 | Kerala Highway Research Institute | 1 | 37.1 |
| 35 | Indo-US Science & Technology Forum | 1 | 37.09 |
| 36 | Ministry of Earth Sciences | 1 | 35.21 |
| 37 | Indian Council of Medical Research | 4 | 31.49 |
| 38 | University at Buffalo | 1 | 29.14 |

| S. No. | Agency Name | No. of Projects | Sanction Value (in INR lakh) |
|--------|--|-----------------|------------------------------|
| 39 | Indo-French Centre for the Promotion of Advanced Research | 1 | 28.06 |
| 40 | Department of Foreign Affairs and Trade, Australia | 1 | 27.69 |
| 41 | Ashok Leyland Limited | 1 | 25 |
| 42 | Technology Innovation Hub on Autonomous Navigation Foundation, IIT Hyderabad | 1 | 24.86 |
| 43 | Intel Corporation, US | 1 | 23.79 |
| 44 | ExxonMobil Upstream Research Company, US | 1 | 22.21 |
| 45 | Khadi and Village Industries Commission | 1 | 15 |
| 46 | National Commission for Women | 1 | 9.83 |
| 47 | Technology Information Forecasting and Assessment Council | 1 | 9.6 |
| 48 | Directorate of Public Health and Preventive Medicine | 1 | 9.34 |
| 49 | Australian Consulate General | 1 | 8.77 |
| 50 | Dr. Reddy's Laboratories Limited | 2 | 5 |
| 51 | Indian Institute of Management Bangalore | 1 | 5 |
| 52 | Department of Atomic Energy | 1 | 3.98 |
| 53 | Microsoft Research | 1 | 2.6 |
| 54 | University of Zurich | 1 | 2 |
| 55 | British Council, UK | 1 | 1.92 |
| | Grand Total | 239 | 57,764.70 |

During FY 2022-23, 640 sponsored projects were ongoing in the Institute, out of which 239 were initiated during this year.

6.2.6.2. Major Research Centres/Projects Initiated

- **DRDO Industry Academia-Ramanujan Centre of Excellence (DIA-RCoE):** The erstwhile Research and Innovation Centre of the Defence Research and Development Organization (DRDO), which was set up at the IIT Madras Research Park in 2010, has been re-christened as the DRDO Industry Academia-Ramanujan Centre of Excellence (DIA-RCoE), based on the long-term directed research policy of the Defence Ministry. The MoU in this regard was signed between IIT Madras and DRDO on May 23, 2022, for a period of 25 years. The DIA-RCoE is operated as a Centre of Excellence (CoE) Project under the Dean (IC&SR). The DIA-RCoE will facilitate and undertake multidisciplinary, directed basic and applied research in the following research verticals: Electronics, Micro Electronics and Computational Systems (EMECS); Naval Systems and Naval Technologies (NSNT); and Advanced Combat Vehicle Technologies (ACVT), as well as other areas mutually agreed upon for defence and security needs. A number of projects are being funded through this Centre.
- The Ministry of Defence sanctioned a project titled '**Signal Analysis Problems**' with a sanction value of INR 14.86 crore for a period of five years, starting from December 2022. This project aims to carry out research on signal intelligence problems.
- The Ministry of Electronics & Information Technology sanctioned a project titled '**6G: Sub-THz Wireless communication with Intelligent Reflecting Surfaces**' with a sanction value of INR 14.30 crore for a period of three years, starting from November 2022. This project aims to develop next-generation technologies for 6G applications at higher mmWave and sub-THz bands towards the realisation of denied technologies under Aatmanirbhar Bharat.
- Karkinos Healthcare Private Limited funded INR 12.30 crore for a period of three years to establish a **national centre for precision medicine in cancer** at IIT Madras, to serve as a hub with spokes at multiple locations. This centre would carry out research in the area of cancer tissue bio-banking and identification of the comprehensive genomic landscape of cancers that are prevalent in the Indian population, among others.
- The Ministry of Road Transport and Highways sanctioned a project titled '**Structural Health Monitoring and Assessment of Concrete Bridge Girders**' with a sanction value of INR 11.92 crore for a period of three years, starting from March 2023. This project aims to set up a pilot test facility for full-scale testing of bridge girders.
- The Ministry of Housing and Urban Affairs sanctioned a project titled '**Affordable Sustainable Housing Accelerator—India (ASHA-India)**' with a sanction value of INR 9.58 crore for a period of two years, starting from March 2023. This project aims to develop 3D volumetric precast construction technology and concrete 3D printing technology for mass housing in the country.

6.2.7. Consultancy Programmes

In 2022-23, **696** consultancy assignments with the sanctioned value of **INR 56,695.67 lakh** were initiated by the faculty members in the institute. The details of the various types of assignments undertaken are given below.

| Type of Consultancy | Number of Projects | Sanctioned Value (in INR lakh) |
|---|--------------------|--------------------------------|
| Corporate Social Responsibility | 46 | 8,362.47 |
| Institutional Consultancy | 423 | 12,936.00 |
| Research-based Industrial Project | 169 | 23,863.05 |
| Retainer Consultancy | 31 | 425.26 |
| Internal Testing | 14 | 70 |
| External Testing | 13 | 65 |
| Additional funds sanctioned during 2022-23 for the previously funded projects | | 10,973.89 |
| Total | 696 | 56,695.67 |

About **230 faculty** members were actively involved in executing consultancy projects. The total number of ongoing consultancy projects are 971, out of which 696 were initiated during FY 2022-23.

6.2.8. Corporate Social Responsibility

Projects were undertaken in various research areas under the ambit of Corporate Social Responsibility (CSR) activities, as defined in Schedule VII of the Companies Act 2013. In FY 2022-23, **46** such projects were undertaken with a total value of **INR 8,362.47 lakh**. The summary of the CSR projects undertaken is given below.

| Type of Consultancy | Number of Projects | Value (in INR lakh) |
|--|--------------------|---------------------|
| Corporate Social Responsibility | 46 | 8,362.47 |
| CSR additional funds (additional funds sanctioned in 2022-23 for previously funded CSR projects) | | 3,325.59 |
| Total | | 11,688.06 |

6.2.9. New Faculty Initiation Grant/Scheme

The IC&SR Office provides funds up to a maximum of INR 5 lakh for new faculty members to initiate research in their areas of specialisation at IIT Madras. This funding also helps them to prepare proposals for and apply for sponsored projects for external research grants and establish their research activities at IIT Madras. This scheme is operated as a project by the IC&SR Office. During 2022-23, 30 new faculty members were funded under this scheme. Out of this, six faculty members were funded by the TT Jagannathan Endowment Fund, and four faculty members were funded by the AMM Arunachalam Endowment Fund. The Batch of 1993 Alumni Fund and the Alumni Fund for New Research and Academic Activity (NFIG) funded one faculty member each, and the other 18 faculty members were funded by IC&SR Research Funds.

6.2.10. New Faculty Seed Grant/Scheme

In some cases, particularly for those setting up experimental facilities to work on new or unproven research areas, new faculty members were given a larger seed grant of INR 25-28 lakh. In the exceptional cases of proposals requiring special equipment, the Institute supports the project with amounts of up to INR 50 lakh, on a case-by-case basis. In 2022-23, eight faculty members were funded under the New Faculty Seed Grant Scheme, with a total sanctioned value of INR 288.90 lakh.

6.2.11. Industrial Associateship Scheme

The Industrial Associateship Scheme facilitates industries' access to the Institute's Central Library resources with a nominal annual payment. It also provides an opportunity for industries to interact with faculty members for their R&D requirements. 54 companies (12 large-scale, 30 medium-scale and 12 small-scale) took memberships under this scheme during the calendar year 2022.

6.2.12. Other Programmes

6.2.12.1. ISRO–IITM Space Technology Cell Joint Projects

Under this association, the Indian Space Research Organisation (ISRO) has continued to fund IIT Madras research projects that are of interest to ISRO since 1986. In 2022–23, seven new projects with a sanctioned value of INR 239.40 lakh were funded. In total, there are 18 ongoing projects with a value of INR 563.81 lakh under the programme.

6.2.12.2. IGCAR–IITM Cell

In 2022–23, one new project with a sanctioned value of INR 48.85 lakh was initiated under the programme. At present, five projects are ongoing, with a total value of INR 218.49 lakh.

6.2.12.3. Technologies for Social Development

IIT Madras has ongoing projects for the development and transfer of technologies that are of immediate relevance to society. These activities are undertaken through the following three schemes:

1. Socially Relevant Projects

The following five socially relevant projects were initiated during this year. A write-up on the activities of these projects are given in Annexure 1.

| Title of the Project | PI Name (Prof.) & Affiliation |
|--|--|
| Construction and Demolition (C&D) Waste Management and the Role of the Informal Unorganized Sector in India: Case of New Delhi | Nikhil Bugalia, Civil Engineering |
| Community Screening of “Kasimedu Fisher Women” for Cervical Cancer using a Self-sampling Kit and an Indigenous Innovative Detection Device | Rayala Suresh Kumar, Biotechnology |
| Tracking Beehive Health Using IoT Technology | Madhu Mutyam, Computer Science Engineering |
| Farmer-friendly, Point-of-use, Portable Heavy Metal Sensors with Cell Phone Interface: A New Technical Aid for the Agricultural Sector | Sreeram K. Kalpathy, Metallurgical and Materials Engineering |
| She-ViL STEM: An initiative by IViL-IIT for Villages | Pijush Ghosh, Applied Mechanics |

2. Rural Technology Action Group (RuTAG)

A write-up on the activities of RuTAG is given in Annexure 2.

3. Centre for Social Innovation & Entrepreneurship (CSIE)

A write-up on the activities of the CSIE is given in Annexure 3.

6.2.13. Distinguished Visitors to IC&SR

Delegations from many organisations visited IIT Madras for discussions on possible collaborative research work. In addition, during the year, some organisations held virtual meetings for research collaborations. A few such organisations are listed below:

- AttainX, US
- Aditya Birla group
- Archean Chemical Industries Ltd.
- CeraTattva InnoTech Pvt. Ltd.
- Chennai Metro Rail Ltd.
- Cyber Security Works Pvt. Ltd.
- L&T Constructions Pvt. Ltd.
- NeoMotion Assistive Solutions Pvt. Ltd.
- Planys Technologies
- RICOVR Healthcare Inc.
- Solinas Integrity Pvt. Ltd.
- SynkroMax Biotech Pvt. Ltd.
- Tata Consultancy Services
- XYMA Analytics Pvt. Ltd.

6.2.14. MoUs/Agreements Signed

In 2022-23, 558 MoUs/agreements for research collaborations were signed by IIT Madras with industries and other organisations from India and abroad. The names of some of these organisations are given below:

- Aditya Birla Chemicals Thailand Ltd.
- Advanced Veterinary Care Foundation
- Advancelyte Inc.
- Aeromarine Pvt. Ltd.
- Aeroastrovilos Energy Pvt. Ltd.
- AIIMS Jodhpur
- Air India
- Airbus Group India Pvt. Ltd.
- Amazon Seller Services Pvt. Ltd.
- Analog Devices, Inc.
- Andhra Pradesh Maritime Infrastructure Development Corporation Ltd.
- Apollo Hospitals
- Apollo Tyres Ltd.
- Apple Inc.
- Applied Materials Inc.
- Archaeological Survey of India, Government of India
- Archean Chemical Industries Ltd.
- Ashok Leyland Ltd.
- Ather Energy Pvt Ltd.
- Bharat Dynamics Ltd.
- Bharat Electronics Ltd.
- Bharat Forge Ltd.
- BMW Steel Ltd.
- Bombinate Technologies Pvt. Ltd.
- Central Power Research Institute
- Cochin Shipyard Ltd.
- Cognizant Foundation
- Cummins Technologies India Pvt. Ltd.
- Directorate General of Hydrocarbons (DGH)
- Duke University
- Eaton India Innovation Center LLP
- Engineers India Ltd.
- Everest Industries Ltd.
- Fabheads Automation Pvt. Ltd.
- Fertis India Pvt Ltd
- Financial University under the Government of Russia Federation
- GAIL India Ltd
- GE India Industrial Pvt. Ltd.
- Goldman Sachs Services Pvt. Ltd.
- Government of Mizoram
- Govt. of Jharkhand (Department of Transport)
- Gujarat Themis Biosyn Ltd.
- Hamiltonian Systems Inc.
- High Speed Railways Innovation Centre
- Hindalco Industries Ltd
- Hindustan Petroleum Corporation Ltd
- Hindustan Unilever Ltd
- Honeywell Technology Solutions Lab Pvt. Ltd.
- HTIC: Healthcare Technology Innovation Centre
- IBM Canada Ltd
- IBM India Pvt. Ltd.
- ICICI Home Finance Co Ltd.
- Intel Corporation
- Karkinos Healthcare Pvt. Ltd.
- Karnataka State Pollution Control Board
- Kerala State Pollution Control Board
- Kirloskar Pneumatic Control Pvt. Ltd.
- Kothari Sugars and Chemicals Ltd.
- L&T Technology Services Ltd.
- Larsen & Toubro Ltd.
- Lucas TVS Ltd.
- Mahindra & Mahindra Ltd.
- National Institute of Ocean Technology
- NOCIL Ltd.
- North Street Cooling Towers (P) Ltd.
- Oil and Natural Gas Corporation Ltd.
- Ola Electric Technologies Pvt. Ltd.
- Paterson Energy Pvt. Ltd.
- Pentair Water India Pvt. Ltd.
- Persistent Systems Ltd
- Pfizer Healthcare India Pvt. Ltd.
- Phoenix Medical Systems Pvt. Ltd.
- Purdue University
- Quanfluence Pvt. Ltd.
- Quantum Copper Inc.
- Reliance Industries Ltd.
- Reynolds Pens India Pvt. Ltd.
- Saint Gobain Research India Ltd.
- SFO Technologies Pvt. Ltd.
- Shell India Markets Pvt. Ltd.
- Singapore University of Technology and Design
- Solara Active Pharma Ltd.
- SONA BLW Precision Forgings Ltd.
- Sony Semiconductor Solutions Corporation
- State Bank of India
- Steel Authority of India Ltd.
- Sterlite Technologies Ltd.
- Stryker Global Technology Center Pvt. Ltd..
- Sun Pharmaceutical Industries Ltd.
- Symtotal Software Pvt. Ltd.
- Tata Communications Ltd.
- Tata Consultancy Services
- Tata Elxsi Ltd.
- Tata Steel Ltd.
- Technical University of Denmark
- ThermoFisher Scientific India Pvt. Ltd.
- Titan Company Ltd.
- Toray Industries Inc.
- Tractebel Engineering Pvt. Ltd.
- Ultra Tech Cement Ltd.
- Unilever Industries Ltd.
- University of Bath
- Usha Martin Ltd.
- Vedanta Ltd.
- Voltas Ltd.
- Wipro GE Healthcare Pvt. Ltd.
- Wockhardt Ltd.
- XYMA Analytics Pvt. Ltd.
- Yokogawa Technology Solutions India Pvt. Ltd.
- Zasti Inc.

6.2.15. Patents Filed and Granted

6.2.15.1. IP Applications Filed

As in the previous years, many intellectual property (IP) applications were filed by the Institute in 2022-23 in the areas of science, engineering, and technology. Details of these applications are given in the table opposite:

| Category | No. of IP Applications Filed |
|---|------------------------------|
| Indian patent applications filed | 163 |
| Indian copyright, trademark and design applications filed | 9 |
| PCT and international patent applications filed | 69 |
| Total applications filed | 241 |

6.2.15.2. Patents Granted

196 patents were granted to the institute during FY 2022-23 for applications previously filed, and details are given opposite:

| Category | No. of Patents Granted |
|-------------------------------|------------------------|
| Indian patents granted | 175 |
| International patents granted | 21 |

6.2.15.3. Patent Applications Published

Details of the patent applications published during FY 2022-23 for Institute patent filing are given opposite:

| Category | No. of Patent Applications Published |
|-----------------------------------|--------------------------------------|
| Indian patent applications | 159 |
| International patent applications | 45 |

A brief write-up on IP filing, maintenance and technology commercialisation, and related activities is given in Annexure 4.

6.2.16. Technology Transfer/Royalty

Many technologies/IPs are developed in the Institute and transferred to the industry and other organisations. In 2022-23, INR 1.43 crore was received towards technology transfer fees and royalties. A list of some organisations from whom funds were received is given below.

- Archean Chemical Industries Ltd.
- CeraTattva InnoTech Pvt. Ltd.
- Chennai Metro Rail Ltd.
- Cyber Security Works Pvt. Ltd.
- Detect Technologies Pvt. Ltd.
- Hydromaterials Pvt. Ltd.
- Indian Institute of Information Technology, Design and Manufacturing, Kurnool
- ISMO Bio-Photonics Pvt. Ltd.
- Kineshia Robotics Pvt. Ltd.
- Micromatic Grinding Technologies Ltd.
- NeoMotion Assistive Solutions Pvt. Ltd.
- Neurosynaptic Communications Pvt. Ltd.
- Phoenix Medical Systems Pvt. Ltd.
- Planys Technologies
- RICOVR Healthcare Inc.
- Solinas Integrity Pvt. Ltd.
- SynkroMax Biotech Pvt. Ltd.
- Tata Consultancy Services
- Vortex Engineering Pvt. Ltd.
- XYMA Analytics Pvt. Ltd.

6.2.17. Research Fund

To promote research activities at IIT Madras, the Board of IC&SR decided to use its corpus to support several new initiatives. A part of the IC&SR Office's earnings from consultancy projects was invested in term deposits, and the interest earned through them was used to support various schemes such as Exploratory Research Projects (ERP), New Faculty Initiation Grant (NFIG), Research & Development (R&D) Awards and the Intellectual Property (IP) Cell activities. From an initial amount of **INR 50 crore**, the corpus has been increased to **INR 120 crore**.

The broad allocation for expenses for this financial year is as given below:

- a. R&D Award:** The IC&SR Office provides 50% of the award money to all the awardees of Institute Research & Development Awards from its Research Fund. A total of **INR 82.5 lakh** was provided to five awardees.
- b. Exploratory Research Projects:** This initiative supports projects from faculty members who have a breakthrough idea and wish to initiate work without waiting for their proposal to be sanctioned by a funding agency. Under this scheme, a maximum of **INR 10 lakh is given for a period of 12 months. 33 projects** were sanctioned during FY 2022-23, with the total value of **INR 321.18 lakh**.
- c. New Faculty Initiation Grant:** This is a start-up grant given to new faculty members, with a maximum funding of **INR 5 lakh**. National and international travel is permitted for new faculty members under this scheme. During FY 2022-23, 18 faculty were funded through the Research Fund and 12 other faculty were funded through various alumni donations.
- d. IP Cell's Patenting and Commercialisation Activities:** A maximum amount of **INR 50 lakh** is earmarked per year.
- e. Maintenance of Capital Equipment and Operation of Research Facilities:** Under the Research Funds for Maintenance of Equipment scheme (RFME), the IC&SR Office supports the maintenance and operations expenses of major research equipment and facilities (costing INR 30 lakh & above). The support is only for annual maintenance charges, hiring a technical person, and consumables (in special cases, 50%) for maintaining and operating select research facilities (for 1 year) that can be made available to faculty and students of the Institute (other than their home department) for at least four hours per day or 20 hours per week. Budget support is normally for a maximum of INR 8 lakh per faculty. To avail funds under this scheme, the equipment booking should be enabled through the Institute's Equipment Reservation System (ERS) portal of the Institute, i.e. <https://ers.iitm.ac.in/webroot/home.php>, for all internal users. During FY 2022-23, a total amount of **INR 121.89 lakh** was sanctioned for 25 equipment facilities under the RFME scheme.

6.2.18. Augmenting Research Infrastructure

The Institute continues to augment research infrastructure by procuring high-end research equipment and facilities through Institution of Eminence (IoE) funds and IC&SR research funds.

6.2.18.1. Common Instrument Facility: Phase I

Through its research funds, the IC&SR Office established the Common Instrument Facility: Phase I, with the following six instruments, at Room 118 of the New Academic Complex (NAC) building in 2020, providing access to all users through the ERS portal. This equipment is used by researchers, who need to pay nominal charges from their Project Accounts for usage.

- Atomic Force Microscopy (AFM)
- Differential Scanning Calorimetry (DSC)
- Scanning Electron Microscopy with EDAX (SEM)
- Thermogravimetric Differential Thermal Analyser (TG-DTA)
- X-ray Diffraction (Powder) System (XRD)
- X-ray Fluorescence System (XRF)

6.2.18.2. Common Instrument Facility: Phase II

During FY 2022-23, the Institute sanctioned funds from Institution of Eminence (IoE) grants to procure the following nine pieces of equipment. The procurement process was initiated during this year. This equipment is to be procured and placed in Phase II of the Common Instrument Facility, which will be open to all users through the ERS portal for a nominal charge.

- High-resolution Transmission Electron Microscopy (HR-TEM) (200kV) with STEM, EDS, CCD & EELS
- X-ray Photoelectron Spectrometer (XPS) with ultraviolet photoelectron spectroscopy (UPS)
- Powder X-ray Diffractometer (P-XRD)
- Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)
- Micro-Raman/Photoluminescence Spectrometer (RAMAN)
- High-resolution FT-NMR Spectrometer -400 MHz (NMR-400MHz)
- Ultra-high-resolution Electron Beam Lithography System (EBL)
- Variable Pressure high-resolution Scanning Electron Microscope (VPSEM) with energy-dispersive spectroscopy for the study of conducting, non-conducting and biological samples
- High-resolution Field Emission Scanning Electron Microscope (FESEM) with in-situ tension-compression testing attachment (FESEM)

In addition, the instruments under the Central Electron Microscopy Facility have now been brought under the ambit of the Common Instrument Facility with effect from April 1, 2023, and thus will be managed and maintained by the IC&SR Office.

6.2.18.3. Procurement and Operations Policy of Common Instruments Facilities

The Procurement and Operations Policy of the Common Instruments Facilities (CIFs) was approved by the Board of IC&SR in its 151st meeting, held on March 24, 2023. This policy details procedures for appointing the Convenor, forming a Facility Management (user) Committee for each CIF, and providing access to all users through the ERS portal, among others.

6.2.19. Outreach Programmes

The Institute continues to disseminate information on research undertaken, technology developed, and academic activity to all the stakeholders, alumni, public, industry and other organisations through participation in R&D expos, organising industry meetings, and communication through print and social media. Brief details on these activities are given below:

6.2.19.1. Participation in InvenTiv 2022

InvenTiv 2022, an all-IIT R&D fair, was organised under the guidance of the Ministry of Education with the Honourable Union Minister of Education, Skill Development and Entrepreneurship, Shri Dharmendra Pradhan as Patron-in-chief. The expo was hosted by IIT Delhi, New Delhi, during October 14-15, 2022. IIT Madras and other 22 IITs participated in this event and showcased technology developed in select areas such as manufacturing (including smart, advanced and Industry 4.0); defence & aerospace; health-care (including devices and digital health); clean energy & renewables; AI/ML/blockchain technologies (including



quantum computing); environment & sustainability (including air, water and rivers); communication technology (including education and 5G); flexible electronics & nanotechnology; robotics, sensors & actuators, and semiconductors; and smart cities & infrastructure (including smart mobility). Research carried out in the fields of drones, indigenous 5G network solutions, and socially relevant technologies was also showcased.

About 350 delegates from industries, government agencies, academia, students, and media participated in the event. Prototypes were demonstrated and presentations were made on the technology showcased. The following technology developments at IIT Madras were showcased in the event.

| S. No. | Name of the Project/Technology Showcased | PIs/Inventors (Prof.) |
|--------|---|--|
| 1 | Plasmonic fibreoptic absorbance biosensor for low-cost and ultrasensitive tuberculosis diagnosis | VV Raghavendra Sai, Applied Mechanics & Vani Janakiraman, Biotechnology |
| 2 | Sustainable production of plant-derived anti-cancer drug lead Camptothecin via microbial fermentation route | Smita Srivastava, Biotechnology |
| 3 | SHAKTI class of RISC-V processors | V Kamakoti, Computer Science Engineering |
| 4 | ARTSENS®: Early vascular ageing health assessment through imageless ultrasound | Mohanasankar Sivaprakasam, Electrical Engineering & Jayaraj Joseph, Electrical Engineering |
| 5 | Indigenous 5G/5Gi network solution | Radha Krishna Ganti, Electrical Engineering & Bhaskar Ramamurthi, Electrical Engineering |
| 6 | Development of high performance chemically bonded superabrasive tools for immediate industrial applications | Amitava Ghosh, Mechanical Engineering |
| 7 | NeoBolt (motorized add-on that converts the NeoFly wheelchair into a road-worthy vehicle) | Sujatha Srinivasan, Mechanical Engineering & Manish Anand, Mechanical Engineering |

6.2.19.2. Department-Industry Meetings & R&D Expo

As part of our Golden Jubilee celebrations, the IC&SR Office facilitated department-industry meetings & R&D expos to enhance Institute-industry research collaborations. During FY 2022-23, the following five department-wise industry meetings were organised and attended by a good number of industry persons:

| Department Name | Event Name | Main Event Date |
|---------------------------------------|---|------------------|
| Dept. of Biotechnology | Bio Expressions 2022 | November 3, 2022 |
| Dept. of Humanities & Social Sciences | Social Expressions 2023 | January 17, 2023 |
| Dept. of Mathematics | Industry Meets Math 2023 | January 18, 2023 |
| Dept. of Aerospace Engineering | Aerospace and Defence Industries Summit for Advancing Key Technological Innovations (ADISAKTI) 2023 | March 13, 2023 |
| Dept. of Ocean Engineering | Industry meets Ocean 2023 | March 16, 2023 |

Bio Expressions 2022



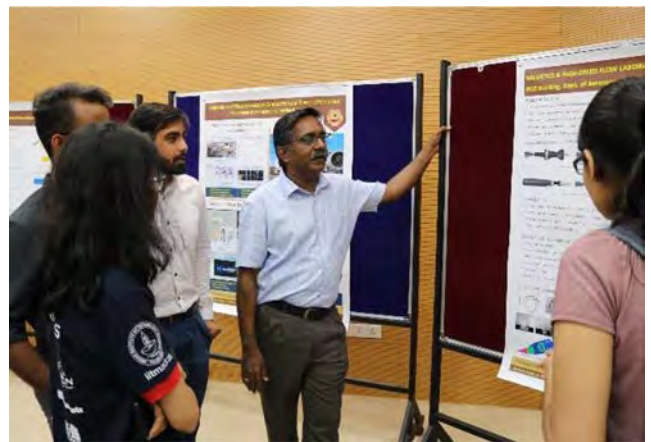
Social Expressions 2022



Industry Meets Math 2022



ADISAKTI 2022



Industry Meets Ocean 2022



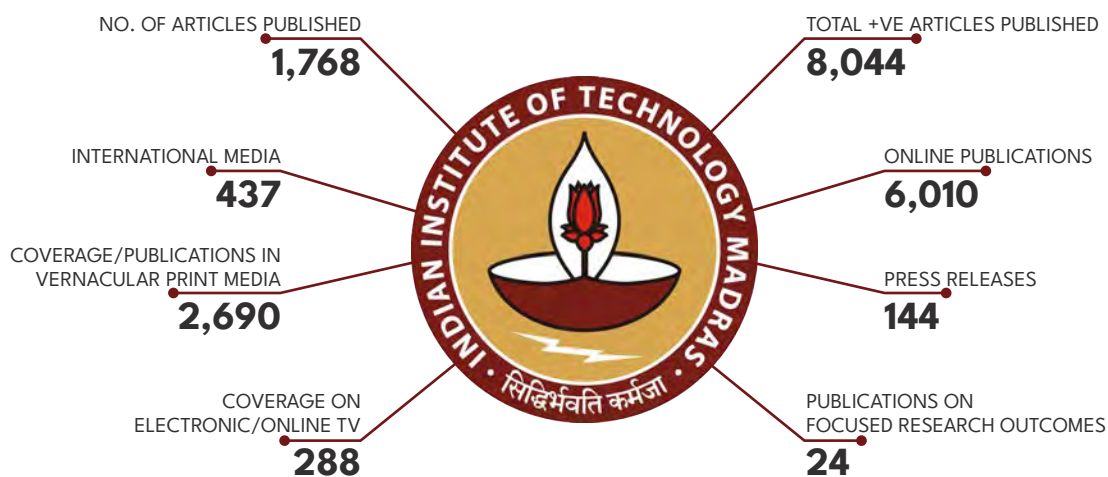
6.2.20. Social Media & Positive Messaging

The IIT Madras Facebook page has over 1,02,68,466 accounts' reach and is extremely well updated, with a response time of just a few hours and active engagement of over 2.45%. IIT Madras' tweets have an average of 40 million impressions every month. The Institute has note-worthy LinkedIn impressions of 19.50 million. IIT Madras is also ahead of the curve in our presence across other social media platforms like Instagram and YouTube. Our social media posts concentrate more on short-form videos that involve as many IIT Madras stakeholders (faculty and students) as possible. FY 2022-23's statistics are given below:

| Twitter | | | | | |
|-------------|--------------------|-------------------|-----------------|-------------|-------------|
| Impressions | Engagements | Engagement Rate | Retweets | Replies | Likes |
| 4,094,594 | 219,254 | 5.08% | 9,002 | 1,580 | 46,768 |
| LinkedIn | | | | | |
| Impressions | Clicks | Engagement Rate | Comments | Reposts | Reactions |
| 19,500,463 | 752,576 | 5.37% | 5,034 | 5,662 | 318,679 |
| Facebook | | | | | |
| Impressions | Reach | Likes & Reactions | Comments | Shares | Link Clicks |
| 12,504,789 | 10,268,466 | 174,713 | 4,650 | 6,362 | 65,413 |
| Instagram | | | | | |
| Impressions | Reach | Engagement Rate | Engagements | Video Views | Followers |
| 5,984,772 | 4,987,310 | 8.75% | 523,776 | 553,863 | 9,791 |
| YouTube | | | | | |
| Views | Watch Time (hours) | Impressions | Impressions CTR | Subscribers | |
| 738,100 | 24,888 | 11,037,892 | 4.30% | 12,765 | |

Print Media

IIT Madras continues to disseminate information about its academic and research activities to the public through print media. The publication statistics for FY 2022-23 are given below:



6.2.21. Other Initiatives

- Launch of the IC&SR Office's Golden Jubilee web portal
- New websites for ICS&R Internal, IC&SR External, Intellectual Property Management (IPM) and DIA-RCoE
- Renovation of IC&SR Hall 2 into a state-of-the-art facility
- Enhancement of our project information software, TULA, has been enhanced for various change requests, to improve the overall process flow
- Launch of mobile app for ICSRPIS portal

6.2.22. No. of Project Staff Employed

About 2800 project staff, as on 31st March 2023, were involved in carrying out project activities and administration.

Annexure 1

Report on Socially Relevant Projects (SRPs)

Project 1

SRP Project Name:

Construction and Demolition (C&D) Waste Management and the Role of the Informal Unorganized Sector in India: Case of New Delhi

Name of the Professor:

Nikhil Bugalia
Assistant Professor, Department of Civil Engineering

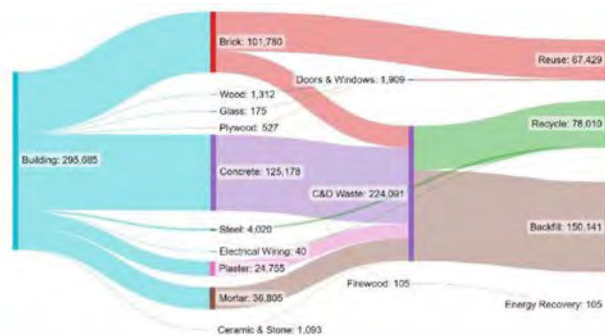
Objectives of the Project:

- Identifying early-stage demolition projects in different parts of the city and documenting their waste flows through different project stages
- Identifying the various stakeholders involved in the identified projects and understanding their roles in an informal/formal C&D waste management system through interviews
- Business model suggestions for recycling plants to integrate the informal sector with the formal sector through qualitative and quantitative analyses of the information obtained

Impact on Society/Beneficiaries:

The funds from SRP allowed us to undertake two in-depth case studies of building demolitions (from inception to completion of demolition) and track the secondary waste materials in the city of Delhi. The results and findings from these studies are being consolidated in the form of two research papers. Our results indicate significant environmental and economic benefits contributed by the informal sectors as they engage in demolition, salvaging several materials otherwise considered waste, and adding value to the formal recycling process through their selective demolition practices. However, despite their contribution, the ‘informal’ nature of their work makes them susceptible to several safety issues. The findings from our study have been shared in several policy dialogues on the topic in India, have received awards, and will help develop concrete policy recommendations to recognize the otherwise neglected set of workers.

In addition, the funds from the study helped an LLP called Malba Project gain valuable information about the realities of the fragmented supply chain of C&D waste in India. The project funds also helped them gain visibility across several national forums and gather networking opportunities with key stakeholders in India. Based on the information obtained, Malba Project has now analysed a business model and launched a C&D waste collection service in India for the city of New Delhi. Their venture has successfully transported 1 million kg or 1100 tonnes of C&D waste to recycling, creating employment opportunities for 30 informal C&D waste haulers. Recognizing the safety issues facing the informal C&D waste haulers, Team Malba is striving to provide improved quality of life for their staff.



Process photos of deconstruction, material preparation and transportation

Operationalisation



Project 2

SRP Project Name:

Community Screening of Kasimedu Fish-erwomen for Cervical Cancer using a Self-sampling Kit and an Indigenous Innovative Detection Device

Name of the Professor:

Dr. Rayala Suresh Kumar
Professor, Department of Biotechnology

Objectives of the Project:

- Community screening of cervical cancer in Kasimedu fisherwomen
- Training the women to use a self-sampling kit.
- Detection of high-risk human papillomavirus (hrHPV) using an indigenous detection device developed at IIT Madras
- Use of mobile screening camps and delivering a read-out result within 1 hour of sample collection.
- Co-relation of the above results with a high-end platform: Cobas 4800 (Roche)

Project 3

SRP Project Name:

Tracking Beehive Health Using IoT Technology

Name of the Professor:

Dr. Madhu Mutyam
Professor, Department of CSE, IITM

Objectives of the Project:

- To build an IoT-based tracking system to monitor the health of a beehive.
- With the help of IoT-based tracking, we would like to minimise manual inspection of beehives so that beekeepers can handle a larger number of beehives at the same time, which can improve their income level.

Impact on Society/Beneficiaries:

- Phase-1 of the project involves the design and development of the beehive monitoring system. We successfully developed a prototype of the monitoring device, which can collect real-time data on temperature, sound, air pollution, and video feed.
- The cloud data collection is done using a standard third-party API at a maximum frequency of every 30 seconds. The Raspberry Pi is connected to the cellular network through a GSM module, which allows it to update the data in the server. An in-house server for data collection is currently being worked on and can be modularly integrated with the rest of the system.
- In the next phase, we will deploy and test the device in a real-world setting to collect data.

Project 4

SRP Project Name:

Farmer-friendly, Point-of-use, Portable Heavy Metal Sensors with Cell Phone Interface: A new technical aid for the agricultural sector

Name of the Professor:

Dr. Sreeram K Kalpathy
Associate Professor, Department of Metallurgical and Materials Engineering

Objectives of the Project:

- Enabling farmers to assess soil quality indexes, allowing them to make decisions about managing soil and agriculture.
- Developing a portable device technology for heavy metal detection in soil and water, that would provide a route for a new-tech-enabling business.
- Wider access to local soil data, which would enable governments and farmer cooperatives to make timely interventions for crop sowing.

Summary of Achievements Under this Project

- Developed detection capabilities for copper, zinc, lead and cadmium in the millimolar to micromolar concentration range, and sub-micromolar concentrations for mercury.
- The protocol for soil-washing with specific chemical reagents for the detection of specific metals has been finalised.
- Current ongoing research is focused on achieving higher resolution detection capabilities for copper, lead and cadmium (in parts per million (ppm) levels), as well as achieving selective detection of specific metals.
- Testing of real soil/water samples to validate our concept is currently ongoing. On a related note, we have also analysed water quality and heavy metal presence in water samples collected from several temple tanks in Rameswaram, Tamil Nadu. We have characterised the heavy metal presences in these water samples using the inductively coupled plasma atomic emission spectroscopy (ICP-OES) facility at IIT Madras's Sophisticated Analytical Instrument Facility (SAIF), and used these results to benchmark with our novel method of heavy metal detection.

Impact on Society/Beneficiaries:

The project is aimed at helping farmers and agricultural cooperatives to decide on soil quality by measuring soil salinity and heavy metal presence, so that they can sow crops in the right locations and maximise crop yields. A soil quality test kit based on a simple operational procedure as a point-of-use tool is being devised. The proposed device will offer a readout of the total Heavy Transition Metal (HTM) content in a given soil/water sample in a quantitative manner.

This technology would reduce reliance on sophisticated scientific laboratories, which usually result in delays and higher expenses that farmers would find prohibitive. Overall, by adopting better technology and infrastructure to prevent cultivation disasters like poor yield due to contaminated soil, we are identifying solutions to assist in reducing economic gaps between the agricultural and industrial communities.



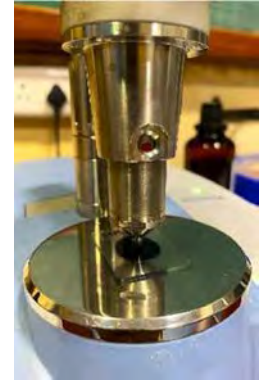
(a) Developing polymer strips as heavy metal sensors



(b) Collection of water samples from Rameswaram, Tamil Nadu for heavy metal analysis



(c) Immersion of the strip into water containing heavy metals



(d) Spectroscopic analysis of the strip for heavy metal detection

Project 5

SRP Project Name:

She-ViL STEM: An initiative by IViL-IIT for Villages

Name of the Professor:

Pijush Ghosh

Professor, Department of Applied Mechanics

Objectives of the Project:

- The objective of the She-ViL STEM programme is to bridge the gender gap in the STEM fields by motivating girl students in their formative phases of formal education to pursue a career or higher studies in STEM-related fields.
- Our target group includes girl students in rural areas studying in classes 8-9.
- This model can be scaled up so that other institutions can adopt it for the benefit of the society.

Summary of Achievements Under this Project:

- We have conducted
 - Winter Session (February 3-5, 2023)
 - Follow-up Visit (March 12, 2023)
- We have also planned to conduct a Summer Session from April 1-9, 2023.



Annexure 2

Rural Technology Action Group, IIT Madras

This annexure covers RuTAG's major activities during the year 2022-2023.

Project-Related Activities

1. Master Plan for the Kerala Khadi and Village Industries Board

The Kerala Khadi and Village Industries Board (KKVIB) had requested RuTAG's support in facilitating the working of a master plan for KKVIB's workings for the next 10 years. In this connection, RuTAG submitted a joint proposal with Prof. Arun Kumar, Prof. Saji Mathew, and Prof. Prakash Sai from the Department of Management Studies, IIT Madras. The final report was handed over to Mr. Rajeev, the Hon. Minister of Industries, Kerala, and Chairperson of KKVIB. RuTAG is also in discussions with KKVIB regarding the upgradation of spinning machinery.



2. Project with Khadi and Village Industries Commission

RuTAG has initiated the dissemination project 'Electronic Jacquard Handlooms for Weaving Fine Korai Grass Mats' under funding support from the Khadi and Village Industries Commission (KVIC). The project is being implemented in the KVIC Multi Disciplinary Training Centre, Nadathara, Thrissur.



3. Collaboration with Webel Technology, West Bengal

Webel Technology Limited, Govt. of West Bengal had approached RuTAG, for technology support relating to natural fibres, further to which a meeting with IIT Madras faculty was scheduled. Dr. Lakshminath, Prof. Susy Varughese, Dr. Sandipan Bandyopadhyay, and Dr. Abhijit Deshpande were present. The following problem statements were presented from their end:

- Thin fibre production machine for madurkathi, sitalpati, bamboo, and areca fibres
- Computer-interfaced weaving machines for weaving intricate designs using ergonomically superior handlooms for weaving madur and sitalpati mats

Mr. Bhadury, IT Advisor, Webel Technology, is in the process of initiating the activities related to the above.



4. Fruit & Vegetable Vending Cart Commercialisation through Crossfyre Online Platform

A three-wheel version of the cart is to meet popular demand, responding to feedback from the trials of our five-wheel cart. Smaller and more compact, it provides increased space and storage features in a triangular framework, ensuring stable weight distribution. Its lighter frame enables easier manoeuvrability and usage, especially by women vendors, and its modular design facilitates easy assembly as either a front- or back-load cart. The cart is made of a lightweight frame of corrosion-resistant steel, with storage panels of steel mesh and sheet metal, offering greater display and storage space. It has a flex canopy, offering shelter to both cart vendors and products. The provision for cold storage greatly facilitates cart vendors, adding to their storage space and improving their planning and economic prospects.

Enquiries from Various States: Excitement as Crossfyre Platform's Three- and Five-Wheel Carts Gain Interest Across India

We are delighted to announce that our Three- and Five-Wheel Carts have gained popularity in numerous Indian states, serving a variety of business purposes. Our team is committed to handling these inquiries and moving forward to ensure that our customers receive the best possible service.



5. Identification of Banking Credit Channels for End-users of RuTAG Technologies

To facilitate funding opportunities for end-users of RuTAG technologies, we had initial dialogues with nationalised bank branches (SBI) at the National Rural Development departments as well as local branch managers, regional managers, and others. According to SBI officials, there are two channels available for beneficiaries of credit facilities as given below.

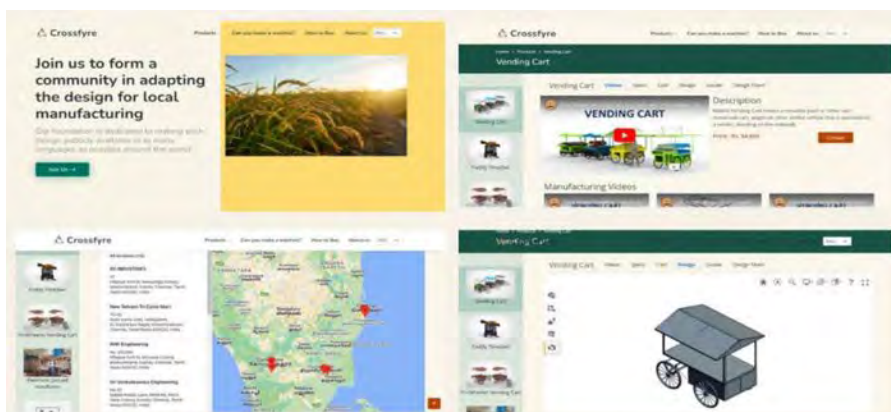
1. The beneficiaries are identified by the local government agencies (corporations, panchayati, municipalities) following which the banks disburse funds after simple documentation procedures at the branches.

2. The beneficiaries identified by RuTAG can avail credit facilities from any local branch of SBI after completing the necessary documentation procedures.

The above cases can be covered under the Micro Units Development and Refinance Agency (MUDRA) scheme, where there is no margin requirement up to a credit limit of ₹50,000. Credit above ₹50,000 will attract a nominal fee (of around ₹3000) towards insurance and other incidental expenses. RuTAG has initiated the process of obtaining official communication from the bank regarding the extending of credit facilities across Tamil Nadu.

6. Crossfyre: An IT-enabled Platform for Design and Fabrication of Open-source Technologies

Crossfyre is a free and open-source online platform that anyone can use to access various technologies (designs, specifications, etc.). It provides open and detailed designs of technological solutions based on local product capabilities (refer to attached screenshot of the Crossfyre platform) designed to meet rural demands. The solutions can be viewed, used, and propagated by various stakeholders. Any person needing these products can thus contact the rural innovator or the fabricator and place an order. This could facilitate rural innovations and livelihood opportunities. As part of the next stage of development, RuTAG IIT Madras initiated an expansion of the platform by incorporating technologies from other IITs' RuTAG IIT centres. Additionally, the platform has integrated a Customer Relationship Management feature, which will further enhance user experience.



