Annual Report 2015-2016



INDIAN INSTITUTE OF TECHNOLOGY MADRAS CHENNAI – 600036

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Director's Report

Presented at the 53rd Convocation of IIT Madras, on 22 July 2016

Chief Guest Professor Jayant Baliga; Chairman, Board of Governors, IIT Madras, Dr. Pawan Goenka; members of the Board of Governors; members of the Senate; graduands; distinguished invitees; colleagues; and students:

Welcome to the 53rd Convocation of IIT Madras. As we consolidate the rapid strides we have made in recent years, I am proud to report that IIT Madras has been ranked No. 1 among Engineering Institutes in the very first release based on the National Institutional Ranking Framework, developed by the Ministry of Human Resource Development, GoI. The ranking is based on a comprehensive evaluation of several metrics ranging from teaching to research, and from industry–academia linkages to diversity and outreach.

This year we will be awarding 422 B.Tech., 407 M.Tech., 349 Dual Degree (B.Tech./M.Tech.), five Dual Degree (B.S./M.S.), eight Dual Degree (M.S./Ph.D.), 122 M.Sc., 61 M.B.A., 41 M.A., 165 M.S. and 210 Ph.D. degrees and 39 Postgraduate Diplomas of the Visionary Leadership in Manufacturing Programme. The mission of the Postgraduate Programme for Executives for Visionary Leadership in Manufacturing (PGPEX-VLM), offered jointly with IIT Kanpur and IIM Kolkata, is to develop future leaders to enhance the global competitiveness of our manufacturing sector.

This convocation will also witness the award of the first joint Ph.D. degree by IIT Madras and University of Passau. Earlier, in November 2015, two students graduated from our Joint Ph.D. programme with the National University of Singapore.

In 2015–2016, the institute added 22 new faculty members, of whom two are women. We bade farewell to four faculty members and 42 staff members who retired after a lifetime of dedicated service to the institute.

The Strategic Plan 2014–2020 has enabled us to prioritize our focus on various objectives and progress towards our targets. An action plan based on the review of all academic departments, and the institute as a whole, conducted by external review committees in 2014 guides us in our activities. The following initiatives have been undertaken on priority basis: (1) implementation of a flexible B.Tech./Dual Degree curriculum from the 2015–2016 academic year, (2) performance-based career advancement for senior professors through Chair Professorships, and for all employees across the board through merit-based promotions, (3) mentoring of faculty members to encourage pursuit of challenging research, (4) acquisition of a satellite campus, (5) improving safety standards in the work environment and maintenance of infrastructure, (6) rapid expansion in funded research, especially research funded by industry, (7) completion of the Research Park, (8) creation of a thriving start-up ecosystem, (9) all-round engagement with students to encourage holistic development and (10) growing internationalization and alumni engagement.

I now share with you some snapshots of our achievements during the academic year 2015–2016.

1.1. Degree Programmes

The revised undergraduate curriculum has been implemented from 2015 onwards. The batch of students who entered in 2015 will have vastly more choice in the courses they take, enabling them to pursue newly discovered passions. They are free to choose at least 40% of the courses among electives, and half of these can be any course of their choice offered in the institute.

An ever-increasing number of master's students are discovering the excitement of research at IIT Madras. In 2015–2016, a total of 90 students upgraded to the Ph.D. programme, while 59 high achievers were admitted to it directly after their Bachelors' degrees. A further 40 industry professionals also enrolled for their Ph.D. degrees, indicating a healthy growth in our industry interaction.

Students of IIT Madras and other institutions have benefited greatly from the introduction of the MHRD programme on "Global Initiative of Academic Networks (GIAN)" from this year. The GIAN programme has enabled visits of eminent researchers and academicians from abroad to the institute for teaching short-duration intensive courses and for interactions on collaborative research with faculty and research students. So far, 31 GIAN courses have been conducted at IIT Madras, and another 60 GIAN courses are scheduled to be held by the end of 2016. Among the institutes participating in GIAN, IIT Madras leads, with the maximum number of GIAN courses conducted in the year 2016.

Our ever-expanding transnational collaborations have resulted in the formalization of six Joint Doctorate Programmes (JDPs)—with Deakin University, Queensland University of Technology, University of Duisburg-Essen,

University of Technology Sydney and Curtin University—taking the total number of JDPs to 12. IIT Madras has also signed a Joint Supervision Programme with University of Sydney.

1.2. Academic Research

In 2015–2016, our faculty members and research scholars published 1013 papers in reputed international journals and 52 in national journals. They also presented 574 research papers at international conferences and 157 at national conferences.

1.2.1. Snapshots of Research

I now present a sample of the high-quality research carried out by the 210 Ph.D. and 165 M.S. scholars graduating today and hope that this will serve as a beacon for the best and brightest in our country to take to the path of research and innovation.

Vinu Varghese P., Department of Aerospace Engineering, has formulated a successful theory for analysing acoustic instability of low-Mach-number reacting-flow systems using the method of multiple scales.

Working on the structural response of adhesively bonded composite joints, K. Senthil, Department of Applied Mechanics, has come up with an elegant model to simulate and predict the onset and growth of debond propagation.

Aruna Kumar Chelluboyina, Department of Biotechnology, has been successful in identifying phosphorylation-dependent tumorigenic function of RUNX3 which is involved in cellular processes like cell differentiation and proliferation.

Yadagiri Dongari, Department of Chemistry, has introduced some novel and efficient methodologies for synthesis of new heterocycles using rhodium catalysts.

Dugyala Venkateshwar Rao, Department of Chemical Engineering, has introduced certain controlled-evaporation-driven self-assembly processes which enable a simple single-step bottom-up approach for the self-assembly of nano-ellipsoids into three-dimensional ordered structures.

Kavitha B., Department of Civil Engineering, has assessed seismic hazards in the global and Indian contexts using different models and has come up with suggestions for mitigating the seismic risk to large-scale civil infrastructural systems.

The work of Balagopal, Department of Computer Science and Engineering, on computational complexity has introduced several novel concepts in classifying computational problems according to the amount of available resources.

Through an interesting study using discrete wavelet transformation and singular value decomposition, Edward Jero S., Department of Engineering Design, has proposed a set of gold-standard metrics to measure the performance of ECG steganography.

Pankaj Arora, Department of Electrical Engineering, developed some interesting colorimetric sensors using hybrid-mode plasmon imaging for refractive index and thickness sensing.

In the setting of a metric space endowed with a graph, Asrifa Sultana, Department of Mathematics, has extended and unified many fixed-point theorems for set-valued contractive maps proved in recent times.

The work of Chitra Margaret Dey, Department of Management Studies, contributes towards a clearer understanding of different categories of antecedents and team boundary activity and gives an insight into how managers (and organizations) can tailor their efforts in improving team boundary management.

Studying the difficult hydrodynamics of deformable objects inside micro-channels, P. Sajeesh, Department of Mechanical Engineering, has come up with important guidelines for the design of microfluidic devices with specific relevance to sorting of biological cells.

Karthiselva N.S., Department of Metallurgical and Materials Engineering, developed an elegant process of simultaneous synthesis and densification of ultra-high-temperature ceramics and composites by reactive spark plasma sintering.

K. Narendran, Department of Ocean Engineering, has investigated vortex-induced vibration at high Reynolds numbers using a novel set-up, thereby introducing innovations in harnessing hydro-kinetic energy.

Working on the development of novel nano-composites for electrode materials, Madhumita Sahoo, Department of Physics, has been able to create platinum-loaded hybrid carbon nanostructures imparting excellent performance to proton exchange membrane fuel cells.

1.2.2. Research Centres/Outcomes

As laid down in the objectives of the Strategic Plan, IIT Madras continues to demonstrate its potential in translating large-scale technologies developed in its Centres of Excellence to ground realities that impact the life of the common man. Many of the technologies developed at IIT Madras, in the areas of power, water, housing, healthcare

and transport, are all set to enable meeting India's Vision 2022 and the Smart Cities agenda. In 2015–2016, we made impressive strides in this regard.

The disruptive solar–DC technology developed by the Centre for Decentralised Power Systems promises to brighten the lives of the 300 million Indians who have no access to assured electric supply even today. The technology has recently helped provide lighting, fans and TV sets cost-effectively to homes in several far-flung villages in Rajasthan. Houses that have no electric supply are provided with a simple 1.5 square metre solar panel, the electricity generated by the panel is stored in a battery, and the electrical appliances instead of running on AC power run very efficiently on DC power. The Hon'ble Minister for Power, New and Renewable Energy, Coal and Mines, Mr. Piyush Goyal, launched several products related to solar–DC technology at IIT Madras on 15 July 2016. He also launched the new Centre for Battery Engineering and Electric Vehicles at IIT Madras, which aims to transform mobility in our country.

The Healthcare Technology Innovation Centre (HTIC) has been continuing to develop healthcare technologies that are of immense use to society at large. This year HTIC has designed and developed in partnership with J. Mitra and Company Private Limited an indigenous desktop point-of-care diagnostic instrument for rapid quantitative testing of key blood markers for diabetes and cardiac and vitamin disorders. The objective is to make these blood tests affordable and accessible to tier 2/tier 3 laboratories and clinics.

A Dual-Degree student, Anand Parikh, working with Dr. V.B. Narayanamurthy and Prof. Venkatesh Balasubramanian, from the Engineering Design Department, has developed a tiny e-version clamp that assists surgeons of all specialties perform anastomoses (surgical connections between two tubular structures such as blood vessels) faster, safer and with an easier learning curve. This innovation bagged the Gandhian Young Technological Innovation (GYTI) Award this year.

An MoU has been signed recently with DRDO for the establishment of a Centre of Propulsion Technology (CoPT) jointly at IIT Bombay and IIT Madras to pursue directed research towards developing advanced technologies to meet future defence requirements.

The Ministry of Steel has funded the establishment of a Centre of Excellence in Iron and Steel Technology (COEXIST) at a budget of ₹35.55 crores over 5 years to carry out research on modelling, casting, welding, forming and surface engineering of high-strength automotive steels in collaboration with automotive industries.

The Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, GoI, has, with the support of six machine-tool industries, sanctioned an Advanced Manufacturing Technology Development Centre (AMTDC) with an initial grant of ₹56 crores. The goals of the centre, to be established at the IIT Madras Research Park, encompass translational research in advanced machine tool and manufacturing technologies to build a smart manufacturing technology base in India.

As a precursor of the deliverables from AMTDC, IIT Madras released an indigenously built high-precision cylindrical grinder, the precision and productivity levels of which are on par with a world-class cylindrical grinding machine tool. This project, funded by the Office of the Principal Scientific Adviser to the Government of India, was a collaborative effort of IIT Madras and Micromatic Grinding Technologies Limited.

Based on the successful deployment by the Thematic Unit of Excellence on Water of the nanotechnology-based purifier AMRIT developed by it, arsenic-free water has been provided to nearly half a million people in West Bengal at a cost of less than 5 paise per litre. The Union Ministry of Drinking Water and Sanitation has recommended its replication in other states of India having arsenic-affected regions. The technology has also been licensed for global deployment outside India.

The Center of Excellence for Wireless Technology (CEWiT), of IIT Madras, is spearheading a multi-institutional effort to develop 5G wireless technologies and contribute to global standardization efforts. It is an active participant in the newly set up Telecom Standards Development Society of India (TSDSI).

The National Centre for Safety of Heritage Structures (NCSHS) has been assessing and providing structural retrofit solutions for historical monuments across the country, including the Rashtrapati Bhavan and the Jagannath Temple, Puri. NCSHS is commissioning a state-of-the-art 10-ton payload biaxial shake table at the Structural Dynamics Lab this year to study earthquake behaviour of historical structures.

The Indo-German Center for Sustainability (IGCS) celebrated its fifth anniversary with an Indo-German conference during February 2016. The centre has witnessed a two-fold spurt in academic exchange with Germany in the last year, thus strengthening the collaboration. IGCS is presently carrying out several research projects funded by the DST and Maschinenfabrik Reinhausen (MR), on themes such as optimization of biodiesel engines, septage management, zero-discharge toilets, grid islanding and renewables integration, sustainable water resources and flood management, and building resilience in peri-urban areas. These projects are yielding important results, including the recent filing of a patent for zero-discharge toilets.

A Centre for Railway Research (CRR) will be set up at IIT Madras for research collaboration and advancement of technologies for smart, efficient, comfortable and safe rail transport systems. It will also carry out research related to structural health monitoring of railway infrastructure.

Dr. Nitin Chandrachoodan, Prof. Anil Prabhakar and Mr. D. Jayavel, Department of Electrical Engineering, and T. Pradeep, Enability, an IITMRP start-up, have designed iGest (Intelligent Gesture Recognition Device), a gesture-to-speech device that acts as an independent mode of communication for people with disabilities such as cerebral palsy. This device has won the Nina Saxena Excellence in Technology Award for this year.

Students from the Department of Chemical Engineering, Praneeth Srivanth, Shantini and Sai Pavan Abhishek Vinakollu, guided by Prof. Dhamodharan have developed a biodegradable sachet from cellophane which won an award at a national competition organized by Hindustan Unilever Limited.

The Union Ministry of Urban Development, which is spearheading the Smart Cities plan, has put together an off-the-shelf utility ITS (Intelligent Transport System), which emerged from a long trial at IIT Madras.

Researchers at IIT Madras have been successful in converting Ti6Al4V alloy waste shavings into foils that are one and a half times harder than the parent material.

1.2.3. New Research and Fabrication Facilities

Research at the highest levels calls for constant upgradation of instruments and facilities. IIT Madras continues to upgrade its research infrastructure to provide the best possible facilities to its scholars.

Our Central Workshop now provides quick advanced fabrication services to our research scholars, students and faculty for all their needs—ranging from precision parts for the student satellite and for microfluidics research to large components made from composites, alloys and special materials.

A Geo-environmental Research Laboratory has been developed in the Department of Civil Engineering, and it houses state-of-the-art equipment such as an atomic absorption spectrophotometer, UV-vis spectrophotometer, UV-weatherometer, flexible wall permeameter, geotechnical centrifuge, melt-indexer and ultra gas pycnometer.

An MoSDE (Ministry of Skill Development and Entrepreneurship)–IIT Madras Incubation Centre for Industrial, Automation, Instrumentation and Automobile has been established. The Incubation Centre will provide an opportunity to ITI students to incubate their innovative ideas along with IIT Madras students.

Construction of a biomechanical analysis lab with facilities for motion capture and kinetic measurements is under way in the Machine Design Section of the Department of Mechanical Engineering. The facility enables studies of the mechanics of normal and pathological human movements and augments the development of functional assistive devices at the TTK Centre for R2D2.

The Department of Metallurgical and Materials Engineering has commissioned a 300 kV high-resolution Titan TEM with image correction, costing around ₹20 crores. The TEM will serve as a tool for cutting-edge research in multiple disciplines.

A femtosecond laser facility that cost ₹2 crores is another major addition to the facilities in the Department of Physics during the last year.

1.3. Academic Distinctions Secured by Our Faculty Members and Students

Several academic distinctions, honours and awards, fellowships of academies and professional societies, and memberships of editorial boards of journals have been bestowed on our faculty, staff and students in recognition of their academic achievements during the current year. Notable among the awardees are Drs. Arvind Pattamatta, S. Mohanasankar and V.V. Raghavendra Sai, who won the INAE Young Engineer Award, Dr. Athi Naganathan, who won the INSA Medal for Young Scientists, Prof. Krishna M. Sivalingam, who was elected Fellow of the INAE, Prof. T. Pradeep, who was elected an INSA & NASI Fellow, Dr. Rama Shanker Verma, who was elected a Fellow of BRSI, Prof. P.B. Sunil Kumar, who was elected a Fellow of the Indian Academy of Sciences, and Profs. Ashok Jhunjhunwala and C. Siva Ram Murthy, who have been selected as J.C. Bose Fellows.

Five of our young faculty members, Drs. T.M. Muruganandam, Karthik Raman, S.T.G. Raghukanth, R. Vinu and V.V.S.D. Ratna Kumar Annabattula, have won the Young Faculty Recognition Award of the institute for the year 2015, while Prof. C. Chandra Sekhar won the Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching for the year 2015–2016. Prof. B.S. Murty was awarded the Lifetime Achievement R&D Award of our institute, Dr. M. Michael Gromiha and Prof. Shanthi Pavan have been awarded the Mid-Career R&D Award, and Dr. Suresh Kumar Rayala, Dr. P. Anbarasan, Dr. Boby George and Dr. Srinivasa Rao Bakshi have been awarded the Junior-Level R&D Award.

One of the recommendations of the Peer Review Committee was to provide performance-based career advancement to senior professors through Chair Professorships. Fifteen senior professors who have distinguished themselves by their research and / or technology development, excellence in teaching and service to the institute/nation/profession have in the year under review been recognized as Institute Chair Professors. More than half of these Chairs have been funded by generous endowments by alumni.

An exhaustive list of laurels won by our faculty and students is given as an annexure to this report.

1.4. Industrial Consultancy and Sponsored Research

IIT Madras has always given importance to industry collaborations and industry-funded projects, which have enabled us to commercialize our products and technologies. It has led to a win–win situation to the sponsoring industries, our faculty and students. In 2015–2016, 110 sponsored projects for a total value of ₹200.71 crores and 501 consultancy assignments amounting to ₹71.15 crores were sanctioned.

This year 73 MoUs were signed with various entities such as Cancer Research and Relief Trust, Sterlite Technologies Limited, NanoHoldings LLC and Indian Oil Corporation Limited.

The institute earned ₹1.83 crores from technology transfer fees and royalties during the year 2015–2016. The Intellectual Property Management Cell enabled the filing of around 100 patents during the year, of which 13 are international patents. Sixteen patents have been granted, of which 15 are international patents.

The Research Fund of ₹50 crores created a few years ago continues to provide an impetus for the initiation of new research along risky pathways and has funded six R&D Awards (amounting to ₹1.6 crores), 12 research scholar innovation projects (for a total of ₹52 lakhs) and one multi-disciplinary team project that establishes a new line of research with potential to lead to the creation of new Research Centres (for ₹2 crores) this year. The fund has helped 17 new faculty members initiate and establish their research activities by funding them to the tune of ₹451 lakhs. The fund has also been utilized to operate and maintain instruments shared across the institute.

IIT Madras is the National Co-ordinator of the Ucchatar Avishkar Yojana (UAY) programme, launched by MHRD to improve the competitive edge of industry-sponsored, outcome-oriented research projects. A total of 92 projects for a value of around ₹300 crores have been approved for funding at various IITs and IISc under this scheme, with the funding shared by MHRD, the relevant ministry and the partnering industry in the ratio 50:25:25. With the largest number (23) of projects approved at a cost of ₹100 crores, IIT Madras is all set to provide a big fillip to its industry–institute interaction.

1.5. Research Park and Incubation

As the IIT Madras Research Park completes its sixth year of operation, it is setting new benchmarks for industry—academia collaboration. The second and final phase of the Research Park, with 0.8 million square feet of built-up area, is nearing completion. The anchor client, Saint-Gobain Research India, has already commenced operations in Phase–II with the inauguration of their centre on 29 January 2016 by the Hon'ble Chief Minister of Tamil Nadu Ms J. Jayalalithaa. On 16 January 2016, during the Start-up India, Stand up India Launch, the Hon'ble Prime Minister Mr. Narendra Modi interacted with entrepreneurs from the IIT Madras Research Park and acknowledged their path-breaking innovations.

With over 100 start-ups incubated by IIT Madras Incubation Cell and sector-specific incubators (RTBI, Bioincubator and MedTech incubator), 100,000 square feet has been allocated in Phase-II to accommodate the growing number of new entrepreneurial ventures and SMEs. The interior works of the Incubation Space, in addition to the world-class auditorium, which can accommodate 900 individuals, are in progress.

The incubators nurture technology and knowledge-based ventures through their start-up phase and help entrepreneurs establish themselves before they scale up their ventures. IITMIC is working to build and share resources such as space and infrastructure, access to business support services, mentoring, networking and access to seed and early-stage venture funds, including the Start-up Fund, comprising contributions from industry (₹2.6 crores donated under CSR in FY 2015–2016) and IIT Madras alumni and seed grants from the GoI.

Under the aegis of IITMIC and other incubators, IIT Madras has emerged as one of the most vibrant hubs for start-ups in the country. Some major highlights on IIT Madras start-ups: 102 incubated till date, with 84 seed-funded (₹7.6 crores spent till date). Of these, 30 have raised follow-on external (angel/VC) funding: total investment of ₹320 crores raised. An impressive 29 companies have graduated, while 30 companies are revenue generating, with a combined turnover of ∼₹50 crore in FY 2014–2015 and 1000 jobs generated by portfolio. Several of the start-ups are working in advanced and emerging areas such as manufacturing and IoT.

1.6. Continuing Education and Our Contributions to the National Educational System

IIT Madras has an extensive outreach programme catering to teachers, practicing engineers and researchers. The Centre for Continuing Education (CCE) organized 11 Short-Term Training Programmes for engineering college faculty members and 79 Continuing Education Programmes for Industrial and R&D establishments. These programmes benefitted about 6000 participants in 2015–2016, and resulted in a revenue of around ₹4 crores.

IIT Madras plays an important role in assisting other engineering institutions in the country with their curriculum, laboratory upgradation and faculty career development. Under the Quality Improvement Programme (QIP), we have a total of 30 QIP Scholars—25 pursuing Ph.D. (of whom eight are women) and five M.Tech. The

institute is also assisting engineering colleges in Tamil Nadu and the neighbouring states to implement their TEQIP-II programmes.

Our Teaching Learning Centre has emerged as a leading centre for training faculty members of engineering institutes. In addition to assisting faculty members and TAs of IIT Madras, the three-day Faculty Development Programme has benefitted the faculties of several government and private engineering colleges. MHRD has funded around ₹4.5 crores for augmenting the activities of the centre.

Live, interactive, online M.Tech. courses for industry personnel announced last year are about to be launched for industry verticals in automotive technology, information security, digital communications and business administration. Professionals can complete the courses at their own pace from their places of work and earn a Masters' degree on earning the required credits.

Our faculty has also been prolific this past year in writing books and monographs. Under the Book Writing Scheme, designed to encourage textbook writing by our faculty members, 80 books have been published so far, and 17 books are under publication in the current year.

The National Programme on Technology Enhanced Learning (NPTEL), co-ordinated by IIT Madras, has developed 1014 (430 web/584 video) courses in engineering, science and technology that are freely available through the NPTEL website and through YouTube. Edited transcripts of the lectures are also available. With this, the NPTEL project of IITs/IISc completed one major milestone—providing the world's largest free-to-access repository of high-quality courses in engineering and science.

With Massive Open Online Courses (MOOCs) gaining momentum, NPTEL has till date offered around 155 online courses through its portal, https://onlinecourses.nptel.ac.in/, of which 100 courses were held in 2015–2016. Of around 4 lakh students who had enrolled for the courses, around 20,000 were certified in 2015–2016 by means of proctored examinations. In July 2016, NPTEL will be offering 93 open online courses. NPTEL is in the process of partnering with colleges and universities for endorsing its course certificates as part of their curriculum and are also negotiating with industry bodies like NASSCOM for recognizing the MOOC certificates for recruitment in the IT industry.

A BOSS MOOL (Bharat Operating System Solutions–Minimalistic Object Oriented Linux) operating system has been jointly developed by Centre for Development of Advanced Computing (CDAC) and IIT Madras and has been positioned for large-scale adoption in educational institutes, government departments and commercial organizations.

The TTS Consortium, headed by IIT Madras, TDIL and DeitY, has developed a Text-to-Speech (TTS) tool in six regional languages (Hindi, Marathi, Malayalam, Tamil, Telugu and Bengali) that is functional for SMS, WhatsApp, email and web browsers. The TTS tool has been successfully integrated within the Regional Operating System "Indus OS" and has been launched with two Micromax models—Unite 4 and Unite 4pro. More brands are expected to launch the Indus OS soon.

The IIT Madras Summer Fellowship Scheme, which provides a unique opportunity for summer research internship to top-ranking engineering and science students across the country, supported 158 students this year.

As part of the Rashtriya Aavishkar Abhiyan (RAA), IIT Madras continues to provide in-house training to students and teachers of various schools. IIT Madras, under the Ishan Vikas programme, mentored 16 students and one faculty member from NITs of the north-eastern States of Mizoram and Assam for a month and 40 students and 5 teachers of schools from Arunachal Pradesh and Assam for a period of 10 days during the year 2015–2016.

As part of the Unnat Bharat Abhiyan (UBA), work is ongoing on two fronts. In the first, in two villages, Thaiyur and Vichoor, belonging to two different blocks in Tamil Nadu, extensive surveys involving NSS students are being carried out which will lead to planned work on improving the reach of sanitation, water supply, health and education. In the second, many rural technologies and ideas from IIT Madras are being field tested for productivity improvement with the support of different state and central ministries under the aegis of our Rural Technology Action Group. Some examples are coir rope making with help from the Ernakulam District Collector, Pattamadai mat making with the Handicrafts Ministry, more efficient pedal looms with the Khadi and Village Industries Commission (KVIC) and coconut and palm tree climbing trials in Kerala and Goa, again with the KVIC.

IIT Madras helped the Chennai Corporation with the remediation of dumpyards at Perungudi and Kodungaiyur by undertaking a study on characterization of waste at the dumpyards.

1.7. International Collaborations

During 2015–2016, IIT Madras partnered with several international universities and signed 30 MoUs to enable student exchanges and faculty collaborations, taking the total number of active MoUs to 210, Joint Doctorate Programmes to 12 and Joint Supervision Programmes to 40.

From its exchange programmes, IIT Madras received 145 international students during the academic year 2015–2016. The provision of scholarships to visiting M.S. and Ph.D. students during their stay in IIT Madras has continued

to attract international students. The acclimatization of foreign students at IIT Madras has been improved, with initiatives such as connecting them to 'buddies'. International Day is an annual event that celebrates campus diversity through world cuisines and music programmes and helps make their stay more memorable.

The number of out-bound students doubled from 60 in 2014–2015 to 117 in 2015–2016, thanks to the efforts to enlighten students on the available exchange programmes, internships, scholarships and other funding opportunities and due to their interactions with former students who had been on study abroad programmes.