7. Design and Fabrication of Charcoal Kiln for 1 tonne: Field Trials

Further to the initial field trials of the upgraded 1-tonne charcoal kiln, the second round of trials is being planned at Virudhunagar.

8. Natural, Sustainable and Durable Materials for Vending Cart Design

The design and procurement of materials for the vending cart towards the completion of the prototype model is ongoing.

Workshops, Events, and Field Trials

1. Pan Alumni Leadership Series (PALS)–RuTAG Proposal Writing Workshop

A proposal writing and ideation workshop was organized by PALS & RuTAG IIT Madras on April 28–29, 2023 for the faculty and students from PALS–affiliated engineering colleges across Tamil Nadu. Around 300 participants were present during the workshop. The two-day workshop was organised with coordination support from PALS and RuTAG.

2. Need Identification Workshop, TNRTP Erode

RuTAG organised a Need Identification Workshop in collaboration with the ‘Vazhndhu Kaattuvom’ project (formerly the Tamil Nadu Rural Transformation Project, TNRTP) at Thalavadi (Hasanur Erode district). As part of this programme, the RuTAG team and representatives of PALS member colleges visited the Lantana processing centre at Thalavadi. A meeting with the Farmer Produce Companies (FPOs) and non-governmental organisations (NGOs) was held to identify the technological needs of the area. RuTAG has initiated work on the problem statement received from the local FPOs/NGOs.



3. Need Identification Workshop/Survey on Dehydrator, Uthukkottai Tiruvallur

The RuTAG team made a visit to Uthukkottai and the neighbouring district of Thiruvallur to conduct a survey relating to small-scale dehydrators for fruits and vegetables, to identify the technological needs of small farmers.

4. Connecting Farmers with Technology: An Interactive Session on Need Identification and Technology Intervention (GloVill Foundation)

This session, coordinated and conducted by GloVill Foundation, Tirupati, Andhra Pradesh, provided a great platform by bringing 3 important stakeholders under one roof (local problems of farmers, technological assistance by IIT Madras and IIT Tirupati, and the knowledge of local engineering college students), paving the way towards Atmanirbhar Bharat.



5. Consultative Meeting on ‘Net Zero Village: Indian Concept’ (Samanvay Social Ventures)

A meeting with NGOs, government officials, and practitioners of village administration was conducted to arrive at a concept note relating to the proposal ‘Net Zero Village: Indian Concept’.

6. Right Start: Teacher Training Event (Asha Teachers of Rural Technology Centres)

RuTAG conducted an event on Asha for Education teacher training based on technology at Vana Vani school in the IIT Madras campus. About 100 teachers participated and were trained.



7. Small-scale Paddy Thresher Trials

The second round of field trials of version 2 of the paddy thresher was conducted at Wetland farms at the Tamilnadu Agriculture University Coimbatore (TNAU). Based on the inputs/feedback from the trials, modifications and customisation have been carried out to the thresher.



Annexure 3

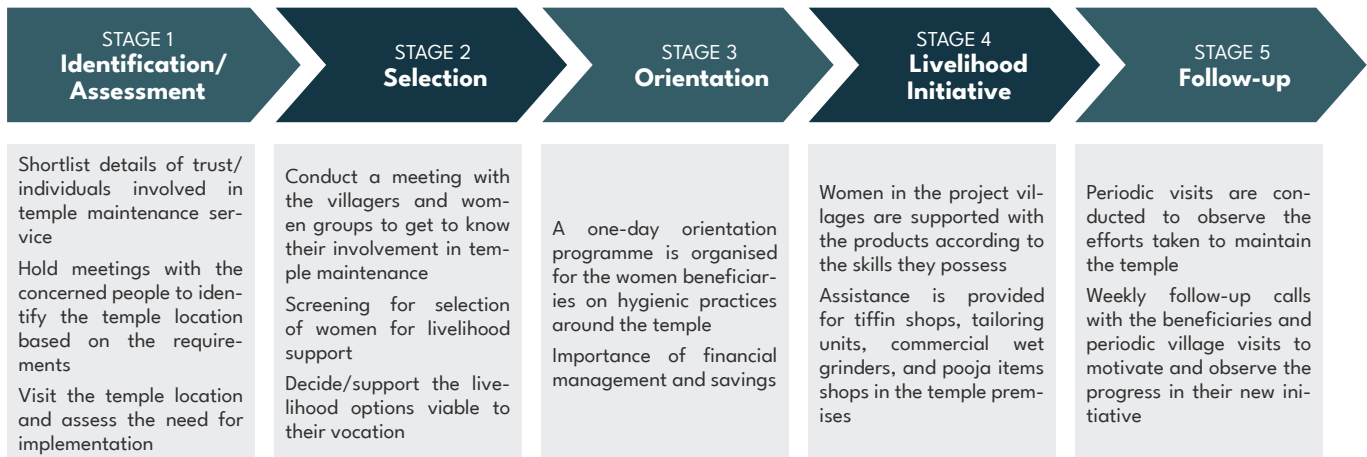
Centre for Social Innovation & Entrepreneurship (CSIE)

In 2019, CSIE began to develop a project to promote entrepreneurship among marginal women in temple regions around Tamil Nadu in collaboration with the Maa Santosh Kumar Charitable Trust, which is run by Prof. Dinesh Kant Kumar, an alumnus of IIT Madras and an academician based in Australia.

The trust supports women entrepreneurs based on Vedic principles enlightened by Chanakya, such as the welfare of all beings, ethical profits, deed without greed, and so on. To back his philanthropic initiative, Prof. Dinesh generously donated a sum of INR 47.5 lakh to IIT Madras to create an endowment fund in acknowledgement of the contribution of IITM in his success. This fund's interest is used for three separate objectives:

- To support and maintain a temple with heritage value.
- To promote entrepreneurship among women around the temple region.
- To involve student volunteers to generate new ideas that would benefit the community.

The CSIE strives to reach out to women and support them in their journeys of social entrepreneurship



Our First Project Location: Nayappakam

CSIE, with guidance from the Annamalaiyar Arappani Kuzhu Trust, identified the Masilamaneeswarar Temple at Nayappakam village, which was in a dilapidated state for countless years, for our first project. The villagers are overwhelmed by the positive spiritual transformation of the village after the temple's reconstruction.



Before and after pictures of Nayappakam Temple

Beneficiaries at Nayapakkam



Involving Students in the CSIE Project

A meeting was conducted with Annamalaiyar Arappani Kuzhu Trust with the agendas of:

- Involving student volunteers in temple cleaning and maintenance work
- Enrolling students to develop technical ideas in the CSIE project of promoting the entrepreneurship of marginal women in the temple regions of Tamil Nadu, as intended by the donor.

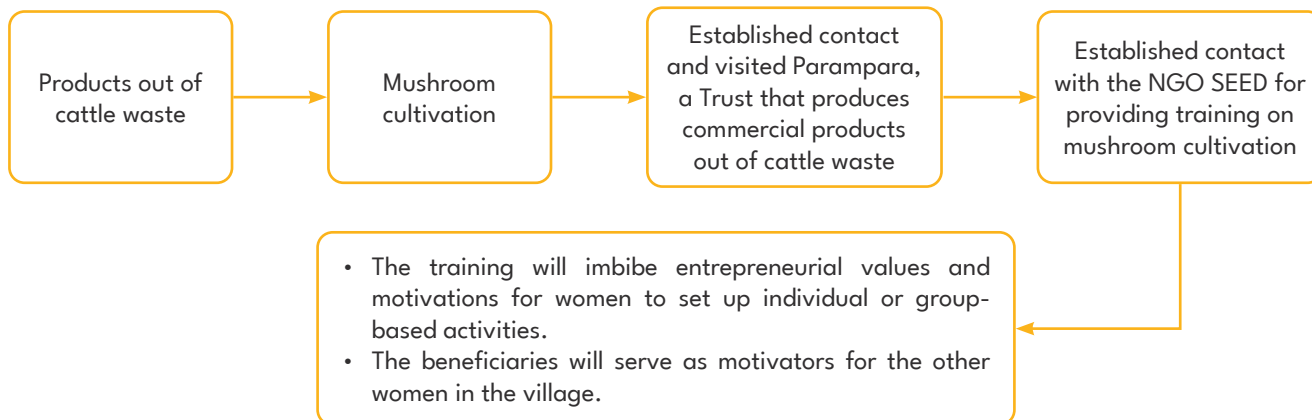


Our Second Project Location: Chennavaram Raman Koil Village

- Ramalingaeshwarar, the Aekadhasha Rudhra Lingam that has 11 faces (the rarest of rare linga), was worshipped by Lord Rama during his 14-year-long exile.
- A villager took the initiative to construct the temple in the year 2000. For 20 years, the villagers could not complete the temple's construction and perform kumabishekam, due to lack of funds as well as obstacles introduced by the pandemic.
- The CSIE is in the process of supporting beneficiaries in Chennavaram Raman Koil.



CSIE's Skill Training Plans in the Project Locations



Promotion of Women Graduate Entrepreneurs

CSIE has undertaken a project titled 'Promotion of Women Graduate Entrepreneurs' from April 2022 to December 2022 at a project cost of INR 26.5 lakhs from L&T Thales.

Annexure 4

Intellectual Property Management (IPM) Cell, IIT Madras

Activities During 2021-2022

Over 290 meetings and interactions were arranged at the IPM Cell during FY 2022-23 to make the Institute's inventors aware about the various type of IPs, including Patents, Trademarks, Copyrights and Design patents, the Institute IP Policy, and licensing avenues.

Several intellectual properties (IPs) were licensed to ~20 organisations/industries during FY 2022-23, and INR ~1.43 crore was received for the same. Related details are given in the previous pages.

6.3

Central Electronics Centre

6.3.1. Introduction

The Central Electronics Centre (CEC) was established in 1971 with the main objective of servicing and maintaining the wide variety of sophisticated electronic equipment at the institute. A key attribute of this Centre is the blend of an academic environment and an industry-like working atmosphere.

The Centre is housed in a dust-free environment. The CEC has a team of qualified, experienced and talented staff members, trained in India and Germany in various aspects of electronic instrumentation, testing and calibration. The infrastructural facilities and equipment have been continually enhanced over the years using Government of India (GOI) funds and successive Indo-German collaborative projects.

When the Centre was established in 1971, a critical need for training service engineers for maintaining electronic equipment was foreseen, and an 18-month training programme, the first of its kind in the country, was started in the same year. Later the period of the training programme was extended to 24 months. In view of the large demand for trained personnel both within the Institute and outside it, conducting such long-term training programmes has become one of the important activities of the Centre.

The Centre has diversified its activities and now offers the following services:

- Servicing and maintenance of electronic equipment/instruments
- Offering two-year training programmes for manpower development
- Conducting the Electronics module of the workshop class for B.Tech. students
- Calibration of electronic test and measuring instruments
- Calibration of temperature sensors
- Development of custom-built equipment
- Consultancy services to industries in the above-mentioned areas
- Testing of
 - Lighting systems
 - Batteries
 - Environmental testing of electronic products
 - Safety testing of electronic products
 - Electromagnetic interference and electromagnetic compatibility (EMC/EMI) testing of electronic products
- Servicing and maintenance of personal computers and printers

So far, the CEC has provided expertise and services in the above areas to more than 230 industries/organizations within and outside the country.

As the Centre has expanded its activities, most of the laboratories have been upgraded. In 2001, the CEC received the ISO 9001:2000 quality certification for having established quality systems in its services. The Centre also received the NABL accreditation in 2004 for testing and calibration laboratories in accordance with ISO/IEC 17025 standards. The ISO and NABL accreditations are actively maintained through adherence to the specified processes and procedures of the current versions of the standards.

6.3.2. Activities

6.3.2.1. Servicing of Electronic Equipment

The Centre takes care of servicing & troubleshooting all the electronic equipment available in the Institute with or without circuit diagrams. The details of the jobs completed are given below:

| Total Number of Jobs Completed | Notional Value (saved for the Institute) | Consumer Satisfaction Index (CSI) | | |
|--------------------------------|---|-----------------------------------|--------|---------|
| | | Simple | Medium | Complex |
| 348 | INR 21.55 lakh | 98.42% | 99.30% | 96.5% |

6.3.2.2. Electro-technical Calibration

This service includes the calibration of the electronic test and measuring Instruments like digital multimeters, power supplies, oscilloscopes, Digital Acquisition Systems (DAQs), temperature indicators, power analysers, LCR meters, decade resistance boxes, decade capacitance boxes, etc. with NABL accredited certificates. The following are the details of the jobs completed:

| Total Number of Jobs Received | Notional Value (saved for the Institute) | CSI |
|-------------------------------|--|-----|
| 21 | INR 1.27 lakh | 99% |

6.3.2.3. Thermal Calibration

This service includes the calibration of temperature sensors like Resistance Temperature Detectors (RTDs), thermocouples, thermistors with and without indicators, and furnaces, with traceability to national and international standards with NABL accredited certificates. The following are the details of the jobs completed:

| Total Number of Jobs Received | Notional Value, ₹250/point (saved for the Institute) | CSI |
|---|--|-----|
| 30 (more than 300 sensors and furnaces) | INR 17.53 lakh | 99% |

6.3.2.4. Electrical and Electronic Testing

This service includes the testing of lighting systems, UPS systems, power supplies, batteries, and the safety, environmental, and EMI/EMC testing of electronics products as per ISO standards as applicable for particular products with NABL accredited certificates. The following are the details of the jobs completed:

| Total Number of Jobs Received | Notional Value (saved for the Institute) | CSI |
|-------------------------------|--|--------|
| 6 | INR 1.40 lakh | 99.44% |

6.3.2.5. Servicing of Personal Computers

The Centre takes care of the servicing & troubleshooting of the personal computers and printers used in the Institute. The details of the jobs completed are given below:

| Total Number of Jobs Received | Notional Value (saved for the Institute) | CSI |
|-------------------------------|--|--------|
| 552 | INR 11.10 lakh | 99.60% |

6.3.2.6. PA System Services

Public address system services are provided by this Centre for almost all Institute functions or the functions organized by the students at IIT Madras. The total number of PA system service jobs rendered during this period is 193.

6.3.2.7. Preventive Maintenance of UPS Systems

To reduce UPS downtime, the Centre is conducting preventive maintenance service of the UPS systems at regular intervals.

6.3.2.8. Classroom Maintenance

The Centre supports the Institute in the maintenance of the AV systems for hybrid classrooms in the Class Room Complex, Raman Block, Ramanujam Block, and in all departments.

6.3.2.9. Support to Research Scholars

- Assembly and calibration of six signal conditioner units for a Chemical Engineering student
- Design and fabrication of a high-frequency power amplifier to piezoelectric atomizer circuit for an Aerospace Engineering student
- Design and fabrication of LED driver circuit for an Applied Mechanics student
- Fabrication and programming of a temperature and humidity monitoring system using Arduino for a Mechanical Engineering student
- Design and fabrication of a MOSFET driver circuit to drive a solenoid actuator for a Mechanical Engineering student
- Design and fabrication of a laser trigger circuit to synchronise camera and laser for a Mechanical Engineering student
- Design and fabrication of a wave peddle monitoring system for an Ocean Engineering student
- A Laser and camera synchronisation system using Arduino for an Ocean Engineering student

6.3.3. Workshops, Training Programmes, & Courses

6.3.3.1. B.Tech. Electronics Workshop

The Centre has been offering the Electronics module of the workshop (WS1302) for the B.Tech./Dual Degree (first year) students regularly. This year, the Centre handled parts of the 2019, 2020, 2021 and 2022 batch students. In all, 2427 students attended the course.

6.3.3.2. HRD Training Programmes Attended by CEC Staff Members

| S. No. | Name of Staff | Title | Institution | Period |
|--------|----------------|---|--|----------------------|
| 1 | N Karthiyayini | NABL PTP Assessors course as per ISO/IEC 17043:2010 Provider Auditor course | National Accreditation Board for Testing and Calibration Laboratories (NABL) | December 19-23, 2022 |

6.3.3.3. Short Term Courses

The CEC conducted a short-term training programme on 'ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories' for Central Workshop staff from September 12-14, 2022. Five staff members attended the course.

6.3.4. Design and Development Activities

6.3.4.1. New Facilities Added or Major Equipment Procured

The CEC entered an agreement with Cookson India (CSR fund) to establish a training centre for automatic inline SMT assembly. The Chairman and Director of IIT Madras visited the CEC on November 24, 2022 for a demonstration of the SMT Assembly Laboratory.



SMT Assembly Laboratory

| S. No. | Name of Equipment | Value (in INR lakh) |
|--------|------------------------------|---------------------|
| 1 | Soldering Iron: 20 nos. | 1.95 |
| 2 | Power Supply: 15 nos. | 2.44 |
| 3 | Oscilloscopes: 9 nos. | 2.48 |
| 4 | Function Generators: 9 nos. | 2.48 |
| 5 | HP Scanner | 0.24 |
| 6 | Face Biometric System | 0.22 |
| 7 | Dell Desktops: 2 nos. | 2.46 |
| 8 | Dell Monitors: 2 nos. | 0.20 |
| 9 | Air Compressor | 2.49 |
| 10 | 3-channel SMPS: 2 nos. | 3.94 |
| 11 | DC Power Supply: 8 nos | 2.94 |
| 12 | Programmable DC Load: 6 nos. | 2.94 |
| 13 | Water Bath | 1.33 |
| 14 | Clean Room for SMT Lab | 5.31 |

6.3.5. Research and Consultancy

6.3.5.1. Industrial Consultancy Projects (Ongoing & New)

| Description | No. of Jobs | Amount in INR |
|--|-------------|---------------|
| Testing of electrical and electronics products, safety and environmental testing | 84 | 47.69 lakh |

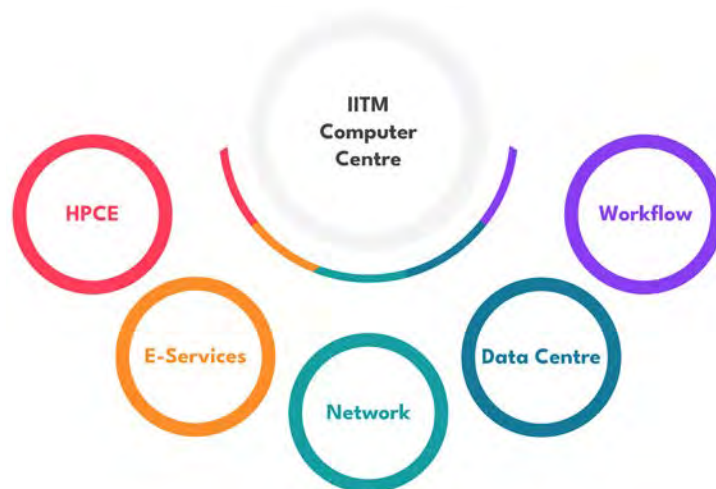
6.4

PG Senapathy Centre for Computing Resources

6.4.1. Introduction

The Computer Centre at IIT Madras was established in 1973 to provide centralised computing resources and support to the academic initiatives of the institute. It has had professionally-maintained facilities that have served the IIT Madras community, from the IBM System 370 in the 1970s and the Siemens system in the 1980s to the SGI, IBM Power and Sun systems in the earlier part of this millennium, and the supercomputers and communication and network services of today. Over the years, the computing and information technology requirements of the IIT Madras community have increased. The Computer Centre's organisation has evolved with this increase in requirements. In 2007, the infrastructure of the Centre was significantly upgraded through an endowment given by S Gopalakrishnan in the name of his father PG Senapathy.

The activities of the Centre are organised under five verticals: 1. High-Performance Computing Environment (HPCE), 2. E-Services, 3. Network, 4. Data Centre, and 5. Workflow.



Each vertical is focused on continually improving its services to meet the needs of the IIT Madras community. The Computer Centre has been ISO 9000 certified since 1999. The TUV has certified the Computer Centre as an ISO 9001:2015 standard management system for a period of three years, from August 2020 to August 2023, after conducting the final auditing as per TUV NORD CERT procedures. Currently, it maintains all its processes in conformance with ISO 9001:2015 standards and is certified along with other units at the institute by TUV NORD. This section presents the background of each vertical and a summary of its annual activities.

6.4.2. High-Performance Computing Environment

The High-Performance Computing Environment (HPCE) group was established to cater to the ever-increasing demand for supercomputing facilities from researchers at IIT Madras.

A new cluster, named Aqua, has been added to the HPCE. It is mainly based on a water-cooled system, with 280 CPU nodes and 15 GPU nodes, a 1PB parallel system, and 200TB of storage in the NAS file system. The following are some active research areas that use the Aqua cluster: aerospace engineering, atmospheric and ocean modelling, analysis of large structures, flows and combustion modelling, material sciences, social, ecological and physical network modelling, numerical weather prediction and data assimilation, molecular modelling, spectroscopy, and VLSI. This machine, which caters to the needs of the research community mostly uses parallel programming. The detailed system configuration is as below:



Total Compute Power:

11680 Cores; 30 GPU Accelerators
734 TFlops Rmax (1,106 TFlops Rpeak)

System Performance:

CPU - 587 TFlops Rmax (896 TFlops Rpeak)
GPU - 147 TFlops Rmax (210 TFlops Rpeak)

CPU Nodes/GPU Nodes: The CPU nodes are implemented in a HPE Apollo 2000 Gen10 based solution (2U chassis) with HPE Apollo XL170rGen10 servers. Each node is configured with: Dual Intel Xeon Gold 6248 20-core, 2.5 GHz processors 192GB, 2 TB SATA disk and single-port Mellanox HDR100 HCA per node. The GPU nodes are implemented in a HPE Apollo 2000 Gen10 based solution (2U chassis) with HPE Apollo XL190rGen10 servers. Each node is configured with Dual Intel Xeon Gold 6142 16-core, 2.6 GHz processors 192GB, 2 TB SATA disk, single-port Mellanox HDR100 HCA and 2 x NVidia V100 32GB GPUs – PCIe per node.

Storage Configuration/Cooling System: 1 petabyte PFS (HPE Lustre Storage) with minimum 25 GB/s write performance and 200 TB NAS storage. The air-cooled liquid chiller units fit with multiples of hermetically sealed SCROLL compressors with four chiller units (36 TR each), seven CRV units and two PAC units.

The HPCE group also maintains machines from various departments and centres. It supports users in improving code and organises training programmes related to the effective use of the facility. This group maintains all commercial software-related licenses and implements the 80:20 policy for all commercial software procured by the Computer Centre for HPCE users. Detailed information about HPCE, including the latest usage statistics and software availability, is posted at the website hpce.iitm.ac.in.

6.4.3. E-Services

eservices.iitm.ac.in

The E-Services vertical focuses on services such as Web system configurations, e-mail, Web access, Web security, storage solutions, virtualisation, and Web services. Several new services were enhanced and added to by the group. The services maintained and initiated by the group are listed here:

Mail Services

- | | |
|--|-----------------------------------|
| 1. IIT Madras (email.iitm.ac.in) Microsoft Exchange 2013 | 4. Retirees (retiree.iitm.ac.in) |
| 2. Students (smail.iitm.ac.in) | 5. Conferences (wmail.iitm.ac.in) |
| 3. Alumni (alumni.iitm.ac.in) | 6. Projects (imail.iitm.ac.in) |

Web Services

- | | |
|-----------------------------|---|
| 1. Virtual hosting | 6. Moodle online learning platform |
| 2. Mailing list | 7. Posting to campus community portal |
| 3. Employee user web portal | 8. Online web portals for user registration |
| 4. Websites | 9. Online statistics of service usage |
| 5. Shared hosting | |

Security and Monitoring Services

- | | |
|---------------------------------------|--|
| 1. Firewall tuning | 5. Log analytics |
| 2. Hack solution | 6. Digital certificate |
| 3. Security gateway (spam appliances) | 7. IT Infrastructure monitoring (NAGIOS) |
| 4. Web application firewall (WAF) | 8. Antivirus |

Storage Solutions

- | | |
|-------------------------------|--|
| 1. Backup and restore process | 3. Server and desktop consolidation by virtualisation (VMWARE) |
| 2. Disaster recovery | 4. Hyper converged infrastructure (HCI) |

User Management Services

- | | |
|-----------------------------------|---|
| 1. Active Directory Service (ADS) | 2. Lightweight Directory Access Protocol (LDAP) |
|-----------------------------------|---|

Development and Deployment Services

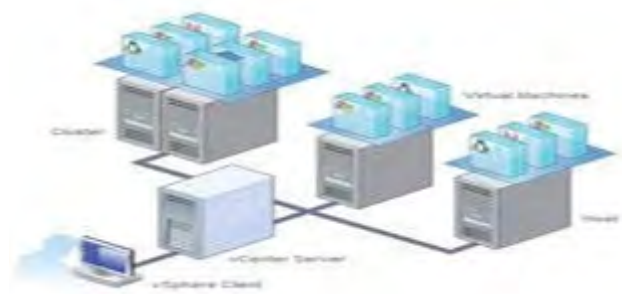
- | | |
|-----------------------------------|--|
| 1. Convocations | 9. Support to JEE |
| 2. Distinguished Alumnus Awards | 10. Support to HSEE |
| 3. User registration for IC&SR | 11. Support to departments with Web services |
| 4. HPCE Web-based user management | 12. Support to Office of Alumni Affairs |
| 5. Faculty and staff portal | 13. Support to Placement Office |
| 6. Web-based training | 14. Support for conferences |
| 7. VTLS support (Library) | 15. Support to Office of IC&SR |
| 8. Support to students' elections | 16. Support to Citrix academic |

Other Services

- | | |
|--|---|
| 1. SMS gateway | 11. Resources booking system |
| 2. Google API services | 12. Microsoft licensing |
| 3. Intranet services | 13. Request tracker |
| 4. Project management support | 14. M.S./Ph.D. online exam through Moodle |
| 5. Online ticketing system | 15. English O-level exam through Moodle |
| 6. Home portal for staff/faculty | 16. Digital certificates |
| 7. Cloud services (own cloud) | 17. Open virtual desktop infrastructure |
| 8. Authenticated mail service | 18. Google Hangouts |
| 9. Local/global FTP | 19. Online portal registration links |
| 10. VDI (Virtual Desktop Infrastructure) | |

Virtualisation

A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. An operating system installed on a virtual machine is called a guest operating system. The virtual machine gets a CPU, memory, video cards, access to storage and network connectivity from the host it runs on.



VMware server: Before virtualisation



VMware server: After virtualisation



E-Services Server Area in the Data Centre

Email Gateway: Sonic WALL

All incoming mails and outgoing mails go through this appliance.

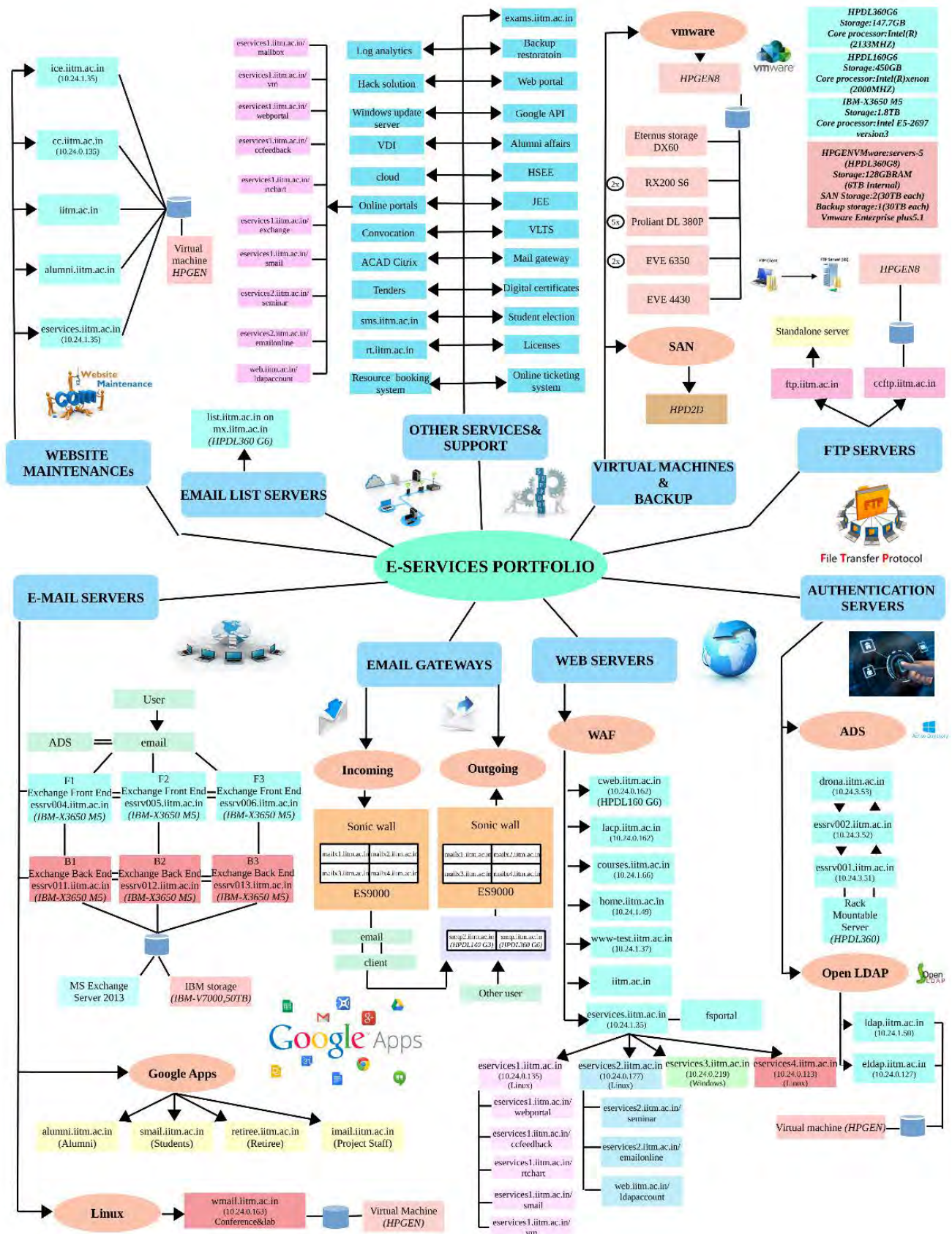


Web Application Firewall

WAF Fortinet 1000 series; acts as the firewall for websites.



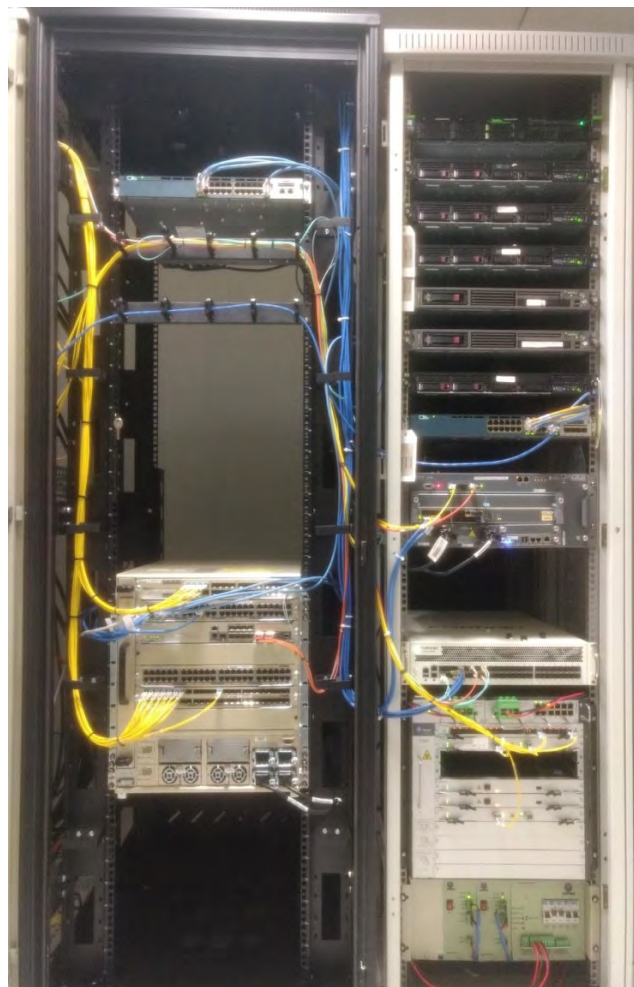
E-services Portfolio



6.4.4. Network

The campus computer network was established in 1994, connecting about 18 buildings in the Academic Zone, using telephone cables. The initial bandwidth was 64 kbps. Today, we have a fibre-backbone high-speed network connectivity of 10 Gbps for all the buildings in the Academic Zone. In addition, a backbone inter-connecting the three zones (Academic Zone, Hostel Zone and Residential Zone) is also operational. The total number of nodes in the campus is approximately 25,000. The network equipment in the Academic Zone was upgraded to provide 100/1000 Mbps connectivity to the nodes. All the buildings in the Academic Zone are provided with dual fibre connectivity. Facilities for video conferencing, virtual classrooms, webcasting important events, EDUROAM and VPN are also provided under the network service. The network vertical also oversees the procurement of external network services, as well as the design, installation and maintenance of the network structure, switches and cabling across the IIT Madras campus. A summary of the key activities of the Network group for the year under consideration is as follows:

1. Implemented GPON in the Residential Zone.
2. Provided support for conducting online examinations and online courses.
3. Provided support for the webcasting of important institute events.



6.4.5. Data Centre

The function of the Data Centre is to ensure the appropriate management of facilities so that all verticals of the Computer Centre function efficiently and without interruptions. These facilities include: uninterrupted power supply, backup power supply (DG set), CCTV, climate control, access control, water leakage systems, fire protection under BMS, and office space maintenance. The Data Centre operates and maintains the following equipment:

| S. No. | Description of Equipment | Capacity | Quantity |
|--------|---|-----------------|----------|
| 1. | Diesel generator set (Caterpillar) with 12 V/200 AH (Exide) | 600 kVA | 2 |
| 2. | Synchronising panel for parallel operation | 3 X 600 kVA | 1 |
| 3. | UPS (DB) with 12 V/200 AH (batteries): 96 nos. | 160 kVA | 2 |
| 4. | UPS (SOCOMEK) with 12 V/200 AH (batteries): 60 nos. | 200 kVA | 2 |
| 5. | UPS (SOCOMEK) with 12 V/150 AH (batteries): 32 nos. | 80 kVA | 1 |
| 6. | UPS (Emerson) with 12 V/42 AH (batteries): 34 nos. | 30 kVA | 1 |
| 7. | UPS (DELTA) with 12 V/65 AH (batteries): 40 nos. | 30 kVA | 1 |
| 8. | UPS (SOCOMEK) with 12 V/200 AH (batteries): 60 nos. | 20 kVA | 1 |
| 9. | UPS (DELTA) with 12 V/42 AH (batteries): 32 nos. | 20 kVA | 1 |
| 10. | PRAC AC (Blue Star) | 17 TR (60 kW) | 7 |
| 11. | PRAC AC (Blue Star) | 13.5 TR (48 kW) | 2 |
| 12. | PAK AC (Blue Star) | 11 TR | 4 |
| 13. | PAK AC (Blue Star) | 5.5 TR | 2 |
| 14. | Ductable split AC (Blue Star) | 8.75 TR | 2 |
| 15. | Ductable split AC (Blue Star) | 5.5 TR | 6 |
| 16. | RO plant (Excel Water System) | 250 LPH | 1 |

| S. No. | Description of Equipment | Capacity | Quantity |
|--------|--------------------------------|----------|----------|
| 17. | Air-cooled type chiller (YORK) | 36 TR | 4 |
| 18. | CRV Row Based (Vertiv) | 11 TR | 6 |
| 19. | PAC (Vertiv) | 10 TR | 2 |

New Building Management Systems

The Data Centre has upgraded the Building Management Systems with the latest technology as follows:

| | |
|--|---|
| BMS | |
| 1. Enterprise Buildings Integrator (EBI) R430 server | |
| 2. CP IPC panel - 1 no. (with IPC controller - 1 no.) | |
| 3. CP SPC panel - 3 nos. (with SPC controller - 8 nos.) | |
| 4. Battery monitoring system for all UPS | |
| Single Zone (FAAST) | |
| 5. VESDA panel for network area (fire alarm aspiration seeing technology) | |
| Security System | |
| 6. CCTV Camera | IP-based IR indoor/outdoor (Capture): 27 nos. Sixteen-channel encoder: 2 nos. |
| Fire System | |
| 7. Fire alarm system | Intelligent photoelectric smoke detector: 84 nos. Response indicator: 40 nos. Intelligent heat detector: 2 nos. Temperature sensor: 2 nos. Manual pull station: 4 nos. Hooter: 9 nos. Isolator module: 3 nos. |
| 8. Firefighting | Gas release panel (Ravel): 2 nos. |
| Door Access System | |
| 9. Access control | TEMA server: 1 no. Biometric card reader: 4 nos. Emergency push switch: 13 nos. |
| PA System | |
| 10. Plena 480 W amplifier (Bosch) | |
| Infrastructure Development | |
| 1. Virgo HPCE cluster and its associated connectivity equipment were removed from the Server 2 area. | |
| 2. The department servers were moved to the Server 2 (previously Virgo) area. | |
| 3. One 36TR new chiller was installed for the Aqua cluster. | |
| 4. 200Ah batteries (60 numbers) were replaced for 2*200 kVA UPS systems. | |
| 5. 150Ah batteries (32 numbers) were replaced for 1*80 kVA UPS system. | |

Chiller Units



6.4.6. Workflow

The implementation of enterprise resource planning (ERP) software, or what is internally referred to as Workflow, is done by the Workflow group at the Computer Centre. The group works with various sections in the institute to support system usage and capture changes in requirements involved in process development activities, maintaining reporting websites that collect data from Workflow, and generating reports using new software tools.

Online processes have the distinct advantages of transparency, accessibility, and analytics. In the financial year 2020–21, we have made major developments in enhancing the existing processes in all sections—Administration, Academics, IC&SR, and Main Stores and Accounts.

Processes such as the ICICI payment gateway, NOC process creation, examiner honorariums, obtaining provisional certificates, linear grade card for the online M.Tech. programme, grade card to storage, all faculty levels' access to Workflow, etc. were introduced. All these processes have a tracking system, which is Task Summary. The Task Summary screen has been enhanced. The reports are flexible and data can be searched with ease. Like optimised processes, there are SLAs (Service Level Agreements) implemented at various steps of the process to move them automatically to avoid delays in completing the processes, and automatic email triggers for each process.

Enhancements to the synopsis and thesis evaluation process were carried out. A new A5 thesis process has been introduced for scholars.

Along with regular development and optimisation activities, a new portal for web-enabled programmes such as online M.Tech. and EMBA has been created, and a trial run was carried out in this financial year. This portal enabled the management to design the curriculum for new programmes in flexible periods instead of a rigid semester or quarter system.

Moodle support has been assigned to the Workflow team this financial year. As soon as the Student Electives Allocation Tool (SEAT) allocation for electives gets completed, the courses are moved to Workflow and then to Moodle. Similarly, immediately after the course add/drop week, the courses are updated in Moodle. All the Moodle service requests, managing the Moodle server, and the security of the same are taken care by the Workflow team.

Like in the previous financial year, the data extracted from Workflow has been analysed and utilised by the Administration to align our internal processes to support our vision for IIT Madras.

Faculty/Staff Members and Areas of Work

| S. No. | Name | Designation | Area of Focus |
|--------|-----------------------------------|------------------------|---|
| 1. | Prof. P Sriram (AE) | Chairman | Overall coordination and planning |
| 2. | Prof. Kameswararao Anupindi (ME) | Faculty-in-Charge | High-Performance Computing Environment |
| 3. | Prof. V Krishna Nandivada (CS) | Faculty-in-Charge | E-Services |
| 4. | Prof. Rahul Ratnakar Marathe (MS) | Faculty-in-Charge | Workflow |
| 5. | Banavath Baman | TO (Systems) | Training |
| 6. | S Anand Kumar | TO SS (Systems) | Mail domains, mail gateways, server hardware, VMWARE, Web services, virtualization, support services |
| 7. | V Selvaraju | TO SS (Systems) | Network design, servers, switches, campus network maintenance and administration |
| 8. | T V Subba Rao | Tech. Supdt. (Systems) | Workflow—Administration Module |
| 9. | R Thiruneelagandan | Tech. Supdt. (Systems) | Planning, operations and maintenance of DG sets, UPSes, ACs, BMS, furniture and all Data Centre-related equipment |
| 10. | P Gayathri | Tech. Supdt. (Systems) | High-performance computing, system software, installation of open-source applications and commercial applications, user education development |
| 11. | M Irudayaraj | JTS (Systems) | Web programming, Linux, E-Services |
| 12. | R Madhanarasan | JTS (Systems) | Data Centre, BMS and ISO |
| 13. | E Arun | JTS (Systems) | Workflow |
| 14. | P Mahesh Mithreevan | Sr. Tech. (Systems) | Computer network, servers, switches, campus network, maintenance |
| 15. | C S Sundar | Jr. Supdt. | Administration |

Apart from the permanent staff listed above, there are Project Officers, Project Associates and Project Technicians assigned to each vertical in the Computer Centre to support the various activities of the Centre.

6.5

Central Skill Training & Fabrication Facility (CSTF)

6.5.1.1. Introduction

The Central Skill Training and Fabrication Facility (CSTF), formerly known as the Central Workshop (CWS), was established in 1959 as part of the Department of Mechanical Engineering, with the support of Federal Republic of Germany, to train B. Tech. students in various shop floor techniques and fabrications. CSTF is now as an academic facility of IIT Madras and has ISO 9001:2015 quality certification. The core activities of CSTF is to offer hands on training to B.Tech./Dual Degree students and to support any fabrication work students and research scholars of various departments of this Institute are involved in. The practical training offered by CSTF is a part of the academic curriculum requirement of B. Tech/Dual Degree students. CSTF offers the Courses code WS1031, WS1032, and WS1303. The facilities of CSTF are modernized from time to time based on technological need for skill training and fabrication.

6.5.1.2. Facilities of CSTF

Presently CSTF of our Institute has the facilities in different shops and sections. The list of shops and sections with their facilities are given below.

| S. No. | Shop/Section/Lab | Facilities |
|--------|-------------------------------------|--|
| 1 | Carpentry | Wood working with planing, circular saw cutting, turning, thickness reducing, polishing processes and hand operated power tools. |
| 2 | Fitting & Tool Room | Filing, drilling, tapping, jig boring, tool milling, engraving, marking, slotting, grinding and cutting. |
| 3 | Machine Shop | Horizontal and vertical milling machines, lathes, planing machine, radial drilling machine, tool and cutter grinder, CNC lathes, CNC milling machines, universal milling machines and Computer Aided Manufacturing software. |
| 4 | Gear Shop | Spur, helical & bevel gear cutting and gear inspection. |
| 5 | Electrical Shop | Trainers for single phase electrical circuits, three phase Direct On Line and star-delta starter trainers. |
| 6 | Instrument Shop | Calibration of Pressure gauges up to 1000 bar and precision machines. Rapid Prototyping Machines (3D Printers). |
| 7 | Welding Shop | Arc welding, gas welding, brazing, TIG welding, Plasma Arc cutting and arc welding simulator. |
| 8 | Foundry Shop | Sand molding, melting and die casting machines. |
| 9 | Smithy Shop | Open hearth furnace. |
| 10 | Pneumatics and Hydraulics | Basic and Advanced Pneumatics Trainers Electro Pneumatic Trainer Basic and Advanced Hydraulic trainers |
| 11 | FRP | Manufacturing polymer reinforced composites by hand lay-up process |
| 12 | Plastics | Introduction to plastics, Demonstration and production in hand operated, semi automatic injection and compression moulding of plastics |
| 13 | Instrumentation & Communication Lab | Introduction to basic communication systems. Exercises on optical fiber communication. Introduction to various kinds of transducers. Microprocessor based control applications, Example of stepper motor control and traffic light controller and PLC. |

6.5.1.3. Training of Students

CSTF has offered B.Tech./Dual Degree (1st year) students of the 2021–22 batch a few workshop courses such as WS1301, WS1302 and WS 1033 (exclusively for the students of Engineering Design Department).

The details of the students and training modules are given below.

| Department | No. of Students | Training Modules |
|---|-----------------|---|
| 1. Electrical Engineering | 155 | Power Tools Machining process: Turning Machining process: Milling Foundry & Smithy Plastics & FRP Welding Electrical Electronics Pneumatics & Hydraulics Instrumentation & Communication |
| 2. Engineering Physics | 94 | |
| 3. Mechanical Engineering | 220 | |
| 4. Metallurgical & Materials Engineering | 70 | |
| 5. Aerospace Engineering | 74 | |
| 6. Chemical Engineering | 101 | |
| 7. Naval Architecture & Ocean Engineering | 82 | |
| 8. Civil Engineering | 133 | |
| 9. Biological Engineering | 47 | |
| 10. Computer Science and Engineering | 90 | |
| 11. Engineering Design | 79 | |
| Total | 1145 | |

6.5.1.4. Fabrication Work and Other Activities of CSTF

- The CSTF offers support for manufacturing experimental set-ups and their accessories to B.Tech. / M.Tech. students and M.S. / Ph.D. scholars of the Institute. A total of 1182 Work Orders were executed during the year 2022 – 2023.
- The CSTF supports as skill training centre to train trade, technical, and graduate trainees having ITI, Diploma, and B. E. qualification. The candidates with relevant trade have been trained for maintenance of buses in Auto shop. After obtaining adequate training, the trainees are placed as project staff in various research projects and start-up companies.
- The auto shop maintains Institute buses.
- CSTF staff members actively participate for the product development of IIT Madras incubated start-up companies.

6.5.1.5. Other Important Contributions for Institute Development

- The CSTF has created Computer Aided Engineering (CAE) & 3D printing lab to support modeling and 3D printing work for students/scholars' projects. The details are shown in Annexure I.
- The CSTF and CFF have done design and development of 152 numbers of wave makers for the country's largest wave basin at IIT Madras Thaiyur Campus. The details are shown in Annexure II.

Annexure 1

The CSTF is Equipped with an Advanced 3D Printing, Scanning and CAE Facility.

It is open to students and research scholars for scanning, modelling, and printing. J55 model printer can print transparent plastics, multi color polymer from soft rubber to hard plastics.

The following equipment have been installed:

1. Stratasys, USA make, Model: J55 Prime 3D Printer
2. Monotech, Chennai make FDM type printer of printing range 500mm x 500mm x 500mm
3. Artec Make 3D scanner, Germany, Europe.
4. CAE facility to create 3D models.

The above facilities (3D Printing, Scanning and CAE Facilities) were inaugurated by our Director Prof Kamakoti V, on 7th of September, 2022 and now is open to students for making model through the work request portal of the Central Skill Training & Fabrication facility (cswsr.iitm.ac.in).



Annexure 2

Design & Development of Wave Maker, Thaiyur Campus

A Project for the National Technology Centre for Ports, Waterways and Coasts (NTCPWC)—Prof. K Murali

- Wave basin of size 60m x 100m
- 152 paddles in total—19 sets, each with eight paddles
- The paddles push a maximum water depth of 1m with a maximum stroke of 1m
- Rack and pinion mechanism-based

Current Status

- Assembly of the 19 sets has been completed
- Alignment and trial testing are under progress



6.6

Central Glass Blowing Section

Established in 1972, the Central Glass Blowing Section (CGBS) is one of the important infrastructural facilities of Indian Institute of Technology Madras. The facility undertakes design and fabrication of sophisticated glass apparatus for research and development in various departments. It has a range of modern glass working equipment that has been largely procured from Germany under a collaborative programme.

The apparatus includes a horizontal-cum-vertical lathe, a universal forming lathe and a high-vacuum system. The section is also well equipped with a good number of sophisticated burners, drilling and cutting machines, grinding and polishing equipment and such other tools necessary for fashioning varied glass apparatus. It has an adequate facility for quartz working and has developed a high level of expertise in this area.

The sophisticated apparatus fabricated includes cryostats, spherical and cylindrical Dewar flasks, lugging probes, laser housing tubes with water jackets, reactor tubes, vacuum tube collectors (for solar energy) and quartz ware. From April 2020 to March 2021, the CGBS undertook 604 work orders from various departments.

The Central Glass Blowing Section undertook 791 work orders from various departments between 1st April 2022 to 31st March 2023.





7

INTERNATIONAL, ALUMNI & CORPORATE RELATIONS



7.1

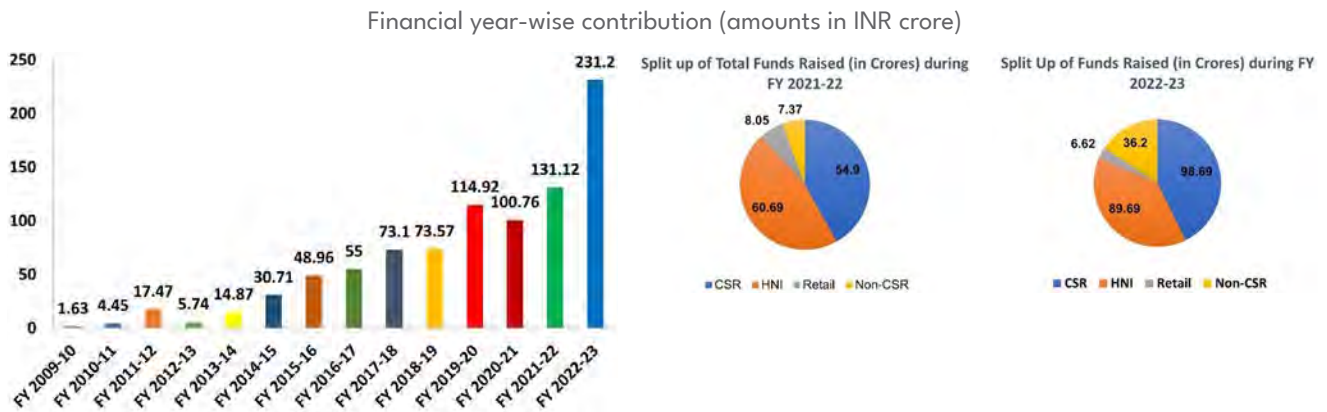
Office of Alumni and Corporate Relations (A&CR)

The Office of Alumni and Corporate Relations (A&CR) strives to support the Institute’s drive towards global excellence in education, research, relations with industry, innovation and entrepreneurship, sustainability, social impact and infrastructure. The vision of the Office of A&CR is to enhance the global stature of the Institute and create lasting impact by actively engaging with alumni and corporate networks. The mission of this office is to build on the Institute’s excellent relationship with alumni to increase engagement with academia/research labs, industry/business, entrepreneurs, and foundations to promote the Institute’s external relations, and raise funds for the Institute and its stakeholders: students, faculty and staff, and society, and create enduring assets for the Institute.

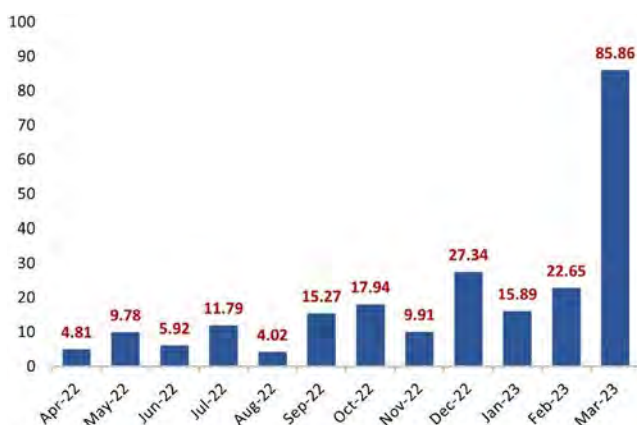
7.1.1. Financials

The Office of the Dean (A&CR) and the Office of Institutional Advancement raised significant funds of INR 231.2 crore in FY 2022-23 for various projects funded by benevolent alumni, generous philanthropists and like-minded corporates looking for meaningful social impact initiatives.

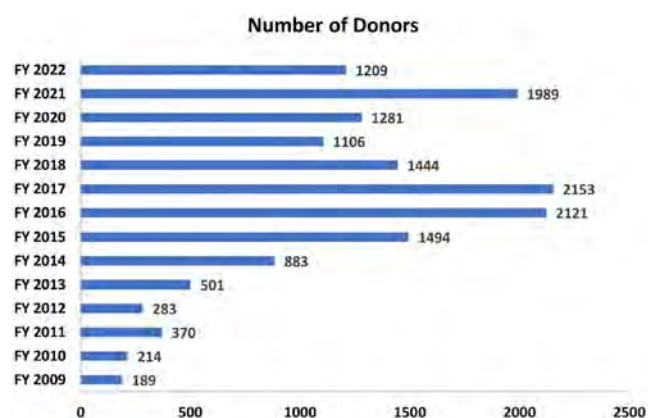
Statistics of Funds Received in FY 2022-23



Month-wise funds received for FY 2022-23 (in INR crore)



Number of donors by financial year



7.1.2. Major Donations

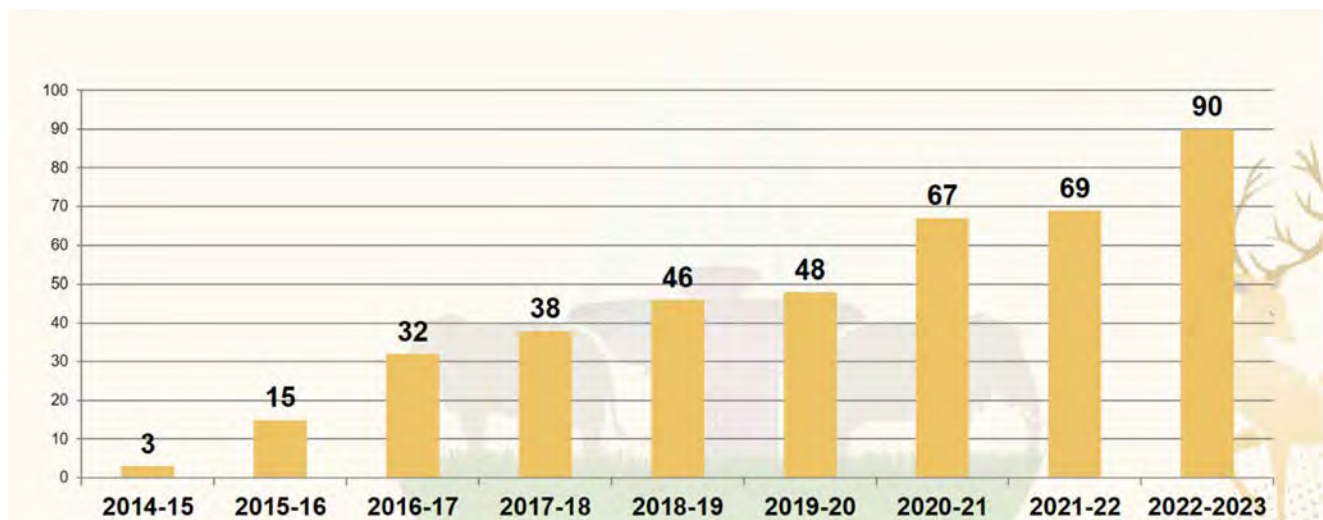
Corporate Social Responsibility (CSR)

IIT Madras is working with the industrial sector to help fulfil its CSR obligations. Our Corporate Social Responsibility partnership collaborations broadly fall under any of three key broad categories:

- the deployment of technology via scalable solutions for larger benefit, such as RTCs (Rural Technology Centres) and the Institute's B.S. online degree programme;
- the development of research & technology for long -term impact, such as the Centres of Excellence and research projects; and
- the facilitation of equal access to education and skilling which directly benefit the underprivileged.

| S. No. | CSR Contributors | Amount (in INR crore) |
|--------|---|-----------------------|
| 1 | Power Grid Corporation of India Limited | 17.97 |
| 2 | Intel Technology Private Limited | 8 |
| 3 | Kotak Mahindra Limited | 7.33 |
| 4 | Prazim Trading and Investment Company Private Limited | 6 |
| 5 | Mphasis Limited | 4.36 |
| 6 | National Stock Exchange Foundation | 3.58 |
| 7 | SRL Limited | 2.83 |
| 8 | Renault-Nissan Technology and Business Centre India Private Limited | 2.3 |
| 9 | Indus Towers Limited | 2.2 |
| 10 | NMSWorks Software Private Limited | 1.85 |
| 11 | Vertiv Energy Private Limited | 1.82 |
| 12 | Wells Fargo International Solutions Private Limited | 1.75 |
| 13 | Computer Age Management Services | 1.75 |
| 14 | Cholamandalam Investment And Finance Company Limited | 1.6 |
| 15 | DDRC SRL Diagnostics Limited | 1.54 |
| 16 | LTIMindtree | 1.52 |
| 17 | Verizon Data Services India Pvt Ltd | 1.37 |
| 18 | Tata Elxsi Ltd | 1.1 |
| 19 | American Express India Private Limited | 1.1 |
| 20 | Tube Investments Of India Ltd | 1 |
| 21 | SNS Foundation | 1 |
| 22 | City Union Bank Limited | 1 |

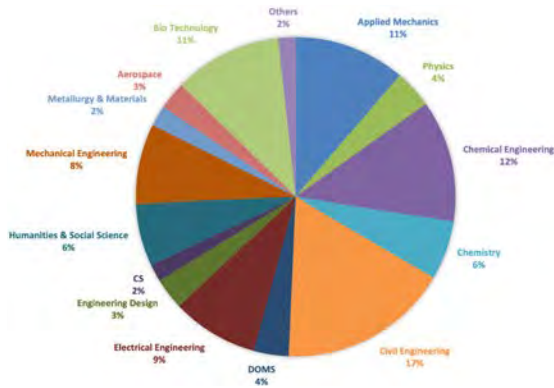
CSR donors: cumulative over the years



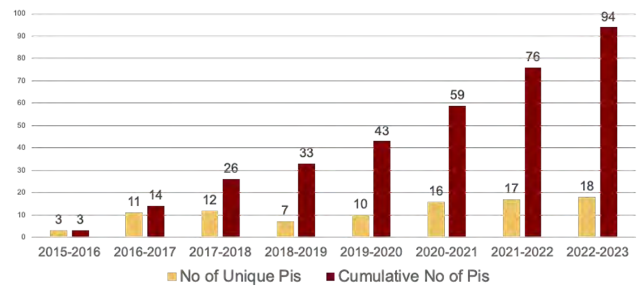
CSR: Faculty engagement

Till date, 94 faculty members have benefitted through funding received under CSR.

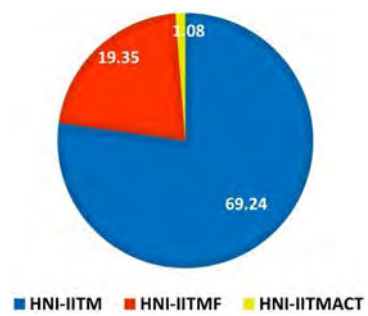
CSR, 2014 to 2023



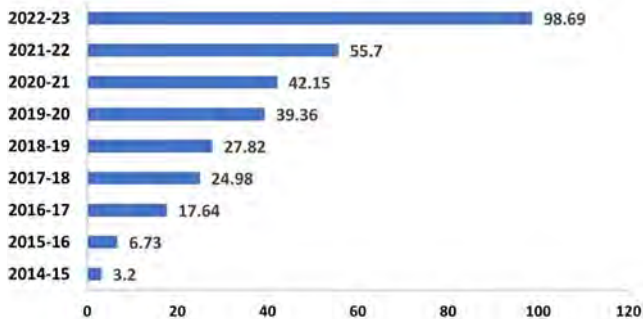
Distribution of CSR projects: Department-wise



HNI fund flow (in INR crore)



Financial year-wise funds received (in INR crore)



Alumni, Alumni Trusts and High Net Worth Individuals (HNI)

| S. No. | HNI Contributors | Amount (in INR crore) |
|--------|----------------------------|-----------------------|
| 1 | AS Trust | 21.07 |
| 2 | Nandan Nilekani | 18 |
| 3 | Kris Gopalakrishnan | 10.24 |
| 4 | N Lakshmi Narayanan | 10 |
| 5 | Ram Shriram | 2.8 |
| 6 | Girish Reddy | 2.41 |
| 7 | Rakesh Jhunjhunwala | 2 |
| 8 | Dilip Subramanyam | 1.26 |
| 9 | Arjun Rao D | 1.25 |
| 10 | Maheshwar Saireddy | 1.18 |
| 11 | Vijay Janapaty | 1.12 |
| 12 | P Balasubramanian | 1 |
| 13 | Muthuraman Balasubramanian | 1 |
| 14 | Mr. Anand Kripalu | 1 |

Retail funds raised (in INR crore)



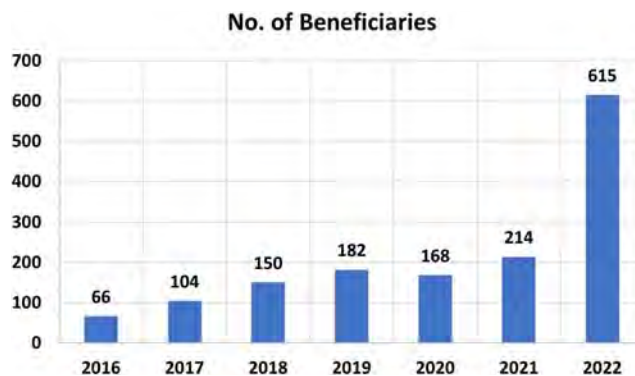
7.1.3. Scholarships

Merit-cum-Means Scholarships

Objectives

1. To support B.Tech./Dual Degree students with parental incomes of INR 1 lakh to 9 lakh per annum.
2. Students with lower parental income will be given higher priority.
3. Scholarship renewal is based on CGPA (above 5) and parental income range.

For the academic year 2022–23, nearly **615 students** were supported through this scholarship.



Donor-defined Scholarships

There are more than 30 unique donor-defined scholarships, where the students are selected on the basis of various criteria set by the donor. These could include factors such as the department, degree, parental income and academic performance. **135 students** were given financial assistance through this initiative for the academic year 2022–23.

7.1.4. Distinguished Alumni Awards

The Distinguished Alumni Awards (DAA) are the highest awards given by IIT Madras to its alumni, in recognition of achievements of exceptional merit and excellence. These prestigious awards acknowledge outstanding accomplishments in the areas of entrepreneurship, leadership and management, academia, social and technological innovation, and service to humanity at large. The Distinguished Alumni Awards have been presented annually by the Institute since their inception in 1996.

The following eminent alumni are the awardees for the year 2023:



7.1.5. Events

7.1.5.1. Launch of Chairs

V Balakrishnan Institute Chair Launch

- The V Balakrishnan Chair Launch took place on July 15, 2022.
- The Chair was endowed by Dr. Satish Ramakrishna, an IIT Madras alumnus of the '87 Batch who is currently the Managing Director and Chief Risk Officer of Two Sigma Investments, a New York-based hedge venture capital firm.
- The Chair is named in honour of Prof. V Balakrishnan, a former faculty of IIT Madras. Prof. V Balakrishnan is a distinguished Indian theoretical physicist and an accomplished researcher who has made important contributions to the theory of anelasticity, continuous-time random walks, and recurrences in dynamical systems.
- Prof. Sarit Kumar Das of the Department of Mechanical Engineering is the first occupant of the prestigious V Balakrishnan Institute Chair.



CP Vendhan Institute Chair

- The CP Vendhan Institute Chair was launched on March 1, 2023.
- The proposed Chair was endowed by Prof. S Nallayarasu, Department of Ocean Engineering, IIT Madras.
- The objective of the Chair is to recognise outstanding Institute faculty in the areas of research, collaborating with the industry in R&D, innovation, and implementation of state-of-the-art solutions.
- The identification of the occupant of the Chair is in progress.



Ganapathy Institute Chair

- The Ganapathy Institute Chair was launched on March 1, 2023.
- The Chair was endowed by Dr. R Sundaravadivelu, an Emeritus Professor of the Institute.
- The objective of the Chair is to recognise outstanding Institute faculty in Research, collaborating with industry in R&D, innovation, and implementation of state-of-the-art solutions.
- The identification of the occupant of the Chair is in progress.

7.1.5.2. Leadership Lecture Series



Topic: Leading in a Digital World
Speaker: Mr. V Mathews,
 Founder and Executive Chairman,
 IBS Software
Date: March 30, 2023



Topic: Mankind is My Business
Speaker: Mr. Ganapathy Ramachandran, 1977/B.Tech./ME,
 Executive Chairman of Trigyn Technologies Limited
Date: March 2, 2023



Topic: Always Starting Up!
Speaker: Mr. Srikant Sundararajan,
 1984/B.Tech./ME,
 General Partner at Ventureast
Date: March 9, 2023



Topic: Life Lessons from Gajendra Circle to Silicon Valley
Speaker: Mr. Rajiv Ramaswami,
 1986/B.Tech./EE, President and CEO
 at Nutanix
Date: January 2, 2023



Topic: The Road to Success is like a New York City Avenue
Speaker: Mr. Ram Sundaram,
 1988/B.Tech./CE, Former Partner,
 Goldman Sachs
Date: January 19, 2023



Topic: Demonstrating Resilience and Empathy
Speaker: Ms. Lavanya Chari,
 2000/B.Tech./AE, Global Head of Investments and Wealth Solutions, HSBC
Date: January 23, 2023
Video Link: youtu.be/i6JyfCipmwk



Topic: My Entrepreneurial Journey and Go-to-Market Lessons Learned
Speaker: Mr. Venkat Rangan,
 1981/B.Tech./ME, Co-Founder & CTO,
 Clari Inc.
Date: December 12, 2022
Video Link: youtu.be/SdyHs7lidGs



Topic: Being Powerful
Speaker: Dr. Narayanan (KK) Krishnakumar, 1987/B.Tech./CS,
 CTO, Delta Air Lines
Date: December 05, 2022
Video Link: youtu.be/6FOpFFx_7ZI



Topic: Catching Luck

Speaker: Mr. Pradeep Gulipalli,
2003/B.Tech./CE,
Co-founder, Tiger Analytics

Date: September 09, 2022

Video Link: youtu.be/71EZqvlZLTk



Topic: Life Lessons from Sport—Not taught at any school

Speaker: Mr. Alpesh Shah,
Senior Partner and Managing Director,
Boston Consulting Group (BCG) India

Date: August 12, 2022

Video Link: youtu.be/MG7ZckQQ_P8



Topic: Choosing a Career Path which Enables Lifelong Lessons

Speaker: Mr. Aravind Krishnan,
2011/B.Tech. & M.Tech./ME,
Principal—Private Equity, Blackstone

Date: July 29, 2022

Video Link: youtu.be/HD2U3cWsCPg



Topic: The Journey from a Corporate Employee to an Entrepreneur

Speaker: Mr. Atul Shinghal,
1991/B.Tech./OE,
Founder and CEO of Scripbox

Date: July 01, 2022

Video Link: youtu.be/XDtSF2



Topic: 0.2X to 20X

Speaker: Mr. Naveen Tahilyani,
1995/B.Tech./EE,
Managing Director & Chief Executive
Officer, Tata AIA Life Insurance

Date: June 17, 2022

Video Link: youtu.be/IRlhSPHkwzA



Topic: Even Engineers Eat Ice Cream

Speaker: Mr. KVS Manian,
Whole Time Director,
Kotak Mahindra Bank Ltd

Date: June 03, 2022

Video Link: youtu.be/qVlKPPCSGqs



Topic: Lessons in Life and Leadership from My Civil Service Career

Speaker: Dr. Girija Vaidyanathan,
1981/M.Sc./PH & 2012/Ph.D/HS,
IAS (Retd.) & Former Chief Secretary,
Government of Tamil Nadu

Date: May 20, 2022

Video Link: youtu.be/EvckOHfhfAk



Topic: Leadership Traits for the Future

Speaker: Mr. Satish Pai,
1985/B.Tech./ME, Managing Director,
Hindalco Industries Limited

Date: April 07, 2022

Video Link: youtu.be/FPhjgyzTPbM

7.1.5.3. Fireside Chats

Fireside Chat with Congress MP Shashi Tharoor, October 6, 2022



Fireside Chat: 'Against all Odds: The IT Story of India' with Mr. Kris Gopalakrishnan, February 7, 2023

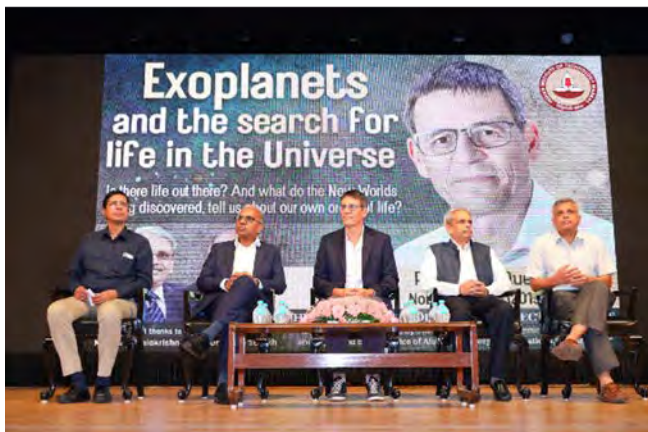


7.1.5.4. The Subra Suresh Distinguished Lecture Series

This distinguished lecture series is named in honour of Dr. Subra Suresh, a Distinguished Alumnus of IIT Madras, and was made possible thanks to the remarkable vision and generous support of Mr. Kris Gopalakrishnan, a Distinguished Alumnus and patron of the institute.

Nobel Laureate Dr. Didier Queloz

The inaugural lecture of the prestigious Subra Suresh Distinguished Lecture Series, organised by the Office of Global Engagement, featured Nobel Laureate Dr. Didier Queloz's live lecture on October 19 and 20, 2022. Dr. Queloz addressed students at IIT Madras on October 19, with a lecture titled 'The Exoplanet Revolution' and also delivered a public lecture to packed audiences in Chennai on the 20th. The initiative was supported by the A&CR Office.



Nobel Laureate Prof. Brian P Schmidt

The Office of Institutional Advancement organised an exclusive Dinner and Discussions event featuring Nobel Laureate Prof. Brian P Schmidt on March 3, 2023, which was attended by alumni and corporate stakeholders. The laureate was in town to deliver the second lecture in the series, organised by the Global Engagement Team of IIT Madras.



7.1.5.5. Other Lectures & Events

Exclusive Dinner and Discussion with Prof. Carl-Henrik Heldin

The A&CR Office organised a Dinner and Discussions event with eminent Prof. Carl-Henrik Heldin, Chairman of the Board for the Nobel Foundation on February 14, 2023. Prof. Heldin was the speaker at the Eminent Speaker Lecture series organised by the Office of Global Engagement.



Shri R Natarajan Memorial Endowment Lecture

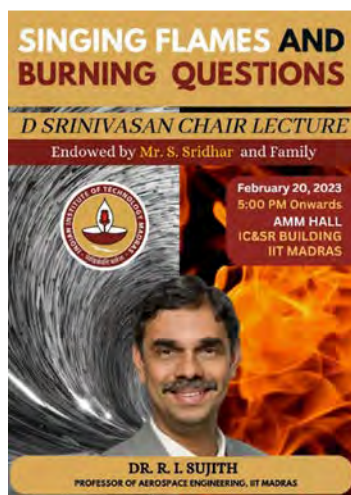
The Shri R Natarajan Memorial Endowment Inaugural Lecture was held on August 18, 2022 in the Department of Management Studies. The lecture was sponsored by Prof. Vishwanath Baba, Professor of Management at McMaster University, Hamilton, Canada, and Mrs. Parvatham Natarajan.

The inaugural lecture was presented by Prof. Vishwanath Baba on the topic 'Business Theory and Managerial Competence'.



D Srinivasan Chair Lecture

The D Srinivasan Chair Lecture was endowed by Mr. S Sridhar and family on February 20, 2023. The lecture was given by Prof. R.I. Sujith from the Department of Aerospace Engineering on the same day.



7.1.5.6. CSR: New Partnerships Signed

MoU with POWERGRID & Launch of Endowment Scholarship | May 7, 2022

IIT Madras partnered with Power Grid Corporation of India to launch a scholarship programme, 'POWERGRID Endowment Scholarship', for economically needy general-category students. This will help deserving students to cover their tuition fees through merit-cum-means scholarships.

A total of 33 students (14 women and 19 men) were supported by the POWERGRID Scholarship in FY 2021-22.



MoU with Cargill | Signing Ceremony: February 2, 2023

Cargill, a US-based global food and agriculture corporation, has offered full scholarships to more than 100 students from families with an annual income of less than INR 5 lakh, to pursue BS in Data Science Applications at the institute.



MoU with GIC Re | Signing Ceremony: February 10, 2023

IIT Madras is partnering with the General Insurance Corporation of India (GIC Re) to develop a urine-based tuberculosis diagnosis or screening device. The envisaged product is anticipated to be faster and far more affordable than the existing point-of-care diagnostic kits available for various diseases, such as blood glucose monitors.



MoU with Tiger Analytics | Signing Ceremony: March 8, 2023

IIT Madras is partnering with Tiger Analytics to provide educational aid to women students of IITM's online B.S. degree programme who hail from economically-disadvantaged sections of society.



MoU with Nagarro

Signing Ceremony: March 14, 2023

IIT Madras is partnering with Nagarro in the area of quantum technologies, including the design and development of quantum circuits and algorithms, via access to quantum hardware on the cloud. With this initiative, Nagarro now joins the Industry-Academia Consortium on Quantum Computing, hosted by the Centre for Quantum Information, Communication and Computing, a Centre of Excellence at IIT Madras.



7.1.5.7. Alumni Meets, Chapter Meets, and AlumNite

IITMAA Kerala Chapter Annual Meet

July 2, 2022

The IITMAA Kerala Chapter Annual Meet was held on July 2, 2022 at IMA House Kochi. 40+ alumni attended the Chapter Meet.



IITMAA Mumbai and Pune Chapters' Annual Meets | August 6-7, 2022

IITMAA Delhi NCR Chapter Annual Meet | February 26, 2023

IIT Madras Alumni Association's NCR Delhi Chapter Annual Meet was held at IIC, Annex Court, Delhi. The Institute's Director attended the event and updated the alumni about happenings in the campus.



AlumNite and Parents' Day | July 12, 2022

AlumNite and Parents' Day was held on July 12, 2022. For the very first time, parents were invited to be a part of the AlumNite programme, which boasted over 1900 attendees (graduates and their parents).



Alumni Dinner, Singapore | August 27, 2022

A dinner for IIT Madras alumni based in Singapore was hosted by H.E. Mr. P Kumaran, the High Commissioner of India to Singapore.



7.1.5.8. Reunions

The reunion is a nostalgic time for the alumni of the Institute, a special occasion where they reunite with their batchmates and relive memories. In the year 2022-23, more than 600 members attended events along with their families. 1973, 1976, 1981, 1982, 1995, 1996, and 1997 batch alumni attended the Reunion events.

1981 Batch Ruby Reunion | December 21, 2022

70 alumni of the 1981 batch joined the Ruby Reunion Day on December 21, 2022 with their families, and donated a fleet of electric buses to IIT Madras.



1982 Ruby & 1997 Batch Silver Reunion | December 28, 2022

The 40th year (Ruby) Reunion of the 1982 batch and the 25th year (Silver) Reunion of the 1997 batch were organised on December 28, 2022 at IIT Madras. More than 100 alumni attended the event.



1995 and 1996 Batch Silver Reunion | December 30, 2022

The 1995 and 1996 batches' Silver Reunions (25th year) were held on December 30, 2022. A total of 159 alumni attended the event along with their families.



1976 Sapphire Reunion | January 2, 2023

The 1976 batch's Sapphire Reunion (45th year) was held on January 2, 2023. A total of 72 alumni attended the event along with their families.



1973 Golden Jubilee Reunion | January 9, 2023

The Golden Jubilee Reunion (50th year) of the 1973 batch was held on January 9, 2023. A total of 70 alumni attended the event along with their families.



1972 Golden Jubilee Reunion | January 19, 2023

The Golden Jubilee Reunion of the 1972 batch (50th year) was organised on January 19, 2023. A total of 75 alumni attended the event along with their families.



1977 Sapphire Reunion | January 30, 2023

The 45th year (Sapphire) Reunion of the 1977 batch was organised on January 30, 2023. A total of 25 alumni attended the event along with their families.



7.1.5.9. CSR Workshops & Summits

Faculty Awareness Workshop | June 4, 2022

- A Faculty Awareness Workshop was conducted on June 4, 2022 on understanding donor expectations in CSR Funding
- 47 Faculty Members participated in the event
- The event culminated with a 'Donor Expectations' Panel featuring eminent CSR leaders both online and offline in an interactive session



CSR Event at Bengaluru | July 14, 2022

- A CSR Conclave, 'Leveraging Technology to Drive Your CSR', was organised at Bengaluru on July 14, 2022
- 15+ top corporates participated, with 30 guests in all
- The event included engaging panel discussions, a fireside chat and Q&A sessions



'Technology for Everyone' CSR Conclave | September 13, 2022

- A CSR Conclave titled 'Technology for Everyone' (in the same spirit as 'IITM for All') was held in Mumbai on September 13, 2022
- Various corporates were invited and about 17 of them participated
- 10 faculty members across disciplines represented IITM
- Panel discussions were held on various socially-relevant topics, including healthcare, education & skilling, and challenges in environment & urban infrastructure.



Faculty Workshop on Leveraging CSR Opportunities | November 1, 2022

A new web-portal for uploading CSR Proposals was launched during the workshop, in addition to expounding the various advantages of CSR funding and how they could be taken advantage of, to help further the faculty's funding needs, research and innovation.



CSR Summit | December 18, 2022

- The CSR conclave was presided over by Smt. Nirmala Sitharaman, the Honourable Minister for Finance and Corporate Affairs, Government of India
- Over 250 people attended, with over 100 corporates from across India
- The event included panel discussions on various relevant social themes as well as stalls displaying various key projects of corporates as well as IITM faculty members



Thinking Big | February 7, 2023

An exclusive, in-person session that facilitated IIT Madras faculty interactions with eminent global industry icons.



Ceremonial Convocation for the 2020 and 2021 Batches | October 28, 2022

- The Ceremonial Convocation was held on October 28 for the 2020 and 2021 batches
- The Chief Guest presiding over the event was Mr. Prashant Pitti, Co-Founder, EaseMyTrip.com and alumnus of IIT Madras
- The event was successful with an attendance of 1700+ alumni from both batches



63rd Institute Day | April 26, 2023

- The 63rd Institute Day took place on April 26, 2023 at 4:30 PM.
- Shri N Lakshmi Narayanan, Former Vice-Chairman, Cognizant Technologies was the Chief Guest for the occasion
- The Distinguished Alumni Awards for the years 2020 and 2021 were conferred during the event. Out of 22 awardees, 5 received the award
- Various alumni-sponsored Institute Day Prizes were distributed to the students



7.1.5.10. Inaugurations

Inauguration of Nilekani Centre at AI4Bharat | July 28, 2022

- The Centre is funded by Mr. Nandan Nilekani and Mrs. Rohini Nilekani
- Hands-on workshops were held on the topics of machine translation, speech recognition & language understanding



Inauguration of Cybernetik Centre | April 26, 2022

- The Cybernetik Centre, in the Department of Engineering Design, was inaugurated on April 26, 2022 by Mr. Mahesh Wagle and Dr. Nirav Desai, Founders of Cybernetik Technologies, Pune and contributors towards the renovation of the hall
- The hall will serve as a lab for creative design courses as well as a general gathering space for design-related work and brainstorming ideas.



Inauguration of '81 Theatre at IITM Heritage Centre | December 15, 2022



Inauguration of '81 Lounge at QUARK | December 15, 2022



Inauguration of the new Centre For Innovation (CFI) Facility | February 28, 2023

- The brand-new Centre for Innovation facility and workspace, at the new Sudha and Shankar Innovation Hub building, was inaugurated by the Honourable Vice President of India, Shri Jagdeep Dhankhar
- The Hon'ble Vice President encouraged IITM students to continue in their pursuit of driving innovation, and appreciated the alumni for continuing to nurture their alma mater



Launch of Kotak IITM Save Energy Mission | September 19, 2022

- The Kotak IITM Save Energy Mission (KISEM) was created with the aim of helping MSMEs reduce energy consumption
- It was launched by Shri Dharmendra Pradhan, the Honourable Minister for Education, Skill Development and Entrepreneurship, Government of India
- The Hon'ble Minister also felicitated the MPhasis team for supporting the Centre for Quantum Information, Communication and Computing (CQuICC)
- Kotak is committed to supporting the operations of the KISEM IIT Madras Hub and five (5) satellite centres. The total funding support envisaged over four years is INR 20 crore.



7.1.5.11. Alumni Visits

Mr. Mallik Putchas's visit to IITM | November 3, 2022



Ms. Rohini S Chakravarthy's visit to IITM | November 4, 2022



**Mr. GDS Ramkumar's visit to IITM
November 21, 2022**



**Mr. Kannan Govindarajan's visit to IITM
November 23, 2022**



**Mr. Bhanu Kishore's visit to IITM
November 27, 2022**



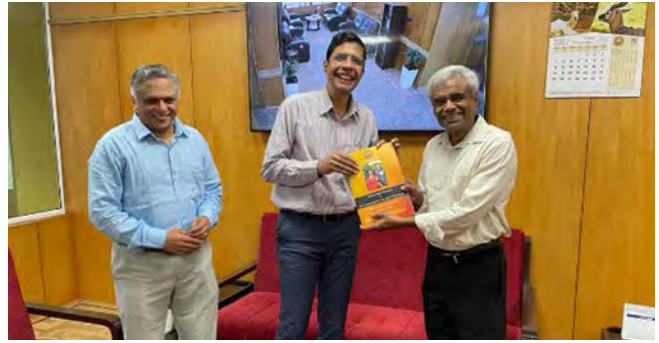
**Mr. VM Thomas meeting with the Director
November 28, 2022**



Dr. Vikram M Rao's visit to IITM for the Energy Consortium | December 8, 2022



Mr. Venkat D Rangan's visit to IITM
December 12, 2022



Mr. Vasudevan Guruswamy's visit to IITM for the Energy Consortium | December 8, 2022



Mr. Karthik Sarma's visit to IITM
December 22, 2022



Mr. Kumar Swaminathan's visit
December 23, 2022



Ms. Meera Sitharam's visit | February 5-7, 2023



Mr. Rajeev Pany's (1992/BT/ME) visit to IITM | March 10, 2023



Mr. Rahul Mehta & Prof. Shankar Subramaniam's visit to IITM | March 11, 2023



Prof. V 'Seenu' Srinivasan's visit to IITM | March 16, 2023



Tamil Vazhi Payirchi

The launch of the "Tamil Vazhi Payirchi" course on NPTEL was held on September 2, 2022 in association with the Madras Dyslexia Association. The Tamil iteration of this course was rolled out following its success in English language.



Distinguished Alumni Award (DAA) Ceremony

The DAA Ceremony was held on Friday, September 16, 2022. Nine Distinguished Alumni received their awards on this momentous occasion.



NIRF Celebrations | October 27, 2022

On the occasion of celebrating IIT Madras's 2022 NIRF rankings, the IITM Strategic Plan was discussed with leading Chennai-based industrialists and key patrons of IIT Madras.



Donation of Laptops for Online B.Sc. Students | November 3, 2022

Generous contributions from our patron Mr. Ram Shiram enabled 100 students from underprivileged backgrounds to receive laptops. Five students were handed over their laptops in person.



ClassFest '22 | November 5, 2022

ClassFest '22 was conducted from November 3-5, 2022. The event conducted on November 5, 2022 was sponsored by the endowment made by Shri Gopalan Raman and Smt. Lakshmi Raman to the Music Club.



Women Leading IITM (WLI) | March 8, 2023

WLI was launched in 2021 as a flagship program to promote, nurture, develop and support women leaders at IITM and encourage their professional career aspirations. This initiative is funded by a few key US-based alumni with the overarching goal of achieving a more gender-diverse and nurturing campus.

17 grantees benefitted in 2021 and 24 grantees received support in 2022. This year saw the highest number of grantees benefit from the program, at 34 grantees in total, resulting in a 41% increase year-on-year.



Heritage Centre Day | March 3, 2023

Heritage Centre Day was celebrated on March 3, 2023, and followed by a talk on 'Heritage, Technology and Sustainable Chennai' by the eminent historian Kombai S Anwar, and a panel discussion on 'Approaches of Film Making by filmmaker Amrit Vatsa and Sripad Sridhar. Guests, alumni, faculty (current & retired), students, and campus residents participated in the event and viewed the exhibits.