1.8. Human Resources

Training is essential for maintaining an efficient work force. At IIT Madras, systematic programmes were conducted throughout the year to train our technical and administrative staff and help them upgrade and acquire new knowledge, skills and professional orientation through a variety of learning experiences. In the year under review about 141 staff members benefitted from five in-service and seven offsite training programmes. Apart from this, as many as 45 officers/staff members were provided Hindi training.

The Non-Academic Staff Recognition Awards were instituted a few years ago to recognize the efforts of administrative/technical staff members who have been making significant contributions to the institute by their outstanding and consistently excellent service. The awardees for 2015–2016 are Mr. R. Balakumar and Mr. V. Govindarajan, under the Administrative category; Dr. J. Senthilnathan and Mr. D. Rajavel under the Technical category; and Dr. Mahalakshmi M. Ravi, under the Supervisory/Managerial category.

1.9. Quality and Process Improvement Initiatives

IIT Madras was awarded the ISO-9001:2000 certification for its academic support processes as early as 1999 and for administrative support processes in 2001. All the units were certified as per the ISO 9001:2008 standard in 2011 and were recertified in 2014. In addition to ISO 9001:2008 certification, the Central Electronic Centre has also been NABL-accredited for its Testing and Calibration Laboratories since 2004.

WORKFLOW, our office automation Enterprise Resource Planning (ERP) software, has expanded its scope to include more processes, and its data have been analysed and utilized by ISO internal audit teams to improve the performance of the administrative staff.

1.10. Infrastructure Development

We are grateful to the Government of Tamil Nadu for generously allotting 163 acres of land for a new satellite campus of the institute at Thaiyur village last year. Construction of a compound wall around the campus has been completed, and development of a master plan for the new campus will be taken up next. It has been planned to make Thaiyur campus as a research-focused campus with generous allocation of space for new Centres of Excellence. The CoPT, mentioned earlier, will be among the first Centres to come up on the satellite campus.

Some major infrastructure projects that have been completed this year are the National Centre for Combustion Research and Development (NCCRD), Chemistry Building II, the Thematic Unit of Excellence on Water Purification and Nanotechnology, a new canteen building and a sewage treatment plant of 4 mld capacity. With a view to reduce the fresh water demand in the campus by about 50%, a dual pipeline system for using the recycled water for gardening, flushing and district cooling systems for air-conditioning is being implemented.

Several major projects are currently under progress: the new academic complex, with a built-up area of 31887 square metres, Bio-Sciences II and Centre for Sustainability, a new dining facility near Krishna Hostel, 96 new B-type quarters for the faculty, an additional floor in the Engineering Design building and a classroom complex on the sites of the erstwhile Chemistry and Physics Lecture Theatres.

At IIT Madras, we remain committed to protecting and preserving our beautiful campus and its fauna and flora. In summer 2015, an animal census was carried out by experts from the Care Earth Trust, and the report confirmed healthy numbers for the Spotted Deer (Chital), Blackbuck and Macaque populations, the current estimates of their populations being around 375, 30 and 300, respectively.

IIT Madras is making strenuous efforts to keep its campus clean by periodically removing obsolete equipment, discarded furniture, waste paper, e-waste, construction debris, etc. throughout the institute. The Zero Waste Zone (OWZone), with five self-help groups, plays a vital role in this aspect.

As a measure to enhance the safety and security of the campus, IIT Madras is introducing surveillance cameras in buildings and common areas. After pilot installations in the Department of Electrical Engineering and some hostels, the deployment will now be rolled out in the Academic and Hostel zones.

During the Chennai floods of December 2015, flooding was avoided within the campus due to our well-maintained storm water drainage system, which drains the water into the IIT Madras lake. Our Engineering

Unit and Security Section deserve all praise for keeping essential campus services operational throughout the difficult period.

1.11. Student Co-curricular and Extra-curricular Activities

Apart from its academic achievements, IIT Madras has always been known for the vibrancy of its student life. The academic year 2015–2016 was eventful in many respects.

Saarang, the annual cultural festival of IIT Madras, celebrated its 57th edition with the theme "The Grand Voyage". It gave its attendees a 5-day experience of "a journey of a lifetime", with five top-of-the-line professional shows and more than 50 competitive and noncompetitive events, spread over all categories such as dance, music, speaking, quizzing, fine arts, lifestyle and photography and several informal shows and witnessed some of the best talent pool available all over India. The World Music Fest, which featured internationally acclaimed artists, was a platform for Saarang to express its solidarity with the people of Chennai, by holding a fund-raiser for Chennai flood relief in addition to donating to the Chief Minister's relief fund.

Shaastra, the annual technical festival of IIT Madras, in its 17th edition, witnessed a plethora of exciting and entertaining shows and innovative and exciting contests. Apart from the regular technical events, this year's Shaastra saw novel workshops on emerging technologies such as 3D printing and laser cutting. One of the spotlight events at Shaastra was the Makers Summit, which was a unique blend of lectures, demonstrations and a hands-on workshop experience with the aim of encouraging students to be a part of the makers movement. Under the Pledge a Book campaign, Shaastra has so far collected more than 15,000 books to set up 15 libraries in deprived areas with the help of over 20 NGOs.

Saahitya, celebrated the first edition of the literary festival at IIT Madras. The IIT Madras clubs—the Word Games Club, Quiz Club, Writing Club, Oratory Club, Music Club, Fine Arts Club, Thespian Club and Informal's Club—came together to make Saahitya a success.

The Extra Mural Lecture (EML) series is a window for our students into the world of leadership. This year the commitment, vision and dedication of the EML team could be seen from the incredible variety of speakers that they managed to invite—from His Holiness the Dalai Lama to the Honourable Chief Minister of Tripura, Mr. Manik Sarkar, from Ambassador Mr. Nalin Surie to Dr. Preetha Reddy, of the Apollo Group of Hospitals, for International Women's day, and from the Honourable Union Minister for Commerce, Mrs. Nirmala Sitharaman, to the director of the blockbuster *Baahubali*, Mr. Rajamouli, among a host of luminaries.

The Research Affairs Council organized several events for the research scholars such as Research Scholars Day, which help them develop a well-rounded personality.

IIT Madras hosted the 31st Inter-IIT Aquatic Meet from 1 to 4 October 2015. The meet was declared open by Olympian and Arjuna awardee Sebastian Xavier and graced by Sharath Gayakwad, an Indian Paralympic swimmer and an Arjuna awardee. IIT Madras won the Women's Championship, with S. Gayathri being adjudged the Best Swimmer in the women's category.

IIT Madras was to host the Inter-IIT Sports Meet in December. While we had augmented our infrastructure facilities for the meet, including the brand new synthetic track made possible by a generous donation from our Distinguished Alumnus Prem Watsa, the meet had to be called off due to the unprecedented floods and uncertain weather conditions in Chennai.he

Our students also conducted several inter-collegiate invitation tournaments such as Sportfest, IIT Madras–Sanmar Cricket Tournament and the Gerhard Fischer Basketball Tournament.

The Centre for Innovation (CFI) held its fourth edition of Open House to exhibit the innovative projects that students have worked on over the past year. Among the highlights this year were "Wasp", a flying biomimic of an insect and "Protein Music", where protein patterns are played as music. Many budding entrepreneurs exhibited the products of their start-ups, covering various fields.

The success of CFI can be witnessed by the accolades that our teams won at various events this year.

Team Raftar, the formula racing team, has been improving year over year and won the Third Place at the Formula Student India Car Racing Championship, being placed at overall second position in the Endurance section and first in the Fuel Economy section.

Team Aseem won the Second Place (US\$15,000) at the Enable Makeathon, a 60-day global competition organized by the International Committee of the Red Cross (ICRC) for their quick and easy add-on to convert any manual wheelchair into a manual or motorized outdoor mobility device.

An IIT Madras Team won the Lockheed Martin's C130 RO/RO Payload Design Challenge for their design of a cargo ground build-up system (CGBS) that can be moved quickly in and out of the Hercules heavy-lift aircraft, cutting out the need for manual labour to offload relief material in air relief missions. A panel comprising members from Lockheed Martin, Tata Advanced Systems, the DRDO and the US Air Force approved the high-level design and analysis of their concepts. Lockheed Martin has given the team \$60,000 for building a prototype.

IIT Madras Energy & Pollution Team and Education Team won the second and third places, respectively, at the Berkeley Innovation Awards in the Vizag Smart City Challenge conducted by UC Berkeley.

IITMSAT is the student-led satellite initiative of IIT Madras to build a 12 kg nanosatellite that will demonstrate a compact Space-based Proton and Electron Energy Detector (SPEED). This payload will measure the energy spectrum of protons and electrons precipitating from the Van Allen belts and correlate with events causing perturbations of the ionosphere. IITMSAT has been completely designed and fabricated at IIT Madras by our students. Starting in 2011, the project has seen the involvement of more than 300 students over 5 years. Currently, an interdisciplinary team of 20 students is building the final version of the satellite. The target launch date is October 2016 by ISRO. The total cost of the project is ₹2.5 crores, of which our Distinguished Alumnus Krishna Chivkula has donated ₹1.5 crores.

The disaster management committee has been instrumental in preparing students to act swiftly in times of disaster. The team conducted fire drills in the hostels with the help of the Security Section and the Fire Safety Department of Tamil Nadu.

The National Service Scheme (NSS) Unit, with a mission to mobilise our youth into progressive citizens and imbibe in them an inclination towards social service, undertook 30 projects and recorded an enrolment of about 350 volunteers this year. True to its spirit, the students of NSS-IIT Madras Unit actively engaged in reaching out and helping in the relief and rehabilitation efforts during the Chennai floods of December 2015. They helped with the distribution of safe RO-filtered drinking water supplied from IIT Madras' filtration plant to locations in Velacheri and Taramani and in the collection and distribution of relief materials.

1.12. Student Welfare

MITr, IIT Madras' counseling and guidance service, engages professional counselors and experts for in-person counseling, who are available 24×7. Trained MITr volunteers are also available to assist students. Saathi, a branch of MITr, which will play a complementary proactive role in providing support to students, has been created.

With the objective of nurturing a physically, socially, emotionally and intellectually balanced life among our students, several programmes such as relaxation training, stress management workshops, crisis management workshops, seminars on suicide prevention and lectures on drug abuse were organized.

The academic buddy programme, out-bound training programme and the life skills course help freshers cope with the vagaries of campus life.

1.13. Placement

As per the exit data we collected at the last convocation, all 1600 graduands who received their degrees on that day were either placed in a job or were proceeding for higher education or had founded a start-up. I am certain the exit data we collect today will be no different.

As a result of reaching out to around 1597 core and non-core companies this year, 271 companies visited IIT Madras for placement, of which 53 were from core engineering verticals. The focus was placed on contacting various Fortune 500 and other leading companies.

Despite the disruption of the placements due to floods, this year a total of 779 students were placed through the Placement Office, of whom a large fraction, 54%, joined core engineering companies. This number is similar to last year's. As we notice from the exit data of last year, a substantial number, particularly research scholars, get placed directly without going through our Placement Office.

In order to enhance student interaction with the companies, an internship office chaired by an Advisor has been set up. The summer internship 2016 drive placed about 329 third year students into internships in 109 companies.

1.14. Alumni Matters

A key focus of the Office of I&AR continues to be to maximize two-way connectivity between the institute and her alumni. The office has built a strong presence in LinkedIn, having crossed 9000 members. A crowd-funding platform has been introduced as a quick and easy way to contribute funds for near-term projects of the institute.

IIT Madras has been honouring select alumni with Distinguished Alumnus Awards since 1997 in recognition of outstanding achievements in the areas of entrepreneurship, leadership and management, academia and research, social and technological innovation, and service to humanity at large. The awardees for this year are:

- Mr. D. Shivakumar, Chairman and CEO—India Region, PepsiCo India Holdings Private Limited, Gurgaon, Haryana—B.Tech. in Aerospace Engineering, 1982
- Dr. Ramarathnam Narasimhan, Professor, Indian Institute of Science, Department of Mechanical Engineering, Bengaluru—B.Tech. in Mechanical Engineering, 1982

- Dr. Chandra R. Bhat, Professor of Civil Engineering and Director of the Center for Transportation Research, University Distinguished Teaching Professor, University of Texas at Austin, USA—B. Tech. in Civil Engineering, 1985
- Dr. Chandramouli Visweswariah, IBM Fellow, Smarter Energy and Environmental Science; Director, Smarter Energy Research Institute (SERI), New York, USA—B.Tech. in Electrical Engineering, 1985
- Dr. Vaidehi Narayan, Professor of Molecular Immunology, Beckman Research Institute of the City of Hope, California, USA—M.Sc. in Chemistry, 1981, and Ph.D. in Chemistry, 1986
- Dr. S. Christopher, Secretary, Department of Defence R&D and Director General, Defence Research & Development Organization (DRDO), New Delhi—Ph.D. in Electrical Engineering, 1987
- Dr. Kumar Ganapathy, Co-founder, Virident, Co-founder, VxTel, and Global Vice President of Strategy and Products, HGST, USA—B.Tech. in Electrical Engineering, 1987
- Dr. Thomas J. Colacot, Global R&D Manager/Technical Fellow, Johnson Matthey, West Deptford, NJ, USA—Ph.D. in Chemistry, 1989
- Dr. Sridhar Vembu, Co-founder & CEO, Zoho Corporation, Chennai—B.Tech. in Electrical Engineering, 1989
- Dr. Aravind Srinivasan, Professor, Department of Computer Science and Institute for Advanced Computer Studies, University of Maryland, Maryland, USA—B.Tech. in Computer Science, 1989
- Dr. Thomas A. Kodenkandath, Scientist, Hazen Research, and Co-Founder, Appli3D, LLC, USA—Ph.D. in Chemistry, 1990
- Dr. Ramkumar Dhruva, Senior Vice President (Monomers Division), Asia-Pacific, BASF, Hong Kong—Ph.D. in Chemistry, 1996

The institute's alumni play an active role in helping IIT Madras grow as well as in its outreach to the community. The IIT Madras Development Office—India was launched in May 2015 to focus on building a corpus. Alumni and well-wishers are making record contributions to the institute to help it retain its position as a top educational and research institution and enhance its global standing. 2015–2016 has been a very eventful year, with fund-raising reaching ₹55 crores for the first time ever, more than doubling the 2014 total of ₹23 crores. The number of first-time donors reached an all-time high of 1130, bringing the cumulative total to 3200 donors. The Mehta Family Foundation sponsored the second Bio-sciences Building with an additional contribution of ₹2.31 crores. CSR contributions received from Indian industries exceeded ₹11 crores, with several companies contributing to support DST-approved incubators on campus, as well as faculty R&D projects with social impact. Mr. R. Muralidharan has pioneered a novel way to give back to his alma mater by assigning his and his spouse's life insurance policies, valued at \$100,000, to IIT Madras, vesting after the lifetime of the donor.