7.1.5.12. Corporate Engagement Activities

Team Excelra Visit & Bioscience Workshop
November 3, 2022



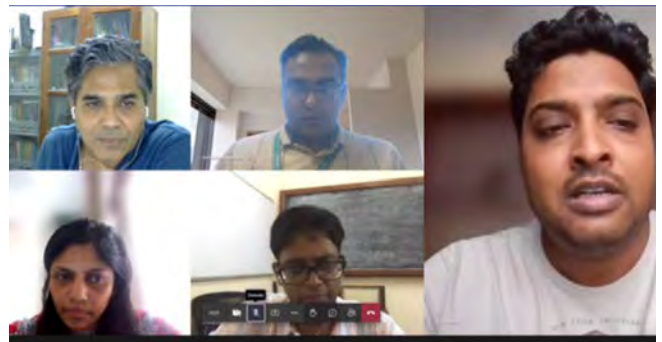
HomoSep project: NSE Foundation (Grant Thornton audit visit) | December 22, 2022



Kaatsu Project: NSE Foundation (Grant Thornton audit visit) | November 29, 2022



Mphasis Technical Review Meeting
November 29, 2022



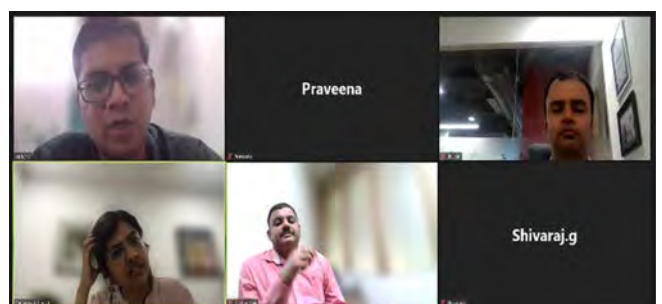
Schaeffler Project: Virtual progress update



CGI Project: Virtual progress update



Media.Net Interaction Call with IITM Incubation Cell



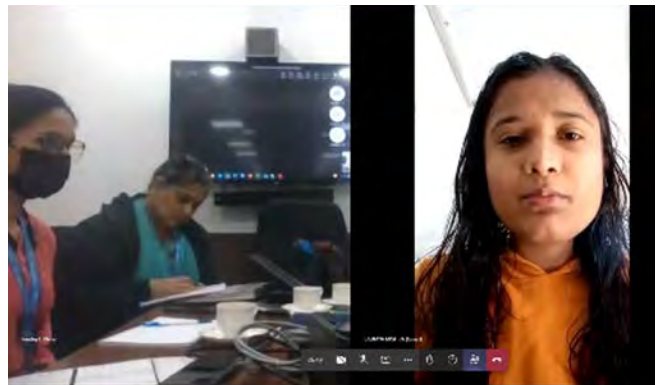
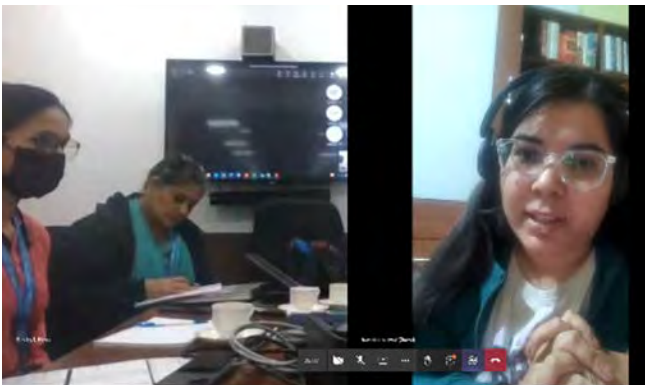
SBI Capital Market Visit to CBEV for Project Review | January 10, 2023



SBI Capital Market Visit to the Infrastructure Systems Delivery Lab and R&D in Infrastructure in Delivery | January 10, 2023



TATA AIA Life Insurance Company Limited Interacting with the B.Sc. Online Student Beneficiaries



In-house STEM Workshop for Government School Students | March 6-10, 2023



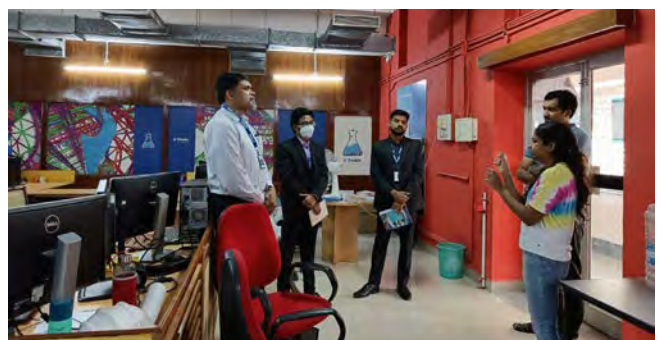
The Grant Thornton Team Audit Visit to NSE-funded Projects: Air Pollution Monitoring System, Robotics Septic Tank Cleaning & CBEV



Portescap Team Visit



Trimble Information Technologies India Pvt. Ltd.: Visit to Trimble Lab & Incubation Cell



Chola MS Risk: Discussion on the Process Safety Award and New Collaborations



5G Network Project Visit by the LTI Team



CSR Summit at IITM Campus: Corporate stakeholders' tour of IITM Research Park



7.2

Office of Global Engagement (OGE)

7.2.1. Introduction

The Office of Global Engagement (OGE) at IIT Madras is a dedicated department focused on promoting international collaborations, supporting international faculty, staff, and students, and facilitating global learning opportunities. The OGE strives to create an inclusive and diverse environment that embraces global cultural exchange and educational opportunities for students and staff.

One of the key responsibilities of the OGE is to attract and support international students through various unique academic programs and activities. Our Office provides information and support for admissions, visa processing, and academic activities for international students. By offering the appropriate orientation programmes, we ensure that students feel welcome and inclusive during their stay at our campus.

Moreover, the OGE collaborates with various academic and research institutions across the globe to establish and maintain international partnerships to enable student exchange, joint master's/research programs and faculty collaborations. These collaborations help our Institute to foster academic research, innovations in cutting-edge technologies, and cultural exchanges between students and scholars from different countries.

Additionally, the OGE helps in organising and facilitating international workshops, seminars, and conferences to bring world-class researchers together to work on common research interests, to address global issues and find their solutions.

All these activities are broadly categorized into three main verticals, namely:

1. International Academic Programs
2. International Collaboration
3. International Conference Secretariat

7.2.2. International Academic Programs

7.2.2.1. Inbound Activities

Full-time Admissions

Thirty-four full-time international students enrolled at IIT Madras in the year 2022–23, and around 42 exchange students from various European countries, as well as a few from Japan and South Korea, also enrolled this year.

I2MP (International Interdisciplinary Master's Program)

I2MP is an interdisciplinary M.Tech. program offered at IIT Madras in emerging technology areas to international students. This program was launched in 2022, and in its first batch, 18 students from various countries have joined this year.

African-Asian Rural Development Organization (AARDO)

IIT Madras offers scholarships to students from AARDO nations for the M.S. research programme in projects that have a special focus on rural development. Eight students were enrolled this year, which was a significant increase from the last year, in which only three students were enrolled.

‘Experience IIT Madras’ for International Students

The OGE invited international students studying at various universities/colleges across Chennai to participate in ‘Experience IIT Madras’, a unique international student fair on the IIT Madras campus. The participating international students were given a complete overview of the Institution, its various programmes and facilities, and the scholarships available to international students from diverse backgrounds.

Visits to Other Institutions in Chennai

Attempts were made to visit universities/colleges in Chennai with strong international student populations, to create strong relationships in terms of the mobility of international students. Outreach initiatives to other government and private universities in India which have a good number of international students were also undertaken.

Virtual Study Fairs

A series of virtual events were conducted to promote full-time degree programs and scholarships for international students currently studying in India and globally.

The virtual events were attended by international students currently studying in India as well as in international regions.

- i. Study at IIT Madras: Africa & Middle East Edition
- ii. Study at IIT Madras: SAARC & Central Asia Edition
- iii. Study at IIT Madras: Asia-Pacific Edition
- iv. Scholarships at IIT Madras
- v. Discover IIT Madras (with international students studying in Indian universities/colleges)
- vi. Application Workshop Webinar

STSI Study Tour

A study tour was conducted by the OGE for Hokkaido University, Japan. Seven students, along with three professors and two staff, visited IIT Madras for about a week under this program. Participants were shown different labs and research centres in IIT Madras. They were given a tour of the campus to show them the enrichment of nature, and they engaged with cultural activities such as yoga.

University of Wollongong, Australia: Summer School

A summer school program was organized by the Department of Metallurgical and Materials Engineering, IIT Madras for the University of Wollongong, Australia, in which 18 students participated. Through this program, students were offered live classes, lab visits and visits to heritage sites near Chennai city. They were also offered the special cultural experience of playing cricket with IITians.

7.2.2.2. Overall Student Experience

Onboarding

The OGE is keen on offering seamless onboarding processes for international students, hosting an orientation webinar before they arrive, and ensuring they have a buddy to help in their early days. The OGE also aids them with their Foreigners Regional Registration Office (FRRO) process, opening bank accounts, obtaining SIM cards, etc.

Joint Master’s Program

Kathmandu University, Nepal—IIT Madras

Four students got selected under this Joint Master’s Program and will join IIT Madras in the coming year.

University of Birmingham, UK—IIT Madras

The admission process for a Joint Master’s with the University of Birmingham has started, and quite a large number of applications have been received for the 2023 batch.

Automation in the Admission Process

To ease and expedite the admission process, a tool named ‘No Paper Form’ is being used, which reduces tedious manual processes as well as working hours required.

KBS Documentary

The Korean Broadcasting System (KBS), which is one of the premier South Korean commercial television stations, made a documentary named 'Genius India' to celebrate the 50-year friendship between South Korea and India. As part of this documentary, the OGE facilitated the making of an entire episode dedicated to IIT Madras, titled 'IIT Madras which produces outstanding human resources through a unique education style'.

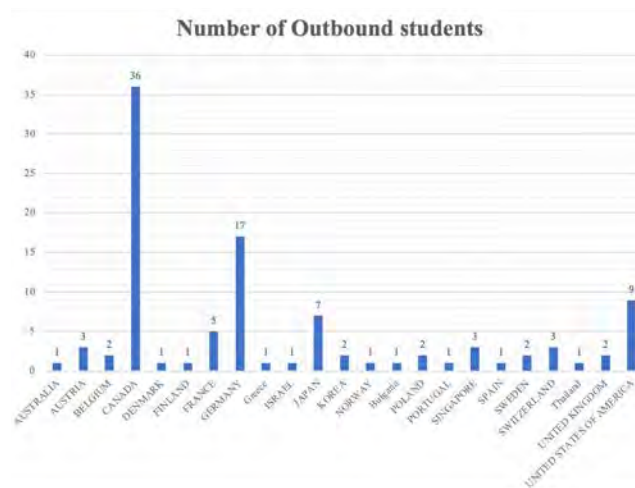
Link to watch the episode: youtu.be/mAvCDJV7PHk

7.2.2.3. Outbound Activities

Semester Exchange Program

The student exchange program is a study program in which students pursue their education at one of our international partner institutions for a period of six months to one year. Study abroad programs are typically intended for undergraduates & graduate students who want to spend a semester abroad taking courses/project work. These experiences play a major role in their self-development and awareness, leading to enhanced self-confidence and self-esteem. Such exposure also makes them more comfortable in foreign and novel environments.

Between 2022 and 2023, the OGE assisted more than 140 students from IIT Madras in pursuing outbound programs through semester exchange programs, internships, summer schools, research exchanges, joint doctoral programs, workshops, and conferences.



Country-wise student outbound data, 2022-23

Information Session

The Semester Exchange Information Session, organized by the OGE and the Global Engagement Council, aimed to provide valuable information and guidance to students interested in pursuing outbound mobility opportunities. This collaborative event, held on February 22, 2023, witnessed the enthusiastic participation of over 200 students.



Semester Exchange information session

International Immersion Experience (IIE) Programme

Introduction

The International Immersion Experience (IIE) programme, initiated by the Office of Global Education, aims to facilitate exceptional Ph.D. scholars in conducting cutting-edge research by allowing them to travel to renowned partner institutions abroad. Now in its third and fourth cycle, the programme has successfully enabled highly motivated students to enhance their research capabilities and broaden their global perspectives.

The third cycle information session occurred on November 10, 2022 at the TTJ Auditorium. More than 100 Ph.D. scholars actively participated in the event.



The 3rd edition of the IIE information session

Building upon the success of the previous cycles, the fourth cycle information session was held on July 2, 2023. Over 100 Ph.D. scholars attended the event, reaffirming their commitment to pursue global research collaborations.



The 4th edition of the IIE information session



Poster Session by the Awardees

To represent the impact of the IIE program, a poster presentation session was organised on December 15, 2022 at 5.30 PM in Humanities & Sciences Block (HSB) 133. As a part of the presentation, the awardees presented the highlights of their research accomplishments, especially the work that was done at the partner institutes during the IIE program. Close to 30 IIE awardees presented their research work, and more than 200 students, scholars and faculty visited the session.



Poster exhibition of the IIE awardees

Programme Impact

Since its inception, the IIE programme has enjoyed remarkable success, with the participation of over 60 Ph.D. scholars. These scholars have had the opportunity to collaborate with leading researchers and access cutting-edge facilities at partner universities worldwide.

Joint Doctoral Program (JDP)

The Joint Doctoral Program (JDP) at IIT Madras is a unique opportunity for Ph.D. scholars to gain substantial research exposure and enhance their thesis work by providing an opportunity to collaborate with any of our 19 prestigious partner institutes and universities around the world. Under the program, IIT Madras Ph.D. scholars can conduct research work for a duration of 12 to 18 months with a host faculty in one of the partner institutes.

Information Session

The Office of Global Engagement, IIT Madras organised a JDP information session for all interested Ph.D. students on March 31, 2023.



JDP information session

Academic Visits

As part of the academic programme, the OGE has hosted delegates from our partner institutes to enhance collaboration with our partners. OGE staff also visited our partner universities as a part of outreach programs, to strengthen relationships with our partner institutions.

Erasmus Visits

During the Erasmus International Staff Training Week, four staff members from the Office of Global Engagement visited the University of Cantabria, Spain, from June 20-24, 2022.

The four-member IITM OGE team with the rest of the participants and organisers of International Staff Week at the University of Cantabria, Spain



The OGE also hosted incoming staff as a part of the Erasmus staff mobility programme. Ms. Anja Brueggeman from Freie University Berlin, Germany, visited IIT Madras for a duration of one week (April 24-28, 2023). Mr. Antonio Ruiz Moya from the University of Granada, Spain, also visited IIT Madras from May 8 to 12, 2023.



The Global Engagement team with the visiting staff from Freie University Berlin and the University of Granada

7.2.3. Global Collaboration

International Delegation Visits

International delegation visits under the vertical ‘Global Collaboration’ play a vital role in making IIT Madras a true international higher education institute.

Building International Relationships: Visits from international delegations to IIT Madras provide opportunities to build and strengthen relationships with international universities, organisations, research institutions and government bodies from other countries.

Exchange of Academic Programmes and Facilities: International delegation visits provide opportunities to showcase our academic programs, research facilities, and other infrastructure at our campus, which will attract foreign students and faculty to collaborate with us.

The below picture and the table illustrate the important visits made and the potential research collaborations areas identified.



| S. No. | Name of the University | Country | Discussed/Identified Research Areas |
|--------|---|----------------|--|
| 1 | SUNY Albany University | USA | Introductory visit |
| 2 | Tel Aviv University | Israel | Collaboration in Quantum & Urban Planning |
| 3 | Griffith University | Australia | <ul style="list-style-type: none"> • Environmental Science (top area) • Computational Economics • Game Theory • Management studies • Restoration of ecosystem • Hydro-ecology • Environmental Flow of Rivers • Global Water Programme |
| 4 | University of Waterloo | Canada | <ul style="list-style-type: none"> • Energy Consortium • Biomedical Instrumentation • Integrated Circuits • Quantum Science • Clean Water (ICCW) • Health Technologies (HTIC) • Manufacturing (AMTDC) • Electronic Vehicles (EBV) |
| 5 | KTH Royal Institute of Technology | Sweden | <ul style="list-style-type: none"> • High-voltage Engineering with focus on High-voltage Power Grid Components, Insulation Systems and Diagnostic Methods for Detection of Ageing in High-voltage Insulation • Chemical Engineering with specialisation in Energy Processes • Division of Network and Systems Engineering • Wireless for Machine Learning |
| 6 | University of Edinburgh | UK | <ul style="list-style-type: none"> • Collaboration in Computer Science & Engineering • Air Pollution • AI & ML in Healthcare • Air Quality • Robert Bosch Center for Data Science & Artificial Intelligence (RBCDSAI) • National Programme on Technology Enhanced Learning (NPTEL) (for joint courses) • Joint course on the Internet of Things (IoT) |
| 7 | Technical University of Munich Asia | Singapore | <ul style="list-style-type: none"> • Aerospace Engineering, • Mechanical Engineering, • Flight System Dynamics |
| 8 | Durham University | UK | Memory Studies |
| 9 | British Deputy High Commission Office | UK | <ul style="list-style-type: none"> • Energy • Climate Change |
| 10 | University of Galway | Ireland | Joint Doctoral Program (JDP) / Joint Master's Program JMP |
| 11 | Mohamed bin Zayed University of Artificial Intelligence | Abu Dhabi, UAE | AI & Natural Language Processing |
| 12 | Loughborough University | UK | Metallurgical & Materials Engineering (MME) & Advanced Manufacturing Technology |
| 13 | Hokkaido University | Japan | Structural Engineering, Construction technology |
| 14 | Kanazawa University | Japan | <ul style="list-style-type: none"> • Entrance exam, • Teaching methods, and • Grading methods of IIT Madras |
| 15 | University of Tours | France | <ul style="list-style-type: none"> • Plant Biology & Microbial Biotechnology • Computer Sciences, • Data Science and AI • Development Studies • Economics and English Studies (Humanities and Social Sciences) • Sustainability • Water Management Sciences |

| S. No. | Name of the University | Country | Discussed/Identified Research Areas |
|--------|---------------------------------|-------------------|---|
| 16 | University of Hull | UK | <ul style="list-style-type: none"> • Renewable Energy • Data Science & AI • Global Health • Climate Change |
| 17 | University of Adelaide | Australia | <ul style="list-style-type: none"> • Energy • Health Sciences • AI • Agricultural Sciences |
| 18 | University of St Andrews | UK | <ul style="list-style-type: none"> • Memory Studies • Energy Consortium • JDP/JMP |
| 19 | Health & Innovation Minister | Western Australia | Health technology |
| 20 | Singapore Management University | Singapore | Short-term Immersion Programmes for Students from the Departments of Computer Science & Management Studies JDP, JMP Bilateral Student Mobility, MoU Faculty Matching/Faculty Workshops: Sustainability Sector |
| 21 | Western Sydney University | Australia | Sustainability Medical Science |



International Delegation visits



Memoranda of Understanding (MoUs)

In the year 2022-23, many international institutions expressed their interest in having an MoU with IIT Madras, which will facilitate the easy mobility of students and faculty. The below image illustrates the demographics of countries in which new MoUs have been signed.

- Czech Academy of Sciences, Czechia
- University of Zurich, Switzerland
- Royal Melbourne Institute of Technology, Australia
- University of Hull, UK
- Universitas Negeri Padang, Indonesia
- Edith Cowan University, Australia
- Kathmandu University, Nepal
- King's College, Nepal
- Kathmandu Engineering College, Nepal
- Sri Lanka Technological Campus (SLTC), Sri Lanka
- University of Cambridge, UK
- Cancer Science Institute of Singapore, National University of Singapore, Singapore
- University of Colombo, Sri Lanka
- Massey University, New Zealand
- National Institute for Materials Science, Japan
- Kanazawa University, Japan
- Inonu University, Turkey
- Durham University, UK
- TWI Limited, UK & India
- University of Adelaide, Australia
- UNITWIN Network, Japan
- Sri Lanka Institute of Information Technology, Sri Lanka



IoE Research Initiatives

In line with our mission to promote world-class research, IIT Madras has identified 68 research initiatives across 21 technology clusters that address diverse fields of contemporary relevance. These initiatives have completed Phase I, a two-year period of proposal execution, and have transitioned into Phase II, which involves executing their long-term plans with dedicated funding. Through an extensive and rigorous review process, we have identified 15 Centres of Excellence within the IIT Madras system, as well as 22 Research Centres and 10 Research Projects, which have also been provided with funding. These research initiatives encompass a broad spectrum of disciplines and involve the participation of over 400 faculty members. By fostering interdisciplinary research, they facilitate collaborations that can lead to ground-breaking discoveries, innovations, and advancements in key areas.

The funding provided through the IoE initiative has played a crucial role in empowering these research initiatives and promoting a culture of excellence in research at IIT Madras. It has facilitated the establishment of state-of-the-art infrastructure, research facilities, and technology platforms, which are instrumental in driving scientific advancements.

Through robust partnerships with renowned universities and research institutions worldwide, we engage in collaborative research projects, joint publications, and knowledge exchange programs.

Through international collaborations and mobility programs, IIT Madras aims to create a vibrant ecosystem that promotes cross-cultural learning, facilitates knowledge transfer, and nurtures a global perspective among our students and faculty members.

The IoE funding at IIT Madras has brought about the following significant benefits in advancing research and driving positive impact.

- 1. Enhanced Research Capabilities:** The IoE funding has empowered researchers at IIT Madras to pursue ambitious and impactful research projects. The availability of state-of-the-art infrastructure, cutting-edge equipment, and advanced research facilities has bolstered our research capabilities. This has facilitated breakthrough discoveries, innovations, and technological advancements across various disciplines.
- 2. Interdisciplinary Collaborations:** The IoE funding has fostered interdisciplinary collaborations among researchers from different fields. This cross-pollination of ideas and expertise has led to novel approaches, synergistic research outcomes, and transformative solutions to complex problems.

- 3. Knowledge Creation and Dissemination:** The IoE funding has enabled the creation of new knowledge and the dissemination of research findings. Our faculty members and researchers have made significant contributions to scientific literature through high-impact publications, patents, and conference presentations. The funding has also supported academic conferences, workshops, and symposia, providing platforms for researchers to share their insights, exchange ideas, and foster intellectual discourse.
- 4. Societal Impact and Industry Collaboration:** The IoE funding has facilitated research that addresses critical societal challenges and fosters industry collaboration. Our researchers have developed solutions and technologies that have the potential to positively impact society and contribute to economic growth.
- 5. Talent Development and Training:** The IoE funding has supported the development of research talent by providing opportunities for students and early-career researchers to engage in cutting-edge research projects.

Phase II Review Process

After the review process, 15 proposals have been identified as IoE Centres of Excellence, 23 as IoE Research Centres, and 10 as IoE Research Projects. The details are as follows:

| IoE Centres of Excellence | | | |
|---------------------------|---------------------------|-----------------------|---|
| S. No. | Principal Investigator | Email ID | Research Area |
| 1 | RI Sujith | sujith@iitm.ac.in | Critical Transitions in Complex Systems |
| 2 | Krishnan Balasubramanian | balas@iitm.ac.in | NDE 5.0 – Industrial Assets and Process Management |
| 3 | Pradeep T | pradeep@iitm.ac.in | Centre of Excellence on Molecular Materials and Functions |
| 4 | Manu Santhanam | manus@iitm.ac.in | Technologies for Low Carbon and Lean Construction |
| 5 | Mohanasankar Sivaprakasam | mohan@ee.iitm.ac.in | Healthcare and Assistive Technologies |
| 6 | Sriram V | vsriram@iitm.ac.in | Maritime Experiments to Maritime Experience |
| 7 | Anil Prabhakar | anilpr@ee.iitm.ac.in | Centre for Quantum Information, Communication and Computing |
| 8 | Mahesh Panchagnula | mvp@iitm.ac.in | Sports Science and Analytics |
| 9 | Basavaraja Madivala | basa@iitm.ac.in | Centre for Soft Matter |
| 10 | Shanthi Pavan | shanthi@ee.iitm.ac.in | Centre of Excellence in RF, Analog, and Mixed Signal ICs |
| 11 | Ranjit Kumar Nanda | nandab@iitm.ac.in | Atomistic Modelling and Materials Design |
| 12 | Mani Mathur | manims@ae.iitm.ac.in | Geophysical Flows Lab |
| 13 | Mahalingam S | mahalingam@iitm.ac.in | Centre for Cancer Genomics and Molecular Therapeutics |
| 14 | M S R Rao | msrrao@iitm.ac.in | Quantum Centre for Diamond and Emergent Materials |
| 15 | Satyanarayanan S | satya@iitm.ac.in | Energy Consortium |

| IoE Research Centres | | | |
|----------------------|------------------------|---------------------------|---|
| S. No. | Principal Investigator | Email ID | Research Area |
| 1 | Sachin S Gunthe | s.gunthe@iitm.ac.in | Laboratory for Atmospheric and Climate Sciences |
| 2 | Sathyan Subbiah | sathyans@iitm.ac.in | Extra Terrestrial Manufacturing (ExTeM) |
| 3 | Anbarasu M | anbarasu@ee.iitm.ac.in | Advanced Memory and Computing |
| 4 | Pradeep K G | kgprad@iitm.ac.in | Correlative Microscopy for Energy Related Materials |
| 5 | Abhishek Misra | abhishek.misra@iitm.ac.in | 2D Materials Research and Innovations |
| 6 | Ravindran B | ravi@cse.iitm.ac.in | Data Science and AI Consortium |
| 7 | Jim Libby | libby@iitm.ac.in | Experimental High-Energy Physics |
| 8 | Amitava DasGupta | adg@ee.iitm.ac.in | Gallium Nitride Research and Development (GRAND) |
| 9 | Ligy Philip | ligy@iitm.ac.in | Water and Sustainability |
| 10 | Murugavel P | muruga@iitm.ac.in | Functional Oxides Research Group (FORG) |

| IoE Research Centres | | | |
|----------------------|--------------------------|----------------------------|---|
| S. No. | Principal Investigator | Email ID | Research Area |
| 11 | Gnanamoorthy R | gmoorthy@iitm.ac.in | Architected Materials Design and Manufacturing for Next-Generation Electric Vehicles & High-Speed Railway |
| 12 | Dillip Kumar Chand | dillip@iitm.ac.in | Self-assembled Molecular Architectures with Isolated Nano-space |
| 13 | Sriramkumar L | sriram@physics.iitm.ac.in | Centre for Strings, Gravitation and Cosmology |
| 14 | Manivannan M | mani@iitm.ac.in | VR and Haptics |
| 15 | Sankaran S | ssankaran@smail.iitm.ac.in | Centre for Advanced Microscopy and Materials |
| 16 | Jayeeta Bhattacharya | jayeeta.iitm@gmail.com | Optoelectronic Carbon Nanostructures and OLED Display Lab |
| 17 | C V Krishnamurthy | cvkm@iitm.ac.in | Microwave and Millimeter Wave Studies |
| 18 | Thillai Rajan A | thillair@iitm.ac.in | Centre for Research on Start-ups and Risk Financing |
| 19 | Kunal Krishna | kunal@iitm.ac.in | Centre for Operator Algebras, Geometry, Matter and Spacetime |
| 20 | Bijoy Krishna Das | bkdas@iitm.ac.in | Photonic Integrated Circuits |
| 21 | AN Rajagopalan | raju@ee.iitm.ac.in | Computer Vision |
| 22 | Shweta Agrawal | shwetaag@cse.iitm.ac.in | Cybersecurity Centre |
| 23 | Murugaiyan Amirthalingam | murugaiyan@iitm.ac.in | Materials and Manufacturing for Futuristic Mobility |

| IoE Research Projects | | | |
|-----------------------|--------------------------|-------------------------------|--|
| S. No. | Principal Investigator | Email ID | Research Area |
| 1 | Chandrasekhar Annavarapu | annavarapuc@civil.iitm.ac.in | Subsurface Mechanics and Geo-Energy |
| 2 | Nitish R Mahapatra | nmahapatra@iitm.ac.in | Molecular Medicine |
| 3 | Ashis Kumar Sen | ashis@iitm.ac.in | Micro- & Nano-Bio-Fluidics |
| 4 | Mani A | mania@iitm.ac.in | Solar Desalination and Cold Storage Systems |
| 5 | Gitakrishnan R | gitakrishnan@civil.iitm.ac.in | Emerging Mobility Technology (EmMo Tech) |
| 6 | Sekar G | gsekar@iitm.ac.in | Chiral Technology |
| 7 | Raghu V Prakash | raghuprakash@iitm.ac.in | Structural Integrity of Safety-critical Systems |
| 8 | S Ramakrishnan | sramki@iitm.ac.in | Medical Device Regulations and Standards |
| 9 | Samuel G L | samuelgl@iitm.ac.in | Advanced Laser Material Processing and Surface Engineering |
| 10 | Sayan Gupta | sayan@iitm.ac.in | Complex Systems & Dynamics |

7.2.4. International Conference Secretariat, Office of Global Engagement

Introduction

The International Conference Secretariat at IIT Madras plays a vital role in ensuring streamlined conference organisation and providing valuable assistance to coordinators for webinars, workshops, symposia, and conferences on a national and international scale.

Over the last 12 months, the International Conference Secretariat has supported 38 international conferences and workshops, with more than 250 international speakers and participants. A part of the Institute of Eminence funding has been used to provide financial support to the tune of INR 286 lakh thus far.

India-Purdue Collaborative Lecture Series: The Future of Food and Agriculture

In honour of Bharat Ratna Professor CNR Rao, IIT Madras hosted a segment of the 8th Annual India-Purdue Collaborative Lecture Series. During the event, Professor Jayson Lusk, Distinguished Professor and Head of the Department of Agricultural Economics at Purdue University, was joined on stage by Professor Saraswat and Professor Ambrose, also from Purdue University. The discussion on the Future of Food and Agriculture was moderated by Professor Muraleedharan from IIT Madras.

Eminent Speaker Lecture Series

An Eminent Speaker Lecture Series was envisioned as a Global Engagement initiative to significantly enhance the global perception of IIT Madras. This endeavour sought to feature renowned speakers, including Nobel laureates, esteemed scientific luminaries, and prominent personalities from the realms of arts and sports.

Held over two days, the inaugural lecture of the series was delivered on February 13, 2023 by Prof. Carl-Henrik Heldin, Chair of the Nobel Foundation and a molecular biologist and cancer researcher from Uppsala University. At the public event the next day, Dr. Heldin delivered a lecture on cancer research and inspiration from the Nobel Prizes, attended by over 900 attendees, including students, academicians, and dignitaries.

Subra Suresh Distinguished Lecture Series

This historic lecture series creates a space where researchers can come together and work collaboratively to the benefit of IIT Madras. It was conceptualised by Mr. 'Kris' Golpalakrishnan, Co-Founder, Infosys, chairman of Axilor Ventures, and a distinguished alumnus of IIT Madras.

Lecture 1

The first lecture of this series was organised by the Office of Global Engagement and supported by the Office of Alumni and Corporate Relations in October 2022, featuring the esteemed Professor Didier Queloz, recipient of the 2019 Nobel Prize in Physics. Prof. Queloz's ground-breaking discovery, which ignited the exoplanet research revolution, was the focal point of his captivating presentations. He delivered two enlightening lectures: **'The Exoplanet Revolution'** (technical) and **'The Exoplanets and the Search for Life in the Universe'** (public).

Lecture 2

In the second edition of the prestigious Subra Suresh Distinguished Lecture Series, held in March 2023, Prof. Brian P Schmidt delivered two lectures— **'The Universe from Beginning to End'** (public) and **'3 Big Questions for Astronomy'** (technical). The common theme in both lectures was the expansion of the universe and his efforts towards finding the age of the universe. During the public lecture attended by over 1000 participants at the IITM Research Park, he shared insightful anecdotes about his personal journey as a Nobel laureate. On the other hand, the technical lecture was exclusively tailored for the IIT Madras fraternity, encouraging in-depth and analytical discussions.





Other Conferences

The following conferences held at IIT Madras were supported by the Office of Global Engagement:

1. International Conference on Analysis, Inverse Problems and Applications
2. International Symposium on Geophysical Flows
3. Memory in the Digital Age
4. Indo-German Workshop-2022: Complex Chemical Systems (IGW-CCS-2022)
5. Microbiomes in Environment, Space and in Human Health
6. Advanced Electron Microscopy and its Applications to Materials Science Problems
7. IIT Madras Conference on Molecular Materials and Functions 2022
8. Energy Summit 2022
9. PSE Asia 2022, 10th International Symposium on Process Systems Engineering
10. Numerical and Experimental Modelling of Wave Structure Interactions (NEMWSI)
11. Symposium on Epidemic Modelling
12. Eight Indian Control Conference (ICC-8)
13. Water for Life: An IIT Madras Conference 2022
14. 42nd Conference on Foundations for Software Technology and Theoretical Computer Science (FSTTCS 2022)
15. Black Holes and Gauge Theories in the Era of Quantum Holographic Enlightenment
16. Quantum Field Theory in Quantum Spacetime
17. International Conference in Advanced Biomedical Imaging
18. Evolution of Electronic Structure Theory and Experimental Realization (EESTER)
19. International Conference on Energy Conversion and Storage (IECS-2023)
20. Progress in Quantum Science and Technologies (PIQUST)
21. Conference and Workshop on Vector Bundles with Broad area: Algebraic Geometry
22. Popular Mathematics Workshop
23. IITM-Curtin Sustainable Futures Summit
24. Indo-French Workshop on Microwave and Photonics Technologies
25. International Conference on Advanced Ceramic Technologies for Mobility (CTFM 2023)

Launch of Rendezvous magazine

Prof. Raghunathan Rengaswamy, Dean, Office of Global Engagement, and Prof. Preeti Aghalayam, Advisor, Office of Global Engagement, felt the need for a magazine that would showcase the human side of IIT Madras and its flora and fauna to the global community in the hope that it will pave the way for more international collaborations and partnerships. Though the broad idea was to curate stories that would appeal to an international audience, just like any other academic magazine, it was also to document the several initiatives that come through the Office of Global Engagement. Thus emerged Rendezvous, filling that gap.

In March 2023, the first edition of Rendezvous was published by the Office of Global Engagement and received overwhelmingly positive feedback from in-house faculty members, partner universities, and professional journalists.

IIT MADRAS
Rendezvous

VOLUME 01 | ISSUE 01 | JANUARY- MARCH 2023

**Spring,
summer,
fall and**

winter

The inspiring story of an Afghan student who is on course to complete her Master's degree from IIT-M – albeit, remotely.



Rendezvous gets printed every quarter and is also available as a flip book and as a website.

For the flip book version, click here: publuu.com/flip-book/121983/326963

For the online version, click here: ge.iitm.ac.in/Rendezvous/

8

Central Library

The Central Library is equipped with all modern facilities. It has a rich collection of information resources in CD-ROMs, online databases, eJournals, eBooks, e-standards, e-patents, research support tools, and printed material related to applied science, engineering, technology, humanities, management, social science, and emerging subjects. The Central Library holds 431179 items, including 2750 current journals, and caters to the information needs of 14006 members, providing various value-added services with the help of modern information-handling tools and techniques. The primary activities of the Central Library between April 2022 and March 2023 are described here.

8.1. Library Information Services: Statistics

| Item | 2021-22 | 2022-2023 |
|---|---------------|---------------|
| Collections | | |
| Books (general) | 262526 | 263388 |
| Books (gratis) | 16254 | 16738 |
| Books (Hindi) | 1107 | 1215 |
| Books (project) | 1666 | 1666 |
| Theses | 8406* | 8998 |
| Book Bank | 15310 | 15378 |
| Current periodicals by subscription | 2698 | 2750 |
| Back volumes of periodicals | 108088 | 101093 |
| CD-ROMs | 1510 | 1510 |
| Audio/video cassettes | 448 | 448 |
| eBooks | 16777 | 17995 |
| Total | 434790 | 431179 |
| *Some documents were withdrawn | | |
| Membership | | |
| Staff | 622 | 590 |
| Faculty, Senior Scientific Officer, Scientific Officer, emeritus professors, visiting faculty, and adjunct professors | 621 | 653 |
| Students | 11869 | 11852 |
| Retired faculty & officers | 31 | 35 |
| Alumni members | 442 | 452 |
| Corporate members | 48 | 48 |
| Special members | 0 | 0 |
| IAS members | 316 | 320 |
| Project coordinators | 56 | 56 |
| Total | 14005 | 14006 |

| Item | 2021-22 | 2022-2023 |
|--|-------------------|-------------------|
| Services: Circulation | | |
| Number of books/journals issued | 7442 | 34698 |
| Number of books issued from the Book Bank (to the General Section) | 21 | 534 |
| Number of books issued from the Book Bank (to the Weaker Section) | 10 | 301 |
| Overdue and other charges collected | INR 1.46 lakh | INR 5.56 lakh |
| Project Loans to Faculty, Departments and Centres | | |
| Books issued | 148 | 0 |
| Inter-library loan transactions | | 8 |
| Books borrowed from other libraries | 2 | 0 |
| Books loaned to other libraries | 4 | 0 |
| DDS/Reprint service | | |
| Reprints received from other institutions (pages) | 175 | 474 |
| Reprints supplied to other institutions (pages) | 1085 | 2370 |
| Smart Cards | | |
| Cards generated/issued | 3692 | 7107 |
| Expenditures | | |
| 1. Purchase of books/eBooks | INR 182.84 lakh | INR 239.13 lakh |
| 2. Subscriptions to journals and databases | INR 2020.13 crore | INR 2360.04 crore |
| Journals/databases deleted | 00 | 00 |
| New journals/databases added | 2 | 52 |

8.2. ISO 9001:2015 Activities

The Central Library actively participates in ISO 9001:2015 activities and maintains quality-based library system services and procedures. The significant activities related to ISO 9001:2015 and conducted in the academic year 2022–23 are listed here:

- An Internal Audit ISO 9001:2015 was conducted on July 22, 2022
- An ISO Management review meeting (QSM-IITM) was held on September 1–2, 2022
- An Internal Audit ISO 9001:2015 was conducted on January 4, 2022
- An ISO Management review meeting (QSM-IITM) was held on February 8, 2023

8.3. Major Initiatives

The Central Library has taken various initiatives to improve the existing infrastructure, facilities, and services, and to procure bookshelves to increase the collections, to provide robust and dynamic support to the Institute's academic, research, development, continuing education, and industrial interaction programs and policies. Some of these initiatives are described in the following sections.

8.3.1. Online Book Recommendation System

The online book recommendation system (books.iitm.ac.in) has been implemented with the help of alumni, and enables faculty to recommend books for the Central Library's acquisition. The server has been integrated with ADS/LDAP authentication. Faculty members can log in with their ADS credentials and need to enter only the ISBN of the book in the form provided. The system then searches the book's details with the Google Books API and fetches the bibliographic information. The faculty member can then recommend the book for purchase. After that, the system will send an auto-generated email to the Library Advisory Committee (LAC) member from the faculty member's department. The LAC member will approve or reject the request; the library will initiate the book procurement after approval.

Details of Books/eBooks Purchased (April 2022 to March 2023)

| Departments | AER | APM | BT | CH | CY | CIE | CS | ED | EE | HSS | MGS | MAT | MEE | MME | OE | PH | Book Bank | eBooks | Children's Books | Hindi Books |
|-------------------------------|-----|-----|----|----|-----|-----|----|----|----|-----|-----|-----|-----|-----|----|-----|-----------|--------|------------------|-------------|
| No. of Purchase Orders Placed | 58 | 55 | 71 | 33 | 23 | 95 | 28 | 11 | 42 | 222 | 72 | 48 | 154 | 34 | 31 | 64 | 08 | 09 pkg | 26 | 1 |
| No. of Books Purchased | 60 | 68 | 76 | 22 | 117 | 148 | 28 | 9 | 32 | 85 | 102 | 76 | 125 | 26 | 20 | 272 | 68 | 820 | 26 | 103 |

8.3.2. Online Resources (eJournals, e-Databases, eBooks, Patents, and Standards)

1. IIT Madras has access to online journals and databases from 15 publishers through the Ministry of Education (MoE)'s e-ShodhSindhu consortium.
2. Access to the e-databases and eJournals of various publishers, including the following, were renewed: American Chemical Society, American Geophysical Union (AGU), American Institute of Aeronautics and Astronautics (AIAA), American Institute of Physics (AIP), American Mathematical Society, Blackwell, the British Medical Journal (BMJ), De Gruyter, Elsevier, Institution of Civil Engineers (ICE), Indian Economy Database, Institute of Physics (IOP), ISI Emerging Markets Group, JSTOR, Journal Citations Report (JCR), Maney, MathSciNet, Mendeley Institution Edition, Nature Publishing Group, One Petro, Orbit Express, Oxford University Press, ProQuest: Dissertations and Theses (PQDT), PsycArticle, Royal Society of Chemistry (RSC) Gold, Sage, Society for Industrial and Applied Mathematics (SIAM), Sage Research Methods Online (SRMO), SciFinder Scholar, Science (online subscription), Scopus, Taylor & Francis, Thomson Core Patents, Thomas Telford, Turnitin, UpToDate, Web of Science, Wiley, XLSCOUT Novelty Checker, and Springer Materials database.
3. eBook packages with perpetual access rights were purchased from: Classical Studies E-Books Collections (2020-22), CRC Press & Elsevier engineering e-Books, Emerald case studies, IOP (2020 collection), Wiley engineering e-Books 2022, World Scientific Publishing (AI & IoT and Clean Energy packages)
4. The eBook subscription packages: ProQuest Academic complete subscription, EBSCO Engineering eBook collection, Knovel-Engineering Technical Reference Information, Routledge Encyclopedia of Philosophy, and O'Reilly for higher education.
5. The backfiles of all the AGU Journals, AIAA (5 journals), American Society of Mechanical Engineers (ASME) Journals, American Society of Civil Engineers (ASCE) Legacy Journal Archive, Institution of Mechanical Engineers (IMechE) Archive—Materials Science & Engineering, Institution of Engineering and Technology (IET) Journals, IOP Science Journal Archive, Emerald World Journal of Engineering, RSC Journals, SIAM Locus, ICE's Complete Engineering Journals Archive, SAE International (formerly the Society of Automobile Engineers), and Synlett/Synthesis journals were added.
6. The Library Advisory Committee recommended new subscriptions from 2023 onwards for the following resources: Bloomberg for Education, Grammarly, the Journal of Medical Device Regulation (JMDR), Nature Biomedical Engineering, the International Journal of Masonry Research and Innovation, Cancer Cell, Nature Computational Science, ASME Conference Proceedings, and Press Reader.

8.3.3. e-ShodhSindhu Consortium

The Ministry of Education (MoE) has formed the e-ShodhSindhu Consortium for Higher Education Electronic Resources, merging three consortium initiatives, namely the UGC-INFONET Digital Library Consortium, the National Library and Information Services Infrastructure for Scholarly Content (NLIS), and the Indian National Digital Library in Engineering Sciences and Technology - All India Council for Technical Education (INDEST-AICTE) consortia. The main objective of e-ShodhSindhu is to provide access to qualitative electronic resources, including full-text, bibliographic and factual databases, at lower rates of subscription to universities, colleges, and centrally-funded technical institutions in India. IIT Madras has access to 15 e-resources from e-ShodhSindhu for 2023.

E-Resources Usage Statistics (April 2022–March 2023)

| Resource Name | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Total |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Association for Computing Machinery (ACM) | 893 | 893 | 804 | 821 | 937 | 898 | 840 | 818 | 749 | 7 | 36 | 1127 | 8823 |
| AIP | 7074 | 7118 | 6874 | 6766 | 6994 | 6516 | 6896 | 6677 | 5852 | 6027 | 6593 | 6393 | 79780 |
| ASCE | 1625 | 1975 | 1306 | 1280 | 1426 | 1510 | 1577 | 1494 | 1180 | 254 | 125 | 1815 | 15567 |
| Annual Reviews | 546 | 628 | 520 | 544 | 513 | 450 | 461 | 560 | 462 | 2 | | 768 | 5454 |
| American Physical Society (APS) | 4042 | 4020 | 3708 | 3977 | 4087 | 3884 | 4045 | 4062 | 151 | 2642 | 2498 | 2822 | 39938 |
| ASME | 1481 | 1637 | 1681 | 1621 | 1496 | 1619 | 1301 | 1209 | 1259 | 12 | 5 | 1565 | 14886 |
| JSTOR | 6839 | 7378 | 4351 | 4540 | 5341 | 6192 | 6936 | 5826 | 3410 | 335 | 601 | 7308 | 59057 |
| MathSciNet | 11262 | 13767 | 11561 | 13029 | 13520 | 10794 | 10400 | 10779 | 10279 | 8027 | 5545 | 12036 | 130999 |
| Nature | 7600 | 7517 | 7206 | 6400 | 7704 | 7528 | 7333 | 6898 | 7509 | 59 | 2905 | 8487 | 77146 |
| Oxford University Press (OUP) | 1316 | 1622 | 1095 | 1043 | 1209 | 1417 | 1752 | 1586 | 987 | 1125 | 1815 | 725 | 15692 |
| Project MUSE | 120 | 169 | 562 | 134 | 264 | 161 | 211 | 244 | 148 | 45 | 61 | 232 | 2351 |
| SpringerLink | 19097 | 22327 | 22779 | 22348 | 18572 | 20947 | 19815 | 19995 | 18492 | 426 | 1227 | 23819 | 209844 |
| Web of Science | 45166 | 26942 | 32939 | 18515 | 21085 | 30394 | 76785 | 5471 | 4648 | 12348 | 15489 | 26964 | 316746 |

8.3.4. Extended Working Hours on Saturdays and Sundays

The Library has extended its working hours on Saturdays, Sunday, and holidays up to midnight during quiz weeks and end-semester examinations.