Alumni had funded seven 'Institute Chairs' at ₹50 lakhs each as informed earlier in the report.

The alumni interactions were kept active with diverse events such as the first-ever "AlumNite", held in July 2015, six batches having their reunions, several Chapters holding their meetings in India and abroad, 20 Leadership Lectures being held in the campus, and a campus reception to recognize those who have contributed to the growth and development of the institute. Mr. Kris Gopalakrishnan named the third Distinguished Chair in Computational Brain Research that he had endowed last year at ₹10 crores after retired Professor of the Department of Computer Science & Engineering, Dr. C.R. Muthukrishnan. Prof. Anand Raghunathan (Purdue University, West Lafayette, USA) is the first occupant of this Chair.

International & Alumni Relations has provided travel grants to support conference presentations and collaboration activities to the tune of ₹80 lakhs to more than 200 students and 20 faculty members this year. More than 1000 students have benefited from travel grants over the years.

1.15. Acknowledgements

An endeavour on the scale of this institute and its entire gamut of activities take place with the whole-hearted 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—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 for the selfless work they put in to keep the institute ticking. The institute is grateful to the Ministry of Human Resources Development, 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 making our second campus a reality.

I wish to thank Dr. Pawan Goenka, our Chairman, Board of Governors, and all oard members for their wise counsel, support and guidance, enabling us to scale new heights. Our Chairman has instilled in us a goal-oriented approach to the pursuit of our Strategic Plan objectives. I take this opportunity to thank the outgoing board

members, Dr. J. Letha, Prof. Ashok Jhunjhunwala and Prof. S.K. Bhattacharya, and welcome Dr. K. Vijayakumar, Prof. V. Sundar and Prof. S.H. Kulkarni, who have been nominated in their place.

I would like to thank our Chief Guest, Dr. Jayant Baliga, Distinguished University Professor, North Carolina State University, USA, for gracing this convocation. When the citation for his *Honaris Causa* degree is read shortly, you will see why our hearts swell with pride at the accomplishments of this Distinguished Alumnus of our institute. His inventions are having an enormous impact on a global scale to reduce energy consumption and the resulting carbon footprint. We are indeed privileged to have him with us today and have him share his insights with us.

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

Jai Hind.

Annexure

Faculty Awards/Honours

D 16 (4F)		W. F. L. D. W. A. LWEW.
Dr. Muruganandam T.M. (AE)	-	Young Faculty Recognition Award, IIT Madras
Dr. Arockiarajan A. (AM)	-	Young Scientist Award, Institute of Smart Structures and Systems
Dr. Manivannan M. (AM)	-	CavinKare–MMA Innovation Award
Dr. Raghavendra Sai V.V. (AM)	-	INAE Young Engineer Award
Dr. Anju Chadha (BT)	-	S.K. Chaterjee Award, IISc, Bengaluru
Dr. Athi N. Naganathan (BT)	-	INSA Medal for Young Scientists
Dr. Karthik Raman (BT)	_	Young Faculty Recognition Award, IIT Madras
Dr. Michael Gromiha M. (BT)	-	Mid-career Research and Development Award, IIT Madras
	-	The DDN Prize (Outstanding Performance Award), Tokyo Institute of Technology, Japan
Dr. Sathyanarayana N. Gummadi (BT)	-	Outstanding Researcher Award, Venus International Foundation
Dr. Suresh Kumar Rayala (BT)	-	Junior-Level Research and Development Award, IIT Madras
Dr. Devdas Menon (CE)	_	Guru Shreshta Award, Rotary Club of Madras North-west
Dr. Rajagopal K. (CE)	-	Lifetime Achievement Award, Central Board of Irrigation and Power, New Delhi
Dr. Raghukanth S.T.G. (CE)	_	Young Faculty Recognition Award, IIT Madras
Dr. Subhadeep Banerjee (CE)	_	A.S. Arya Young Earthquake Engineer Award, IIT Roorkee
Dr. Veeraraghavan A. (CE)	_	IITMAA Award, IIT Madras Alumni Association
Dr. Arun K. Tangirala (CH)	-	August-Wilhelm Scheer Visiting Professorship, Technical University of Munich, Germany
Dr. Vinu R. (CH)	_	Young Faculty Recognition Award, IIT Madras
Dr. Aritra Hazra (CS)	_	ACM India Best Doctoral Dissertation Award
	-	TechnoInventor (PhD) Award, Indian Electronics and Semiconductor Association (IESA)
Dr. Chandra Sekhar C. (CS)	-	Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching, IIT Madras
Dr. Anbarasan P. (CY)	_	Junior-Level Research and Development Award, IIT Madras
Dr. Indrapal Singh Aidhen (CY)	_	Prof. S. Swaminathan Endowment Award, University of Madras
Dr. Selvam P. (CY)	_	Rev. Fr. Yeddanapalli Memorial Endowment Award, Loyola College
Dr. Ashok Jhunjhunwala (EE)	_	Eminent Engineer Award, Engineering Council of India
Dr. Bhaskar Ramamurthi (EE)	_	ACCS-CDAC Foundation Award
Dr. Boby George (EE)	_	Junior-Level Research and Development Award, IIT Madras
Dr. Mahesh Kumar (EE)	_	IETE—Bimal Bose Award
Dr. Mohanasankar Sivaprakasam (EE)	_	INAE Young Engineer Award
Dr. Nitin Chandrachoodan (EE), Dr. Anil Prabhakar (EE), Mr. Jayavel D., Dr. T. Pradeep	-	Nina Saxena Excellence in Technology Award, IIT Kharagpur

Dr. Shanthi Pavan (EE)	-	Mid-Career Research and Development Award, IIT Madras
Dr. Muraleedharan V.R. (HS)	-	Certificate of Honour, Government of Tamil Nadu
Dr. Sabuj Kumar Mandal (HS)	_	Prof. M.J. Manohar Rao Young Researcher Award, The Indian Econometric Society
Dr. Arvind Pattamatta (ME)	-	INAE Young Engineer Award
Dr. Chandramouli P. (ME)	_	Thomas French Achievement Award, The Ohio State University
Dr. Ratna Kumar Annabattula V.V.S.D. (ME)	-	Young Faculty Recognition Award, IIT Madras
Dr. Murty B.S. (MM)	_	Lifetime Achievement Research & Development Award, IIT Madras
	_	G.D. Birla Gold Medal, Indian Institute of Metals, Kolkata
Dr. Srinivasa Rao Bakshi (MM)	-	Junior-Level Research and Development Award, IIT Madras
Dr. Jitendra Sangwai (OE)	_	National Award for Technology Innovation in the field of Petrochemicals and Downstream Plastic Processing Industry
Dr. Nilanjan Saha (OE)	-	Prof. S.N. Gupta Award, Indian Society of Hydraulics
Dr. Vendhan C.P. (OE)*	-	National Award in the field of Ocean Science and Technology, Ministry of Earth Sciences, GoI
Dr. Ashwin Joy (PH)	-	Parvez Guzdar Young Scientist Award, Institute for Plasma Research
Dr. Ramaprabhu S. (PH)	-	Thomson Reuters Research Excellence-India Citation Award
*Retired Faculty		
Fellowships		
Dr. Amal Kanti Bera (BT)	_	Indian Council of Medical Research International Fellowship
Dr. Rama Shanker Verma (BT)	_	Fellow, Biotech Research Society, India (BRSI)
Dr. Sachin S. Gunthe (CE)	_	Fulbright-Nehru Research and Professional Excellence Fellowship
Dr. Krishna Moorthy Sivalingam (CS)	_	Fellow, Indian National Academy of Engineering
Dr. Siva Ram Murthy (CS)	-	J.C. Bose Fellowship, Department of Science and Technology
Dr. Pradeep T. (CY)	_	Fellow, Indian National Science Academy
	_	Fellow, National Academy of Sciences
Dr. Ashok Jhunjhunwala (EE)	-	J.C. Bose Fellowship, Department of Science and Technology
Dr. Murty B.S. (MM)	-	Fellow, Indian Institute of Metals
Dr. Somnath Bhattacharyya (MM)	_	Andalusia Talent Hub Fellowship, Spain
Dr. Rajendran C. (MS)	_	Alexander von Humboldt Fellowship
Dr. Somnath Chanda Roy (PH)	-	Bhaskara Advanced Solar Energy (BASE) Fellowship, Department of Science and Technology and Indo-US Science and Technology Forum
Dr. Sunil Kumar P.B. (PH)	-	Fellow, Indian Academy of Sciences
Books and Monographs		
Dr. Mukesh Doble (BT)	-	Probiotics and Bioactive Carbohydrates in Colon Cancer Management, Springer India
Maya Raman	-	Probiotics and Bioactive Carbohydrates in Colon Cancer Management, Springer India
Padma Ambalam	-	Probiotics and Bioactive Carbohydrates in Colon Cancer Management, Springer India
Dr. Mukesh Doble (BT)	-	Principles of Downstream Techniques in Biological and Chemical Processes, Academic Press
Dr. Rama Shanker Verma (BT)	-	Resistance to Immunotoxins in Cancer Therapy, Springer
Dr. Panda T. (CH)	-	Statistical Optimization of Biological Systems, CRC Press, Taylor & Francis Group, FL, USA
R. Arun Kumar	-	Statistical Optimization of Biological Systems, CRC Press, Taylor & Francis Group, FL, USA
Thomas Theodore	-	Statistical Optimization of Biological Systems, CRC Press, Taylor & Francis Group, FL, USA

Dr. Vijayaraghavan K. (CH)	_	Biosorption of Metals: A Complete Handbook, Vinanie Publishers
Dr. Sridharan K. (EE)	-	Design of Arithmetic Circuits in Quantum Dot Cellular Automata Nanotechnology, Springer Verlag
Vikramkumar Pudi	_	Design of Arithmetic Circuits in Quantum Dot Cellular Automata Nanotechnology, Springer Verlag
Dr. Satya Sundar Sethy (HS)	_	Meaning and Language, DK Printworld Publication, New Delhi
Dr. Srilata K. (HS)	_	Bookmarking the Oasis, Poetrywala, Mumbai
Dr. Subash S. (HS)	_	Positive Traits for College Students, Mainspring Publishers, Chennai
Dr. Rajesh Raj S.N.	_	Positive Traits for College Students, Mainspring Publishers, Chennai
Dr. Srinivasa Reddy K. (ME)	_	Sustainable Energy and the Environment: A Clean Technology Approach, Capital Publishing Company and Springer
Dr. Prathap Haridoss (MM)	_	Physics of Materials: Essential Concepts of Solid-State Physics, Wiley
Dr. Kamaraj M. (MM)	_	Basics of Surface Technology, New Age International Publishers
Dr. Radhakrishnan V.M.*	_	Basics of Surface Technology, New Age International Publishers
Dr. Srinivasan Chandrasekaran (Ol	E) –	Advanced Marine Structures, CRC Press (Taylor & Francis)
	_	Offshore Structural Engineering: Reliability and Risk Assessment, CRC Press, Taylor & Francis
Dr. Sundar V. (OE)	_	Ocean Wave Mechanics: Applications in Marine Structures, Ane Books and Wiley
Dr. Neelima M. Gupte (PH)	_	Perspectives in Nonlinear Dynamics, Indian Academy of Sciences, Bengaluru
Dr. Prabha Mandayam (PH)	_	The Functional Analysis of Quantum Information Theory, Springer Lecture Notes in Physics
Dr. Vijayan C. (PH)	_	Modified Photonic Processes in Dielectric-Plasmonic Random Media, Lambert Academic Publishing
*Retired Faculty		
Editorial Board Memberships		
Dr. Chakravarthy S.R. (AE)	_	Member, Editorial Board, Progress in Energy and Combustion Science
Dr. Ramesh K. (AM)	-	Guest Editor, Digital Photoelasticity: Advancements and Applications, Journal of Optical Engineering
Dr. Sachin S. Gunthe (CE)	_	Co-editor, Journal of Atmospheric Chemistry and Physics (ACP)
Dr. Baskaran S. (CY)	_	Associate Editor, Journal of Chemical Sciences
Dr. Boby George (EE)	_	Associate Editor, IEEE Sensors Journal
Dr. Rajagopalan A.N. (EE)	_	Senior Area Editor, IEEE Transactions on Image Processing
Dr. Sarathi R. (EE)	_	Associate Editor, IET-Generation Transmission & Distribution
Dr. Joe Thomas Karackattu (HS)	_	Editor, H-Asia
Dr. Prabhu Rajagopal (ME)	-	Member, Editorial and Review Board, Journal of Non-Destructive Testing and Evaluation (JNDE)
Dr. Raghu Prakash V. (ME)	_	Editor-in-Chief, Journal of Structural Longevity (SL)
Dr. Sundarraj R.P. (MS)	_	Associate Editor, Group Decision and Negotiation (GDN) Journal
Dr. Rajiv Sharma (OE)	-	Member, Editorial Board, Advances in Computation Design
Student Scholarships/Fellowship	s	
Alekhya R. (CH)	_	Aditya Birla Scholarship
17. 11 'D' 1 (CC)		A.P. Did C.I. I.

Viswanadhuni Dinesh (CS) — Aditya Birla Scholarship

Vishal Mohanty (CS) — Aditya Birla Scholarship

Sukruth Somappa (AE) — DAAD Working Internships in Science and Engineering (WISE) Programme Scholarship

Harish Venkatachalapathy (CH) — DAAD WISE Programme Scholarship

Aayush Maloo (ED)

Aayush Moo (ED)

DAAD WISE Programme Scholarship

DAAD WISE Programme Scholarship

DAAD WISE Programme Scholarship

DAAD WISE Programme Scholarship

George Francis (ED)	-	DAAD WISE Programme Scholarship
Abhishek Goud Pandala (ME)	-	DAAD WISE Programme Scholarship
Balasaravanan Thoravi Kumaravel (ME)	_	DAAD WISE Programme Scholarship
Dhawal Rajendra Thakare (ME)	_	DAAD WISE Programme Scholarship
Sreedath Panat (ME)	_	DAAD WISE Programme Scholarship
Rama Srinivas Varanasi (MM)	_	DAAD WISE Programme Scholarship
Muhammadali P.K. (HS)	_	Fulbright-Nehru Visiting Student Fellowship
Veena Mani	_	Fulbright-Nehru Visiting Student Fellowship
Visakh M.S. (HS)	_	Fulbright-Nehru Visiting Student Fellowship
Sahila Begum (CE)	_	Fulbright-Nehru Doctoral Research Fellowship Programme
Best Paper/Poster Awards		
Ramesh Bojja (AM)	-	Second Prize for Best Paper, Indian National Conference on Applied Mechanics (INCAM-2015)
Vivekanandan A.	-	Second Prize for Best Paper, INCAM-2015
Dr. Ramesh K.	-	Second Prize for Best Paper, INCAM-2015
Vivek Ramakrishnan (AM)	-	Third Prize for Best Paper, INCAM-2015
Dr. Ramesh K.	-	Third Prize for Best Paper, INCAM-2015
Aparajitha Srinivasan (BT)	-	Springer Prize for Best Poster, Second International Conference on Natural Products Utilization: From Plants to Pharmacy Shelf
Dr. Smita Srivastava	-	Springer Prize for Best Poster, Second International Conference on Natural Products Utilization: From Plants to Pharmacy Shelf
Dr. Karthik Raman	-	Springer Prize for Best Poster, Second International Conference on Natural Products Utilization: From Plants to Pharmacy Shelf
Ms Chithra V.S.		Rekha Nandi and Bhupesh Nandi Prize for Best Paper, The Institution of Engineers (India)
Dr. Shiva Nagendra S.M. (CE)	-	Rekha Nandi and Bhupesh Nandi Prize for Best Paper, The Institution of Engineers (India)
Nagesh H.E. (CE)	-	Best Paper by Young Investigator Award, Ninth International Conference on Fracture Mechanics and Concrete Structures (FraMCoS-9)
Dr. Appa Rao G.	_	Best Paper by Young Investigator Award, FraMCoS-9
Srijith Balakrishnan (CE)		Best Paper Award, Recent Trends and Challenges in Civil Engineering (RTCCE-2014)
Dr. Sivanandan R.	_	Best Paper Award, RTCCE-2014
Subramaniam P. (CE)	-	IGS—Dr. Shamsher Prakash Biennial Award for Best Paper, Indian Geotechnical Society
Dr. Subhadeep Banerjee	_	IGS – Dr. Shamsher Prakash Biennial Award for Best Paper, Indian Geotechnical Society
Aswathy E.V. (CE)	_	Best Paper Award, 19th National Space Science Symposium
Dr. Sachin S. Gunthe	_	Best Paper Award, 19th National Space Science Symposium
Sanjay Radhakrishnan (CE)	_	Best Paper Award, 18th Euro Working Group on Transportation (EWGT 2015)
Dr. Gitakrishnan Ramadurai	_	Best Paper Award, EWGT 2015
Saurabh Mohanrao Kalikar (CS)	_	Distinguished Paper Award, 21st ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP) 2016
Dr. Rupesh Nasre	_	Distinguished Paper Award, 21st ACM SIGPLAN Symposium on PPoPP 2016
Mr. Sanjeeb Sutradhar (CY)	_	Best Poster Prize, MRSI – North East Symposium
Dr. Archita Patnaik	_	Best Poster Prize, MRSI—North East Symposium
Gyanendra Sharma (CY)	-	First Prize for Best Poster, 10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems

Dharmendra Singh	_	First Prize for Best Poster, 10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems
Dr. Ramesh Gardas	_	First Prize for Best Poster, 10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems
Ramya Kannan (CY)	_	Merit Award for Best Poster, 10th World Biomaterials Congress
Dr. Edamana Prasad	_	Merit Award for Best Poster, 10th World Biomaterials Congress
Dr. Vignesh Muthuvijayan (BT)	_	Merit Award for Best Poster, 10th World Biomaterials Congress
Bushra Alam (CY)	_	Second Prize for Best Poster, 19th National Convention of Electrochemists (NCE-19)
Dr. Kothandaraman Ramanujam	-	Second Prize for Best Poster, NCE-19
Vikram Singh (CY)	-	Best Poster Award, 13th Symposium on Radiation & Photochemistry (TSRP-2016)
Dr. Mishra A.K.	-	Best Poster Award, TSRP-2016
Vani Damodaran (ED)	-	Best Poster Award, IEEE Workshop on Recent Advances in Photonics (IEEE WRAP-2015)
Dr. Nilesh J. Vasa	_	Best Poster Award, IEEE WRAP-2015
Aravind B. (ED)	-	Best Student Paper Award, Second International and 17th National Conference on Machines and Mechanisms (iNaCoMM-2015)
Dr. Saravana Kumar G.	-	Best Student Paper Award, iNaCoMM-2015
Dr. Sandipan Bandyopadhyay	_	Best Student Paper Award, iNaCoMM-2015
Vijaykumar Sreenath (EE)	-	Second Place for Best Paper, IEEE International Instrumentation and Measurement Technology Conference (IEEE I2MTC2016)
Semeerali K.	-	Second Place for Best Paper, IEEE I2MTC2016
Dr. Boby George	_	Second Place for Best Paper, IEEE I2MTC2016
Priyadarshini M. (EE)	_	Second Place for Best Poster, International Conference on Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors
Dr. Nandita Das Gupta	-	Second Place for Best Poster, International Conference on Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors
Dr. Ramachandra Rao M.S. (PH)	-	Second Place for Best Poster, International Conference on Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors
Anvar A. (EE)	-	Best Poster Award, International Workshop on Physics of Semiconductor Devices 2015 (IWPSD-2015)
Dr. Karmalkar S.	-	Best Poster Award, IWPSD-2015
Srinivas Pachava (EE)	_	Best Poster Prize, IEEE Workshop on Advances in Photonics (WRAP)
Pidishety Shankar	_	Best Poster Prize, WRAP
Dr. Balaji Srinivasan	_	Best Poster Prize, WRAP
Balasuyambu J. (MA)	-	Excellent Paper Award, Ninth International Collaboration Symposium on Information, Production and System (ISIPS 2015)
Dr. R. Rama	_	Excellent Paper Award, ISIPS 2015
Dr. R. Radha	-	Excellent Paper Award, ISIPS 2015
Sharad Dwivedi (MA)	-	Best Paper Award, International Conference on Computational Heat and Mass Transfer (ICCHMT-2015)
Dr. Shruti Dubey	_	Best Paper Award, ICCHMT-2015
Priyadarshan P. (ME)	-	Best Paper Award, ICOVP 2015
Dr. Abhijit Sarkar	-	Best Paper Award, ICOVP 2015
Madhavan S. (ME)	-	Best Paper Award, Second International conference on Advances in Cutting, Welding and Surfacing (CWS-2015)
Dr. Vijayaraghavan L.	-	Best Paper Award, CWS-2015
Dr. Kamaraj M. (MM)	-	Best Paper Award, CWS-2015
Karthikeyan S. (ME)	-	Best Paper Award, International Conference on Material Sciences (ICOMS 2015)
Dr. Vijayaraghavan L.	_	Best Paper Award, ICOMS 2015

Aneesh Prabhakar (ME) Best Poster Award, International Workshop on NPPs: Safety and Sustainability (CANSAS 2015 and NHNRTHS 2015) Dr. Raghavan V. Best Poster Award, CANSAS 2015 and NHNRTHS 2015 Dr. Sarit K. Das Best Poster Award, CANSAS 2015 and NHNRTHS 2015 Amireddy Kiran Kumar (ME) Best Poster Award, 25th National Conference and Seminar on Nondestructive Evaluation (NDE 2015) Dr. Prabhu Rajagopal Best Poster Award, NDE 2015 Dr. Krishnan Balasubramanian Best Poster Award, NDE 2015 Kulkarni Atul Shankar (ME) Best Paper Award, ICOVP-2015 Dr. Manoj Pandey Best Paper Award, ICOVP-2015 Best Poster Award, The Indian Institute of Metals, 53rd National Metallurgists' Karthick G.M. (MM) Day-69th Annual Technical Meeting (NMD-ATM 2015) Dr. Janaki Ram G.D. Best Poster Award, NMD-ATM 2015 Best Research Paper Award, International Conference on Human Resource Pavithra Sampath (MS) Management and Professional Development in the Digital Age (HRM&PD 2015) Best Research Paper Award, HRM&PD 2015 Dr. Rupashree Baral Momin Azaruddin S. (OE) Best Paper Award, International Conference on Emerging Trends in Engineering and Management (ICETEM 16) Dr. Anantha Subramanian V. Best Paper Award, ICETEM 16 Sonal Dubey (OE) Best Paper Award, National Conference on Recent Advances in Materials and Manufacturing (RAMM-2015) Dr. Rajiv Sharma Best Paper Award, RAMM-2015 Dr. Bhattacharva S.K. Best Paper Award, RAMM-2015 Ashok P.S. (PH) Third Best Poster Award, International Conference on Nanostructured Polymeric Materials and Polymer Nanocomposites (ICNPM-2015) Third Best Poster Award, ICNPM-2015 Dr. Ramaprabhu S. Shaina P.R. (PH) Second Prize for Best Poster, Oxford Instruments Seminar Dr. Manu Jaiswal Second Prize for Best Poster, Oxford Instruments Seminar Yalavarthi Rambabu (PH) Best Paper Award, International Conference on Recent Advances in Nano Science and Technology (RAINSAT-2015) Best Paper Award, RAINSAT-2015 Dr. Manu Jaiswal Dr. Somnath C. Roy Best Paper Award, RAINSAT-2015 Lairenjam Pradipkanti Devi (PH) Best Poster Award, International Conference on Condensed Matter & Applied Physics (ICC-2015) Dr. Dillip K. Satapathy Best Poster Award, ICC-2015

Student Awards/Prizes in Competitions

Mannam Naga Praveen Babu (OE) – Gandhian Young Technological Innovation (GYTI) Award, Society for Research

and Initiatives for Sustainable Technologies and Institutions (SRISTI)

Prof. Krishnankutty P. – GYTI Award, SRISTI

Phani Madhavi (AM)–Pratibha–Eaton Excellence AwardShreesudha Bhaskara Mohan–Pratibha–Eaton Excellence AwardPriyadarshini M. (EE)–Pratibha–Eaton Excellence Award

Balaji Venkatesh (MS) – First Prize, Business Standard Best B School Project Award

Mrinal K.R. (OE)

- Runner-up, ANSYS Hall of Fame Competition

Dr. Abdus Samad

- Runner-up, ANSYS Hall of Fame Competition

Poojan Patel (CE); Pragadeesh M.; Rahul; Sakhare; Shubham Sarwade

University Thailand

Praneeth Srivanth (CH); Shantini B; Sai Pavan Abhishek Vinakollu; Prof.