8.3.5. User Awareness Programme

The Central Library has organised the following user programmes for the students, scholars, and faculty of IIT Madras in the form of online webinars by various publishers.

| Programme | Organiser | Date |
|--|----------------------------|------------------|
| Web of Science + Journal Citation Reports (JCR) + Endnote: Technical Session | Clarivate Analytics, Delhi | January 20, 2023 |
| SpringerMaterials Databases | SpringerNature, New Delhi | October 27, 2022 |
| User Awareness Session: Turnitin Feedback Studio with Originality (Anti-Plagiarism Tool) | Turnitin India | October 19, 2022 |
| Empowering Knowledge on Ethical Publishing: Mastering the Art of Identifying Predatory, Fake and Cloned Journals | Elsevier | June 8, 2022 |
| How to Make your Research Impactful from the Resources Available Near You | Taylor & Francis | May 22, 2022 |
| ProQuest Dissertations & Theses | ProQuest India | May 13, 2022 |

8.3.6. Smart Card Facilities

The Central Library provides smart cards for students, faculty and staff members, and other members (IAS and corporate members, alumni, and retired employees). The Library also provides dependent cards for the dependents of current employees of the Institute. In November 2022, smart card printing was shifted from the Library to the Academic section in the Administration building.

| Month | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Total |
|---------------------|-----|------|-----|-----|------|------|------|-----|-----|-----|-----|-----|-------|
| No. of Cards | 326 | 1355 | 205 | 298 | 1288 | 658 | 1526 | 239 | 211 | 540 | 236 | 225 | 7107 |

8.3.7. Weeding Out Damaged Documents

The Central Library staff have identified mutilated documents, multilingual donated books, and highly damaged old-bound volumes and backfiles of journals. After obtaining condemnation approval from the Director and audit clearance, the Stores and Purchase section may sell the documents through e-auction.

8.3.8. Tracing of Publications

The Library staff carry out regular stacking and shelving of the books. Since the Library has an open-access stack arrangement system, users can pick up any book and read it wherever they want. Book stacks are placed on all the floors. This presents chances of misplacing a book from its respective location. Therefore, the Library maintains an untraceable register; if a user cannot locate a book, they can enter its details in the register. The Library staff regularly check the register and trace the books, and a Circulation staff member sends an email to the respective users.

Number of Untraceable Books Entries: April 2022–March 2023

| Month | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| No. of Requests | 10 | 10 | 6 | 13 | 83 | 78 | 41 | 39 | 31 | 51 | 75 | 55 |
| No. of Traced Books | 2 | 5 | 1 | 3 | 28 | 41 | 22 | 34 | 16 | 22 | 35 | 27 |

The number of books traced is less than the number of requests because some books were under issue, sent for repair, eBooks, etc.

8.3.9. Issue of Online No Dues Certificate

IIT Madras's Academic Courses section has implemented an online portal for graduating or discontinued students to obtain the No Dues Certificate (NDC) (ssp.iitm.ac.in). The Library Circulation staff generate the NDC. The user's data is fetched from the library server through API integration and displayed on the online portal. The students can check their NDC status online.

Online NDCs Issued (April 2022–March 2023)

| No Dues | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|-----------------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Faculty | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| Staff | 2 | 3 | 3 | 1 | 3 | 0 | 1 | 0 | 3 | 1 | 4 | 1 |
| Students | 56 | 127 | 1812 | 131 | 56 | 44 | 165 | 64 | 84 | 93 | 141 | 112 |

8.3.10. Scholar/Faculty Profiles

The Central Library has set up Scholar Profiles for faculty members of IIT Madras, using the web-based Indian Research Information System Management (IRINS) service developed by the Information and Library Network (INFLIBNET). The profiles are at iitm.irins.org and are regularly updated by the Library.

8.3.11. Remote Access off-Campus Access Facility for e-resources

Central Library has set up <https://idp.iitm.ac.in> Remote Access off-campus facility with a single sign-on 'SHIBBOLETH' authentication in collaboration with INFLIBNET as well as individual publishers. The SHIBBOLETH open source software server with INFED – INFLIBNET Access Management Federation setup at IITM. More than 45 eJournals/eBooks/databases/Standards resources enabled off-campus access LDAP login for the IITM user's faculty/scholars/students and staff.

Remote Access Usage Report (April 2022-March 2023)

| Description | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Unique Users | 690 | 788 | 702 | 598 | 767 | 506 | 403 | 267 | 313 | 412 | 193 | 209 |
| Unique Publishers | 37 | 36 | 40 | 38 | 40 | 39 | 40 | 42 | 41 | 38 | 28 | 40 |
| Total Logins | 1056 | 1612 | 2416 | 2645 | 3390 | 2156 | 2512 | 5172 | 6090 | 6204 | 2195 | 2344 |

8.4. Usage Statistics of eJournals and eBooks

The eJournals and eBooks usage statistics report is downloaded from the publisher's website with an admin login.

E-Resources Usage Statistics (April 2022-March 2023)

| Resource Name | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Total |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| American Chemical Society (ACS) Package | 27257 | 33485 | 32716 | 34315 | 37843 | 33630 | 33402 | 35499 | 33201 | 23250 | 33419 | 22431 | 380448 |
| AIAA (5) | 37 | 48 | 388 | 30 | 439 | 392 | 39 | 22 | 86 | 72 | 39 | 254 | 1846 |
| American Mathematical Society | 24 | 16 | 18 | 65 | 58 | 5 | 9 | 4 | 7 | 41 | 57 | 28 | 332 |
| Elsevier | 126362 | 145007 | 140540 | 141765 | 124935 | 135881 | 120476 | 129720 | 128742 | 109387 | 141853 | 111193 | 1555861 |
| Emerald | 1649 | 1961 | 1842 | 1992 | 1904 | 2847 | 1569 | 1740 | 1854 | 1468 | 1894 | 1221 | 21941 |
| ICE (10) | 195 | 291 | 309 | 229 | 204 | 288 | 385 | 294 | 212 | 155 | 251 | 146 | 2959 |
| Institute of Electrical and Electronics Engineers (IEEE) Electronic Library (IEL) | 13780 | 12732 | 12581 | 12323 | 13223 | 13236 | 11753 | 12454 | 12145 | 9989 | 12128 | 9648 | 145992 |
| IOP Package | 4866 | 5942 | 6081 | 5579 | 5291 | 5932 | 4598 | 5632 | 5689 | 4631 | 5489 | 6280 | 66010 |
| Nature Pub (16+1) | 4625 | 5574 | 7206 | 3541 | 7704 | 7528 | 4824 | 4987 | 4982 | 590 | 3459 | 6229 | 61249 |
| Optica Publishing Group | 668 | 1094 | 1077 | 761 | 1125 | 710 | 1012 | 986 | 896 | 687 | 789 | 652 | 10457 |
| RSC Package | 11011 | 12796 | 11914 | 12780 | 13182 | 13182 | 10804 | 11392 | 12142 | 11762 | 12821 | 11587 | 145373 |
| Sage (13) & IMechE (18) | 1212 | 2067 | 1837 | 1689 | 2374 | 1339 | 1190 | 1764 | 1859 | 1705 | 1702 | 1180 | 19918 |
| SIAM | 115 | 228 | 168 | 196 | 217 | 139 | 204 | 186 | 191 | 123 | 231 | 83 | 2081 |
| Taylor & Francis (T&F) | 1089 | 1381 | 2294 | 1032 | 5768 | 8928 | 7492 | 8271 | 8574 | 6448 | 8897 | 5820 | 65994 |
| Wiley (91) | 14879 | 16051 | 14209 | 15238 | 15891 | 13953 | 13179 | 14143 | 13284 | 12752 | 15312 | 11579 | 170470 |

eBooks Usage Statistics (April 2022–March 2023)

| | Publisher | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Total |
|----|------------|-----|------|------|-----|------|------|-------|-----|-----|------|------|------|--------------|
| 1 | AIAA | 6 | 5 | 30 | 16 | 9 | 8 | 3 | 3 | 8 | 7 | 28 | 6 | 129 |
| 2 | CUP | 279 | 176 | 385 | 248 | 290 | 291 | 180 | 284 | 246 | 388 | 392 | 301 | 3460 |
| 3 | Elsevier | 928 | 1047 | 689 | 929 | 835 | 850 | 1,013 | 768 | 986 | 1042 | 659 | 1011 | 10757 |
| 4 | Emerald | 6 | 12 | 24 | 32 | 24 | 748 | 26 | 290 | 256 | 13 | 27 | 31 | 1489 |
| 5 | ICE | 32 | 21 | 9 | 16 | 46 | 96 | 112 | 81 | 79 | 50 | 11 | 16 | 569 |
| 6 | IEEE-Wiley | 192 | 100 | 52 | 131 | 78 | 93 | 102 | 124 | 95 | 142 | 58 | 101 | 1268 |
| 7 | IOP | 69 | 100 | 22 | 46 | 62 | 83 | 102 | 89 | 96 | 47 | 27 | 87 | 830 |
| 8 | RSC | 31 | 57 | 36 | 37 | 46 | 34 | 42 | 37 | 39 | 25 | 31 | 38 | 453 |
| 9 | Springer | 659 | 812 | 1569 | 801 | 1476 | 1613 | 982 | 853 | 857 | 649 | 1651 | 815 | 12737 |
| 10 | Wiley | 287 | 188 | 134 | 183 | 290 | 239 | 254 | 263 | 251 | 312 | 141 | 312 | 2854 |

8.5. Recruitment/Promotion of Staff Members

The following four staff members joined on August 18, 2022 as Junior Library Technicians:

1. Ms. VK Varsha
2. Ms. Arpita Pal
3. Mr. Alok Ranjan Sahu
4. Mr. Ajit Kumar Kainchi

8.6. Automation

1. The Central Library's eBooks have been catalogued in the Library's Web Online Public Access Catalogue (WebOPAC) (webopac.iitm.ac.in:8080).
2. The new Library website has been designed and updated.
3. New programme features have been added to the online book recommendation portal at <https://books.iitm.ac.in>.
4. Remote access, enabling off-campus access to e-resources, has been set up at <https://idp.iitm.ac.in>.
5. Data relating to 2656 patrons' (students, faculty and staff members, alumni, and IAS members) records were added to the Virtua-VTLS database.

8.7. Short-Term Courses, Workshops, Seminars, Symposia, Conferences, Meetings, and Training Programmes Attended by Faculty and Staff Members at Recognised Academic Institutions

| S. No. | Faculty/Staff Member | Title | Institution | Dates |
|--------|-----------------------|--|---|----------------------|
| 1 | Dr. Mahendra N Jadhav | Library Selection Committee meeting | Dr. BR Ambedkar Institute of Technology, Port Blair (Andaman and Nicobar Islands) | February 22, 2023 |
| 2 | | Library Selection Committee meeting | IIT Gandhinagar | February 20, 2023 |
| 3 | | Subject Expert Selection Committee for Library Professionals | Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar | December 13-14, 2022 |
| 4 | | Library Advisory Committee meeting | Banaras Hindu University (BHU), Central University Varanasi | September 1-2, 2022 |
| 5 | | CAS Committee meeting—Library Professionals | Tamil Nadu Dr. Ambedkar Law University, Chennai | August 11, 2022 |
| 6 | | Selection Committee Member for Library Professionals | Rajiv Gandhi National Institute of Youth Development, Sriperumbudur | July 22, 2022 |

8.8. Special Lectures Delivered by Staff Members at Other Institutions

| S. No. | Faculty Member | Topic of Lecture | Venue and Date |
|--------|-----------------------|---|--|
| 1 | Dr. Mahendra N Jadhav | Open Data/Open Access Publishing | Chief guest and keynote speaker at a national webinar on 'Open Data Management and Open Access Publishing', Social Development Federation, Agra. June 25, 2022 |
| 2 | | Digital Library Creation Using Open-Source Software | Chief guest and keynote speaker at a national webinar on 'Digital Library Creation using Open Source Software', Mother Teresa Women's University, Kodaikanal. July 1, 2022 |
| 3 | | I. Emerging Trends on Journals: Read and Published II. Metrics to Altmetrics | University Grants Commission–Human Resource Development Centre (UGC-HRDC) and Department of Library and Information, Savitribai Phule Pune University, Pune, November 22, 2022 |
| 4 | | I. Emerging Trends on Journals: Read and Published II. Metrics to Altmetrics | UGC-HRDC and Department of Library and Information, Pondicherry University, Pondicherry, January 23, 2023 |

8.9. Distinguished Visitors/Groups to the Library

- 80+ students and faculty members from the M.O.P. Vaishnav College for Women (Autonomous) visited on September 14, 2022.
- The Class XII students of Kavi Bharathi school, Namakkal, visited on October 19, 2022
- The Central Library hosted the 8th annual meeting of all IIT Librarians on December 2–3, 2022.

8.10. Children's Corner Library

We have purchased many books for the Children's Corner library.

8.11. LAC Recommendations

1. The 151st Library Advisory Committee was held on December 27, 2022. It recommended continuing the renewal subscription of existing collections of journals and databases for 2023 and upgrading the Digital Knowledge Centre (DKC) with 100 PCs. Additionally, it proposed the creation of additional reading space in the form of one more reading hall on the 2nd floor (above DKC) with an approximate seating capacity of 140.
2. The 152nd Library Advisory Committee was held on January 12, 2023. It recommended the following new journals/software subscriptions for 2023: 1. Nature Biomedical Engineering, 2. Journal of Medical Device Regulation, 3. International Journal of Masonry Research and Innovation, 4. ASME proceeding subscription, 5. Cancer Cell, 6. Nature Computational Science, 7. Shaastra Magazine, 8. Begell House Engineering Journals, 9. Online Newspaper/magazine aggregator PressReader, 10. Bloomberg Database, 11. YNOS Venture Engine (<https://ynos.in>), 12. The Ken (the-ken.com), and 13. Grammarly.
3. The 153rd Library Advisory Committee Meeting was held on January 24, 2023, during which the One Nations One Subscription (ONOS) Ministry of Education initiative was discussed.
4. The 154th Library Advisory Committee was held on February 21, 2023, and it recommended Lanquill, an English language learning and assessment platform for students.

8.12. Future Plans

1. To initiate the submission of IITM scholars' electronic theses into the INFLIBNET's Shodhganga digital repository
2. To initiate the creation of a database of bound volumes
3. To update the project/permanent loan book database
4. To organise professional development lectures and other professional events
5. To weed out and write off mutilated, old, unused books and German books
6. To evaluate and condemn old, outdated computer hardware and furniture etc.
7. To facilitate a 24-hour Reading Hall in the Central Library

9

Students' Amenities and Activities

9.1. Hostels

Most of the students reside in the hostels on campus. At present, there are 16 men's and 6 women's hostels for undergraduate and postgraduate students and research scholars. A total of 10,000 rooms are available to accommodate 10,800+ students (2600+ female and 8200+ male).

There are 11 dining halls that cater to hostel residents and a few day scholars. Of these dining halls, the majority are in the mess complexes—five are in Himalaya, three in Nilgiri, two in Vindhya; and one is in Cauvery hostel. All the dining halls are run by private caterers. Students are completely involved in deciding their menus, with the help of a nutritionist and culinary specialists, and conduct a tender process to decide the catering agencies and pricing. A couple of dining facilities serve à la carte dining in the form of food courts. Dining facility registrations and mess allocation to students are done online. The mess monitoring committee ensures the hygiene and quality of the food served and supervises the tendering processes. The housekeeping services in the hostels are outsourced.

Each hostel is administered by a Warden (a faculty member), Assistant Warden(s) (a research fellow or project staff member), and a Hostel Council consisting of student secretaries. Each hostel office is supported by the staff of the Office of Hostel Management (OHM), which is a centrally administered body and looks after the overall functioning of the hostels.

The OHM takes care of online mess registration, mess accounts, biometric entry to hostels/dining facilities, temporary guest accommodation, online process of vacating rooms by students, students' (including day scholars' and married research scholars' families) and staff members' medical insurance, online bulk accommodation facilities for conferences, short-term courses and other events, and student festivals' ticketing and merchandise.

There are 100+ employees (permanent + contract) on the roll. They are responsible to the OHM through the respective Wardens of the hostels. Details on the Council of Wardens, Chairperson and Hostel Management are available on the website: ccw.iitm.ac.in.

9.2. Institute Gymkhana

The Institute Gymkhana takes care of the students' general welfare and activities. Sports activities form an integral part of overall personality development, which prepares students to overcome challenges after graduation. It also gives students a well-deserved break from academics and helps them hone the other skills they possess.

9.2.1. Tournaments

The following tournaments were conducted during the year 2022–23 under the guidance of the Institute Gymkhana of IIT Madras:

- 55th Inter IIT Sports Meet
- 36th Inter IIT Aquatics Meet
- Sportsfest 2022 (formerly known as Agrata)
- Inter Hostel Championship (Schroeter Cup)
- Dean's Trophy Tournament
- All India Inter-Collegiate Volleyball Tournament: Jimmy George Cup
- All India Inter-Collegiate Basketball Tournament: Gerhard Fischer & Kokila Rajaiah trophies
- NSO selections for 1st year B.Tech./Dual Degree students
- Other inter-collegiate tournaments

Sportsfest 2022

Sportsfest 2022 was conducted from September 21–25, 2022 at IIT Madras. Over 20 colleges participated in the tournament in multiple sports. The competition helped the Institute contingent prepare for the Inter IIT Sports Meet and helped in the selection of the teams.

Schroeter Cup

The Inter Hostel tournament, the Schroeter Cup, was conducted from start to finish for the first time since 2018, after the interruptions caused by the COVID-19 pandemic. With students who have never had exposure to inter-hostel sports, the turnout and 'feels' they had for their hostels were remarkable and the competitiveness of the tournament was quite high. Unlike previous years, we saw a domination by the freshie hostels of Cauvery and Mandakini, which fuelled competition from seniors and other hostels. PG hostels also displayed a strong turnout at the competition.

Football and cricket were introduced for the first time, to increase the participation from women's hostels.

Dean's Trophy Tournament

The Dean's Trophy Tournament was conducted after a break of two years and covered six non-inter IIT events, aimed at increasing participation at the hostel level. Six-a-side football was introduced for the first time for women's hostels.

Jimmy George Volleyball Tournament

The All-India Inter-Collegiate Volleyball Tournament, the Jimmy George Cup, was conducted from March 29–April 2, 2023.

GF&KR Basketball Tournament

The All-India Inter-Collegiate Basketball Tournament, with the Gerhard Fischer Cup for men and the Kokila Rajaiah trophy for women, was conducted at IIT Madras from March 30–April 3, 2023.

Other Inter-Collegiate Tournaments

The Institute teams competed in various other local and national tournaments throughout the year across different sports. These tournaments went a long way in preparing the teams and honing their skills by giving them unparalleled exposure.

9.2.2. National Sports Organisation Programme

- The NSO functions as per the Government of India's decision to improve sporting within institutes, with special reference to maintaining the fitness of students. IIT Madras has been taking necessary steps to encourage students to participate in various games and sports events and in activities for maintaining physical fitness.
- Nearly 650 students from the 2022 batch were enrolled in the NSO programme which started in January 2023.
- 630 students (510 boys and 120 girls) from the 2021 batch completed their NSO programme in November 2022.
- New NSO programmes were introduced for girls—football, hockey, and cricket—which saw great participation, which will help in the future as and when these sports are included in the Inter IIT Sports Meet.
- The NSO programmes helped scout talent for the Inter IIT Sports Meet, which required an entirely new contingent to be formed after a gap of two years.

9.2.3. Infrastructural Changes and New Proposals

New Sports Complex

- Funding for the facility was confirmed through the A&CR Office from the Batch of 1981.
- The construction of the facility is underway and is expected to be completed by 2024.

9.2.4. Sports Organising Committee (SOC)

Vision & Mission

- To ensure that the activities carried out by the SOC reach all the members of the General Student Body (GSB).
- To establish strong inter-team communications and more transparency in the functioning of SOC teams.
- To improve public awareness about the SOC.

Overview

- Most offline events that were planned were completed around the constraints set by the administration, such as delayed approvals for budgets and restrictions on permissions.

The SOC teams and clubs have functioned well and have contributed a lot towards fulfilling our vision and mission.

9.3. Advisor, Inclusive Education

Inclusive Education (IE) activities start with the enrolment of new batches of students every semester. Students with disabilities are given an additional orientation, following which they are called for accommodation interviews. The number of Students with Disabilities (SwDs) and their disabilities for 2018–2022 is given in the table below.

One-on-one interviews were conducted with each SwD, with the other Institute coordinators present, to understand their physical conditions and their specific requirements from the Central Library.

- Taking care of their needs and facilitating their requirements and providing them either print or e-resources as per their choice without any delay or difficulty
- Paying more attention to provide them suitable places to sit and use the Library premises as per their comfort.
- Paying individual and personal attention for hassle-free usage of the Library according to their comfort.

Disabilities for 2018-2022

| Type of Disability | Year | | | | | Total |
|--|----------|-----------|-----------|-----------|-----------|------------|
| | 2018 | 2019 | 2020 | 2021 | 2022 | |
| Autism spectrum disorder | | | | | 1 | 1 |
| Cerebral palsy | | 1 | 1 | 1 | | 3 |
| Haemophilia | | | | | 1 | 1 |
| Hearing impairment | | 2 | 2 | 7 | 8 | 19 |
| Leprosy cured | | | | | 1 | 1 |
| Locomotor | 1 | 7 | 9 | 30 | 30 | 77 |
| Low vision | 1 | 4 | 6 | 10 | 9 | 30 |
| Multiple disabilities | | | | 1 | | 1 |
| Muscular dystrophy | | | | 1 | | 1 |
| Neural problem | | | | 1 | | 1 |
| Sickle cell disease | | | | | 1 | 1 |
| Specific learning disabilities | | | | | 1 | 1 |
| Speech and language disability, specific learning disabilities | | | | | 1 | 1 |
| Grand Total | 2 | 14 | 18 | 51 | 53 | 138 |

Accommodation Interviews

Total orientation programs: 2

Total interviews: 52

Accommodation letters issued: 56

| Period | Level | No. of Students Interviewed |
|-----------|-------|-----------------------------|
| July 2022 | PG | 25 |
| Nov 2022 | UG | 27 |

Based on the inputs received during the interviews, accommodation letters were personalised according to the students' needs (organising exam time limit relaxations, scribe requirements, and more).

Experts were invited to the interviews, and based on their inputs, the following professional evaluations were conducted for selected SwDs as given below.

| Disability | No. of Students | Institute for Professional Evaluation | No of SwD Received Special Devices | Cost borne by IITM (DoST Welfare Fund) |
|--------------------|-----------------|---|------------------------------------|--|
| Low vision | 12 | The Voluntary Health Services (VHS) Adyar | 5 | INR 19,950 |
| Hearing impairment | 4 | SRESHT SRISHTY Lab, Sri Ramachandra Medical Centre, Chennai | - | Free consultation |

Activities of Dean (Students) IE Services

A summary of the activities carried out by DoST IE Services is given in the table below.

| Activity | Disability | No. of Students Benefitted |
|--------------------------|-----------------------------------|----------------------------|
| Procurement of magnifier | Low vision | General purpose |
| Laptop procurement | SwD who belongs to EWS | 1 |
| Hearing aid | Hearing impairment | 2 |
| Visual aid | Low vision | 1 |
| Electric bike | Locomotor disability | 4 |
| Counselling | SwD with psychological conditions | 4 |
| Volunteer services | Multiple | 4 |

Training Programmes

Two programs were conducted in collaboration with the Teaching Learning Centre (TLC), IIT Madras.

| Title | Target Audience | Resource Persons |
|--|---------------------------|---|
| Faculty sensitisation program | New faculty of IIT Madras | Ms. Neha Trivedi (XRCVC, Mumbai) |
| Screen reader and remediation software | Visually challenged SwDs | 1. Dr. K Sriram, Continual Engine 2. Prof. Dr. Hemachandran Karah, HSS, IIT Madras 3. Ms. K Subisha, Research Scholar, DoMS |

Logo Competition and Selection

A competition was held among all students to design a logo for the Inclusive Education Cell. The responses received were assessed by a committee of experts, and the logo designed by Thulasi A (ME20B011) was chosen as the IE logo. The winner and all the participants were felicitated.



Sports and Entertainment

| Date | Activity | Participants |
|-------------------|--|---|
| December 3, 2022 | A visit to Birla Planetarium and Chennai city on the International Day for Persons with Disability | 15 students with different disabilities, accompanied by the Dean (Students), IE coordinators, and Advisor, IE |
| December 11, 2022 | Sports 4 All, conducted for SwD by the TTK Centre for Rehabilitation Research and Device Development (R2D2) under the aegis of the Indian Council of Medical Research (ICMR)-National Centre for Assistive Health Technology (NCAHT) | SwDs of IIT Madras joined other persons with disabilities from Chennai in various sporting activities. |

Work in Progress

- An Inclusive Education website for communication, process automation and database management: Our team is currently working on developing a portal for the Inclusive Education Cell, which will definitely help us to serve students with disabilities in an efficient manner.
- Handout for SwDs at the time of enrolment

9.4. National Cadet Corps (NCC)

Cadet Strength

1. A total of 100 NCC cadets (83 boys and 17 girls) were enrolled during 2022-23.
2. Training was conducted as per the NCC syllabus for all cadets of the 2022, 2021 & 2020 batches. The training included practical & theory classes on flying, physical training, arms drills, foot drills, and range firing practice.

Independence Day & Republic Day Parades

1. Three flights of Senior Division/Senior Wing (SD/SW) cadets participated in the Independence Day 2022 Parade held at IIT Madras. One SD/SW flight won the overall 1st place in the march past and three cadets won Best Turnout prizes.
2. Three flights of SD/SW cadets participated in the Republic Day Parade (2023) held at IIT Madras and one cadet won the Best Turnout prize.

Social Service Activities

1. All cadets participated in social service activities like Cleanliness Drive, Environment Awareness Rally, Yoga, Unity Run, and Cycle Rally, which were conducted by the NCC Unit inside the IIT Madras campus.

Range Firing

1. All 95 cadets participated in range firing practice on August 28, 2022, held at Air Force Station Tambaram. The maximum cadets achieved an above average grade in range firing practice. The cadets were also familiarised with the Virus SW-80 Microlight aircraft and Air Force establishments.
2. 34 cadets participated in range firing practice & skeet shooting firing on March 12, 2023, held at Air Force Station Tambaram. The maximum cadets achieved an above average grade in range firing practice.

NCC Camp

1. 30 NCC cadets of the NCC Air Wing Unit at IIT Madras successfully completed the Combined Annual Training Camp held at Air Force Station Tambaram from September 5-12, 2022. During the camp, all the cadets were familiarised with Virus SW-80 Microlight aircraft, ground defence training and range firing practice, foot drills, arms drills, weapons training, aeromodelling, and Air Traffic Control duties.
2. Ten NCC cadets of the NCC Air Wing Unit at IIT Madras successfully completed the Combined Annual Training Camp held at Vel Tech College of Science & Technology, Avadi, from December 26, 2022-January 2, 2023. During the camp, all the cadets were familiarised with Virus SW-80 Microlight aircraft, ground defence training, range firing practice, foot drills, arms drills, weapons training, and aeromodelling.
3. Cadet Under Officer Vishal Singh from IIT Madras successfully completed the Air Force Attachment Camp at Air Force Academy, Dundigal from December 18-31, 2022.

DDG (TN, P & AN) & Group Commander's Commendation

1. Two NCC Cadets of this NCC Air Wing Unit, Cadet Under Officer Piyush Sharma & Cadet Sergeant Tejaswini of IIT Madras, were awarded the Group Commander's Commendation on NCC Day, November 27, 2022.
2. One Permanent Instructional Staff of this Air Wing NCC received a Certificate of Appreciation from the Deputy Director General, NCC Directorate (Tamil Nadu, Puducherry & Andaman Nicobar) on NCC Day.

NCC "B" & "C" Certificate Exams

1. 30 cadets (22 from SD & 8 from SW) appeared in the 'B' Certificate exam at Air Force Station Tambaram, all of whom successfully cleared the exam.
2. Nine cadets (7 from SD and 2 from SW) appeared in the 'C' Certificate exam at Air Force Station Tambaram, all of whom successfully cleared the exam.

9.5. National Service Scheme (NSS)

NSS Projects Overview

| Project | Aim | Description |
|---|--|--|
| Banca Cella Beyond Schooling Program | Inculcate life skills among the severely underprivileged sections of society to help them realise their full potential. | NSS volunteer students imparted life skills lessons to children in government schools. |
| Shravayam | Creation of audio content for blind people and its publication on podcast platforms. | Translated content included UPSC topics and summaries of non-academic books, which was done in several Indian languages and English. |
| Teach Your Neighbourhood | To help about 50 students in the 10 th and 12 th standards in their board exam preparations and improving their results. | Worked on the board exam syllabus and discussed with government schools' principals about the potential for partnerships. |
| Science Popularisation | Encouraging people to explore science concepts and promoting inclusivity through content translation and science experimentation videos. | Volunteers translated the contents of books into different languages to make them available to people not comfortable with English books/articles. |
| Thrivity Foundation | Access to quality education for underprivileged children | Volunteers were assigned to teach students of primary schools (near IIT Madras) for an average of 2–4 hours per week. |
| Avanti | Mentoring students from severely disadvantaged sections of society. | One-on-one mentoring with the students and helping them to improve their scores in examinations like JEE. |
| Karppom Karippom | Identify and tutor aspiring students from economically deprived backgrounds. | We collaborated with Maatram Foundation to create content for both the Tamil and the English medium board students of Class 12, and conducted revision sessions. |
| Share Your Vision | To help visually challenged people in the Braille section of Anna Centenary Library | Volunteers helped as scribes for competitive exams like SBI clerk and NET. |

Other Initiatives

NSS Website Upgradation

Database of Scribes: The database aims to make it more convenient for individuals in need of scribes to get in touch with volunteers.

NSS Siragugal Visit: The District Collector of Thiruvallur started a project called Siragugal to help rescued bonded laborers. Volunteers visited the site to know in detail about the project and how NSS IIT Madras can contribute to its improvement.

NSS Events Report

In the 2022–23 session, NSS organised several events. The year's journey began with the inauguration and orientation ceremony on March 16, 2023. Three collection drives were organised in collaboration with Goonj. People donated clothes, books, shoes, toys, electronic devices, etc., which were distributed among the needy by Goonj. NSS also organised a cleaning drive in collaboration with the Department of Ocean Engineering at Elliot's Beach on April 9. NSS also collaborated with Mitr, the students' peer mentorship network, and the Wellness Centre of IIT Madras for a mental awareness campaign from April 10–15, 2023. Volunteers visited all the hostels and departments, spreading mental health awareness among the students. The Gyan Darshan event took place on January 7, 2023. The event was aimed at visually challenged girls, to encourage them to write civil service examinations and take steps towards earning and living independently. More than 100 differently abled girls participated and NSS volunteers helped as scribes.

9.6. Wellness & General Activities

Mitr

Mental health among students is a rising concern. Mitr has conducted various programmes that help spread awareness about mental health on campus and promote self-care among students. A Quarterly Wellness Survey was floated among the students. Based on the survey, around 500 students were counselled by the Mitr team or referred to the Wellness Centre psychologist.

A Mitr Interactive bulletin board was set up for the freshies during the orientation program, so they could learn more about mental health and how they could take better care of themselves.

As part of Shaastra and Saarang 2023, the Wellness Centre collaborated with Mitr to arrange a stall with games, activities, and interaction, along with mental health awareness, thereby reaching an estimated 2500+ students.

In association with the WebOps-Blockchain Club (CFI), the InstiSpace App was updated with an additional tab called Community Centre, which enables students having difficulty expressing themselves to directly contact Wellness Centre psychologists, counsellors, or YourDost anonymously.

Mitr's campaign 'Help Your Friend By Helping Us' touched many students positively through interventions like knowledge-related resources on mental health issues, which empower them to help someone who needs it but isn't able to open up, either due to fear or the stigma attached to seeking professional help.

The flagship event 'Campus Drive', conducted over five days, guaranteed outreach among the entire student community through stand-ups, open mic performances, art sessions, a movie at the Open Air Theatre, and QR-based quiz programmes.

Saathi

Under Saathi the online and offline programs conducted were:

- PG Insti Immersion Program
- UG Insti Immersion Program
- Stress Management Workshop
- Student Mentorship Cell
- Acad Buddy
- Sankranti: The Ethnic Day

Pragati

Pragati is a new initiative that guides and supports the Institute's students in their preparations for academic and competitive examinations such as UPSC-CSE, IES, etc. A talk by alumnus **Saikanth Varma** was arranged.

Extra Mural Lectures (EML)

The EML team focuses on enhancing the personalities of students and the campus community by providing them with opportunities for meaningful conversations and thought-provoking debates with the best minds in fields of contemporary interest by organising lectures. Under this the following lectures were arranged:

- **Dr. Ajay Kumar**, National Defense Secretary
- **Dr. Bob Balaram**, National Aeronautics and Space Administration (NASA) Scientist
- **Shri Javed Akhtar**, Renowned Indian poet-film scriptwriter
- **Shri Hardeep Singh Puri**, Honourable Union Minister for Ministry of Petroleum and Natural Gas
- **Prof. Mahesh Rangarajan**, Historian, Ashoka University
- **Mr. Sudhanshu Mani**, Indian Railway Service of Mechanical Engineering (IRSME) Engineer
- **Ms. Kamini Dandapani**, Author & Historian
- **Mr. Diggpal Lanjekar**, Director and film writer
- **Mr. TS Tirumurti**, IFS: India's former representative to the USA

IViL (IIT for Villages)

IViL is a discussion forum and action platform for the students of IIT Madras to implement their thoughts for rural India. The following activities were scheduled:

- **TEL School July '22** (Educational Video)
- **Sankalp Village Visit** (Science demonstrations, career guidance & awareness, competitions & games, and awareness sessions on menstrual health & hygiene)
- **Project Crop View** (A mobile-friendly website for farmers)
- **She-ViL STEM** (to pursue careers in STEM, featuring hands-on Centre for Innovation (CFI) sessions with the following clubs—iBot/Electronics, iGem, 3D Printing, and Sahaay; VR experiences, entrepreneurship, R2D2, HTTP, communication skills, career guidance, and the Ignited Minds Conference [IgMiCo])

Disaster Management Committee (DMC)

The DMC works to ensure that the campus is comprehensively disaster resilient and to imbue safety techniques among the residents. Events conducted by the team include: Self-defence workshops, a Campus Cleaning Drive on account of Gandhi Jayanti, collection drives, fire drills in hostels, an essay writing competition on disaster management, a safety and security workshop, and a Jal Dhan Competition with the motto 'Jal Bachao Kal Bachao'.

9.7. Placements, Internships, and Career Development Cell

Internships 2022–23

- A combined Placement & Internship student team under the Academic Affairs Secretary was established in place of a standalone Internship team.
- The internship season was revamped, with a new Day 1 structure split across two days, each with a special focus on non-core and core profiles respectively, resulting in a record high of 250 Day 1 offers and the following improvements compared to the previous year:
 - 25% increase in offers
 - 7% reduction in offer overlap
 - 37% increase in students placed
- For the first time, M.Tech. students joining the institute were allowed to appear for Day 1 of the internship season.
- Day 1 of internships was advanced by a week, enabling a smoother transition into the students' academic commitments of the ongoing semester.
- Maximum internship stipend was INR 42 lakh—an increase of 32% from the previous year (INR 32 lakh).

Placements 2022-23

- A record high of 1315 students were placed in the 1st phase, witnessing a 7% increase from the previous season, despite the global recession.
- 235 pre-placement offers (PPOs) were accepted—an increase of 30% compared to the previous year.
- A new, revamped Placement portal was developed in time for the placement season, incorporating a smoother UI, faster servers, and countless feature additions.
- The PoR Portal was created for the accurate digitisation of 400+ positions of responsibility (PoRs) spanning 4 years in the Institute, and it contributed to highly efficient resume verification for 2300+ students.

Career Development Cell

- Conducted events for students' overall placement and internship preparation aspects by facilitating sessions for résumé preparation and interview & career skills and hosting several mock tests.
- Introduced and published a new initiative, 'Higher Studies Bluebook', for students aspiring to pursue higher education. It is the first dynamically updatable bluebook that is hosted on Notion.
- Established systems to start off the Department Academic Mentorship Programme, which will empower department legislators to aid students in their academic needs more effectively.
- A session with the Indian School of Business (ISB) was conducted to make students aware about their deferred MBA program.

Finance Club

- **36 Wall Street:** The Finance Club of IIT Madras conducted its first ever offline fest in an attempt to connect the students of IIT Madras to industry leaders in the finance domain, including personnel from the CFA Institute, Worldquant, Trexquant, Groww, Zerodha, and Quantinsti, among many others.
- Over 25 live workshops and webinars were conducted over the team's tenure, with speakers from Wells Fargo, Ernst & Young, the CFA Institute, etc. to give students from engineering backgrounds a better understanding of the basics and industrial applications of finance.
- Four nationwide competitions, with an average participation of over 650/event and a combined prize money of over INR 2 lakh, were conducted during the fest, along with multiple year-long trading competitions, quizzes, and more.
- The Chief Economic Advisor to the Government of India, Dr. V Anantha Nageswaran, was invited for a flagship lecture at IIT Madras.

Case Club

- **Consult 101:** Created a YouTube playlist with 16 videos covering an introduction to consulting, guesstimates, and cases. A Discord server was also set up for daily Ask Me Anything (AMA) sessions, case-solving sessions, and to facilitate the formation of case groups. The Consult Casebook, with 49 cases written in interview scripts, was published, and the second edition, featuring 55+ cases, is underway. Lastly, the Club collaborated with Foundation Strategy Group (FSG) for a two-day case workshop that covered hypothesis-driven consulting and impact consulting.
- **PM101:** Created the first project management (PM) casebook, comprising 23 product cases, and hosted a PM masterclass in partnership with Doremon Den. Additionally, established a Notion page to provide PM resources, including articles, books, and links to relevant pages.
- **Guesstimate Premier League (GPL):** Conducted in association with TechSoc, the GPL was a three-round event, with the first two rounds being live guesstimate-solving rounds and the last round being a guesstimate-heavy case presentation. It was held only for insti junta, with 120+ participating teams and a prize pool of ₹5000.
- **Yojana and Vastra Case Competitions:** Conducted in association with E-Cell, TechSoc, and Shaastra, the competitions had problem statements based on market entry for a games production house and the logistics & carbon footprint of a cloth manufacturer, respectively. They featured a turnout of 20+ participating teams and a prize pool of 8000.

9.8. Co-Curricular Sphere 2022–23

Shaastra

- First-ever on-ground **Shaastra Juniors** (Shaastra for schools) happened from October 22–23, 2022. **Highlights:**
 - Rural schoolchildren from 4 villages in Tamil Nadu were escorted to IIT Madras and equipped with curated events, workshops and sessions in science and technology.
 - Lectures by Mr. Arun Krishnamurthy and Dr. Srimathy Kesan, show by mentalist Kunal Newar.
- **Shaastra** (January 26–29, 2023): Spectral Splendors – extravagant online-to-offline transition. Numerous hackathons, workshops, conferences, competitions, makeathons, exhibitions. **Highlights:**
 - About INR 30 lakh prize money (cumulative) was up for grabs.
 - First ever realisation of Shaastra streets: on-ground engagement activities for a festive vibe.
 - Space-Tech Summit: notable partnerships included ISRO and Agnikul.
 - Debunk: India's first ever student-run initiative to address the growing bane of misinformation in popular media.
 - Spotlight Lectures by Dr. A Sivathanu Pillai, Mrs. Vineeta Singh, and Governor of Tamil Nadu Thiru. RN Ravi.
 - Vastra: social campaign on sustainability and accessibility in the garment industry.
- INR 1.5 lakh was donated to Deepam Trust, Chennai and Ties That Bind Foundation, Chennai.

CFI

- Team Anveshak, CFI:
 - Placed **6th internationally** in the Anatolian Rover challenge
 - Currently working on a setup to make the rover navigate around in GPS-denied environments like lava tubes, which will provide us with a wealth of information about both our earth and Mars as well in the long term.
- Team Abhiyaan, CFI:
 - Unveiled its Driver-less Campus Shuttle project and showcased a proof-of-concept demonstration with our Director as the passenger.
 - Received a Special Mention at the Stage Two of the Intelligent Ground Vehicles Competition (IGVC) at Oakland University, USA.
- Programming Club, CFI:
 - 4 teams from IIT Madras qualified for the **International Collegiate Programming Contest (ICPC)** regional round and secured top 15 All-India ranks (AIRs) in the regional rounds.
 - Team ‘Three of a Kind’ (Vineet KD, Kaustubh Miglani & Sai Aryan Reddy) secured **AIR 1** in the ICPC preliminary round, AIR 2 in the regional round, AIR 2 in the Asia-West Continental Round, and qualified to represent IIT Madras in the ICPC World Finals 2023.
- Product Design Club & Aero Club, CFI:
 - Project GAIA, a collaboration project between the Product Design Club and the Aeromodelling and Aerial Robotics Club, stood **4th in the National Robotics Competition** conducted by Unacademy. Nearly 100+ teams participated.
 - The team is building an aerial robotics arm platform which can be used for afforestation efforts in remote and hard-to-reach areas. They have built a custom arm completely designed in-house at CFI, which is currently patent pending and is in the initial phase of testing.
- Successfully conducted the CFI Open House 2023 on March 12, 2023, at the new Sudha and Shankar Innovation Hub, with extensive media coverage.

E-Cell

- Talks: Getting to Know Insti Founders, Ask Me Anything, **Inspirit** Lecture series.
- Ideathon, Idea Validation Meetups; Startup Services Program (free services to early-stage IIT Madras startups).
- Startup Series (idea to operational startup); Pitch Perfect: B-plan pitching competition.
- Million Dollar MBA: introducing E-Cell to the MBA freshers of IIT Madras and encouraging entrepreneurial avenues after MBA.
- Thinker to Tycoon: to inculcate the entrepreneurial spirit amongst the research scholars' community of IIT Madras.
- Winter **Internfair**: 100+ startups, 120+ profiles, 150+ offers; TeamUp: 15+ startups, 15+ projects, 350+ student registrations.
- **E-buddy**: 11 mentors, 250 mentees; E-Merge: 1350+ members on the Discord community.
- **Heal-thy**: social campaign:
- Entrepreneurship Development Drive (EDD): helping student teams across colleges establish E-Cells in 17 colleges.
- Education-21: systematic entrepreneurship–empowered 21st-century learning among school children.
- **E-Summit 2023** (April 6–9, 2023): Assemblage of Changemakers—**Highlights**:
 - UNESCO and G20 patronages
 - Lectures by the co-founders of EaseMyTrip, Inshorts, Masters Union, Beebom, Reshamandi, Monk-E, and Vedantu
 - Lectures and masterclasses by entrepreneurs and creators like Tarun Katial, Saptarshi Prakash, Danish Aslam, and Shruti Seth
 - E-Mergence: conference bringing together E-Cells from across the country
 - Comedy night by Nishant Suri
 - Four conclaves for different baskets of entrepreneurship enthusiasts: Youth, Innovators, Startups, and Sustainability Conclaves
 - Multiple events and competitions: Invaso, The Board Room, Stocks are High, E-21, YES (Young Entrepreneurs @ Schools), Business Simulation Game, Bootcamp, Unconference, Product Construct, Elevate, Investinder, Solve to Evolve, and Strategize, among many others

TechSoc

- New blog, The Kalam Papers (16 articles—1960 users, 4500 views). New YouTube channel too. Heightened social media reach manifold through tech campaigns on Instagram. Instagram followership increased by 40%—nearly 100 new posts.
- About 15 inter-hostel competitions ranging from low prep to high prep, e.g. Arcana Hackathon, Skycraft, Bridgeathon, Reverse Coding, Manual Robotics, Botstacle, and Paper-tech, among others.
- Build School: two editions over 2022-23: 10 teams, 10 weeks, 10 prototypes.
- Finished 8th in the Inter-IIT Tech Meet 11.0 at Kanpur, among 22 IITs.