Dhamodharan R. (CY)

- First Prize, Inter IIT Techspark Competition, Hindustan Unilever Limited

Villagers' Choice Award, Engineering Case Competition, Chulalongkorn

Amique Ukani (AE); Subarna S; Mohan Das (CH); Deeban Babu (CE); Dhiraj Jamdade; Vaibhav Patharkar; Anupam Chandra (ED); Narasimha Murthy; Avinash Arya (EE); Saikat Jana; Yash Sukhatme; Ram Shankar Y.A.P.; Srikanth Kotra; Nikhil K.; Pruthvi Chaithanya; Nitesh Kumar (ME); Raviteja T.V.; Utsav Bhardwaj	_	Lockheed Martin's C130 RO/RO Payload Design Challenge
Deeban Babu (CE); Dhruv Jain; Satya Jayadev P. (EE); Avinash Arya; Sindhu Sreedhara; Vishnu Narayanan S. (ME)	_	Second Place, Berkeley Innovation Awards, Vizag Smart City Challenge
Srikar K. (CE)	_	Third Place, Berkeley Innovation Awards, Vizag Smart City Challenge
Saurabh Kumar	-	Third Place, Berkeley Innovation Awards, Vizag Smart City Challenge
Srikirshna A.S. (AT)	-	First prize under the Manufacturing domain, IMPRINT National Essay Competition
Ankit Jain (ME)	-	First Prize under the Defence domain, IMPRINT National Essay Competition
Mahak Goindani (CS)	-	Second Prize under the Information and Communication Technology domain, IMPRINT National Essay Competition
Raghavendra Ajit (ED)	-	Third Prize under the Environment Science and Climate Change domain, IMPRINT National Essay Competition
Venkata Subrahmanyan G. (BT)	-	Third Prize, Young Innovators Challenge Awards 2015, 3M India and Confederation of Indian Industries (CII)
Nitish Kumar Singh	-	Third Prize, Young Innovators Challenge Awards 2015, 3M India and Confederation of Indian Industries (CII)
Mr. Sridhar G. (CE)	-	IGS—Mr. H.C. Verma Diamond Jubilee Award, Indian Geotechnical Society
Dr. Robinson R.G.	-	IGS—Mr. H.C. Verma Diamond Jubilee Award, Indian Geotechnical Society
Nagarajan R. (BT)	_	AU-CBT Excellence Award, Biotech Research Society
Dr. Michael M. Gromiha	-	AU-CBT Excellence Award, Biotech Research Society
Ashish Sharma (ME); Swostik Dash; Vivek Sarda; Dr. Sujatha Srinivasan	-	Second Place, Enable Makeathon
Akshesh Engineer (AE); Pratik Sutar; Sahil Gupta; Kishal Saxena (ED); Keerthan Shetty; Abhiram Y.; Shashwat Joshi; Mohit Patil (ME); Yalamanchi Kiran Kumar; Mohammad Aaquib; Karthik Nishanth; Vishwajeet Sikchi; Sooraj Narayan; Rishabh Kumar Rathore; Sunder Neelakantan; Shubham Ashta; Ashwin Kumar Sampath; Aishwary Gupta; Anshu Kumar Gupta; Johaan Chacko Mathew; Sai Yashwant Mummanani; Sirish S.; Sharan Raja; Rangeesh V.; Paul Martin; Akhil Kollu; Vishal Malavath; Kaushik Ram S.; Neelkamal Somishetty; Shivaram; Maheshvaran Karthikeyan; Muthukumar; Saurabh Urade; Vishnu N. (NA); Dr. Ramesh A. (ME)		Third Place, Formula Student India Car Racing Championship
Mahesh Ingole (AE); Sai Prakash (BT); Bikram Kumar Das (CH); Shivam Soni; Ujjal Kumar Dutta (CS); Karthik Pandia; Pradeep Kumar (ME); Kishor E	_	Runner's Trophy, Chennai District Weight Lifting Championship

Administration

2.1. General

The Indian Institute of Technology Madras (IIT Madras) is an autonomous statutory organization functioning within the Institutes of Technologies Act 1961, as amended by the Institute of Technology Amendment Act, 1963. The IITs (at Mumbai, Kanpur, Kharagpur, Delhi, Guwahati, Roorkee, Rupnagar, Bhubaneswar, Gandhinagar, Hyderabad, Patna, Rajasthan, Mandi, Indore and Varanasi (BHU), as well as Chennai) are administrated centrally by the Councils of IITs, an apex body established by the Government of India (GoI) to co-ordinate the activities of these institutes. The Minister for Human Resource Development, 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 look into 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 both facilities and standards. The Director of the institute is the Chairman of the Senate. The members of the Senate are listed in the Appendix. The Finance Committee provides financial advice. The Buildings and Works Committee advise 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 also provided in the Appendix.

2.2. Staff Position

As on 31 March 2016, 1219 faculty/staff members were in position.

Number of faculty/staff members in position

Faculty Members	Visiting Faculty	Group A Staff	Scientific Officers	Technical Staff	Administrative Staff
548	10	71	2	256	332

Number of faculty/staff members appointed during 2015-2016

Professors	Associate	Assistant	Visiting Faculty	Administrative and Technical Staff
	Professors	Professors	(Including Chair Professors)	(Including Group A)
18	24	18	11	45

- Two faculty and staff members resigned.
- Thirteen faculty and staff members retired from service.
- Four staff members expired while in service.
- Fifteen faculty and staff members were on long leave.

2.2.1. Faculty/Staff Members Appointed Between 1 April 2015 and 31 March 2016

Assistant Professors

Sl. No.	ID No.	Name	Department/Section	Date of Joining
1	8701	Satyanarayanan Seshadri	Applied Mechanics	29 December 2015
2	8684	Sumesh P. Thampi	Chemical	21 September 2015
3	8694	Kartik Chandra Mondal	Chemistry	30 November 2015
4	8699	Arnab Rit	Chemistry	15 December 2015
5	8681	Aritra Hazra	Computer Science	10 August 2015

Sl. No.	ID No.	Name	Department/Section	Date of Joining
6	8676	Hemachandran Karah	Humanities	22 March 2015
7	8678	SivaSrinivasu	Mechanical	28 June 2015
8	8683	Krithika Narayanaswamy	Mechanical	29 September 2015
9	8688	Kameswararao Anupindi	Mechanical	3 November 2015
10	8685	Upendra Kumar Maurya	Management Studies	28 September 2015
11	8679	Priyanka Shukla	Mathematics	1 June 2015
12	8700	Sriram Balasubramanian	Mathematics	28 December 2015
13	8680	Anoop Thazhe Veetil	Mathematics	10 August 2015
14	8686	Vaibhav Chawla	Management Studies	1 October 2015
15	8687	Sreeram Krishnamoorthy Kalpathy	Metallurgy	12 October 2015
16	8702	Murugaiyan Amirthalingam	Metallurgy	20 January 2016
17	8731	R. Vijaya Kumar	Ocean Engineering	3 February 2016
18	8690	Ashwin Joy	Physics	18 November 2015

Associate Professors

Sl. No.	ID No.	Name	Department/Section	Date of Joining
1	8609	Sarith P. Sathian	Applied Mechanics	24 July 2015
2	8653	Arun Kumar Thittai	Applied Mechanics	24 July 2015
3	8730	Vagesh D. Narasimhamurthy	Applied Mechanics	1 February 2016
4	8256	Amredra Vijay	Chemistry	24 July 2016
5	8452	Ramesh Gardus	Chemistry	24 July 2015
6	8355	Nandita Madhavan	Chemistry	24 July 2015
7	8276	Ashwin Mahalingam	Civil	24 July 2015
8	8335	T. Thyagaraj	Civil	24 July 2015
9	8501	Nandivada Venkata Krishna	Computer Science	24 July 2015
10	8428	Deepa Venkitesh	Electrical	24 July 2015
11	8429	Mohansankar Sivaprakasam	Electrical	24 July 2015
12	8454	Satya Sundar Sethy	Humanities	24 July 2015
13	8489	Subhas S.	Humanities	24 July 2015
14	8677	Ronald Wittje	Humanities	15 June 2015
15	8440	Arvind Pattamatta	Mechanical	24 July 2015
16	8257	Sounaka Mishra	Mathematics	24 July 2015
17	8217	Jayanthan A.V.	Mathematics	24 July 2015
18	8354	A.J. Shaiju	Mathematics	24 July 2015
19	8682	Somnath Bhattacharyya	Metallurgy	12 August 2015
20	8460	Nilanjan Saha	Ocean Engineering	24 July 2015
21	8455	Abdus Samad	Ocean Engineering	31 August 2015
22	8339	Prahallad Padhan	Physics	24 July 2015
23	8433	Sudhakar Chandran	Physics	24 July 2015
24	8466	Somnatha Chanda Roy	Physics	24 July 2015

Professors

Sl. No.	ID No.	Name	Department/Section	Date of Joining
1	8289	Nitish R. Mahapatra	Biotechnology	24 July 2015
2	8146	Gopala Krishna Ardhyam	Biotechnology	24 July 2015
3	8223	Sanjib Senapati	Biotechnology	24 July 2015
4	8220	Amal Kanti Bera	Biotechnology	24 July 2015

Sl. No.	ID No.	Name	Department/Section	Date of Joining
5	8218	Arun K. Tangirala	Chemical	24 July 2015
6	8175	J. Murali Krishnan	Civil	24 July 2015
7	8103	N.S. Narayanaswamy	Computer Science	24 July 2015
8	8311	Madhu Mutyam	Computer Science	24 July 2015
9	8172	T. Andrew Edwin Raj	Electrical	24 July 2015
10	8123	Srikrishna Bhashyam	Electrical	24 July 2015
11	8219	Jyotirmaya Tripathy	Humanities	24 July 2015
12	8226	Swarnalatha Rangarajan	Humanities	24 July 2015
13	8196	Gandham Phanikumar	Metallurgy	3 November 2015
14	8125	Narayanan Harish Kumar	Physics	24 July 2015
15	8140	Santhosh P.N.	Physics	24 July 2015
16	8479	L. Sriramkumar	Physics	24 July 2015
17	8286	G. Suresh Kumar	Ocean Engineering	24 July 2015
18	8258	R. Panneer Selvam	Ocean Engineering	24 July 2015

Visiting faculty

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
1	INSP-004	Jaikrishnan	INSPIRE Hosted Faculty	Mathematics	22 April 2015
2	VF-137	Dinesh Kant Kumar	Visiting Professor	Applied Mechanics	15 June 2015
3	VF-138	Jayakanthan R.	Visiting Professor	Engineering Design	1 July 2015
4	VF-139	Suresh K. Alahari	Visiting Professor	Biotechnology	1 July 2015
5	VF-140	Arvind Sivaramakrishnan	Visiting Professor	Humanities	3 August 2015
6	VF-142	Charles Joenathan	Visiting Professor	Physics	26 October 2015
7	VF-141	M. Senthil Murugan	Visiting Professor	Aerospace	19 October 2015
8	VF-143	N.D. Pradeep Singh	Visiting Associate Professor	Chemistry	18 January 2016
9	VF-144	Ignatius S.A. Bezzam	Visiting Professor	Electrical	11 January 2016
10	VF-145	S. Kesavan	Visiting Professor	Mathematics	1 February 2016
11	8741	Santanu Kumar Ray	Steel Chair Professor	Metallurgy	22 March 2016

Staff members

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
1	0570	S. Ravi	Assistant Registrar	Finance and Accounts	8 June 2015
2	8689	Naveen Menni	Junior Technical Superintendent	Chemistry	16 November 2015
3	8691	Senthil Nagarajan	Junior Technical Superintendent	Civil	23 November 2015
4	8692	R. Baskar	Junior Technical Superintendent	Chemistry	23 November 2015
5	8693	S. Sugirdha	Junior Technical Superintendent	Metallurgy	27 November 2015
6	8695	J. Balachandran	Junior Technical Superintendent	Mathematics	2 December 2015
7	8696	J. Maheshwara Reddy	Junior Technical Superintendent	Physics	2 December 2015
8	8697	D. Suresh	Junior Technical Superintendent	Physics	7 December 2015
9	8698	R. Srividhya	Junior Technical Superintendent	Biotechnology	10 December 2015
10	8703	P. Jayakumar	Junior Technician	Ocean Engineering	21 January 2016
11	8704	Shivasharanappa	Junior Technician	Engineering Unit	21 January 2016
12	8705	Nallabothula Sarveshnadh	Junior Technician	Engineering Unit	21 January 2016
13	8706	K. Rajesh	Junior Technician	Metallurgy	21 January 2016
14	8707	Dileesh	Junior Technician	Applied Mechanics	21 January 2016
15	8708	A. Jagadesh	Junior Technician	Aerospace	21 January 2016

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
16	8709	B. Rajaganapathy	Junior Technician	Mechanical	21 January 2016
17	8710	S. Murali	Junior Technician	Mechanical	21 January 2016
18	8711	S. Rajasekar	Junior Technician	Engineering Unit	21 January 2016
19	8712	P. Viswanathan	Junior Technician	Engineering Unit	21 January 2016
20	8713	Duraimurugan	Junior Technician	Physics	21 January 2016
21	8714	W. Prince Anantha Raj	Junior Technician	Civil	21 January 2016
22	8715	Saikat Mitra	Junior Technician	Engineering Unit	21 January 2016
23	8716	A. Muthukumar	Junior Technician	Metallurgy	21 January 2016
24	8717	S. Sathies Kumar	Junior Technician	Civil	21 January 2016
25	8718	P. Chiranjeevi	Junior Technician	Chemistry	21 January 2016
26	8719	M. Senthurkumar	Junior Technician	Engineering Unit	21 January 2016
27	8720	D. Dhanalakshmi	Junior Technician	Electrical	21 January 2016
28	8721	L. Sivaganesh	Junior Technician	Physics	21 January 2016
29	8722	G. Sudha	Junior Technician	Aerospace	21 January 2016
30	8723	V. Vijayabalan	Junior Technician	Engineering Design	21 January 2016
31	8724	D. Kalaivani	Junior Technician	Civil	22 January 2016
32	8725	G. Venkateswaran	Junior Technician	Electrical	22 January 2016
33	8726	Sodumu Ravikanth Reddy	Junior Technician	Engineering Unit	22 January 2016
34	8727	P. Thiruppathi	Junior Technician	SAIF	27 January 2016
35	8728	N. Ranjith Kumar	Junior Technician	Chemical	29 January 2016
36	8729	Mohamed Mydeen	Junior Technician	Mechanical	29 January 2016
37	8732	R. Prabhakaran	Junior Technician	Mechanical	3 February 2016
38	8733	M. Sasi Rekha	Junior Technician	Biotechnology	8 February 2016
39	8734	R. Venkatesan	Junior Technician	Civil	8 February 2016
40	8735	Velavan	Junior Technician	Engineering Unit	25 February 2016
41	8736	K.P. Karthik	Junior Technician	Applied Mechanics	1 March 2016
42	8738	A. Sundaresan	Junior Technician	Computer Science	15 March 2016
43	8742	Gunam	Junior Cook	Bose–Einstein Guest House	28 March 2016
44	8743	N. Vasanthi	Junior Attendant	Engineering Design	28 March 2016
45	8744	M. Dhanalakshmi	Junior Attendant	Computer Science	29 March 2016

Faculty/staff members promoted/appointed during the period from April 2015 to March 2016

Sl. No.	Name	Designation	Department/Section	Date of Joining
1	P. Kannan	Assistant Registrar	Administration I	1 April 2015
2	K. Saravanan	Assistant Librarian	Central Library	10 April 2015
3	G. Kumar	Assistant Librarian	Central Library	13 April 2015
4	P. Sarvaharana	Assistant Registrar	IC&SR	1 May 2015
5	Sarith P. Sathian	Associate Professor	Applied Mechanics	24 July 2015
6	Arun Kumar Thittai	Associate Professor	Applied Mechanics	24 July 2015
7	Nitish R. Mahapatra	Professor	Biotechnology	24 July 2015
8	Gopala Krishna Aradhyam	Professor	Biotechnology	24 July 2015
9	Amal Kanti Bera	Professor	Biotechnology	24 July 2015
10	Sanjib Senapati	Professor	Biotechnology	24 July 2015
11	Arun Tangirala	Professor	Chemical	24 July 2015
12	Amrendra Vijay	Associate Professor	Chemistry	24 July 2015
13	Ramesh Gardas	Associate Professor	Chemistry	24 July 2015

Sl. No.	Name	Designation	Department/Section	Date of Joining
14	Nandita Madhavan	Associate Professor	Chemistry	24 July 2015
15	T. Thyagaraj	Associate Professor	Civil	24 July 2015
16	Ashwin Mahalingam	Associate Professor	Civil	24 July 2015
17	J. Murali Krishnan	Professor	Civil	24 July 2015
18	Nandivada Venkata Krishna	Associate Professor	Computer Science	24 July 2015
19	N.S. Narayanaswamy	Professor	Computer Science	24 July 2015
20	Madhu Mutyam	Professor	Computer Science	24 July 2015
21	Deepa Venkitesh	Associate Professor	Electrical	24 July 2015
22	Mohansankar Sivaprakasam	Associate Professor	Electrical	24 July 2015
23	T. Andrew Edwin Raj	Professor	Electrical	24 July 2015
24	Srikrishna Bhashyam	Professor	Electrical	24 July 2015
25	Satya Sundar Sethy	Associate Professor	Humanities	24 July 2015
26	Subash S.	Associate Professor	Humanities	24 July 2015
27	Jyotirmaya Tripathy	Professor	Humanities	24 July 2015
28	Swarnalatha Rangarajan	Professor	Humanities	24 July 2015
29	Prahallad Padhan	Associate Professor	Physics	24 July 2015
30	Somnath Chanda Roy	Associate Professor	Physics	24 July 2015
31	Sudakar Chandran	Associate Professor	Physics	24 July 2015
32	Narayanan Harish Kumar	Professor	Physics	24 July 2015
33	Santhosh P.N.	Professor	Physics	24 July 2015
34	L. Sriramkumar	Professor	Physics	24 July 2015
35	Sounaka Mishra	Associate Professor	Mathematics	24 July 2015
36	Jayanthan A.V.	Associate Professor	Mathematics	24 July 2015
37	A.J. Shaiju	Associate Professor	Mathematics	24 July 2015
38	Arvind Pattamatta	Associate Professor	Mechanical	24 July 2015
39	Abdus Samad	Associate Professor	Ocean Engineering	24 July 2015
40	Nilanjan Saha	Associate Professor	Ocean Engineering	24 July 2015
41	Suresh Kumar	Professor	Ocean Engineering	24 July 2015
42	R. Panneer Selvam	Professor	Ocean	24 July 2015
43	Anil Kumar Meena	Assistant Professor	Mechanical	24 July 2015
44	T. Raj Kumar	Technical Officer	Chemical	24 July 2015
45	D. Kanchanamala	Technical Officer	Metallurgy	24 July 2015
46	Aslam Basha	Technical Officer	Biotechnology	24 July 2015
47	G. Murali	Technical Officer	Mechanical	24 July 2015
48	Soundarapandian	Technical Officer	Civil	24 July 2015
49	Meenashi	Technical Officer	Management Studies	24 July 2015
50	Radhakrishnan	Technical Officer	Metallurgy	24 July 2015
51	R. Pazhanivel	Technical Superintendent	Central Workshop	8 September 2015
52	R. Thiruppathi	Technical Superintendent	Central Workshop	8 September 2015
53	G. Saravanan	Technical Superintendent	Central Electronics Centre	8 September 2015
54	N. Arumugam	Technical Superintendent	Biotechnology	8 September 2015
55	D. Sasikumar	Senior Technician	Humanities	8 September 2015
56	M. Sivakumar	Senior Technician	Engineering Unit	8 September 2015
57	D. Muthurajan	Senior Technician	Central Workshop	8 September 2015
58	R. Mehanathan	Senior Technician	Central Workshop	8 September 2015
59	M. Prabu	Senior Technician	Ocean Engineering	8 September 2015

Sl. No.	Name	Designation	Department/Section	Date of Joining
60	N. Giri	Senior Technician	Mechanical	8 September 2015
61	Chellapandian	Senior Technician	Central Workshop	8 September 2015
62	T. Chandranath	Senior Technician	Central Workshop	8 September 2015
63	Vijayasree	Senior Technician	Mechanical	8 September 2015
64	K. Chinnaraj	Assistant Security Officer	Security Section	23 September 2015
65	Kulandai Velu Manoharan	Assistant Security Officer	Security Section	23 September 2015
66	N. Vidya	Junior Superintendent	Administration	25 September 2015
67	S. Hemalatha	Junior Superintendent	Electrical	25 September 2015
68	G. Phani Kumar	Professor	Metallurg	3 November 2015
69	P. Raju	Senior Sub-inspector	Security Section	12 November 2015
70	G. Antony Lawrance	Senior Sub-inspector	Security Section	12 November 2015
71	K. Jayakumar	Senior Sub-inspector	Security Section	12 November 2015
72	T. Veldhas	Senior Sub-inspector	Security Section	12 November 2015
73	T. Seliyan	Senior Sub-inspector	Security Section	12 November 2015
74	V. Perumal	Senior Sub-inspector	Security Section	12 November 2015
75	K. Arumugam	Senior Sub-inspector	Security Section	12 November 2015
76	Simon	Senior Sub-inspector	Security Section	12 November 2015
77	K. Jayavelu	Senior Sub-inspector	Security Section	12 November 2015
78	C. Mohan	Senior Sub-inspector	Security Section	13 November 2015
79	B. Ashok Kumar	Junior Technical Superintendent	Engineering Design	5 November 2015
80	V. Rekha	Junior Technical Superintendent	Electrical	6 November 2015
81	D. Jayavel	Junior Technical Superintendent	Electrical	6 November 2015
82	C.K. Gopalakrishnan	Junior Technical Superintendent	Mechanical	6 November 2015
83	R. Jayaganesh	Junior Technical Superintendent	Computer Science	27 November 2015
84	S. Rukmani	Senior Attendant	Applied Mechanics	26 November 2015
85	N. Rajabather	Senior Attendant	Applied Mechanics	26 November 2015
86	M. Elumalai	Senior Attendant	Office of Dean Students	26 November 2015
87	R. Muralidharan	Superintendent	Director's Office	23 December 2015
88	C. Malini	Superintendent	Finance and Accounts	28 December 2015
89	Vijayalatha M.	Superintendent	I & A, ICSR	23 December 2015
90	R. Sivagami	Superintendent	Applied	23 December 2015
91	N. Geetha	Senior Assistant	Engineering Unit	23 December 2015
92	C. Syam Kumar	Senior Assistant	Administration	23 December 2015
93	P. Rajendran	Senior Assistant	Academic	23 December 2015
94	N. Mohan	Senior Assistant	Academic	23 December 2015
95	M. Thilakar Gandhi	Senior Assistant	Internal Audi	23 December 2015
96	T. Subramani	Senior Assistant	GATE Office	23 December 2015
97	G. Manickam	Senior Assistant	Engineering Unit	23 December 2015
98	P. Govindaraju	Senior Assistant	Computer Science	23 December 2015
99	A. Chellapriya	Senior Assistant	IC&SR	23 December 2015
100	S. Padmini	Senior Assistant	Civil	23 December 2015
101	N. Govindaraj	Senior Assistant	Academic	23 December 2015
102	C. Rajendran	Senior Assistant	GATE Office	23 December 2015
103	A. Sethuraman	Senior Assistant	Electrical	23 December 2015
104	N. Mohan	Senior Assistant	Academic	23 December 2015
105	M.R. Nirmala	Junior Superintendent	Office of the Registrar	23 December 2015

Sl. No.	Name	Designation	Department/Section	Date of Joining
106	Nirmala Jeyalakshmi	Junior Superintendent	IC&SR	23 December 2015
107	P. Ramasami	Junior Superintendent	Administration	23 December 2015
108	G. Mani	Junior Superintendent	Academic	23 December 2015
109	R. Baskaran	Sub-inspector Grade I	Security Section	23 December 2015
110	R. Raghavan	Sub-inspector Grade I	Security Section	23 December 2015
111	N. Karthikeyan	Sub-inspector Grade I	Security Section	23 December 2015
112	V. Suresh Babu	Sub-inspector Grade I	Security Section	23 December 2015
113	R. Antony	Sub-inspector Grade I	Security Section	23 December 2015
114	Edward Chakkaravarthy	Sub-inspector Grade I	Security Section	23 December 2015
115	D. Sivasankaran	Sub-inspector Grade I	Security Section	23 December 2015
116	J. Johnson	Sub-inspector Grade I	Security Section	23 December 2015
117	T. John Bright	Sub-inspector Grade I	Security Section	23 December 2015
118	T. Kumaresan	Sub-inspector Grade I	Security Section	23 December 2015
119	V. Anbazhagan	Sub-inspector Grade I	Security Section	23 December 2015
120	K. Thirupal	Sub-inspector Grade I	Security Section	23 December 2015
121	Swamy Subramaniyam	Sub-inspector Grade I	Security Section	23 December 2015
122	M. Muruganandham	Senior Technician (Library)	Central Library	23 December 2015
123	S. Muthumari	Technical Superintendent (Library)	Central Library	23 December 2015
124	M. Ramani	Technical Superintendent (Library)	Central Library	23 December 2015
125	P. Hariharan	Technical Superintendent	Central Workshop	29 December 2015
126	K. Kumar	Technical Superintendent	Central Workshop	29 December 2015
127	J.A. Suresh	Technical Superintendent	Engineering Design	29 December 2015
128	V. Udhaya Banu	Technical Superintendent	Physics	29 December 2015
129	A. Pugazhenthi	Technical Superintendent	Civil	29 December 2015
130	P. Dilli Babu	Technical Superintendent	Central Workshop	29 December 2015
131	P. Vasanthi	Junior Technical Superintendent	Aerospace	29 December 2015
132	R. Palanivelu	Junior Technical Superintendent	Chemical	29 December 2015
133	P. Senthilkumar	Junior Technical Superintendent	Central Workshop	29 December 2015
134	V. Janarthanam	Junior Technical Superintendent	Physics	29 December 2015
135	R. Murali	Junior Technical Superintendent	Civil	29 December 2015
136	C. Thiagarajan	Junior Technical Superintendent	Physics	29 December 2015
137	N. Thirunavokarasu	Junior Technical Superintendent	Metallurgy	29 December 2015
138	R. Sivakumar	Senior Technician	Physics	29 December 2015
139	G. Veeramani	Senior Technician	Central Workshop	29 December 2015
140	J. Prakash	Senior Technician	Electrical	29 December 2015
141	E. Arun	Senior Technician	Finance and Accounts	29 December 2015
142	V. Selvaraj	Senior Technician	Engineering Unit	29 December 2015
143	A. Kirubainathan	Senior Technician	Central Electronics Centre	29 December 2015
144	Mahendra N. Jadhav	Librarian	Central Library	31 March 2016
145	N. Elumalai	Chief Security Officer	Security Section	31 March 2016
146	T. Ramakrishnan	Assistant Librarian	Central Library	31 March 2016