Nirmaan

- **Desklamp team:** Selected for Y Combinator's Winter Cohort 2023 and received funding worth USD 500,000; also selected for Antler India Fellowship 2022 and received INR 15 lakh in equity-free funding
- **Susstains:** Winners of waste management technologies competition and received total funding of INR 67 lakh
- **Alfalgo:** Stood third in BzzWings, the annual B-Plan Competition organized by EXIMIUS (IIM Bangalore's Entrepreneurship Summit) and won ₹30,000
- **Uniscreen Solutions:** Won the title of 'Most Promising Start-up in Institute' at the Pitch Perfect event, conducted at IIT Madras Research Park
- **Green Aadhar:** COP27 Young Scholar Award from the Hon'ble Minister Shri Bhupender Yadav; Swachhta Saarthi Fellowship 2022 under the Waste to Wealth Mission; won the Wipro Climate Challenge 2022 under the theme 'Data-driven Circular Economy Solutions' and awarded INR 1 lakh; won the second prize under 'Challenges and Strategies of Handling Plastics' at an Indo-German Centre for Sustainability-Motan workshop; won second prize at the New Generation Ideation Contest 2021 organized by Hindustan Petroleum Corporation Limited (HPCL); won the second prize in the Big Data theme in Science and Engineering Research Board-Indian National Academy of Engineers Hackathon 2022; and placed among the global top 15 teams at the Climate Investment Challenge 2022 organised by Imperial College Business School, London.
- **Block Track:** Received CSR grants worth INR 1.42 crore; incubated at the Health Technology Innovation Cell (HTIC).

9.9. Institute Sports

Vision for the Tenure

- Rebuilding Insti's Sporting Culture
- Continuous Engagement Across all Levels
- Shaping Successors of the Sphere

Inter IIT Sports Meet 2022

36th Inter IIT Aquatics Meet

The 36th Inter IIT Aquatics Meet was organized by IIT Delhi from October 5–9, 2022. The Madras Sharks, IIT Madras's aquatics contingent, performed exceptionally well, clinching the men's swimming championship for the fifth time in a row and the water polo trophy for the first time since 2011. They finished with an impressive medal tally of 13 golds, 6 silvers and 10 bronzes, and gold in water polo.

Highlights of the Meet

- Best Swimmer (Men): Kalash Verma
- Best Water Polo Scorer: Kalash Verma

55th Inter IIT Sports Meet

The 55th Inter IIT Sports Meet was organised jointly by IIT Delhi and IIT Roorkee from December 15–22, 2022. Our contingent won the Men's General Championship for the first time since 2011.

Highlights of the Meet

- Men's General Championship Winners: IIT Madras (after 11 years)
- Sajusha Ashok was adjudged the best athlete in Athletics (Women)
- Nishant Vasan was adjudged the best player in Table Tennis (Men)
- Table Tennis Team–Men won Gold
- Athletics Team–Men won Silver and Women won Bronze
- Basketball Team–Men won Silver
- Badminton Team–Men and Women both won Bronze
- Volleyball Team–Men won Bronze and Women placed 4th
- Squash Team–Men and Women both placed 4th

9.10. Research Affairs

- Formation of an all-India research scholars' team and the launch of the All India Research Fest 2023 in association with the IITM Research Park
- Collaboration with national and international scientist communities, such as PhDs of India and Addictive Brain, to enhance networking and bring opportunities for scholars
- A 3D website called Anvesha, developed to showcase the work of STEM artists from 100+ scientists around the globe
- Launch of the Industry Connect programme which maps scholars to alumni/mentors from research oriented companies to enhance their placement
- Launch of the University Relations team to specifically handle academic placements
- Kaleidoscope, a collection of branding activities for scholars, including fun interviews with students and faculty, publication of infographics on research topics, a merchandise brand with 5+ products, Opportunities of the Day, research-themed board games, and a Creative and Talent Pool
- Making Her-Story: A collection of initiatives to address the concerns of women scholars and cater to their specific needs
- Academic career development programmes like career options in entrepreneurship, opportunities abroad, networking skills, navigating through a Ph.D., the art of emailing and communication, research writing and presentation skills, stress management, financial literacy, faculty job preparation, and many others
- Setting up a comprehensive framework to improve the research culture at IIT Madras
- Creation of databases for visa application, conferences, events and workshops, journals, etc., and a handbook for research scholars about life at campus

9.11. I&AR Sphere

This has been a highly successful year for the International & Alumni Relations (I&AR) Student Council, having been revamped. The major initiatives that were done this year are following.

There are two teams under the I&AR Council: Alumni & Corporate Relations (A&CR) and the Global Engagement Council (GEC).

Major Initiatives of A&CR

- **Distribution of CSR-based & Alumni-based Scholarships** to many students in need of aid, and increasing the upper bound of scholarship eligibility from students with a parental income of less than INR 5 lakh to that of less than INR 9 lakh.
- **Conduction of Convocation & Willkommen** for the Class of 2020 and Class of 2021, who missed it due to the COVID-19 pandemic, during October 2022.
- **Conduction of the first ever Parents Day** of IIT Madras, to celebrate the success and graduation of students of class of 2022 with their parents, a day before Convocation
- **Organized 7 Reunions** this year in the months of December 2022 and January 2023 with the A&CR Office and the IIT Madras Alumni Association (IITMAA).

- Funding secured for setting up **Electric Buses** and various useful amenities in the Institute, which will lead to overall improvement in student life in the coming years.
- **Kicked off the YAARI program** (Yours Always Alumni Relations at IIT Madras) with IITMAA for one-to-one alumni mentorship of students.
- **The Institute Branding Cell conducted a Day @ IITM** on both online and in-person platforms for students who cleared the JEE-Advanced.
- **The Alumni Relations Cell started the Winter Industry Programme** to bring internship opportunities from alumni to students for the winter vacation.
- **Organised more than 10 Leadership Lecture Series** from distinguished alumni, corporate gurus and leaders like Member of Parliament, Mr. Shashi Tharoor.
- **Chennai 36 & IITM TV started** a video series titled '36 Questions', which features our professors and alumni such as Bob Balaram. The first video of the series, which hit 1 million views, was with our Director, Prof. V Kamakoti.
- **IITM TV qualified** for the finals of South Asia's largest film festival, IFP, in the Short Film category.
- **Corporate Relations** landed partnerships with OYO and EaseMyTrip, facilitating discounts for students and alumni.
- **Chennai 36** covered many IIT Madras alumni who were awarded Distinguished Alumni Awards.

Major Initiatives of GEC

- The Global Engagement Council conducted **Global Acculturation** for inbound foreign students.
- The Global Engagement Council also facilitated **onboarding processes** for inbound students who came to the Institute for exchange semesters from various countries of Europe, South America and Asia. Many foreign students also joined the full-time M.Tech. programme at IIT Madras.
- The Global Engagement Council created a **bluebook for semester exchanges**, sharing the experiences of semester exchange students.
- The Global Engagement Council collaborated with the GE Office in organising the **Subra Suresh Lecture Series**, with eminent global speakers.
- The Global Engagement Council also conducted various **information sessions** on semester exchange, research internships, and joint Ph.D. and M.S. opportunities

9.12. Hostel Affairs

Committee for Monitoring General Facilities for Students (CMGFS)

- Quality criteria were introduced into the Quark canteen tender document, the tender for which was awarded to Zaitoon.
- Student dining was renovated, and six new vendors were introduced, increasing footfall by 45%.
- Electric bikes were introduced for food delivery on campus, reducing carbon impact by 1800g/km.
- The Café Coffee Day (CCD) outlet on campus underwent a menu expansion, and its timings were extended to 24*7.
- Three open houses were conducted to address student concerns regarding facilities on campus post-COVID.
- Four late-night facilities were introduced.

Mess Monitoring and Controlling Committee (MMCC)

- Digital payment methods were introduced to buy extra items in messes, in collaboration with the State Bank of India (SBI).
- Vindhya mess was changed from a women's mess to a common mess.
- Two new food court system caterers were introduced in Nilgiri mess and one in Vindhya mess.
- Additional tasty and healthy menu items were introduced into mess menus.
- A workshop by a nutritionist was conducted for the MMCC heads, to help them understand the making of healthy and tasty menus.
- Tenders with the lowest possible price of ₹116 per day were extended after successful negotiations with caterers.
- The office was restructured to facilitate better handling of the payment system, which reduced the wait time for settling bills from two months to five days.
- Mess wastage was analysed and strategised, resulting in a 30% reduction of waste by restructuring the menu.

Hostels

- A proposal for the decentralising of the water plant and each hostel having its own water plant was introduced and a tender for the process was floated.
- Discounted courier services were introduced for students of IIT Madras.
- A centralised MoU for hostel facilities was signed considering COVID, which helped in getting more infrastructure at a lower cost.
- A proposal was introduced to change the hostel councils' position of Health and Hygiene Secretary into the Health, Hygiene and Wellness Secretary.
- A centralised MoU was obtained for caterers, event managers, and DJs for hostel nights.

Sustainability Committee

- This new committee focuses on making the Hostel Affairs Secretary (HAS)'s sphere more sustainable.
- It is responsible for monitoring the hygiene of 8000+ students and improving sustainability in the hostel zone through the Clean & Green initiative.
- Mess wastage was monitored to identify wastage patterns and take the findings as inputs towards the menus, which helped in reducing mess wastage from 2.15 tons to 1.45 tons.
- The committee strategised & achieved a 30% reduction of waste generated by messes and facilities by collaborating with the MMCC and the CMGFS.
- Old cycles were identified and separated into to be sold, scrap, and to be donated, generating an average budget of ₹30,000 per hostel.
- Sustainable detergents were introduced in Prime Mart.
- An international millets webinar was conducted and hosted with Dr. Nirmala Kumari as the lecturer.

9.13. Institute Cultural Events

Sangam

The heart of the Institute's cultural scene, Sangam is the conglomeration of the literary and arts clubs of IIT Madras. In the year 2022–23, after two years online, Sangam was reinstated with great robustness. The Sangam-level events, such as Cultolympics and Mardi Gras, brought together all the clubs towards making the cultural sphere grander and more active. Club Weekender was conducted in November to welcome the undergraduate batch of 2022, where freshers were introduced to the clubs and the various events that each club conducts. The Freshie Night, which showcases the talents of the fresher batch, was conducted in February 2023. The first ever Prom Night was also conducted in February giving students a taste of slow dancing and prom. The Sangam Incubator was launched, giving the general student body (GSB) an opportunity to form interest groups and pursue newer cultural activities. Major long-term investments in equipment and revamp initiatives were taken up to further sustain the cultural scene at IIT Madras.

LitSoc

LitSoc 2022–23 was launched in August and saw the hostels competing across 2 semesters and a multitude of cups in various categories of events. The overall championship was awarded to Sharavati hostel. Sangria was conducted in the third week of April, marking the end of the LitSoc season, and awards and medals were presented to all winners.

National Cultural Appreciation

NCA strives to provide great opportunities for students to hone their skill in a cultural activity of their choice or learn an entirely new skill. New NCA courses were introduced this year: Western Dance, Contemporary Dance, design, Creative Writing, Bharatnatyam, and Filmmaking, in addition to the earlier courses of Fine Arts, Choreo, Guitar, Keyboard and Theatre. Students were selected not only based on their skill level but also their enthusiasm and inclination to learn, so that students with no prior experience have a fair chance. The classes were completed by the end of the semester. In a credit system similar to NSS, students are given credits for the classes they attend. The evaluation structure was changed to include projects.

Contingent

The Cultural Contingent grew tremendously this year. The entire cultural contingent participated as a whole in festivals including Spandan, Festember, Mood Indigo, Inter IIT Cultural Meet, and Saarang; and the cultural clubs attended various other festivals and competitions in and around Chennai on the basis of their interests. The quiz, oratory, word games, and music contingents won multiple prizes at Festember and the fine arts, quiz, music, and word games teams won prizes at Mood Indigo. The quiz contingent won the overall championship at Nihilanth 2023, held at IIM Ahmedabad. Saarang witnessed many of the positions bagged by the contingent. The cultural contingent placed overall third in the Inter IIT Cultural Meet 5.0, winning the Literary Arts Cup.

Saarang

Saarang 2023, the annual cultural festival of IIT Madras, was held successfully from January 11–15, 2022. The festival, which was organised by a student team, witnessed 9000 students participating in 100+ events. The Professional Shows had performances by Indo Soul, Girish and the Chronicles, Pineapple Express. Kaaze, and Sunidhi Chauhan, along with five World Fest acts by international artists. Revathy, Singer Karthik, Palki Sharma, and Suma Kanakala were some of the major attractions in the Spotlight lecture series lineup. Three Nova festivals—Korean Fest, Comicals, and Media Confluence—were conducted, gathering huge participation and interest. A running rally for Panacea, Saarang's social campaign, was conducted successfully in December 2022. The first ever Saarang anthem, capturing the spirit of Saarang and Chennai and sung by GV Prakash Kumar, was released in the last week of March.

Inter IIT Cultural Meet 5.0

The 5th edition of the Inter IIT Cultural Meet was held at the Indian Institute of Technology Madras during January 9–11, 2023. The Meet comprised intensive competitive cultural events spread over two and a half days, with students from all 23 IITs participating. Over 3200 students participated, including around 1000 girls and a few special needs students with disabilities.

9.14. Student Legislative Council (SLC)

- Total number of SLC meetings held in this tenure: 09
- Total number of agenda points discussed in this tenure: 67
- Total number of Emergency SLC meetings held in this tenure: 03

1. **Emergency SLC Meeting 01:** An emergency SLC meeting was held to discuss and analyse the discussion around the B.Sc. Data Science degree offered by IIT Madras. An Ad-Hoc Committee was formed for this.
2. **Emergency SLC Meeting 02:** A meeting was held in response to a reported case of sexual assault that occurred within the IIT Madras campus. The meeting aimed to address the issue of sexual assault within the campus and promote a safe and healthy learning environment for all students. The officials present provided valuable insights into the situation, and the meeting served as a platform for an open dialogue on this sensitive topic.
3. **Emergency SLC Meeting 03:** A meeting was organised to discuss the issue of frequent suicides that occurred within the Institute. The Dean (Students), Dean (Academic Courses), and Dean (Academic Research) were present to address the issue and come up with potential solutions. The meeting aimed to identify the underlying causes of the suicides and to establish measures to prevent them from occurring in the future.

Overall, the meeting was a proactive step towards promoting the well-being of the Institute's students and fostering a safe and healthy learning environment.

Events Organised by the Secretariat Team

1. **SLC Parliament Trip:** The Parliament trip we organised provided us with valuable knowledge about the functioning of the Indian Parliament. During the trip, the team met with delegates and learned about the legislative process, providing them with a deeper understanding of Indian politics.
2. **SLC Town Hall Meeting with Election Commission (EC):** A town hall meeting was organized to facilitate a discussion on the work done by the EC. The meeting provided an opportunity for students to voice their opinions and concerns regarding the work of the EC, and the officials answered their queries. The event was aimed at promoting transpar-

ency and accountability within the Institute's governance, fostering a healthy relationship between the students and the EC officials.

3. **Open House with Director:** During the Open House event, the Director, Dean (Students), Dean (Academic Courses), Dean (Academic Research), Chairman, Council of Wardens, and Registrar took the stage to address the issues faced by students at the Institute. Their speeches were aimed at identifying and addressing these challenges, ensuring that students could overcome them and achieve their full potential. The event served as a platform for students to voice their concerns and receive guidance from the Institute's top officials. Overall, the Open House event was a successful initiative, aimed at promoting student welfare and enhancing their overall learning experience.
4. **Holi Celebration:** The festival of Holi was celebrated in collaboration with the Hindi Mitra Mandal, for the students residing on campus. The event included music, dance, and colour play, providing an opportunity for the students to bond with their peers and make new friends.

Events Organised by Public Policy Club

The Public Policy Club of IIT Madras conducted successful events to promote awareness and interest in public policy issues among students.

1. **Policy Penmanship** was a submission-based writing competition that challenged participants to craft persuasive essays on a selected public policy topic. The competition was open to all students, and submissions were judged by policy students from Jamia Millia Islamia, Delhi.
2. **Breaking News** was an oratory competition in which students presented short speeches on current events and their policy implications. The competition was open to all students, and participants were judged based on their ability to articulate their ideas effectively and persuasively.
3. **The Policy Quiz** competition tested the students' knowledge of current events and public policy issues. The quiz covered various topics, including economic policy, international relations, and social policy.

9.15. Student Ethics and Constitution Commission & Student Election Commission

Student Ethics and Constitution Commission (SECC)

The SECC, primarily being the chief regulatory body of student governance in IIT Madras, has attempted to intervene in every concern/complaint/case under its jurisdiction. It has also been instrumental in interpreting the Students' Constitution whenever there was a conflict of interest with respect to events and matters in and outside the student governance structure of IIT Madras.

Following are some of the events that the Heads of Secretariat, SECC have arranged throughout the year: a plantation ceremony, an online exhibition and lecture during the 76th Independence Day on August 15, 2022, a case study competition based on the International Day of Democracy held on September 15, 2022, a documentary screening on the International Day of Peace on September 21, 2022, a quiz competition on Constitution Day, November 26, 2022, and a movie screening on Martyr's Day, February 1, 2023.

Student Election Commission 2022–23

The Student Ethics and Constitution Commission acts as the Student Election Commission, with the responsibility of conducting elections at the Institute, Department and Hostel level.

The SEC conducted elections for Cauvery hostel on August 12, 2022, with a polling rate of 77.25%.

In October 2022, SEC conducted elections for Mandakini hostel, with a polling rate of 73.96%.

On March 3, 2023, the SEC conducted the Student General Elections 2023 for 9 Institute Secretaries' posts, 32 Department posts and 154 Hostel posts using blockchain technology, which is the first of its kind among the IITs and other universities. The Student General Elections witnessed more than 200 students contesting, with a polling rate of 48.68%. The SEC also conducted elections for the post of Speaker, Student Legislative Council on March 21, 2023, with a polling rate of 97.78%.

10

Students' Placement

10.1. Introduction

The Office of Placement & Internship at IIT Madras helps students in identifying and applying for full-time job opportunities. This office liaises with companies and enables them to share the details of opportunities with students.

The Placement activity for the academic year 2022-23 commenced with Pre-Placement Talks from 27th September 2022. The interview process happened in the Hybrid mode (online/offline) and the final placements began on 1st December 2022. A total of 399 companies registered at the Campus for recruitment this year. Most of the Companies were from Core Engineering, Information Technology (IT) and R&D sectors. Additionally, companies from analytics, finance, education, and consulting sectors also recruited students.

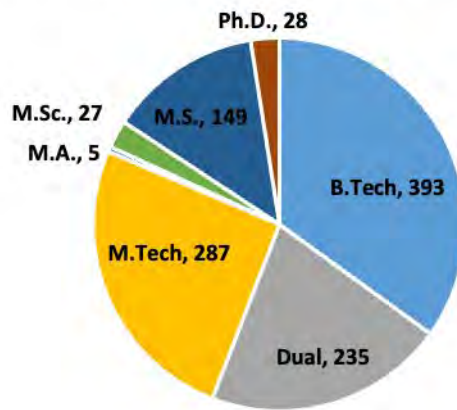
10.2. Details of Placements Across Departments

The number of students placed during 2022-23 is listed department-wise in the following table:

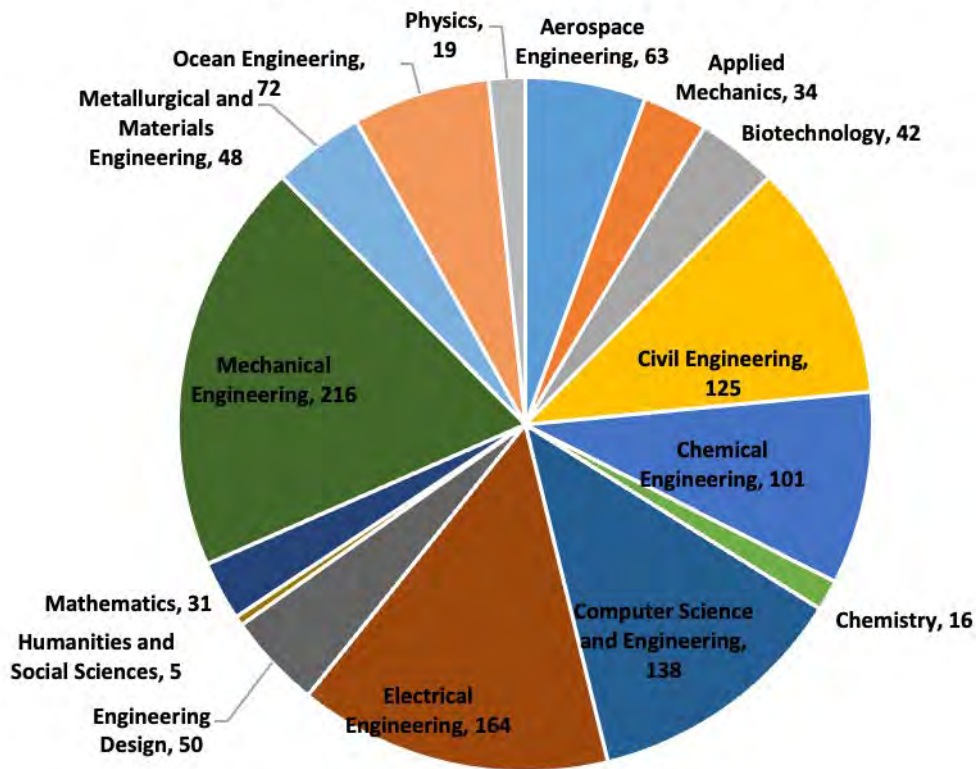
| Students/Scholars Placed | | | | | | | | |
|---|------------|------------|------------|----------|-----------|------------|--------------|-------------|
| | B.Tech. | Dual | M.Tech. | M.A. | M.Sc. | M.S. | Ph.D. | Total |
| Aerospace Engineering | 22 | 13 | 11 | 0 | 0 | 16 | 1 | 63 |
| Applied Mechanics | 0 | 0 | 15 | 0 | 0 | 17 | 2 | 34 |
| Biotechnology | 0 | 32 | 9 | 0 | 0 | 1 | 0 | 42 |
| Civil Engineering | 63 | 21 | 34 | 0 | 0 | 7 | 0 | 125 |
| Chemical Engineering | 59 | 12 | 19 | 0 | 0 | 6 | 5 | 101 |
| Chemistry | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 |
| Computer Science and Engineering | 48 | 2 | 69 | 0 | 0 | 18 | 1 | 138 |
| Electrical Engineering | 68 | 22 | 26 | 0 | 0 | 40 | 8 | 164 |
| Engineering Design | 0 | 38 | 0 | 0 | 0 | 11 | 1 | 50 |
| Humanities and Social Sciences | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 5 |
| Mathematics | 0 | 0 | 23 | 0 | 7 | 0 | 1 | 31 |
| Mechanical Engineering | 84 | 63 | 37 | 0 | 0 | 26 | 6 | 216 |
| Metallurgical and Materials Engineering | 17 | 14 | 15 | 0 | 0 | 1 | 1 | 48 |
| Ocean Engineering | 26 | 12 | 28 | 0 | 0 | 6 | 0 | 72 |
| Physics | 6 | 6 | 1 | 0 | 4 | 0 | 2 | 19 |
| Total | 393 | 235 | 287 | 5 | 27 | 149 | 28 | 1124 |
| Pre-placement offers | | | | | | | | 236 |
| | | | | | | | Total | 1360 |

During the year, 1360 students/scholars were placed in various organisations (excluding MBA).

Scholars/Students Placed Course Wise



Scholars/Students Placed Department-wise



Financial Assistance to Students

Financial assistance in the form of scholarships and fellowships are given to meritorious students who are pursuing engineering, technology and science education at IIT Madras. The details of scholarships and fellowships sanctioned to the students of different programmes during 2022-23 are given in this section.

SC/ST/PWD students admitted in all programs are exempted from paying tuition fee irrespective of their parental income.

11.1. Assistance to B.Tech./Dual Degree Students

11.1.1. National Scholarship Portal

The details of scholarships awarded through the National Scholarship Portal are given below.

Table 11.1. (a) Scholarships awarded through the National Scholarship Portal

| S.No. | Scholarships | Number of Students |
|-------|---|--|
| 1. | National Fellowship Scheme for Higher Education of ST Students) (Ministry of Tribal Affairs, Government of India) | Renewal: 79 Fresh sanction: Yet to receive the sanction order |
| 2. | (Top-class Education Scheme for SC Students) (Ministry of Social Justice, Government of India) | Renewal: 36 Fresh sanction: 12 |

11.1.2. MCM and SC/ST Scholarships

- Students with parental income less than INR 1 lakh were given a tuition fee waiver.
- Students admitted to B.Tech./Dual Degree (DD) programmes whose parental income is less than INR 4.5 lakh were sanctioned a Merit-cum-Means (MCM) scholarship (₹1000 per month). During the period under review, 309 students were benefitted under the scheme (Table 11.1 (b)).
- Students whose parental income is between INR 1 lakh and INR 4.5 lakh are required to pay only ₹33,333 per semester with a tuition fee waiver of ₹66,666 per semester (i.e., one third of the tuition fee of INR 1 lakh). These students are reimbursed the tuition fees they pay, i.e. ₹66,666 per year, by various alumni donors through the A&CR Office. During 2022-23, 371 students benefitted from such alumni-funded scholarships.
- The SC/ST students with parental income/s less than INR 4.5 lakh were given free messing, a pocket allowance of ₹250 per month, and an exemption from the payment of hostel seat rent. As on March 31, 2023, 60 students were benefitted under this scheme (Table 11.1 (b)).

Table 11.1. (b) MCM and SC/ST Scholarships Awarded

| Batch | MCM Scholarships | SC/ST Scholarships |
|--------------|------------------|--------------------|
| 2022 | 138 | 22 |
| 2021 | 42 | 35 |
| 2020 | 100 | 10 |
| 2019 | 88 | 35 |
| 2018 | 106 | 26 |
| Total | 474 | 128 |

11.1.3. Other Scholarships and Awards

The top 7 percent of General Category students admitted to the B.Tech./DD programme are eligible for a Notional Prize of ₹1,000 (one-time) and a Certificate of Merit based on their rank in the JEE (Advanced) and a parental income exceeding INR 4.5 lakh. In July 2021, 602 General Category students were admitted to the B.Tech/DD programme, of whom 31 students were eligible for the Notional Prize.

Alumni-funded scholarships are available to the highest scoring students based on their academic performances, as stipulated by the alumni sponsoring the scholarship.

11.2. Other Scholarships

Scholarships were sanctioned by the NCERT, Government of India and state governments to meritorious students pursuing the B.Tech. programme in IIT Madras.

11.2.1 Tamil Nadu Scholarships (B.Tech./DD/M.Tech.)

| Scholarship / 2023 | Total No. of Students |
|--|-----------------------|
| Tamil Nadu Scholarship by Directorate of Backward Class/Directorate of Most Backward Class | 37 |

11.2.2 State Government Scholarships obtained by B.Tech./DD Students

| Scholarship / 2021 | Batch/Total Number of Students | | | | | | | Total |
|--------------------|--------------------------------|------|------|------|------|------|------|-----------|
| | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | |
| NCERT | 19 | 19 | 24 | 17 | 8 | 8 | 4 | 99 |

11.3. Half-Time Teaching Assistantship (HTTA)

Students who joined the M.Tech. programme through the Graduate Aptitude Test in Engineering (GATE) were awarded Half-Time Teaching Assistantships (HTTA) at ₹12,400 per month. During the period under report, 498 fresh assistantships and 1,194 renewed assistantships were given. The discipline-wise details of the HTTA are given below.

11.3.1. Number of HTTA awarded to M.Tech. Students

| S. No. | Discipline | Fresh—2022 Batch | Renewal—2022 Batch | Renewal—2021 Batch | |
|--------------|--|------------------|--------------------|--------------------|--------------|
| | | I Semester | Jan–May 2023 | Jul–Nov 2022 | Jan–May 2023 |
| 1 | Aerospace Engineering | 18 | 17 | 14 | 14 |
| 2 | Applied Mechanics | 19 | 17 | 17 | 15 |
| 3 | Applied Mechanics: Clinical Engineering | 15 | 15 | 8 | 8 |
| 4 | Biotechnology | 13 | 13 | 11 | 11 |
| 5 | Chemical Engineering | 37 | 34 | 27 | 27 |
| 6 | Civil Engineering | 64 | 62 | 50 | 46 |
| 7 | Computer Science and Engineering | 92 | 89 | 67 | 62 |
| 8 | Electrical Engineering | 76 | 67 | 53 | 45 |
| 9 | Mathematics: Industrial Maths and Scientific Computing | 24 | 22 | 22 | 23 |
| 10 | Mechanical Engineering | 69 | 60 | 47 | 45 |
| 11 | Metallurgical and Materials Engineering | 21 | 21 | 21 | 23 |
| 12 | Ocean Engineering + Petroleum Engineering | 42 | 39 | 34 | 32 |
| 13 | Physics: Functional Materials and Nanotechnology | 8 | 8 | 5 | 3 |
| Total | | 498 | 464 | 376 | 354 |

11.3.2. Number of HTTA awarded to Dual Degree (5th Year) Students

The Batch of 2018 students who joined the M.Tech. programme under Dual Degree were awarded HTTAs at ₹12,400 per month from July 25, 2022 onwards, based on their obtaining a valid GATE score or on securing a CGPA of 8.0 or above. During the period under review, 250 students were awarded fresh assistantships from July to December 2022, and 257 assistantships were renewed at the rate of ₹12,400 p.m. from January–May 15, 2023. The department-wise details are given below.

| S. No. | Discipline | 2018 Batch | |
|--------------|--|--|--|
| | | Fresh (Ninth Semester) July–November 2022 | Renewal (Tenth Semester) January–May 2022 |
| 1 | Aerospace Engineering | 12 | 12 |
| 2 | Biotechnology | 26 | 28 |
| 3 | Chemical Engineering | 17 | 19 |
| 4 | Civil Engineering | 17 | 17 |
| 5 | Computer Science and Engineering | 3 | 3 |
| 6 | Electrical Engineering | 46 | 48 |
| 7 | Engineering Design | 36 | 36 |
| 8 | Mechanical Engineering | 60 | 60 |
| 9 | Metallurgical and Materials Engineering | 12 | 13 |
| 10 | Naval Architecture and Ocean Engineering | 10 | 10 |
| 11 | Physics | 11 | 11 |
| Total | | 250 | 257 |

11.3.3. Number of HTTA awarded to M.A. Students

The Batch of 2018 students of the fiveyear integrated M.A. program were awarded a HTTA of ₹12,400 per month from July 1, 2022 onwards, based on their obtaining a valid GATE score or on securing a CGPA of 8.0 or above. 40 students were benefited during the year 2022–2023.

| Stream | Fresh (July–November 2022) | Renewal (January–May 2023) |
|---------------------|-----------------------------|----------------------------|
| Development Studies | 23 | 23 |
| English Studies | 17 | 17 |
| Total | 40 | 40 |

11.4. M.Sc.

Students admitted to the M.Sc programme were sanctioned ₹1,000 per month under the merit scholarship. Exemptions from the payment of tuition fees (freeships) were also given to students. During the period under report, 131 students benefited. The department-wise details are given below:

Table 11.4.1. Number of Merit Scholarships and Freeships Awarded

| S. No. | Course | Merit Scholarship | | Freeship (Tuition Fee Waiver) | | 50% Freeship (50% Tuition Fee Waiver) | |
|--------------|-------------|-------------------|-----------|----------------------------------|-----------|--|----------|
| | | 1st Year | 2nd Year | 1st Year | 2nd Year | 1st Year | 2nd Year |
| 1. | Chemistry | 17 | 18 | 7 | 10 | - | - |
| 2. | Mathematics | 12 | 12 | 6 | 5 | 6 | 1 |
| 3. | Physics | 14 | 12 | 6 | 5 | - | - |
| Total | | 43 | 42 | 19 | 20 | 6 | 1 |

11.5. M.A.

Institute Merit Scholarship: Twenty-five percent of the students admitted to the M.A. programme and whose parental income is less than INR 4.5 lakh were sanctioned Merit Scholarships (i.e., exempted from payment of the tuition fees of ₹3,000 per semester/₹1,000 per month).

The SC/ST students admitted to the M.A. programme with a parental income less than INR 4.5 lakh were sanctioned concessions of free messing, a pocket allowance of ₹250 per month, and an exemption from the payment of tuition fees and hostel seat rent. The batch-wise details of the number of students benefited are given below.

| Batch | Merit Scholarship |
|--------------|-------------------|
| 2022 | 1 |
| 2021 | 8 |
| 2020 | 8 |
| 2019 | 1 |
| 2018 | 2 |
| 2017 | 1 |
| Total | 13 |

Institute Freeship Scholarships, which comprise exemptions from payment of tuition fees, are available to M.A. students.

11.6. M.S.

The scholars admitted to the M.S. programme through the GATE are given Half-Time Teaching Research Assistantships (HTRA) of ₹12,400 per month for two years, later extended to the third year on the recommendation of the Graduate Test Committee (GTC). During the period under report, 424 scholars received these assistantships, of whom 135 were fresh scholars. The department-wise details of the assistantships awarded and renewed are given below.

Table 11.6.1. Number of HTRA Awarded

| S. No. | Discipline | Fresh | Renewal | Total |
|--------------|---|------------|------------|------------|
| 1 | Aerospace Engineering | 8 | 17 | 25 |
| 2 | Applied Mechanics | 19 | 16 | 35 |
| 3 | Biotechnology | 2 | 3 | 5 |
| 4 | Chemical Engineering | 8 | 9 | 17 |
| 5 | Civil Engineering | 10 | 12 | 22 |
| 6 | Computer Science and Engineering | 8 | 9 | 17 |
| 7 | Engineering Design | 7 | 9 | 16 |
| 8 | Electrical Engineering | 16 | 28 | 44 |
| 9 | Management Studies | 8 | 109 | 117 |
| 10 | Mechanical Engineering | 33 | 57 | 90 |
| 11 | Metallurgical and Materials Engineering | 10 | 9 | 19 |
| 12 | Ocean Engineering | 6 | 11 | 17 |
| Total | | 135 | 289 | 424 |

11.7. Ph.D.

The scholars admitted to full-time Ph.D. programmes in engineering are sanctioned Half-Time Teaching/Research Assistantships (HTRA) of ₹31,000 per month for the first two years and ₹35,000 per month for the next three years. During the period under report, 370 scholars obtained assistantships, of whom 292 were fresh scholars. The department-wise details of the assistantships awarded and renewed are given below.

Table 11.7.1. Number of HTRA Awarded

| S. No. | Discipline | Fresh | Renewal | Total |
|--------------|---|------------|-----------|------------|
| 1 | Aerospace Engineering | 9 | - | 9 |
| 2 | Applied Mechanics | 23 | - | 23 |
| 3 | Biotechnology | 23 | 2 | 25 |
| 4 | Chemical Engineering | 16 | 2 | 18 |
| 5 | Chemistry | 21 | - | 21 |
| 6 | Civil Engineering | 30 | - | 30 |
| 7 | Computer Science and Engineering | 8 | 1 | 9 |
| 8 | Engineering Design | 13 | 7 | 20 |
| 9 | Electrical Engineering | 24 | 8 | 32 |
| 10 | Humanities and Social Sciences | 11 | 10 | 21 |
| 11 | Management Studies | 10 | 2 | 12 |
| 12 | Mathematics | 9 | 3 | 12 |
| 13 | Mechanical Engineering | 37 | 14 | 51 |
| 14 | Metallurgical and Materials Engineering | 18 | 10 | 28 |
| 15 | Ocean Engineering | 14 | 3 | 17 |
| 16 | Physics | 26 | 16 | 42 |
| Total | | 292 | 78 | 370 |

A fellowship deemed to be equivalent to the Institute Pre-Doctoral Fellowship (except contingency) will be awarded for a maximum period of six months from the date of submission of the final synopsis and thesis for regular Ph.D. scholars who have submitted their thesis within four and a half years, and for direct/upgraded regular PhD scholars who have submitted within five years. They will pursue the work as defined for Institute Pre-Doctoral Fellows. During the year under report, 50 Ph.D. scholars were sanctioned Pre-Doctoral Fellowships.

11.8. Financial Assistance for Conferences

11.8.1. Financial Assistance to Research Scholars for International Conferences

The Institute encourages research scholars to present papers in international conferences, for which they are given financial assistance. The financial assistance provided to M.S. and Ph.D. scholars is up to the limit of ₹1,50,000, including registration fees.

11.8.2. Visits to National Conferences, Seminars, Symposia, Workshops, Other Laboratories, etc. Within India

Research scholars are given the following financial assistance for presentation of papers in national conferences in India:

| Claim | Eligibility |
|--|--|
| Registration fees | As per actuals, with the recommendation by Doctoral Committee/Graduate Test Committee |
| Travel | II Tier AC train fare |
| Local Travel (at Chennai and at the place of conference) | Four trips for the duration of the conference by auto/taxi/bus at actuals, subject to an upper limit of ₹500 per trip |
| Lodging | Hostel/guest house/hotel for conference days plus one day each prior to and after the conference days at actuals, subject to a ceiling of ₹1,000 per day |
| Per diem | ₹500 per day for conference days plus one day each prior to and after the conference days |
| Poster charges | Maximum amount of ₹1,500 per poster (with bill) |

12

Weaker Section & Foreign National Students

12.1. B.Tech. & Dual Degree Programme

As per Government of India (GOI) orders, 27%, 15% and 7.5% of seats are reserved for OBC, SC and ST students respectively in the B.Tech. & Dual Degree programme. These students are admitted through the Joint Entrance Examination (Advanced) with relaxed admission criteria, i.e. 60% of the marks obtained by the last student of the general category. During counselling prior to admission, an advisor explains the requirements of different branches to potential students. This helps them choose a suitable branch based upon their capabilities and interests.

12.1.1. Economically Weaker Section (EWS)

As per GOI orders, a 10% reservation was implemented for General Category students belonging to the Economically Weaker Section (EWS) for the academic year 2022-23.

12.1.2. SC/ST Students

The following are the details of SC/ST students admitted to the B.Tech. programme through the JEE (Advanced) 2022-23 and the Preparatory Course during 2021-22:

| Total Sanctioned Intake | Sanctioned Intake | | | Number Joined Through | | | | | | | |
|-------------------------|-------------------|----|-----|-----------------------|-----|----|-----|--------------------|----|-------------|-----|
| | | | | Pro-gramme | JEE | | | Preparatory Course | | | |
| | SC | ST | EWS | | SC | ST | EWS | SC PD | ST | GE & EWS PD | OBC |
| B.Tech. | 130 | 67 | 87 | B.Tech. | 141 | 73 | 104 | 2 | 5 | 3 | 4 |
| Dual Degree | 28 | 13 | 17 | Dual Degree | 29 | 13 | 19 | 3 | 9 | - | 2 |

SC/ST students admitted against reservation are given the following benefits:

- Tuition fee waiver.
- Free lodging and messing (basic menu only) and an allowance of ₹250 per month, provided their parents' income is ₹4,50,000 per annum or less.
- A Book Bank is maintained by the Central Library for the benefit of SC/ST students. The students are issued 12 tickets to borrow books from the Book Bank. Books are issued for a semester.
- Placement assistance: Wherever possible, industries are requested to conduct separate interviews for SC/ST students, for whom requirements are lowered.

12.2. Preparatory Course for Admission to B.Tech. & Dual Degree Programmes

A preparatory course of one academic year has been initiated by the Ministry of Human Resource Development, Government of India, exclusively for SC/ST/PwD students. Selections for this course are made from the Joint Entrance Examination (Advanced) list of SC/ST/PwD students who did not qualify for admission. Upon successfully completing the preparatory course at the IIT, they would be eligible to join the B.Tech / Dual Degree programme and are not required to write the JEE (Advanced) again. Following are the details of admission in July 2022 (IIT Madras, IIT Hyderabad, IIT Tirupathi, IIT Palakkad):

| Preparatory Course Offers Issued | | | | |
|----------------------------------|----|--------|-------|--------|
| SC PD | ST | OBC PD | GE PD | EWS PD |
| 1 | - | 8 | 5 | - |

29 preparatory course students from the 2021-22 batch successfully completed the course and were offered admission to the B.Tech / Dual Degree Programme in July 2021.

12.3. M.Tech. Programme

Seats are reserved for SC, ST and EWS candidates as per GOI orders. They are admitted through GATE by a separate merit list. Following are the details of admission in July 2022:

| Offers issued | | | No. joined (HTTA) | | |
|---------------|----|-----|-------------------|----|-----|
| SC | ST | EWS | SC | ST | EWS |
| 82 | 37 | 73 | 71 | 36 | 50 |

12.4. M.Sc. Programme

Admission was made to the M.Sc. programme through JAM entrance examinations only. 25 SC and 13 ST students were admitted to the programme. These students were given a tuition fee waiver.

M.Tech and M.Sc students admitted against reservation are given the following benefits:

- Book Bank facility with 12 library tickets. Books are issued for a semester.
- Both public sector and private sector industries were requested to recruit SC and ST students. Other special steps were also taken to enhance the recruitment of this category of students.
- Scholarship is given to these students as per Govt. of India norms.

12.5. Admission of Foreign National Students and Indian Nationals Residing Abroad

At the end of March 2023, 63 foreign nationals were on the rolls of the Institute. The programme- and country-wise details are given below:

| Country | I Year | II Year | III Year | IV Year | V Year | Total |
|----------------------------------|--------|---------|----------|---------|--------|-------|
| Foreign National Students | | | | | | |
| B.Tech. | | | | | | |
| USA | | 1 | | | | 1 |
| Dual Degree | | | | | | |
| South Korea | | | | | 1 | 1 |
| M.Tech. | | | | | | |
| Afghanistan | | 1 | 1 | | | 40 |
| Bangladesh | 2 | 2 | | 1 | | |
| Egypt | 1 | | | | | |
| Ethiopia | 5 | | | | | |
| Indonesia | | 1 | | | | |
| Nepal | 13 | 7 | | | | |
| Nigeria | | 1 | | | | |
| Sudan | 1 | 2 | | | | |
| Syria | | 2 | | | | |
| Ph.D. | | | | | | |
| Afghanistan | | | | 2 | | 14 |
| Australia | | 2 | 1 | | | |
| Canada | | | 1 | | | |
| Ethiopia | | | | 1 | 1 | |
| France | | | 1 | | | |
| Malaysia | 1 | 1 | | | | |
| Nepal | | | | 1 | 1 | |
| Vietnam | | 1 | | | | |
| M.S. | | | | | | |
| Ethiopia | | | 1 | | | 7 |
| Ghana | 1 | | | | | |
| Kenya | 2 | | | | | |
| Saudi Arabia | | 3 | | | | |

In addition to the above, the IIT Madras Alumni Association provides financial assistance to students under the IITMAANA Travel Grant programme to assist IITM students to visit the USA and present their papers at nationally recognized technical conferences. The grant covers airline ticket charges and visa fees but excludes payment of conference registration fees.

13

Campus Amenities

13.1. Engineering Unit

The Engineering Unit (EU) is entrusted with the responsibilities of construction, maintenance of buildings, and operations & maintenance services of the Institute. The works are carried out through contract by calling for tenders and quotations in a transparent manner.

For maintaining quality in the construction of buildings, the advice of faculty members who are experts in their respective areas is sought. To complete the projects on schedule, the EU holds periodic review meetings with the stakeholders. The EU has also introduced new materials and technologies in construction and maintenance activities.

The status of works (completed, in progress and in the planning stage) are as follows:

I. Major Works Completed

| S. No. | Description of Work | Value (INR lakh) |
|-------------------------------------|---|------------------|
| Executed by Engineering Unit | | |
| 1. | Painting of Hostel Zone buildings | 129.57 |
| 2. | Waterproofing works and others related civil repair works in Academic Zone buildings for the year 2020-21 | 73.88 |
| 3. | Revamping works at OAT (Open Air Theatre): Modifying existing gallery, entrance ramp, bowl, stage area, etc. (complete) | 200.33 |
| 4. | Special civil repair works in Sarayu & Krishna hostels | 119.02 |
| 5. | Construction of passenger lift well at Himalaya and Vindhya messes and 7-in-1 Workshop Buildings | 83.87 |
| 6. | Face-lifting of corridors and minor external repair works in Taramani Guest House (TGH) | 54.53 |
| 7. | Face lifting of corridors and minor external repair works in Ganga hostel | 150.09 |
| 8. | Demolition and filling of existing unused sewer manhole chambers, sewage wells and septic tanks | 38.00 |
| 9. | Providing and fixing overflowing weir-cum-sluice gate for main lake | 15.00 |
| 10. | Providing BSNL point-to-point 1 GBPS bandwidth connectivity between IIT Madras main campus and IITM Discovery Campus at Thaiyur | 115.52 |
| 11. | Design, supply and augmentation of IP-based exchange & switching infra at the new IITM Discovery campus at Thaiyur | 44.70 |
| 12. | Upgradation of HiPath 4000 PBX Main system from V2 license to V10 license in Ecoserver with hardware/software accessories | 35.54 |
| 13. | Providing internal illumination for the new dining facility at the terrace of Campus Cafe | 8.90 |
| 14. | Providing street lighting for the modified Adyar In/Out gate | 11.91 |
| 15. | Provision of fan coil units (FCUs) and allied chilled water lines to the first floor of Administrative Building | 40.17 |
| 16. | Installation of video wall near In/Out gate | 15.00 |
| 17. | Providing LED light fitting and internal electrification work at Heritage Centre | 13.04 |
| 18. | Replacing the existing main fuse-type pillar boxes into kiosk-type molded case circuit breaker (MCCB) panels in all zones | 115.00 |

| S. No. | Description of Work | Value (INR lakh) |
|--|---|------------------|
| 19 | Replacement of existing 48V DC LED light fittings and ceiling fans into 1 AC LED light fittings and BLDC fans in New Academic Complex (NAC) I | 67.37 |
| 20 | Provision of 1 x 13-passenger lift to Himalaya mess, 1 x 13-passenger lift to Vindhya mess, and 1 x 8-passenger lift to 7-bay workshop | 60.60 |
| 21 | Replacement by conversion of switch fuse unit (SFU) panel to MCCB panel at Taramani Guest House | 10.25 |
| 22 | Replacement by provision of addressable fire alarm panel and its accessories to Biotechnology Block I | 17.92 |
| 23 | Upgradation by replacement of fire alarm panel and its accessories to Central Library | 20.95 |
| 24 | Provision of FCUs and allied chilled water lines for ground (G) to fifth floor of Administrative Building and all floors of the Administration annex building | 126.19 |
| Executed by Engineering Unit under Higher Education Financing Agency (HEFA) | | |
| 1. | Providing a 500kVA transformer and allied high tension and low tension (HT/LT) works at G1-type quarters | 60.00 |
| 2. | Construction of new women's hostel (G+8 floors) by replacing the rear wing of Sarayu Hostel | 3227.00 |
| 3. | Upgradation of the domestic water supply pipeline system and installation of ultrasonic water meters in the residential zone | 298.53 |
| 4. | Upgradation of the water supply system (SH : Provision of supervisory control and data acquisition [SCADA] system) | 113.16 |
| 5. | Construction of New Girls Hostel (G+8 floors) by replacing the rear wing of Sarayu Hostel at IIT Madras (SH: Provision of 3 x 13-passenger lifts) | 64.74 |
| 6. | Construction of new G1-type quarters at IIT Madras (SH: Provision of 1 x 13-passenger lift + 1 x 8-passenger lift) | 33.50 |
| 7. | Construction of Electrical Science Block II (ESB II) G+6 floors (SH: Provision of 2 x 16-passenger lifts) | 41.02 |
| Executed by Engineering Unit Under Fund 'OH-35 Towards Infrastructure Development Due to Implementation of EWS Reservation' | | |
| 1. | Augmentation of facilities at Centre for Innovation (CFI) lab by completely replacing the existing structures in Central Workshop | 1950.00 |
| 2 | Augmentation of facilities at CFI lab by completely replacing the existing structures in Central Workshop (SH: Provision of HVAC [heating, ventilation, and air conditioning] system) | 244.16 |
| 3 | Construction of CFI (G + 2 floors + terrace) (SH: Provision of 1 x 16 Passengers lift) | 18.05 |

II. Major Works in Progress

| S. No. | Description of Work | Value (INR Lakh) |
|-------------------------------------|--|------------------|
| Executed by Engineering Unit | | |
| 1 | Re-carpeting of minor roads | 689.78 |
| 2 | Institute Hospital: Construction of an additional floor above the front wing, creation of a new staircase, lift shaft, and toilets by dismantling the existing toilet and Chief Medical Officer (CMO)'s room, face-lifting of the existing facilities (SH- replacing the existing flooring & wall tiles, construction of new block at terrace, toilet block, staircase, lift shaft etc.) | 317.52 |
| 3 | Provision of AC facility to ground and first floors of Campus Café | 63.36 |
| 4 | Waterproofing works and other related civil repair works in Academic Zone buildings for the year 2022-23 | 100.00 |
| 5 | Addition and alteration of 24 MOH-type quarters (MOH-1 to MOH-24) | 419.21 |
| 6 | Addition and alteration of 36 E1-type quarters (E1-23, E1-24 & E1-25) (SH: Balance works) | 526.91 |
| 7 | Electrification of smart/hybrid classrooms in different academic buildings | 122.47 |
| 8 | Providing additional poles and security-cum-pathway lights at various locations | 16.75 |

| S. No. | Description of Work | Value (INR Lakh) |
|--|---|------------------|
| Executed by Engineering Unit, under Institution of Eminence (IoE) Fund | | |
| 1 | Construction of new building (G+1 floor) for CRYO Facility | 524.00 |
| 2 | Construction of buildings for centralised chilled-water air-conditioning system with substation (G+1 floor) at three locations near the Medical Materials Laboratory (MML), Computer Centre & ESB by demolishing two existing substations and one cycle stand | 538.95 |
| 3. | Providing rising main and bus bar trunking in ESB and Mechanical Sciences Block (MSB) | 180.36 |
| 4 | Providing rising main and bus bar trunking in SF of Chemistry Building & Building Sciences Block (BSB) | 136.88 |
| 5 | Providing rising main and bus bar trunking in Humanities and Sciences Block (HSB) | 190.93 |
| 6 | Providing rising main and bus bar trunking, cable trays, and CMS for CSD, CSE, CC, OED, CWS, structural, MDS and Aerospace buildings | 159.60 |
| 7 | Providing 2000kVA 11kV/433V distribution transformers at MSB, ESB and BSB substation for power supply to the district cooling new chillers and associated equipment | 463.43 |
| 8 | Provision of centralised chilled-water air-conditioning system (Sub: Provision of chillers, pumps, cooling towers, and piping works in trenches) | 4162.54 |
| Executed by Central Public Works Department (CPWD), under IoE fund | | |
| 1 | Construction of Research Visitors' Guest House (G+8 floors) by replacing the existing maintenance office building and student facility building at IIT Madras | 7570.00 |
| Executed by Engineering Unit under Higher Education Financing Agency (HEFA) | | |
| 1. | Upgradation of water supply system | 2862.92 |
| Executed by CPWD under Higher Education Financing Agency (HEFA) | | |
| 1. | Construction of New Academic Complex II | 18770.00 |
| 2. | Construction of Academic Research Block (G+2 Floors) with food court at IIT Madras Discovery Campus at Thaiyur 'B' Village, Chengalpattu District | 3441.00 |
| 3. | Construction of utility and common services at IIT Madras Discovery Campus | 1466.00 |
| Executed by CPWD Under Fund 'OH-35 Towards Infrastructure Development Due to Implementation of EWS Reservation' | | |
| 1. | Construction of hostel block (G+4 Floors) at IIT Madras Discovery Campus | 1877.00 |
| 2. | Construction of utility and common services at IIT Madras Discovery Campus | 741.00 |
| Execution by Engineering Unit under alumni funding through Dean (Alumni & Corporate Relations) | | |
| 1 | Face-lifting works in Jamuna, Godavari, and Saraswathi hostels (restroom renovation, corridor renovation, external repairs) including electrical works (civil) | 661.94 |
| 2 | Providing and fixing tensile roof structure and monkey proofing works at Quark building | 46.78 |
| 3 | Construction of indoor multigame sports facility above the existing tennis court and wall practice area | 2000.20 |

III. Major Works to be Executed in 2023-24

| S. No. | Description of Work | Value (INR Lakh) |
|--|--|------------------|
| Execution by Engineering Unit, IITM | | |
| 1 | Waterproofing works and other related civil repair works in Institute buildings for the year 2023-24 | 234.00 |
| 2 | Proposed construction of a new building (basement + G + 6 floors) by demolishing the Thermodynamics & Combustion Engineering (TDCE & Refrigeration & Airconditioning R&AC laboratories | 11362.00 |
| 3 | Design, build, own, operate, and transfer of biogas plant (with a capacity of 2 tonnes per day) | DBOT Mode |
| 4 | Construction of A-type quarters at IIT Madras | 527.00 |
| 5 | Construction of staff quarters (100 nos.) | 4900.00 |
| 6 | Providing and fixing powder-coated MS grill and automatic sliding door at corridor in Ganga hostel | 138.25 |

| S. No. | Description of Work | Value (INR Lakh) |
|--------|--|------------------|
| 7 | Construction of underground RCC sumps (3 nos.) of one lakh litres' capacity for chiller plants Construction of underground RCC sumps of fifty thousand litres' capacity for sprinklers at Manohar C Watsa Stadium | 90.00 |
| 8 | Supply of drinking water including design, build, operate and transfer of water treatment units (RO plants with hot- & cold-water dispensers) in all hostel buildings | DBOT Mode |
| 9 | Supply of drinking water including design, build, operate and transfer of water treatment units (RO plants with hot & cold water dispensers) in Academic Zone buildings | DBOT Mode |
| 10 | Construction of two additional floors above the existing Chemistry building | 1647.00 |
| 11 | Construction of an 800-bed new women's hostel (stilt + 13 floors) in place of the existing Sarayu hostel (G+3 floors) | 10838.00 |
| 12 | Construction of a new mess | 5638.00 |
| 13 | Providing a retractable roofing structure and allied services for OAT | 2500.00 |
| 14 | Construction of 2000-bed Vaigai hostel with smart concepts in fast-track mode | 19500.00 |
| 15 | Automation of Velachery gate, Taramani gate, Research Park (RP) gate and integration of the proposed automation system with the existing system at the main gate | 161.00 |
| 16 | Installation of water purifiers at Academic Zone buildings | 45.00 |
| 17 | Construction of a new compound wall, raising the height of the existing compound wall and demolition of the existing compound wall along Sardar Patel road near the main gate | 40.00 |
| 18 | Provision of centralised chilled-water systems to Academic Zone buildings in IIT Madras (SH: Provision of low side equipment & air distribution with BMS to 19 academic buildings) | 6637.47 |
| 19 | Extending the centralised chilled-water air conditioning system to 13 additional laboratory buildings | 1120.31 |
| 20 | Provision of AC facility to main hall and dining hall of Community Hall | 60.00 |
| 21 | Painting of Institute buildings | 1198.00 |

13.2. Housing Facilities

The IIT Madras campus has 535 faculty quarters, 435 staff quarters, and 262 students' quarters for accommodation, as well as 37 others (Director's Quarters (1), eight Wardens' Quarters, 24 Hostels for Married Officials (MOH), two schools and two banks) for accommodation. There are 167 servants' quarters in the campus, out of which 15 were demolished.

13.3. Horticulture

The Horticulture section functions under the EU. It maintains 56,702 m² of lawns (39,358 m² of lawns at various locations and 17,344 m² of turf in stadiums and playing fields). It also maintains the hedges and gardens in the campus. No chemical pesticide sprays are advocated anywhere within the campus (only Azadirachtin 10,000 ppm sprays are used, when necessary, to control pests beyond the Economic Threshold Level or ETL), and vermicompost is used as the sole nutritional supplement.

The lawn turf in the Manohar C Watsa Stadium has been raised organically with local grass species. The green patches serve as a niche location for two cervid species (blackbuck and spotted deer), which regularly visit the areas for food.

A micro-irrigation system has been implemented for the main gate and the Manohar C Watsa stadium, to improve water use efficiency.

The Horticulture section also takes care of providing water troughs at 75 locations for the Institute's cervid population (blackbuck and spotted deer). The water containers are cleaned and refilled daily. These containers also feed a whole lot of smaller fauna within the campus, such as bonnet macaques, squirrels, and birds.

New lawns and gardens were developed at the main gate, Mandakini hostel, and Computer Science Block II.

Miyawaki gardens have been developed adjacent to the newly constructed Mandakini hostel & NAC I to improve the green cover in a considerably shorter time. Nearly 250 tree saplings have been planted and are maintained with tree guards. The watering of lawns and garden area is carried out with treated sewage water through a dedicated pipeline network.

13.4. Public Health

The Horticulture section takes care of mosquito-breeding grounds and controls larval and adult mosquitoes by spraying larvicide and fumigation. It also takes care of termite control in the campus.

Solid waste management is being carried out as per the Tamil Nadu Solid Waste Management Rules 2016. Wastes are segregated at the source, collected door-to-door, and recycled/disposed after secondary segregation.

Bio-medical waste and e-waste are disposed of through a TNPCB-authorized agency.

Hazardous waste generated inside the campus is safely disposed of through a TNCPB-approved agency (Re-Sustainability).

13.5. Telephone Facilities

PBX Telephone System: The campus telephone facility has been extended to the office and residential quarters of faculty members, laboratories of various departments, and miscellaneous services using a HiPath 4000 ISDN PBX system with 5000-line capacity, interfaced with BSNL through ISDN PRA lines. There are 18 remote telephone systems housed at various buildings in Academic, Hostel and Residential Zones, connected to the main PBX system via optical fibre link. By using BSNL Point-to-Point 1GBPS Internet Leased Line, both voice and data have been extended to the IITM Discovery Campus at Thaiyur, since a new telephone exchange has been installed at Thaiyur Campus. Complaints regarding campus telephone lines are responded to within two hours from the time of receipt/ registration. The online campus telephone directory is available on the Institute website under the Directory tab (<https://www.iitm.ac.in/directory>).

13.6. Biodiversity of the IIT Madras Campus

The blackbuck (*Antelope cervicapra*), also known as the Indian Antelope, is only found in the Indian subcontinent. The IITM campus is home to blackbuck, an endangered and flagship species. In order to nurture the habitat for this species and other cervids, a key decision on removal of barriers (chain link fences measuring a little over 2000 m. in staff quarters and departments) for free movement of deer was implemented.

Experts advised the creation of open grasslands with intermittent tall grass or bushes (for delivery, fawn nursing, and to seek protection against predators as well as the rain and wind).

Accordingly, an open space of about 4 acres was created by removing juliflora growth and dibbling the area with native grass slips to pave way for a grassland. As similar locations were not available elsewhere within the campus, it was decided to make use of the existing multi-purpose stadium (about 5 acres) and football & hockey grounds (about 5 acres) as grasslands with native grasses. In all, about 14 acres of additional area have been brought under grassland habitat. The barricades around these sports utilities have been removed for the mutual benefit of students as well as cervids.

The horticulture section also takes care of providing water troughs at 70+ strategic locations for its cervid population (blackbuck and spotted deer). The water containers are cleaned and refilled on a daily basis during summer. These containers also feed a whole lot of smaller fauna within the campus, including bonnet macaques, squirrels, and birds.

Harvesting of palmyra, wood-apples, tamarind, and Madras thorn fruits is fully banned within the Institute. This ensures that the faunal populations have ample food throughout the year. In addition, specific trees that provide food for the fauna have also been planted within core areas, and their estimated numbers are presented in the table opposite.

| Name of Species | Number of Trees |
|---|-----------------|
| Tamarind (<i>Tamarindus indica</i>) | 350 |
| Indian Bat fig (<i>Ficus amplissima</i>) | 40 |
| Indian banyan (<i>Ficus benghalensis</i>) | 60 |
| Wood-apple (<i>Limonia acidissima</i>) | 250 |
| Palmyra palm (<i>Borassus flabellifer</i>) | 7000 |
| <i>Bignonia megapatomica</i> | 200 |
| Copperpod tree (<i>Peltophorum pterocarpum</i>) | 150 |
| Madras thorn (<i>Pithecellobium dulce</i>) | 40 |
| Mara malli (<i>Millingtonia hortensis</i>) | 200 |

Preservation & Translocation of Existing Trees: If construction plans cannot be executed on an area without tree felling, certain trees will need to be cut. In such situations, the cut trees are burlapped and translocated elsewhere within the campus with due care. The present success rates of survival of these translocated trees are as high as 80%. In addition, compensatory afforestation is taken up voluntarily, in the ratio of planting 10 trees for every tree felled or dead after translocation.



Trees balled, burlapped and translocated elsewhere

Increasing Green Cover by Continuous Tree Planting: During the superannuation of every employee, a tree is planted as a gesture of appreciation for their services in the Institute. The saplings are protected with tree guards and nurtured.



Trees planted with tree guards to protect them from cervids

13.7. Green Campus Initiative

A Green Rating for Integrated Habitat Assessment (GRIHA) rating of not less than 4 stars is mandated for all new buildings. In addition, IIT Madras has applied for an Indian Green Building Council (IGBC) green rating. In this connection, several measures including dedicated roadside bins for organic and inorganic waste, waterless urinals, low water consumption fixtures for toilet fittings and flush tanks, dedicated pedestrian/cycle tracks, online electrical and water meters, universal building, augmentation of solar panel coverage, etc. were implemented. An energy audit for all the buildings has been carried out and action has been initiated to improve the efficiency of the electrical fittings. The installation of a municipal solid waste incinerator on the campus is in progress and is expected to be completed by this year. This will enable IIT Madras to become a zero-waste-discharge campus.

13.8. Students' Recreational & Hangout Spaces

In connection with students' wellness programmes, several infrastructural facilities for students' benefit have been created, and many works are in progress. A dedicated student hangout space has been created on the first floor of the Café Coffee Day building, with amenities like Wi-Fi, seating benches, drinking water, and charging points. Granite seating benches have been provided in all major students' gathering areas and on the roadsides of the Hostel Zone. The installation of fabric pods with seating arrangements at Raman and Ramanujan blocks is in progress. The students' counseling room at the Central Library has been fully renovated. A large recreational space with a labyrinth path, an open chess board, an amphitheater, a water cascade, and landscaping in front of the NAC II building is in progress.

13.9. Central Supplies Unit

The Central Supplies Unit functions under the administration of a warden. The unit procures milk from the Tamil Nadu Cooperative Milk Producers' Federation (TCMPF) and supplies it to hostels. It procures major items from wholesale suppliers through the Provision Selection Committee and the Provision Purchase Committee and supplies them to hostels, thus economising mess expenses. Branded cosmetics and eatables from wholesale dealers are also procured and made available to students through Students' Amenities Centres at reduced prices.

13.10. Hospital

The Institute Hospital is a 25-bed ISO 9001-2015 certified hospital. It extends primary medical, basic surgical, and preventive health services to the employees and their dependents and students. The hospital is managed by a team of well-trained and dedicated doctors, nurses, and paramedical staff. Specialist doctors visit on specific days and times to manage patients who require more than primary-level care.

Working Hours

Weekdays: 8.15 am–5.45 pm

Saturdays: 8.15 am–1.00 pm

Saturdays: 1.00 pm onwards: Emergency care

Sundays and Government holidays: Emergency care

Facilities Available

1. Pharmacy: Outsourced to Kauvery Pharmacy
2. Clinical Lab: Outsourced to Lister Metropolis
3. Physiotherapy: Outsourced to M/s. Indus Therapeutic Solutions

In-house Facilities

1. ECG
2. X-ray unit
3. Well-equipped labour room with a baby warmer
4. Operation theatre (has not been in use since the start of the COVID-19 pandemic)
5. In-patient wards

Academic Activities

Doctors, nurses, and staff participated in various medical webinars and conferences via Google Meet and in person. Regular training and updating of knowledge is carried out through internal meetings and discussions.

Preventive Activities

- Circulars against prevalent diseases (dengue, typhoid, etc.) and healthy practices for prevention of diseases were sent to students and staff.
- Regular screenings are carried out for chronic diseases like diabetes or hypertension for staff or dependents above 40 years and in high-risk categories.
- Monthly vaccinations for children are done twice a month.

Staff

High-quality ethical care is given to all users by a dedicated team of hospital staff, which includes:

| S. No. | Staff Details | Number |
|--------|-----------------------------|--------|
| 1 | Regular doctors | 11 |
| 2 | Visiting consultants | 12 |
| 3 | Nurses | 10 |
| 4 | Nursing assistants (female) | 5 |
| 5 | Nursing assistants (male) | 4 |
| 6 | Reception/MRD | 2 |
| 7 | X-ray/U/S/ECG technician | 2 |
| 8 | Hospital office | 2 |
| 9 | Office attenders | 1 |
| 10 | Consultant (finance) | 1 |

- Adult vaccinations against preventable diseases (typhoid, chicken pox, pneumococcal disease, etc.) are regularly advised with informed consent.
- Antenatal care is done through regular OPD for the ease and convenience of patients.
- Training events for basic first aid are organised for students, security staff, & school staff.
- Medical examinations are conducted for all newly recruited staff & faculty.
- A women's camp, mammography camp, and a general health camp were conducted.

Renovations

- To accommodate the increasing patient load, a separate Fever OPD & Ward was constructed. The Pharmacy & Lab have been shifted to a new area at the front of the hospital. This will minimise the risk of cross-infections and be more convenient for users.
- A separate area for visiting specialties in the first floor is under construction. Some equipment has been replaced and the purchasing process for other pieces is ongoing.

OPD Census: Annual Census of Hospital for the Year 2022–23

| Month | Outpatients | | Inpatients | |
|----------------|-------------|-----------|----------------------|------|
| | Regular | Emergency | Retained in Casualty | Ward |
| April 2022 | 5990 | 576 | 270 | 43 |
| May 2022 | 6749 | 498 | 287 | 30 |
| June 2022 | 5176 | 427 | 210 | 22 |
| July 2022 | 6687 | 530 | 250 | 23 |
| August 2022 | 7763 | 779 | 285 | 49 |
| September 2022 | 7001 | 778 | 260 | 34 |
| October 2022 | 7333 | 776 | 279 | 52 |
| November 2022 | 8859 | 1040 | 608 | 54 |
| December 2022 | 7025 | 677 | 477 | 37 |
| January 2023 | 10163 | 1301 | 780 | 58 |
| February 2023 | 9584 | 952 | 556 | 53 |
| March 2023 | 8666 | 1050 | 501 | 32 |

Procedures Done in the Hospital for the Year 2022–23

| Month | Surgical Procedures | X-rays | ECGs | Dental census | Physiotherapy | Vaccinations (Pediatric) | ARV |
|----------------|---------------------|--------|------|---------------|---------------|--------------------------|-----|
| April 2022 | 47 | 310 | 70 | 167 | Closed | 13 | 73 |
| May 2022 | 43 | 325 | 54 | 134 | 693 | 13 | 71 |
| June 2022 | 28 | 296 | 56 | 136 | 690 | 20 | 33 |
| July 2022 | 43 | 325 | 90 | 119 | 584 | 36 | 77 |
| August 2022 | 49 | 422 | 88 | 116 | 720 | 29 | 101 |
| September 2022 | 32 | 427 | 32 | 153 | 730 | 16 | 121 |
| October 2022 | 30 | 362 | 38 | 95 | 565 | 45 | 112 |
| November 2022 | 33 | 360 | 61 | 114 | 624 | 14 | 127 |
| December 2022 | 65 | 305 | 46 | 131 | 633 | 40 | 116 |
| January 2023 | 34 | 323 | 60 | 142 | 683 | 20 | 131 |
| February 2023 | 38 | 428 | 48 | 160 | 823 | 14 | 106 |
| March 2023 | 48 | 430 | 72 | 150 | 907 | 19 | 115 |

13.11. Guest Houses

The Institute has two guest houses within the campus: the Bose–Einstein Guest House near the Administrative Building, and the Taramani Guest House (TGH) in the Hostel Zone. The Bose–Einstein Guest House has 18 air-conditioned suites. Each

room has a telephone, fridge, and TV. VIPs, Institute guests, and invited guests are usually accommodated here. The TGH has 83 rooms, of which 18 are suites and 65 are air-conditioned rooms. The guest house provides boarding and lodging facilities for Institute guests and visitors, newly appointed faculty members, staff members, and delegates & participants attending conferences, seminars, symposia and workshops.

13.12. Banks

The State Bank of India has a branch and two ATMs on campus. Canara Bank also has a branch and an ATM facility within the Institute. In addition, ICICI Bank has installed an ATM in the Hostel Zone.

13.13. Post Office and Telecom Centre

There is a post office on campus to cater to the needs of the campus community. A 24-hour telecom centre caters to the needs of the employees, students, and residents.

13.14. Schools

Vana Vani Matriculation Higher Secondary School (VVMHSS), administered by the IIT Madras Educational Trust, and a Kendriya Vidyalaya (KV) function on campus. VVMHSS offers courses from LKG to Class 12 and the KV offers courses from Class 1 to 12.

13.15. Open Air Theatre

The Open Air Theatre (OAT) is used by the Film Club to screen films during weekends. It is also used for other functions organised by the Institute and schools.

The existing toilets have been renovated with all-new amenities and the provision for disabled-friendly toilets has been incorporated. The overall seating capacity in the gallery and bowl has been increased by adding two more steps in the gallery. The seating capacity in the gallery is now 4,500, against the original capacity of 4000, while the seating capacity in the bowl is 700, against the original capacity of 600. Access ramps have been provided to the bowl, gallery, stage, green room, and toilets. Separate covered rooms have been created for eatery and storage facilities.





13.16. Student Activities Centre

This building is used by students for indoor games. Important functions such as convocations and orientation programmes for freshers are also conducted here.

13.17. Cafeteria

The IIT Staff Canteen with a food court, 'Food for Thought', on the first floor, caters to the needs of employees and students, besides several small eateries scattered across the Campus.

13.18. Transport Services

The institute has 12 Lynx buses that provide transport facilities to the staff, students, and residents of the campus. Transport facilities are also available for official work.

13.19. Crèche

A crèche 'Tech-Kids' is functioning on the campus for the benefit of the staff and working women. There were about 157 children in the crèche during the period under report.

13.20. Security Section

Introduction

The Security Section of IIT Madras is an important constituent of the Institute, because it is vested with the task of ensuring the security of the people and materials on the campus. The Security Section is also responsible for maintaining peace and ensuring the harmonious coexistence of campus residents. As a part of support services, it is on call of the campus residents for various types of emergencies and contingencies which can adversely affect the normal life of the campus.

The security policy of IIT Madras is that the core security functions and areas are manned by IITM's own security personnel, and the allied security functions and areas are outsourced and coordinated by the Institute personnel. The Institute also has been progressively introducing greater automation. The current year has been eventful and rewarding.

This section mainly focuses on the following areas:

- a. Key responsibility areas of the security of Institute property and coordination with law enforcement agencies
- b. Regulating people and materials through all the gates
- c. Traffic management
- d. Patrolling
- e. Fire prevention and maintenance & periodical testing of fire equipment
- f. Conducting training on fire safety to students, staff, faculty, and schoolchildren.
- g. Conducting fire & evacuation drills at high-rise buildings

Regulating People & Materials

The Security Section is vested with the task of ensuring the security of people and materials on campus. Movement is streamlined by issuing passes for vehicles and ID cards for contractors and their workers. The material gate pass system is in place to allow the flow of materials after verifying their specimen signatures. Apart from passes, certain gates also issue tokens.

Traffic Management

The Security Section is vested with the important task of ensuring proper traffic management, particularly the safety of children since the campus has two schools and the Tech Kids crèche. Accordingly, the Security Section manages traffic by diverting vehicles and ensuring speed limits using scientific gadgets so as to bring down accidents on campus. There were no major accidents in the campus during the period under report.

Patrolling

In order to have effective patrolling, the entire campus has been divided into three zones i.e. the Academic Zone, Residential Zone, & Hostel Zone. Apart from this, the perimeter walls are also patrolled by foot & by vehicles to check the walls' physical condition and to observe and prevent security breach.

Perimeter Surveillance

An improvised watch tower has been set up to keep vigil on the perimeter walls, and security guards were deployed around the clock with wireless sets. They are constantly monitoring lakes 1 & 2 and the perimeter walls/forested areas.

Drone-mounted high-definition cameras were used to capture video of the densely forested areas, perimeter walls, and lake areas.

Security Cover for Quarters Under Care

The Security Section provides cover for vacant quarters. During the year under report, there were 32 quarters under care, guarded when their licensees were away from campus, and handed over to them without any loss/theft of property.

Fire Prevention & Maintenance of Fire Equipment

Periodical servicing of the fire equipment installed in the buildings is carried out, with the objective of being in readiness to control any fire incidents. There are about 2000 fire extinguishers of different types and capacities installed in the campus, in addition to fixed fire protection systems i.e., sprinklers, wet risers, yard hydrants, and downcomers, and fire detection and alarm systems in the multistoried buildings, sophisticated laboratories, and computer centres. These systems are checked monthly to ensure their effective use, and records to this effect are maintained with the Security Section.

Conducting Training on Fire Safety and Evacuation Drills

During the period under review, the Security Section conducted training programmes year-round, particularly for students, departmental staff, and faculty, in order to create awareness for correct use of the fire safety equipment in case of fire. A total of 1682 students and 314 security staff were trained during the year. Evacuation drills for students staying in multistoried hostels were carried out with the assistance of local fire brigades and the Institute students' Disaster Management Committee (DMC).

In addition, weekly training programmes on squad drill, special gate checking and perimeter wall checking have also been conducted for security personnel during the period under report. Apart from training in the Institute, the IITM security personnel are also sent to Tamil Nadu Fire and Rescue Services, Ashok Nagar, Chennai-83 to upgrade their skills in fire safety.



Fire Safety Training: Indoor & Outdoor

Maintenance of Fire Hydrants (2022-23)

Fire hydrants in high-rise buildings are checked on a monthly basis by the Engineering Unit's Annual Maintenance Contract (AMC) team. The observations are recorded and the Engineering Unit is informed for further action.

Maintenance of Fire Detection & Alarm Systems 2022-23

The fire detection and alarm system (FDA) is checked quarterly, and the detectors, panels, and hooters are in working order. The observations have been recorded and informed to Engineering Unit for further action.

Servicing & Maintenance of Fire Extinguishers

The portable fire extinguishers installed in the campus are serviced quarterly and updated for use as given below.

Training Programmes for Security Personnel

During the period under report, the Institute's security personnel attended the following different types of training programmes:



In-house Training in DoMS

| S. No. | Date | Training | Attendees |
|--------|----------------------|---|--|
| 1 | June 21, 2022 | Demonstrated and practiced different types of yoga programmes | Institute security personnel, outsourced security personnel, & National Cadet Corps (NCC) cadets |
| 2 | August 8-15, 2022 | Independence Day parade practice and marching | 200 Security personnel |
| 3 | September 30, 2022 | Parade practice and marching | 100 Security personnel |
| 4 | October 18, 2022 | GeM Training | CSO & Security Section office staff |
| 5 | November 25, 2022 | <ol style="list-style-type: none"> Roles and responsibilities of security personnel at the gates Security staff's responsibilities To carry out security check of incoming and outgoing vehicles Issue of entry passes Gate pass & its specimen signature To check the movement of goods/items through the proper gate passes while maintaining log files for inwards and outwards movement To record movement entries in the register | 25 Security personnel |
| 6 | November 18, 2022 | Lift Rescue <ol style="list-style-type: none"> Purpose of training To ensure safe, effective rescue of trapped persons from lift cars | 25 Security personnel |
| 7 | January 19-26, 2023 | Republic Day Marching and Parade Training | Security personnel, KV, VVS & NCC Students |
| 8 | February 15-22, 2023 | Professional Development for IITM Security Staff | Batch 1-18 & Batch 2-22 IITM Security Personnel |

Surveillance Cameras and Control Room

The CCTV cameras installed in the Academic, Hostel & Residential zones are monitored 24/7, and the reports are maintained in the CCTV monitoring report book in the control room.

Campus Visits & Security Arrangements

| S. No. | Date | Location | VIPs |
|--------|-------------------------|--|--|
| 1 | April 25, 2022 | Director's Office | New Zealand Education Minister |
| 2 | May 27, 2022 | CFI & IITM Research Park | Railway General Manager, Southern Railway |
| 3 | July 13, 2022 | Student Activities Centre | Shri N Chandrasekaran, Chairman, Tata Sons Dr. S Unnikrishnan Nair, Distinguished Scientist & Director, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram Dr. S Unnikrishnan Nair, Distinguished Scientist & Director, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram Ms. Kirti Seth, CEO, Nasscom |
| 4 | September 19 & 20, 2022 | Office of IC&SR, NAC & Research Park | Shri Dharmendra Pradhan, Honourable Minister of Education, Government of India |
| 5 | January 5, 2023 | Office of IC&SR | The Minister for Education visited IC&SR for a Workshop on the Fundamentals of Electronics |
| 6 | January 8, 2023 | Bose-Einstein (BE) Guest House | Delhi Consulate Members visited the BE Guest House |
| 7 | January 27, 2023 | CLT | Mr. R Chidambaram, Chairman of IAEA, visited CLT for a programme |
| 8 | January 27, 2023 | CLT | Mr. Montek Singh Ahluwalia, Deputy Chairman of the Planning Commission of India, visited CLT for a programme |
| 9 | January 28, 2023 | CLT | The Honourable Governor of Tamil Nadu, Mr. R N Ravi, attended a programme at CLT |
| 10 | January 31, 2023 | Heritage Centre, Brain Centre and CFI (Sudha & Shankar Innovation Hub) | G-20 Summit delegates visited the Heritage Centre, the Brain Centre, and the Sudha & Shankar Innovation Hub |
| 11 | February 17, 2023 | Heritage Centre | The Honourable Minister of State for Education, Shri Dr. Subhas Sarkar, visited our campus for a function |
| 12 | February 28, 2023 | CFI (Sudha & Shankar Innovation Hub) | The Honourable Vice President Of India, Shri Jagdeep Dhankar, Visited Our Campus to inaugurate The Facility |
| 13 | March 15, 2023 | Office of IC&SR | Thiru Ma. Subramanian, the Honourable Minister of Health, Medical Education and Family Welfare, Tamil Nadu visited the Office of IC&SR for a meeting |
| 14 | March 24, 2023 | Office of IC&SR | An Australian minister visited the Office of IC&SR for a meeting |

Special Gate Checking

Special gate checking was carried out at all the entry gates. Identity cards (IDs), vehicle passes, contractual workers' passes and visitors' entry passes (including pedestrians) were verified for April 2022 to March 2023.

Additional manpower was deployed to conduct special checking at all gates during peak hours.

Online Customer Feedback 2022-23



Independence Day Celebrations

The 76th Independence Day was celebrated in the Institute on August 15, 2022 at the Manohar C Watsa Stadium. As part of the celebrations, eight contingents participated in the ceremonial parade, including the Vana Vani school band team. The Best Parade Contingent award and best individual turnouts from each contingent were suitably awarded. The ceremonial parade was commanded by the Chief Security Officer (CSO) Shri N Elumalai.

Republic Day Celebrations

The 74th Republic Day was celebrated in the Institute on January 26, 2023 at Stadium. As part of the celebration, nine contingents participated in the ceremonial parade, including the Vana Vani school band team. The Best Parade Contingent award and best individual turnouts from each contingent were suitably awarded. The ceremonial parade was commanded by the Chief Security Officer Shri N Elumalai.



Republic Day Parade at Stadium



Security Committee Meeting

A Security Committee meeting was held on February 10, 2023 to discuss the performance of outsourced security guards at IIT Madras & their contract renewals. Representatives of all four outsourced security agencies attended the meeting, chaired by the Chief Security Officer Shri N Elumalai.



Security Committee Meeting at Administration Building

Protection of Deer/ Wildlife on Campus

Security guards constantly monitor female deer (blackbuck) during their delivery, and save fawns from dog predation, particularly in the blackbuck habitation areas in the Hostel Zone (SAC, Sangam ground, the Chairman Council of Wardens (CCW) Office, the swimming pool, and Himalaya mess) since February 2018.

The Security Section strives hard to save wildlife in co-ordination with the Forest Department and rescues them for timely treatment from injuries. There are also rare occasions where the Security Section finds separated mother and baby deer and reunites them with help from the Forest Department when both finding their presence in the forested area.

27th Inter IIT Staff Sports Meet 2022

The Security Section won the following awards at the Staff Sports Meet:

- Best Men's Athlete
- Best Women's Athlete
- Women's Runner Up (General Champion)
- Volleyball Winner (for the 4th consecutive year)



Winners' Trophies

14

Finance and Accounts

14.1. Introduction

The financial year of the Institute corresponds with that of the Government of India (April 1 to March 31 of the following year). The accounts of the Institute are annually audited by Office of the Principal Director of Audit (Central), Chennai on behalf of the Comptroller & Auditor General of India.

The 95th Finance Committee of the Institute, in its meeting held on November 24, 2022, recommended Revised Estimates of INR 751 crore (gross) for the year 2022-23 and Budget Estimates of INR 931 crores (gross) for the year 2023-24 under Revenue Expenditure head. The Committee also recommended a revised estimate of INR 58 crores for the year 2022-23 and Budget Estimate of INR 88 crores for the year 2023-24 under Capital Expenditure. The same were approved by the Board of Governors of the Institute in their 256th meeting, held on November 24, 2022.

The following is a summary of the Revised Estimates for 2022-23 and Budget Estimates for 2023- 24 under the Revenue Expenditure and Capital Expenditure as approved by the Board of Governors of the Institute in their 256th meeting, held on November 24, 2022.

(Figures in INR crore)

| Item | Budget Estimate 2022-23 | Revised Estimate 2022-23 | Budget Estimate 2023-24 |
|---|----------------------------|-----------------------------|----------------------------|
| Grant under OH-36 and OH31 | | | |
| Institute Income Projected | 84.00 | 84.00 | 88.00 |
| Grant Projected for Salary (OH-36) | 360.00 | 324.00 | 366.00 |
| Grant Projected for Pension and Pensionary Benefits (OH-31) | 132.00 | 125.00 | 138.00 |
| Grant Projected for Scholarships (OH-31) | 128.00 | 102.00 | 120.00 |
| Grant for Other Components (OH-31) | 290.00 | 200.00 | 307.00 |
| Grant Expected under OH-36 and OH-31 | 910.00 | 751.00 | 931.00 |
| Grant Under OH-35 | | | |
| Grant Projected for Asset Creation | 77.00 | 58.00 | 82.00 |
| Grant Expected under OH-35 | 77.00 | 58.00 | 82.00 |

14.2. Audit

The Annual accounts of the Institute for the year 2021-22 were audited by the Office of the Principal Director of Audit (Central), Chennai during July-August 2022, and a certified copy of the Annual accounts with the audit report was sent to MoE after the Annual accounts were duly adopted by the Board of Governors of this Institute on 25th November 2022 to enable MoE to arrange for placing the same before both the Houses of Parliament during the winter session.

14.2.1. Summary of Provisional Revenue and Capital Grant Utilisation for 2022-23

| Item | Amount |
|--|---------------|
| Grant under OH-35 | |
| Opening Balance | (-) 0.79 |
| Grant received under OH-35 | 72.11 |
| Total funds available under OH-35 | 71.32 |
| Expenditure under OH-35 | |
| Building and Electrical installation | 16.90 |
| Academic equipment | 20.98 |
| Infrastructure (furniture/computers, etc.) | 13.11 |
| Periodicals/journals/books for library | 21.09 |
| Total Expenditure under OH-35 | 72.08 |
| Grant under OH-31 and OH-36 | |
| Opening balance | 76.53 |
| Grant received under OH-31 and OH-36 | 586.11 |
| Institute Income (After adjusting HEFA principal repayment of INR 81.44 crore) | 9.44 |
| Total funds available under OH-31 and OH-36 | 672.08 |
| Expenditure under OH-31 and OH-36 | |
| Salary and related items (OH-36) | 286.41 |
| Pension and other terminal benefits (OH-31) | 115.68 |
| Scholarship payments (OH-31) | 75.22 |
| Non-salary, non-pension items (OH-31) (Other components) | 177.31 |
| Total Expenditure under OH-31 and OH-36 | 654.62 |

The balance of the Corpus Fund as on March 31, 2023 is INR 508.97 crore, and the balance of the Institute Endowment account as on March 31, 2023 is INR 174.87 crore.

15. 1. Chapters Published in Books

1. Baksi, A., Pradeep, T. 2022. Spectroscopy of gas phase cluster ions. *Atomically Precise Metal Nanoclusters*, pp. 227-271. doi: 10.1016/B978-0-323-90879-5.00001-9.
2. Bhosale, A.C., Suseendiran, S.R., Ramya, R., Choudhury, S.R., Rengaswamy, R. 2022. 4.17 - Phosphoric Acid Fuel Cells. *Comprehensive Renewable Energy, Second Edition: Volume 1-9 1-4*, pp. 437-458. doi: 10.1016/B978-0-12-819727-1.00006-6.
3. Bodiuzzaman, M., Pradeep, T. 2022. Structure by single crystal X-ray diffraction. *Atomically Precise Metal Nanoclusters*, pp. 271-298. doi: 10.1016/B978-0-323-90879-5.00023-8.
4. Bootharaju, M.S., Pradeep, T. 2022. Hydrides, alkynyls, phosphines, and amines as ligands for nanoclusters. *Atomically Precise Metal Nanoclusters*, pp. 551-573. doi: 10.1016/B978-0-323-90879-5.00011-1.
5. Bose, P., Natarajan, G., Pradeep, T. 2022. Computational approaches for nanocluster science. *Atomically Precise Metal Nanoclusters*, pp. 313-343. doi: 10.1016/B978-0-323-90879-5.00018-4.
6. Chakraborty, A., Pradeep, T. 2022. Nanocluster-nanoparticle coassemblies. *Atomically Precise Metal Nanoclusters*, pp. 111-128. doi: 10.1016/B978-0-323-90879-5.00019-6.
7. Chakraborty, I., Pradeep, T. 2022. Other metal nanoclusters. *Atomically Precise Metal Nanoclusters*, pp. 497-518. doi: 10.1016/B978-0-323-90879-5.00006-8.
8. Chakraborty, P., Pradeep, T. 2022. Mass spectrometry of atomically precise clusters. *Atomically Precise Metal Nanoclusters*, pp. 203-227. doi: 10.1016/B978-0-323-90879-5.00022-6.
9. Dar, W.A., Pradeep, T. 2022. Cluster-based metal-organic frameworks. *Atomically Precise Metal Nanoclusters*, pp. 129-156. doi: 10.1016/B978-0-323-90879-5.00005-6.
10. Das, I., Rama Swami, K., Gardas, R.L. 2022. Ionic liquids: a tool for CO₂ capture and reduced emission. *Advanced Applications of Ionic Liquids*, pp. 327-350. doi: 10.1016/B978-0-323-99921-2.00008-2.
11. Dave, S., Dave, A., Radhakrishnan, S., Das, J., Dave, S. 2022. Biosensors for healthcare: an artificial intelligence approach. *Biosensors for Emerging and Re-emerging Infectious Diseases*, pp. 365-383. doi: 10.1016/B978-0-323-88464-8.00008-7.
12. Deshmukh, R., Jagtap, S. 2022. Bioprospecting of extremophiles for industrial enzymes. Bioprospecting of Microbial Diversity: Challenges and Applications in Biochemical Industry, Agriculture and Environment Protection, pp. 471-482. doi: 10.1016/B978-0-323-90958-7.00012-1.
13. Devendran, R., Ramesh, V., Gnanasekaran, P. 2022. Fundamentals of cell metabolism and cancer. *Understanding Cancer: From Basics to Therapeutics*, pp. 117-132. doi: 10.1016/B978-0-323-99883-3.00001-9.
14. Dhanasekaran, P., Vinod Selvaganesh, S., Bhat, S.D. 2022. Durable catalyst support for PEFC application. *Renewable Energy Technologies: Advances and Emerging Trends for Sustainability*, pp. 329-373. doi: 10.1002/9781119827634.ch10.
15. Dhanavel, S.P. 2022. Teacher Cognition and Professional Development of English Language Teachers. *Continuing Professional Development of English Language Teachers: Perspectives and Practices from India*, pp. 135-147. doi: 10.1007/978-981-19-5069-8_9.
16. Dhanavel, S.P. 2022. Introduction and Overview. *Continuing Professional Development of English Language Teachers: Perspectives and Practices from India*, pp. 3-17. doi: 10.1007/978-981-19-5069-8_1.
17. Dhanavel, S.P. 2022. Preface. *Continuing Professional Development of English Language Teachers: Perspectives and Practices from India*, pp. v-vii.
18. Dhanavel, S.P., Kumaran, S. 2022. Poetry in the Engineering Curriculum. *Contemporary ELT Strategies in Engineering Pedagogy: Theory and Practice*, pp. 132-143. doi: 10.4324/9781003268529-12.
19. Ghosh, D., Pradeep, T. 2022. Clusters for biological applications. *Atomically Precise Metal Nanoclusters*, pp. 573-597. doi: 10.1016/B978-0-323-90879-5.00020-2.
20. Govindaraj, N., Iyyappan, G., Singh, A.K., Roy, S., Shukla, P. 2022. A Numerical Approach on Unsteady Mixed Convection Flow with Temperature-Dependent Variable Prandtl Number and Viscosity. *Mathematical Modeling for Intelligent Systems: Theory, Methods, and Simulation*, pp. 185-196. doi: 10.1201/9781003291916-12.
21. Immanuel, R.J., Panigrahi, S.K., Malas, J.C. 2022. Materials development for sustainable manufacturing. *Sustainable Manufacturing Processes*, pp. 155-194. doi: 10.1016/B978-0-323-99990-8.00011-4.
22. Jana, A., Pradeep, T. 2022. Nanocluster assembled solids. *Atomically Precise Metal Nanoclusters*, pp. 49-82. doi: 10.1016/B978-0-323-90879-5.00007-8.
23. Jash, M., Pradeep, T. 2022. Naked clusters and ion chemistry of clusters. *Atomically Precise Metal Nanoclusters*, pp. 427-460. doi: 10.1016/B978-0-323-90879-5.00003-2.
24. Jayapriya, J., Gummadi, S.N. 2022. Scaling up and applications of microbial fuel cells. *Scaling Up of Microbial Electrochemical Systems: From Reality to Scalability*, pp. 309-338. doi: 10.1016/B978-0-323-90765-1.00017-4.

25. Johnson, I., Kumar, M. 2022. Algal-based biomaterials for environmental remediation of heavy metals. *Algae-Based Biomaterials for Sustainable Development: Biomedical, Environmental Remediation and Sustainability Assessment*, pp. 157-184. doi: 10.1016/B978-0-323-96142-4.00002-6.
26. Khatun, E., Pradeep, T. 2022. Alloy nanoclusters. *Atomically Precise Metal Nanoclusters*, pp. 393-426. doi: 10.1016/B978-0-323-90879-5.00012-3.
27. Kini, A.R., Pradeep, T. 2022. Synthesis of atomically precise clusters. *Atomically Precise Metal Nanoclusters*, pp. 157-176. doi: 10.1016/B978-0-323-90879-5.00013-5.
28. Krishnadas, K.R., Pradeep, T. 2022. Structure and chemical properties of clusters. *Atomically Precise Metal Nanoclusters*, pp. 5-49. doi: 10.1016/B978-0-323-90879-5.00002-0.
29. Kumar Tiwari, S., Giri, B.S., Tantuvoy, S., Nagendra, S.M.S., Katiyar, V. 2022. CO₂ removal using alkaline waste as a solid adsorbent: Challenges and forthcoming directions. *Novel Materials for Environmental Remediation Applications: Adsorption and Beyond*, pp. 399-411. doi: 10.1016/B978-0-323-91894-7.00019-0.
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31. Mani, M., John, S.P., Ekambaram, G., Kuppusamy, E. 2022. Eco-friendly biopolymers and biosorbents from algae to combat pollution. *Relationship between Microbes and the Environment for Sustainable Ecosystem Services: Microbial Tools for Sustainable Ecosystem Services: Volume 3* 3, pp. 207-219. doi: 10.1016/B978-0-323-89936-9.00009-6.
32. Manju, C.K., Jose, A., Pradeep, T. 2022. Atomic precision in other nanocluster systems: Chalcogenides. *Atomically Precise Metal Nanoclusters*, pp. 461-497. doi: 10.1016/B978-0-323-90879-5.00015-9.
33. Mutyala, S., Charan, P.H.K., Rajaram, R., Mahesh, K.N. 2022. Functionalized carbon nanomaterials in electrochemical detection. *Functionalized Nanomaterial-Based Electrochemical Sensors: Principles, Fabrication Methods, and Applications*, pp. 73-95. doi: 10.1016/B978-0-12-823788-5.00024-7.
34. Nag, A., Pradeep, T. 2022. Supramolecular chemistry of nanoclusters. *Atomically Precise Metal Nanoclusters*, pp. 101-111. doi: 10.1016/B978-0-323-90879-5.00021-4.
35. Nallasivam, J., Prashanth, P.F., Vinu, R. 2022. Hydrothermal liquefaction of biomass for the generation of value-added products. *Biomass, Biofuels, Biochemicals: Circular Bioeconomy: Technologies for Waste Remediation*, pp. 65-107. doi: 10.1016/B978-0-323-88511-9.00018-5.
36. Narayanan, M., Kandasamy, S., He, Z., Hemaiswarya, S., Raja, R., Carvalho, I.S. 2022. Algae biotechnology for nutritional and pharmaceutical applications. *Biotechnology in Healthcare, Volume 1: Technologies and Innovations* 1, pp. 177-194. doi: 10.1016/B978-0-323-89837-9.00015-2.
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41. Nirmala, M.J., Shiny, P.J., Raj, U.S., Saikrishna, N., Nagarajan, R. 2022. Toxicity of clove (*Syzygium aromaticum*) extract. *Clove (Syzygium aromaticum): Chemistry, Functionality and Applications*, pp. 663-674. doi: 10.1016/B978-0-323-85177-0.00007-0.
42. Pappu, S.M.J., Gummadi, S.N., Jayabalan, T. 2022. Modeling and optimization of microbial production of xylitol. *Role of Microbes in Industrial Products and Processes*, pp. 223-254. doi: 10.1002/9781119901198.ch9.
43. Pathak, D.P., Kumar, Y., Yadav, S. 2022. Effectiveness of metal-organic framework as sensors: Comprehensive review. *Sustainable Materials for Sensing and Remediation of Noxious Pollutants*, pp. 47-64. doi: 10.1016/B978-0-323-99425-5.00002-5.
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45. Pradeep, T. 2022. Atomically precise clusters of noble metals: An introduction. *Atomically Precise Metal Nanoclusters*, pp. 1-5. doi: 10.1016/B978-0-323-90879-5.00008-1.
46. Pradeep, T. 2022. Preface. *Atomically Precise Metal Nanoclusters*, pp. xv-xvii. doi: 10.1016/B978-0-323-90879-5.00024-X.
47. Pradeep, T. 2022. Atomically precise clusters: What next? *Atomically Precise Metal Nanoclusters*, pp. 597-600. doi: 10.1016/B978-0-323-90879-5.00016-0.
48. Pramanik, S., Petwal, A., Muthuvijayan, V., Tekade, R.K. 2022. Toxicological assessment of risk of medical devices. *Pharmacokinetics and Toxicokinetic Considerations - Vol II*, pp. 651-684. doi: 10.1016/B978-0-323-98367-9.00024-X.
49. Rajagopalan, G., Krishnan, C. 2022. Production of cellulosic butanol by clostridial fermentation: a superior alternative renewable liquid fuel. *Biofuels and Bioenergy: A Techno-Economic Approach*, pp. 263-289. doi: 10.1016/B978-0-323-90040-9.00008-4.
50. Rajendran, S.R., Chakraborty, R.S. 2022. Online checkers to detect hardware trojans in AES hardware accelerators. *VLSI and Hardware Implementations using Modern Machine Learning Methods*, pp. 41-52. doi: 10.1201/9781003201038-3.
51. Ramanujachari, V. 2022. Supersonic combustion Ramjet technology. *Advances in Combustion Technology*, pp. 183-207. doi: 10.1201/9781003049005-8.
52. Rangarajan, S. 2022. The Arboreal Feminine: An Analysis of Affect and Activism in Two Ecofeminist Re-Enchantment Narratives from India. *Ecologies of Gender Contemporary Nature Relations and the Nonhuman Turn*, pp. 51-67. doi: 10.4324/9781003023319-5.
53. Rani, S., Roy, S.C. 2022. Nanotube- and nanowire-based sensors for air quality monitoring. *Hybrid and Combined Processes for Air Pollution Control: Methodologies, Mechanisms and Effect of Key Parameters*, pp. 307-345. doi: 10.1016/B978-0-323-88449-5.00014-0.
54. Rao, D.B., Badiger, S. 2022. Understanding Emerging Independent Regulatory Frameworks: Lessons for Reforming Karnataka's Water Governance. *Globalization of Water Governance in South Asia* 1, pp. 176-192.

55. Rathi, N., Ramakrishna, P.A. 2022. Developmental study of aluminized fuel-rich propellant. *Advances in Combustion Technology*, pp. 229-246. doi: 10.1201/9781003049005-10.
56. Sampath, V., von Gradowski, S., Irzhak, A., Lega, P., Song, Z., Alonso Cotta, M., Koledov, V. 2022. Mechanical bottom-up nanoassembling and nanomanipulation using shape memory alloy nanogripper. *Nanomaterials for Sensing and Optoelectronic Applications*, pp. 299-310. doi: 10.1016/B978-0-12-824008-3.00011-4.
57. Shanmugam, M.K., Mandari, V., Devarai, S.K., Gummadi, S.N. 2022. Types of bioreactors and important design considerations. *Current Developments in Biotechnology and Bioengineering: Advances in Bioprocess Engineering*, pp. 3-30. doi: 10.1016/B978-0-323-91167-2.00008-3.
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60. Sooraj, B.N.S., Pradeep, T. 2022. Optical properties of metal clusters. *Atomically Precise Metal Nanoclusters*, pp. 83-101. doi: 10.1016/B978-0-323-90879-5.00010-X.
61. Sugi, K.S., Pradeep, T. 2022. Chromatography and separation in nanocluster science. *Atomically Precise Metal Nanoclusters*, pp. 177-202. doi: 10.1016/B978-0-323-90879-5.00009-3.
62. Swamy, G.S.N.V.K.S.N. 2022. Classification of urbanisation and urban heat island. *Urban Heat Islands Reexamined*, pp. 1-21.
63. Swarup, K.S., Naina, P.M. 2022. Decentralized Energy Management System within VPP. *Virtual Power Plant Solution for Future Smart Energy Communities*, pp. 171-190. doi: 10.1201/9781003257202-10.
64. Tawade, P.V., Wasewar, K.L. 2022. Nanotechnology in biological science and engineering. *Environmental Applications of Microbial Nanotechnology: Emerging Trends in Environmental Remediation*, pp. 43-64. doi: 10.1016/B978-0-323-91744-5.00015-1.
65. Thumu, U., Pradeep, T. 2022. Ag and Au nanoclusters. *Atomically Precise Metal Nanoclusters*, pp. 343-393. doi: 10.1016/B978-0-323-90879-5.00017-2.
66. Uma, G. 2022. Numerical aspects of nonlinear wave-wave interactions in operational-wave models. *Wave Dynamics*, pp. 1-15. doi: 10.1142/9789811245367_0001.
67. Vellingiri, K., Kumar, V., Philip, L. 2022. MOF-based materials as soil amendments. *Advanced Materials for Sustainable Environmental Remediation: Terrestrial and Aquatic Environments*, pp. 105-155. doi: 10.1016/B978-0-323-90485-8.00015-1.
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15.2. Chapters Published in Book Series

1. Abhijith, B.S., Atul Narayan, S.P., Murali Krishnan, J. 2022. Influence of Confinement Pressure on the Viscoelastic Response of Bituminous Mixtures. *RILEM Bookseries Vol. 27*, pp. 1079-1085. doi: 10.1007/978-3-030-46455-4_137. ISSN-22110844
2. Adak, D., Arrutselvi, M., Natarajan, E., Natarajan, S. 2022. On the Implementation of Virtual Element Method for Nonlinear Problems over Polygonal Meshes. *SEMA SIMAI Springer Series Vol. 31*, pp. 59-91. doi: 10.1007/978-3-030-95319-5_2. ISSN-21993041
3. Agrawal, A., Choudhary, P., Narayanaswamy, N.S., Nisha, K.K., Ramamoorthi, V. 2022. Parameterized Complexity of Minimum Membership Dominating Set. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) Vol. 13174*, pp. 288-299. doi: 10.1007/978-3-030-96731-4_24. ISSN-03029743
4. Agrawal, A., Ramanujan, M.S. 2022. Distance from Triviality 2.0: Hybrid Parameterizations. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) Vol. 13270*, pp. 3-20. doi: 10.1007/978-3-031-06678-8_1. ISSN-03029743
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15.6. Papers Published in Trade Publications

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Appendices

16.1. Senate

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| 1. | Prof. Kamakoti V (Director) | Computer Science |
| 2. | Prof. Amit Kumar | Aerospace Engineering |
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| 190. | Prof. Boby George | Electrical Engineering |
| 191. | Prof. Deepa Venkitesh | Electrical Engineering |
| 192. | Prof. Devendra Jalihal | Electrical Engineering |
| 193. | Prof. Enakshi Bhattacharya | Electrical Engineering |
| 194. | Prof. Giridhar K | Electrical Engineering |
| 195. | Prof. Harishankar Ramachandran | Electrical Engineering |
| 196. | Prof. Kalyan Kumar B | Electrical Engineering |
| 197. | Prof. Karmalkar S | Electrical Engineering |
| 198. | Prof. Krishna Vasudevan | Electrical Engineering |
| 199. | Prof. Lakshminarasamma | Electrical Engineering |
| 200. | Prof. Mahesh Kumar | Electrical Engineering |

| | Name | Department |
|------|--------------------------------------|--------------------------------|
| 201. | Prof. Mohanasankar Sivaprakasam | Electrical Engineering |
| 202. | Prof. Nagendra Krishnapura | Electrical Engineering |
| 203. | Prof. Nandita Dasgupta | Electrical Engineering |
| 204. | Prof. Nitin Chandrachoodan | Electrical Engineering |
| 205. | Prof. Rajagopalan AN | Electrical Engineering |
| 206. | Prof. Ravinder David Koilpillai | Electrical Engineering |
| 207. | Prof. Sarathi R | Electrical Engineering |
| 208. | Prof. Shanthi Pavan Y | Electrical Engineering |
| 209. | Prof. Shanthi Swarup K | Electrical Engineering |
| 210. | Prof. Shanti Bhattacharya | Electrical Engineering |
| 211. | Prof. Sheetal Kalyani | Electrical Engineering |
| 212. | Prof. Sridharan K | Electrical Engineering |
| 213. | Prof. Srikrishna B | Electrical Engineering |
| 214. | Prof. Srinivasan Umesh | Electrical Engineering |
| 215. | Prof. Srirama Srinivas | Electrical Engineering |
| 216. | Prof. Vinita Vasudevan | Electrical Engineering |
| 217. | Prof. Deleep R Nair | Electrical Engineering |
| 218. | Prof. TG Venkatesh | Electrical Engineering |
| 219. | Prof. Gaurav Raina | Electrical Engineering |
| 220. | Prof. Ramkrishna Pasumarthy | Electrical Engineering |
| 221. | Prof. Aysha Iqbal | Humanities and Social Sciences |
| 222. | Prof. Jyotirmaya Tripathy | Humanities and Social Sciences |
| 223. | Prof. Muraleedharan VR | Humanities and Social Sciences |
| 224. | Prof. Rajesh Kumar | Humanities and Social Sciences |
| 225. | Prof. Senkamalam Periyasamy Dhanavel | Humanities and Social Sciences |
| 226. | Prof. Sreekumar N | Humanities and Social Sciences |
| 227. | Prof. Sudhir Chella Rajan | Humanities and Social Sciences |
| 228. | Prof. Suresh Babu M | Humanities and Social Sciences |
| 229. | Prof. Swarnalatha R | Humanities and Social Sciences |
| 230. | Prof. Umakant Dash | Humanities and Social Sciences |
| 231. | Prof. Subash S | Humanities and Social Sciences |
| 232. | Prof. Arindama Singh | Mathematics |
| 233. | Prof. Arya Kumar Bedabrata Chand | Mathematics |
| 234. | Prof. Chidella Srinivasa Rao | Mathematics |
| 235. | Prof. Jayanthan AV | Mathematics |
| 236. | Prof. Kalpana Mahalingam | Mathematics |
| 237. | Prof. Ponnusamy S | Mathematics |
| 238. | Prof. Radha R | Mathematics |
| 239. | Prof. Rama R | Mathematics |
| 240. | Prof. Sanyasiraju Y V S S | Mathematics |

| | Name | Department |
|------|--------------------------------|------------------------|
| 241. | Prof. Satyajit Roy | Mathematics |
| 242. | Prof. Shaiju AJ | Mathematics |
| 243. | Prof. Shruti Dubey | Mathematics |
| 244. | Prof. Sivakumar KC | Mathematics |
| 245. | Prof. Srinivasa Rao Manam | Mathematics |
| 246. | Prof. Sundar S | Mathematics |
| 247. | Prof. Vetrivel V | Mathematics |
| 248. | Prof. Santanu Sarkar | Mathematics |
| 249. | Prof. Kunal Krishna Mukherjee | Mathematics |
| 250. | Prof. Balaji | Mathematics |
| 251. | Prof. Amitava Ghosh | Mechanical Engineering |
| 252. | Prof. Arunn Narasimhan | Mechanical Engineering |
| 253. | Prof. Arvind Pattamatta | Mechanical Engineering |
| 254. | Prof. Ashis Kumar Sen | Mechanical Engineering |
| 255. | Prof. Babu V | Mechanical Engineering |
| 256. | Prof. Balaji C | Mechanical Engineering |
| 257. | Prof. Balaji Srinivasan | Mechanical Engineering |
| 258. | Prof. Chandramouli P | Mechanical Engineering |
| 259. | Prof. Dhiman Chatterjee | Mechanical Engineering |
| 260. | Prof. Gnanamoorthy R | Mechanical Engineering |
| 261. | Prof. Krishna Kannan | Mechanical Engineering |
| 262. | Prof. Krishnan Balasubramaniam | Mechanical Engineering |
| 263. | Prof. Mallikarjuna JM | Mechanical Engineering |
| 264. | Prof. Mani A | Mechanical Engineering |
| 265. | Prof. Prabhu Rajagopal | Mechanical Engineering |
| 266. | Prof. Prakash Maiya M | Mechanical Engineering |
| 267. | Prof. Raghavan V | Mechanical Engineering |
| 268. | Prof. Raghu Prakash | Mechanical Engineering |
| 269. | Prof. Raju Sethuraman | Mechanical Engineering |
| 270. | Prof. Ramesh A | Mechanical Engineering |
| 271. | Prof. Ramesh Babu N | Mechanical Engineering |
| 272. | Prof. Samuel GL | Mechanical Engineering |
| 273. | Prof. Sarit Kumar Das | Mechanical Engineering |
| 274. | Prof. Sathyan Subbiah | Mechanical Engineering |
| 275. | Prof. Seshadri Sekhar | Mechanical Engineering |
| 276. | Prof. Shaligram Tiwari | Mechanical Engineering |
| 277. | Prof. Shamit Bakshi | Mechanical Engineering |
| 278. | Prof. Shankar Krishnapillai | Mechanical Engineering |
| 279. | Prof. Srinivas Reddy K | Mechanical Engineering |
| 280. | Prof. Srinivasan K | Mechanical Engineering |
| 281. | Prof. Sujatha Chandramohan | Mechanical Engineering |
| 282. | Prof. Sujatha Srinivasan | Mechanical Engineering |
| 283. | Prof. Venkataratnam G | Mechanical Engineering |
| 284. | Prof. Narasimhan Swaminathan | Mechanical Engineering |
| 285. | Prof. Sundararajan Natarajan | Mechanical Engineering |

| | Name | Department |
|------|---|---|
| 286. | Prof. Veera Venkata Satya Durga Ratna Kumar Annabattula | Mechanical Engineering |
| 287. | Prof. Abhijit Sarkar | Mechanical Engineering |
| 288. | Prof. Sushanta Kumar Panigrahi | Mechanical Engineering |
| 289. | Prof. Parag Ravindran | Mechanical Engineering |
| 290. | Prof. Balasubramanian M | Metallurgical and Materials Engineering |
| 291. | Prof. Bhattacharyya SS | Metallurgical and Materials Engineering |
| 292. | Prof. Gandham Phanikumar | Metallurgical and Materials Engineering |
| 293. | Prof. Ganesh Sundara Raman S | Metallurgical and Materials Engineering |
| 294. | Prof. Hari Kumar KC | Metallurgical and Materials Engineering |
| 295. | Prof. Kamaraj M | Metallurgical and Materials Engineering |
| 296. | Prof. Kottada Ravi Sankar | Metallurgical and Materials Engineering |
| 297. | Prof. Murty BS | Metallurgical and Materials Engineering |
| 298. | Prof. Prathap Haridoss | Metallurgical and Materials Engineering |
| 299. | Prof. Ranjit Bauri | Metallurgical and Materials Engineering |
| 300. | Prof. Ravikumar NV | Metallurgical and Materials Engineering |
| 301. | Prof. Sampath V | Metallurgical and Materials Engineering |
| 302. | Prof. Sankaran Shanmugam | Metallurgical and Materials Engineering |
| 303. | Prof. Somnath Bhattacharyya | Metallurgical and Materials Engineering |
| 304. | Prof. Srinivasa Rao Bakshi | Metallurgical and Materials Engineering |
| 305. | Prof. Subramanya Sarma V | Metallurgical and Materials Engineering |
| 306. | Prof. Udayachandran C | Metallurgical and Materials Engineering |
| 307. | Prof. Lakshman Neelakantan | Metallurgical and Materials Engineering |
| 308. | Prof. Parasuraman Swaminathan | Metallurgical and Materials Engineering |
| 309. | Prof. Amit RK | Management Studies |
| 310. | Prof. Arshinder Kaur | Management Studies |
| 311. | Prof. Arun Kumar G | Management Studies |
| 312. | Prof. Kamalanabhan TJ | Management Studies |
| 313. | Prof. Krishna Prasanna | Management Studies |
| 314. | Prof. Madhumathi R | Management Studies |
| 315. | Prof. Prakash Sai L | Management Studies |
| 316. | Prof. Rahul Ratnakar Marathe | Management Studies |

| | Name | Department |
|------|----------------------------------|--------------------|
| 317. | Prof. Rajendran C | Management Studies |
| 318. | Prof. Saji K Mathew | Management Studies |
| 319. | Prof. Srinivasan G | Management Studies |
| 320. | Prof. Sundarraj RP | Management Studies |
| 321. | Prof. Thenmozhi M | Management Studies |
| 322. | Prof. Thillai Rajan A | Management Studies |
| 323. | Prof. Usha Mohan | Management Studies |
| 324. | Prof. Lata Dyaram | Management Studies |
| 325. | Prof. Rupashree Baral | Management Studies |
| 326. | Prof. Abdus Samad | Ocean Engineering |
| 327. | Prof. Murali K | Ocean Engineering |
| 328. | Prof. Nallayarasu S | Ocean Engineering |
| 329. | Prof. Nilanjan Saha | Ocean Engineering |
| 330. | Prof. Palaniswamy Ananthkrishnan | Ocean Engineering |
| 331. | Prof. Panneer Selvam R | Ocean Engineering |
| 332. | Prof. Rajiv Sharma | Ocean Engineering |
| 333. | Prof. Sannasiraj SA | Ocean Engineering |
| 334. | Prof. Shanmugam P | Ocean Engineering |
| 335. | Prof. Srinivasan Chandrasekaran | Ocean Engineering |
| 336. | Prof. Suresh Kumar G | Ocean Engineering |
| 337. | Prof. Rajesh R Nair | Ocean Engineering |
| 338. | Prof. V Sriram | Ocean Engineering |
| 339. | Prof. Aravind G | Physics |
| 340. | Prof. Arul Lakshminarayan | Physics |
| 341. | Prof. Birabar Ranjit Kumar Nanda | Physics |
| 342. | Prof. Ganesan AR | Physics |
| 343. | Prof. Harish Kumar N | Physics |
| 344. | Prof. James Frederick Libby | Physics |

| | Name | Department |
|------|-------------------------------|------------|
| 345. | Prof. Jatindra Kumar Rath | Physics |
| 346. | Prof. Kasi Viswanathan S | Physics |
| 347. | Prof. Krishnamurthy CV | Physics |
| 348. | Prof. Lakshmi Bala S | Physics |
| 349. | Prof. Manoj Gopalakrishnan | Physics |
| 350. | Prof. Markandeyulu G | Physics |
| 351. | Prof. Murugavel P | Physics |
| 352. | Prof. Nirmala R | Physics |
| 353. | Prof. Prafulla Kumar Behera | Physics |
| 354. | Prof. Prahallad Padhan | Physics |
| 355. | Prof. Prasanta Kumar Tripathy | Physics |
| 356. | Prof. Prem B Bisht | Physics |
| 357. | Prof. Rajesh Narayanan | Physics |
| 358. | Prof. Ramachandra Rao MS | Physics |
| 359. | Prof. Santhosh PN | Physics |
| 360. | Prof. Sethupathi K | Physics |
| 361. | Prof. Somnath Chanda Roy | Physics |
| 362. | Prof. Srinivas V | Physics |
| 363. | Prof. Sriramkumar L | Physics |
| 364. | Prof. Subramanian V | Physics |
| 365. | Prof. Sudakar Chandran | Physics |
| 366. | Prof. Sunil Kumar PB | Physics |
| 367. | Prof. Suresh Govindarajan | Physics |
| 368. | Prof. Venkata Satyanarayana M | Physics |
| 369. | Prof. Vijayan C | Physics |
| 370. | Prof. Manu Jaiswal | Physics |
| 371. | Prof. Dillip Kumar Satapathy | Physics |

16.2. Board of Academic Courses for the Year 2022–23

| | | |
|----|---|----------------------------------|
| 1 | Prof. Prathap Haridoss, Dean (Academic Courses) | Chairman |
| 2 | Prof. Shanthi Pavan, Dean (Academic Research) | Member—Ex officio |
| 3 | Prof. Nilesh J Vasa, Dean (Students) | Member—Ex officio |
| 4 | Previous Dean (Academic Courses) | Member—Ex officio |
| 5 | Dr. Shankar Ghosh | Aerospace Engineering |
| 6 | Dr. Shaikh Faruque Ali | Applied Mechanics |
| 7 | Dr. Manoj G | Biotechnology |
| 8 | Dr. T. Renganathan | Chemical Engineering |
| 9 | Dr. Ramesh Gardas | Chemistry |
| 10 | Dr. Saravanan U | Civil Engineering |
| 11 | Dr. Rupesh Nasre | Computer Science and Engineering |
| 12 | Dr. Balaji Srinivasan | Electrical Engineering |
| 13 | Dr. Saravana Kumar | Engineering Design |
| 14 | Dr. Binitha V Thampi | Humanities and Social Sciences |
| 15 | Dr. Lata Dyaram | Management Studies |
| 16 | Dr. Srinivasa Rao Manam | Mathematics |

| | | | |
|----|--|---------------------------------------|----------------------|
| 17 | Dr. Shyama Prasad Das | Mechanical Engineering | |
| 18 | Dr. Manas Mukherjee | Metallurgical & Materials Engineering | |
| 19 | Dr. Deepak Kumar | Ocean Engineering | |
| 20 | Dr. Ashwin Joy | Physics | |
| 21 | Dr. Saji Mathew, MS Advisor, SC/ST/PC students | | Member—Ex officio |
| 22 | Dr. Nilesh J Vasu, Chief Advisor, Mitr, Engineering Design | | Member—Ex officio |
| | Dr. Ramesh Gardas, Co-Advisor, Mitr, Chemistry | | |
| 23 | Mr. TB Ramkamal, Academic Affairs Secretary | | Student Member |
| 24 | Mr. Ajay Singh Sitole, Students' General Secretary | | Student Member |
| 25 | Smt. K. Vijayalakshmi, Deputy Registrar (Research) | | Invitee |
| 26 | Smt. Jayasri Sridhar, Assistant Registrar (Courses) | | Invitee |
| 27 | Mr. P Sarvavarana, Deputy Registrar (Courses) | | Secretary—Ex officio |

16.3. Board of Academic Research for the Year 2022–23

| | | | |
|-----|---|---------------------------------------|----------------------|
| 1. | Prof. Shanthi Pavan, Dean (Academic Research) | Chairman | |
| 2. | Prof. Prathap Haridoss, Dean (Academic Courses) | Member—Ex officio | |
| 3. | Dr. Raghunathan Rengaswamy, Dean GE | Member—Ex officio | |
| 4. | Prof. Nilesh J Vasu, Dean-Students | Member—Ex officio | |
| 5. | Previous Dean (Academic Research) | Member—Ex officio | |
| 6. | Dr. Nagendra Gopal KV | Aerospace Engineering | Member |
| 7. | Dr. Vengadesan S | Applied Mechanics | Member |
| 8. | Dr. Nitish Mahapatra | Biotechnology | Member |
| 9. | Dr. Sumesh P Thampi | Chemical Engineering | Member |
| 10. | Dr. Raja Kumar B | Chemistry | Member |
| 11. | Dr. Venu Chandra | Civil Engineering | Member |
| 12. | Dr. John Augustine | Computer Science and Engineering | Member |
| 13. | Dr. Kalyan Kumar B | Electrical Engineering | Member |
| 14. | Dr. Shankar Ram CS | Engineering Design | Member |
| 15. | Dr. Dhanavel SP | Humanities and Social Sciences | Member |
| 16. | Dr. Usha Mohan | Management Studies | Member |
| 17. | Dr Balaji R | Mathematics | Member |
| 18. | Dr. Hariharan K | Mechanical Engineering | Member |
| 19. | Dr. Sankaran S | Metallurgical & Materials Engineering | Member |
| 20. | Dr Suresh Rajendran | Ocean Engineering | Member |
| 21. | Dr. Suresh Govindarajan | Physics | Member |
| 22. | Dr. Nilesh J Vasu Head, Guidance & Counselling Unit—Ex officio | Engineering Design | Member |
| 23. | Ms. Vamani Permual | Research Affairs Secretary | Student Member |
| 24. | Mr. Ajay Singh Sitole | Students' General Secretary | Student Member |
| 25. | Mr. P Sarvavarana, Deputy Registrar (Courses) | | Invitee |
| 26. | Dr. Sivarama Krishnan, Physics | | IDRP Invitee |
| 27. | Smt. K Vijayalakshmi, Deputy Registrar (Research) | | Secretary—Ex officio |

16.4. Board of Students

| S. No. | Name | Designation | Position |
|-----------------|---------------------------|---|----------------|
| 1 | Nilesh J Vasa | Dean (Students) | Chairperson |
| 2 | Shanthi Pavan | Dean (Academic Research) | Member |
| 3 | Prathap Haridoss | Dean (Academic Courses) | Member |
| 4 | Mahesh Panchagnula | Dean (Alumni & Corporate Relations) | Member |
| 5 | Raghunathan Rengasway | Dean (Global Engagement) | Member |
| 6 | Sivakumar MS | Former Dean (Students) | Invitee |
| 7 | Thyagaraj T | Chairperson, Warden Council | Member |
| 8 | Mallikarjuna JM | Vice Chairperson, Warden Council | Member |
| 9 | Arshinder Kaur | Advisor (Cultural) | Member |
| 10 | Ratna Kumar Annabattula | Advisor (Co-curricular) | Member |
| 11 | Arul Prakash | Advisor (Sports) | Member |
| 12 | Anuradha Banerjee | Co-Advisor (Sports) | Member |
| 13 | Shankar Ram CS | Advisor (Training & Placement) | Member |
| 14 | Sathyan Subbiah | Advisor (Internship) | Member |
| 15 | Saji K Mathew | Advisor (Inclusive Education) | Member |
| 16 | Ethayaraja Mani | Chief Coordinator (National Cadet Corps [NCC]) | Member |
| 17 | Sivakumar KC | Advisor (National Service Scheme [NSS]) | Member |
| 18 | Prabhu Rajagopal | Faculty Head (Centre for Innovation) | Member |
| 19 | Satyanarayanan Seshadri | Deputy Faculty Head (Centre for Innovation) | Member |
| 20 | Anup Kumar Bhandari | Advisor (SECC/SLC) | Member |
| 21 | Palaniappan Ramu | Chairman (Committee for Monitoring General Facilities for Students) | Member |
| 22 | Ashwin Mahalingam | Advisor (E-Cell) | Member |
| 23 | Andrew Thangaraj | Coordinator (B.Sc. Online Degree Program) | Invitee |
| 24 | Preeti Aghalayam | Advisor (Extra Mural Lectures [EML], Colloquium & The Fifth Estate [T5E]) | Member |
| 25 | Nilesh J Vasa | Advisor (Mitr) | Member |
| 26 | Sunetra Sarka | Advisor (Saathi) | Member |
| 27 | Pijush Ghosh | Co-Advisor (IVI) | Member |
| 28 | Richa Agrawal | Faculty Head (Nirmaan) | Member |
| 29 | Arun Menon | Advisor (Career Development) | Member |
| 30 | Sachin S Gunthe | Advisor (I&AR Affairs) | Member |
| 31 | Babu A | Deputy Registrar (Administration) | Member |
| 32 | Sarvaharna P | Deputy Registrar (Academic) | Member |
| 33 | Sudhakar Rao Pujari YEL | Deputy Registrar (Students) | Member |
| Student Members | | | |
| 1 | Ramkamal TB | Academic Affairs Secretary | Student Member |
| 2 | Baibhabi Patnaik | Co-Curricular Affairs Secretary | Student Member |
| 3 | Sri Ram K | Cultural Affairs Secretary (Arts) | Student Member |
| 4 | Jai Santhoshi S | Cultural Affairs Secretary (Literary) | Student Member |
| 5 | Rithik Gudavalli | Hostel Affairs Secretary | Student Member |
| 6 | Satyendra Pandey | International & Alumni Relations Secretary | Student Member |
| 7 | Vamanie Perumal | Research Affairs Secretary | Student Member |
| 8 | Rudra Sameer Nair | Institute Sports Secretary | Student Member |
| 9 | Ajay Singh Sitole | Students' General Secretary | Student Member |
| 10 | Abhigyan Chattopadhyay | CFI, Students' Head | Student Member |
| 11 | Ansar Usama Shakeel Ahmed | Mitr Student Head | Student Member |

| S. No. | Name | Designation | Position |
|--------|----------------------|--|----------------|
| 12 | Girish Mahawar | Speaker (SLC) | Student Member |
| 13 | Ardra | Chief Commissioner (SECC) | Student Member |
| 14 | Akshaj Shah | Standing Committee for I&AR | Student Member |
| 15 | Manoj Kumar S | Standing Committee for RAS | Student Member |
| 16 | Gopikrishnan B | Standing Committee for Cultural | Student Member |
| 17 | Valeti Sriraj | Standing Committee for General Secretary | Student Member |
| 18 | Neeraj K Udupa | Standing Committee for CoCAS | Student Member |
| 19 | Raagul K | Standing Committee for Academic Affairs | Student Member |
| 20 | Appili Vamsi Krishna | Standing Committee for Hostel Affairs | Student Member |
| 21 | Sudarshan | Standing Committee for Sports | Student Member |

16.5. Board of IC&SR (FY 2022–23)

| | | |
|----|------------------------------|--|
| 1 | Dr. Manu Santhanam | Dean (Office of Industrial Consultancy & Sponsored Research [IC&SR]) |
| 2 | Dr. Ravindra Gettu | Former Dean (IC&SR) |
| 3 | Dr. Mahesh Panchagnula | Dean, A&CR |
| 4 | Dr. Shanthi Pavan | Dean, Academic Research |
| 5 | Dr. Raghunathan Rengaswamy | Dean, Global Engagement |
| 6 | Dr. Jane Prasad | Registrar |
| 7 | Dr. Arumugam V | Chief Manager—Technical, IC&SR Member-Secretary |
| 8 | Dr. Anbarasan P | Member (Chemistry) |
| 9 | Dr. Aravind Kumar Chandiran | Member (Chemical Engineering) |
| 10 | Dr. Ganapathy Krishnamurthi | Member (Engineering Design) |
| 11 | Dr. Himanshu Sinha | Member (Biotechnology) |
| 12 | Dr. Sanniyasi Raju YVSS | Member (Mathematics) |
| 13 | Dr. Pradeep KG | Member (Metallurgical and Materials Engineering) |
| 14 | Dr. Ramachandra Rao MS | Member (Physics) |
| 15 | Dr. Nandan Sudarsanam | Member (Management Studies) |
| 16 | Dr. Ninitha AJ | Member (Biotechnology) |
| 17 | Dr. Prabhu Rajagopal | Member (Mechanical Engineering) |
| 18 | Dr. Rajesh G | Member (Aerospace Engineering) |
| 19 | Dr. Saravana Kumar G | Member (Engineering Design) |
| 20 | Dr. Sayan Gupta | Member (Applied Mechanics) |
| 21 | Dr. Shiva Nagendra SM | Member (Civil Engineering) |
| 22 | Dr. Shweta Agrawal | Member (Computer Science and Engineering) |
| 23 | Dr. Sivaramakrishnan KC | Member (Department of Computer Science and Engineering) |
| 24 | Dr. Varun Kumar S | Member (Department of Mechanical Engineering) |
| 25 | Dr. Vidya Praveen Bhallamudi | Member (Department of Physics) |
| 26 | Dr. Andrew Thangaraj | Member (Department of Electrical Engineering) |
| 27 | Dr. Rajesh Kumar | Member (Department of Humanities and Social Science) |
| 28 | Dr. Surender Singh | Member (Department of Civil Engineering) |
| 29 | Dr. Sujatha Srinivasan | Member (Department of Mechanical Engineering) |
| 30 | Dr. Chandrasekhar C | Member (Department of Computer Science and Engineering) |
| 31 | Dr. Vijay Kumar R | Member (Department of Ocean Engineering) |

16.6. Central Library: Library Advisory Committee 2022–23

| Name of the Member | Email | Department | Position |
|---------------------------------|----------------------------|---|------------------|
| Prof. K Ramamurthy | lac@iitm.ac.in | Civil Engineering | Chairman |
| Dr. Santanu Ghosh | sghosh1@iitm.ac.in | Aerospace Engineering | Member |
| Dr. Arul K Prakash | arul@iitm.ac.in | Applied Mechanics | Member |
| Dr. Hamsa Priya Mohana Sundaram | hamsa@iitm.ac.in | Biotechnology | Member |
| Prof. Sridharakumar Narasimhan | sridharkm@iitm.ac.in | Chemical Engineering | Member |
| Prof. Dillip Kumar Chand | dillip@iitm.ac.in | Chemistry | Member |
| Dr. Soumendra Nath Kuiry | snkuiry@iitm.ac.in | Civil Engineering | Member |
| Dr. BV Raghavendra Rao | bvrr@iitm.ac.in | Computer Science and Engineering | Member |
| Dr. Ganapathy Krishnamurthy | gankrish@iitm.ac.in | Engineering Design | Member |
| Dr. P Viswanadha Reddy | vishwa@iitm.ac.in | Electrical Engineering | Member |
| Dr. Santhosh Abraham | abraham@iitm.ac.in | Humanities and Social Sciences | Member |
| Prof. P Krishna Prasanna | pkp@iitm.ac.in | Management Studies | Member |
| Dr. Ramesh Kasilingam | rameshk@iitm.ac.in | Mathematics | Member |
| Dr. Shyama Prasad Das | spd@iitm.ac.in | Mechanical Engineering | Member |
| Dr. Ajay Kumar Shukla | shukla@iitm.ac.in | Metallurgical and Materials Engineering | Member |
| Dr. Suresh Rajendran | sureshr@iitm.ac.in | Ocean Engineering | Member |
| Dr. Prabhat Ranjan Pujahari | p.pujahari@iitm.ac.in | Physics | Member |
| Mr. Ramkamal | sec_acaf@smail.iitm.ac.in | Academic Affairs Secretary | Member |
| Mr. Poshadri | sec_resaf@smail.iitm.ac.in | Research Affairs Secretary | Member |
| Dr. Mahendra N Jadhav | librarian@iitm.ac.in | Central Library | Member-Secretary |

16.7. Members of the Finance Committee (FY 2022-23)

| | |
|---|---------------------|
| Dr. Pawan Goenka (Former Managing Director, Mahindra & Mahindra) Chairman, Indian National Space Promotion Authorization Centre (In-SPACE) Independent Director, Sun Pharma & Bosch India | Chairman |
| Prof. V Kamakoti Director Indian Institute of Technology Madras | Member |
| Shri Rakesh Ranjan Additional Secretary (TE) Department of Higher Education Ministry of Education, Government of India Shastri Bhawan, New Delhi | (Ex-officio) Member |
| Smt. Saumya Gupta Joint Secretary (TE) Ministry of Education, Government of India Shastri Bhawan, New Delhi | |
| Shri Anil Kumar Director (Finance) Integrated Finance Division, Department of Higher Education Ministry of Education, Government of India, Shastri Bhawan, New Delhi | (Ex-officio) Member |
| Thiru. S Krishnan, IAS Additional Chief Secretary to Government Industries Department Secretariat, Government of Tamil Nadu, Chennai | Member |
| Prof. VR Muraleedharan Department of Humanities and Social Sciences Indian Institute of Technology Madras | Member |
| Prof. Ligy Philip Dean (Planning), Indian Institute of Technology Madras | Invitee |
| Dr. Jane Prasad, IP&TAFS* Registrar Indian Institute of Technology Madras Chennai—600 036 | Secretary |

* Indian Posts & Telecommunications Accounts and Finance Service

16.8. Members of the Building and Works Committee (FY 2022-23)

| | |
|--|------------------|
| Prof. V Kamakoti Director IIT Madras | Chairman |
| Shri J Sugumar Superintending Engineer Tamil Nadu Electricity Board (TNEB), Chennai South Region | Member |
| Shri P Kalimuthu Chief Engineer (Distribution) TNEB, Chennai South Region | |
| Shri Sai Krishna Ponugoti Superintending Engineer cum Project Director, IITM Project Circle Central Public Works Department (CPWD), Chennai | Member |
| Shri Manoj Kumar Superintending Engineer cum Project Director, IITM Project Circle CPWD, Chennai | |
| Prof. Ligy Philip Dean (Planning) IIT Madras | Member |
| Prof. SA Sannasiraj Chairman (Engineering Unit) IIT Madras | Member |
| Prof. Benny Raphael Co-Chairman (Engineering Unit) IIT Madras | Member |
| Dr. Jane Prasad, IP&TAFS Registrar IIT Madras | Member-Secretary |
| Shri K Dharmaraj Superintending Engineer (Engineering Unit) IIT Madras | Invitee |



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CHENNAI — 600 036