Faculty/staff members who resigned/were relieved

Sl. No.	Name	Designation	Department	Date of Relief
1	Shankar Balachandran	Associate Professor	Computer Science	12 February 2016
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Faculty/staff members who retired between 1 Ap	oril 2015 and 31 March 2016
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Sl. No.	Name	Designation	Department	Date of Retirement
1	G. Kumar	Assistant Librarian	Central Library	30 April 2015
2	J. Edwin	Assistant Registrar	Recruitment Section	31 May 2015
3	P.V. Subrahmanyam	Professor	Mathematics	30 June 2015
4	Paramanand Singh	Professor	Metallurgy	30 June 2015
5	M.M. Mayuram	Professor	Mechanical	30 June 2015
6	G. Ravichandran	Assistant Registrar	Academic	31 July 2015
7	P. Kannan	Assistant Registrar	Administration	31 August 2015
8	Mukesh Doble	Professor	Biotechnology	30 September 2015
9	P.C. Deshmukh	Professor	Physics	30 September 2015
10	A.R. Balakrishnan	Professor	Chemical	31 October 2015
11	M.N. Sudheendra Rao	Professor	Chemistry	31 December 2015
12	S. Sambasivam	Deputy Registrar	Finance and Accounts	1 February 2016 (FN) (voluntary retirement)
13	R. Arumugam	Superintending Engineer	Engineering Unit	29 February 2016

Faculty/staff members who expired in service

Sl. No.	ID No.	Name	Designation	Department	Date
1	0573	J. Sigamani	Attendant	Biotechnology	6 July 2015
2	0873	J. Nandagopal	Attendant	Computer Centre	24 July 2015
3	1112	P. Raja	Sub-inspector	Security Section	26 July 2015
4	8649	E. Sreemathy	Junior Assistant	Engineering Unit	19 February 2016

Faculty/staff members on extraordinary leave

Sl. No.	Name	Designation	Department	Period	Details
1	Ashutosh Suresh Gandhi	Associate Professor	Metallurgy	21 April 2015 to 20 April 2016	Accepting Associate Professorship at IIT Bombay under technical resignation
2	Ganesh L.S.	Professor	Management Studies	16 August 2015 to 20 May 2016	Consulting Professor at Sree Saraswathi Thyagaraja College, Pollachi
3	Raghunathan Rengasamy	Professor	Chemical	15 June to 31 July 2015	To complete pending commitments at Texas Tech University, Lubbock

Faculty members on sabbatical leave

Sl. No.	Name	Designation	Department	Period	Details
1	Aysha Iqbal Viswamohan	Professor	Humanities	1 August to 30 November 2015	Book writing
2	Sankara J. Subramanian	Associate Professor	Engineering Design	3 August 2015 to 22 April 2016	Visiting Scientist with Robotics Team at Google, Mountain View, California, USA
3	G. Srinivasan	Professor	Management Studies	4 May 2015 to 30 April 2016	Consultant, Ford Motor Private Limited, Chennai
4	Krishna Kannan	Associate Professor	Mechanical	12 June 2015 to 6 January 2016	Visiting scholar at Texas A&M University, USA
5	Pandurangan C.	Professor	Computer Science	13 July 2015 30 April 2016	Visiting Professor at IISc, Bengaluru, IIT Bombay and BITS Pilani
6	Balaji Srinivasan	Associate Professor	Electrical	25 July to 24 November 2015	IIT Madras Research Park
7	R. Manivasakan	Assistant Professor	Electrical	1 September 2015 to 31 August 2016	Book writing
8	C. Balaji	Professor	Mechanical	4 January to 6 May 2016	Visiting Professor at Divecha Centre for Climate Change, IISc, Bengaluru

Sl. No.	Name	Designation	Department	Period	Details
9	Arun Narasimhan	Professor	Mechanical	4 January to 6 May 2016	Visiting Professor at Department of Mechanical Engineering, IISc, Bengaluru
10	V.R. Muraleedhaaran	Professor	Humanities	1 January to 31 May 2016	Full-time co-ordinator at the Centre for Technology and Policy (CTaP), IIT Madras
11	Mathangi Krishnamurthy	Assistant Professor	Humanities	8 February to 25 July 2016	Completing manuscript at IIT Madras and undertaking fieldwork at Pune
12	Rajesh Narayanan	Associate Professor	Physics	18 March to 18 September 2016	Visiting researcher at Asia Pacific Center for Theoretical Physics, South Korea

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 staff members to update and upgrade their knowledge and skills so that they may perform their duties effectively. The programmes are also aimed at enhancing the pride and satisfaction they feel in their work. The overall feeling of happiness engendered by these programmes overflows to their home lives and contributes to a sense of well-being to the entire family. These activities also form a part of the training requirements under the ISO dispensation.

HRD programmes conducted

HRD activities were initiated at the institute in 1997 under the charge of a professor. In the period of reporting, eight internal training programmes and 10 external training programmes organized by other institutions/organizations were attended by our staff members. The impact of the various programmes, as seen from the feedback at the end of each programme, appears to be advantageous to the institute as the employees were able to upgrade their knowledge through these programmes because the programmes were designed on the basis of needs.

Training calendar for 2015

Internal training

Sl. No.	No. of Persons Who Attended	Course Title	Duration	Section/ Department	Organization
1	1	Training Programme on Reservation in Services for SC/ST/OBC	5–7 October 2015	Recruitment	Institute of Secretariat Training & Management, New Delhi
2	2	All IITs Group A Officers Federation (AIITOF)	10 October 2015	Engineering Unit	IIT Delhi
3	1	Professional Development Programme	1–5 September 2015	Computer Centre	Engineering Staff College of India, Hyderabad
4	1	Meeting-cum-Training Workshop of Nodal Officers of Central Institutions	22 September 2015	Academic Section	Tanjore Hall, SCOPE Complex, New Delhi
5	2	Management Development Programme on High Impact Leadership	2–4 July 2015	Administration	Indian Institute of Management, Lucknow
6	2	Effective Contract Management & Negotiation	23–25 April 2015	Audit/Engineering Unit	Indian Institute of Management, Lucknow, Noida Campus, Noida
7	1	Regional CMA Summit—2015	27–28 November 2015	Administration	Institute of Cost Accountants of India, Visakhapatnam
8	1	Annual Meet and Workshop of INDEST-AICTE Consortium	29–20 April	Library	Mohali, Punjab

Exte	External training						
SI. No.	No. of Persons Who Attended	Course Title	Duration	Section/Department	Organization		
1	1	Group-T1—Safety & Environmental Testing	20–22 May 2015	Central Electronics Centre	Central Manufacturing Technology Institute, Bengaluru		
2	2	Laboratory Management System & Internal Audit	25–28 May 2015	Central Electronics Centre	Centre for Electronics Test Engineering (CETE), Bengaluru		
3	5	Fire Safety	29 June 2015	Administration	Security Section, IIT Madras		
4	1	Automotive Engines	24–25 July 2015	Department of Engineering Design	SAEINDIA, Chennai		
5	1	Network Administration— Configuring & Securing LANs & WANs	7–11 August 2015	Computer Centre	Engineering Staff College of India, Hyderabad		
6	11	Snake Awareness & Handling Programme	15–16 August 2015	Security Section	Chennai Snake Park Trust, Chennai		
7	1	Design of Experiments	14–15 September 2015	Department of Engineering Design	ARAI, Pune		
8	55	General Office Procedure, Noting & Drafting	8 October 2015	Administration staff and new recruits among Junior Assistants	IIT Madras		
9	1	Web Development Using PHP & MySQL	16–20 November 2015	Finance & Accounts	The Institution of Engineers (India), Hyderabad		
10	2	RTI Act 2005, Case Studies/Court Cases and Improvement of Record Management System	16–18 December 2015	RTI Cell	NCT&SR, New Delhi		

2.3.2. Hindi Coaching

(a) Hindi training

In accordance with the directions of the Department of Official Language of the Home Ministry, GoI, full-time intensive Hindi language learning programmes, i.e., LILA Prabodh, LILA Praveen and LILA Pragya, were conducted regularly so that both technical and administrative staff members could improve their knowledge of Hindi. During the year, 2015–2016, a total of 22 staff members successfully completed these three courses online. At present, 31 staff members are undergoing Hindi Prabodh and Praveen classes.

(b) Official Language Implementation Committee (OLIC) meetings

The OLIC has been constituted to monitor the progressive use of the official language at the institute. Quarterly meetings are convened under the chairmanship of the Registrar.

(c) Hindi workshops and technical conference in Hindi

- Four quarterly Hindi workshops were conducted for the staff members of IIT Madras during the year 2015.
- A half-day Rajbhasha technical conference in Hindi on "Research by Students" was organized on 29 September 2015 at the IC&SR Auditorium. Student OLIC members from all 16 departments of IIT Madras gave an oral-cum-PowerPoint presentation in Hindi. Dr. N.S. Rajagopalan, Southern Railways, Chennai was the judge and Mr. Goutham Dutta, IRSME, Chief Workshop Manager, Southern Railways, Chennai was the chief guest. The best three of the 19 presenters were felicitated during the Hindi Day celebrations. The faculty, staff and students actively volunteered at the conference.

(d) Publications

- Campus News is being released every week. It is bilingual (Hindi and English).
- The e-magazine *Hindi Manjusha* is being uploaded to the institute website.

(e) Unicode encoding

Unicode has been activated/enabled in all the computers at the departments, sections and centres, and training is being imparted to the staff members to work in Hindi simultaneously.

(f) Celebration of Hindi Day and World Hindi Day

- Hindi Day was celebrated on 29 September 2015. The Director presided over the function and distributed certificates, cash awards and personal pay to the staff members who successfully passed Hindi examinations and to the participants of the cultural competition.
- World Hindi Day was celebrated on 20 January 2016. On this occasion, a "Multi-lingual Kavi Sammelan" was organized for the faculty, staff and students of IIT Madras. The participants recited poetry composed by them in various Indian languages including Hindi, Tamil, Telugu, Kannada, Malayalam, Punjabi, Odiya, Bengali and Marathi. All the participants were presented awards.

(g) Other activities for effective use of the official language

• The daily Hindi newspaper *Rajasthan Patrika* is being distributed to all the 16 departments and to the Administration Section with effect from 1 January 2015 for progressive use of the official language.

2.3.3. Children Education Assistance

In the financial year 2015–2016, the institute reimbursed a sum of ₹58,73,888 to 482 faculty and staff members towards Children Education Assistance as per GoI norms.

2.3.4. Transport Facilities for Children of Staff Members

Free transport facilities have been provided from 10 February 2008 for all users within the campus.

2.3.5. Advances

During the year under report, a sum of ₹14.44 lakhs was sanctioned as advances for the following:

Sl. No.	Advance	No. of Beneficiaries	Amount Sanctioned (₹)
1	House building advance	-	-
2	Car advance	_	_
3	Two-wheeler advance	6	1,62,000
4	Personal computer advance	7	3,10,126
5	Festival advance	216	9,72,000
	Total	229	14,44,126

Insurance

Group Mediclaim insurance scheme for the period from 1 February 2015 to 31 January 2016

Sl. No.	Category	No. of Persons Covered	Premium Paid (₹)
	Basic Coverage		
1	Employee & Dependant	4362	2,51,70,020
2	Pensioners & Spouses	1736	
3	Family Pensioner	462	
	Additional Coverage		
4	Employee & Dependant	1506	
5	Pensioners & Spouses	1020	
6	Family Pensioners	99	
	Fire & General		
7	25 February 2015 to 24 February 2016		10,02,115
	Burglary		
8	25 February 2015 to 24 February 2016		17,355

Group term insurance scheme for the period from 10 February 2015 to 9 February 2016						
SI. No.	Group	No. of Employees Covered	Sum Insured per Employee (lakhs of ₹)	Total Premium Paid (₹)	Death Claims Made During the Period (lakhs of ₹)	
Basic coverage						
1	A	589	40	84,49,012	Group C–three claims ⓐ ₹10 lakhs each	
2	В	232	25			
3	C	344	10			
Additio	onal covera	ge				
1	A	40	20			
2	В	37	15			
3	C	98	10			

2.3.6. Meetings of the Authorities

Board of Governors	Four meetings were held, on 24 July 2015, 23 September 2015, 30 November 2015 and 18 March 2016.	
Finance Committee	One meeting was held, on 30 November 2015.	
Buildings & Works Committee	Two meetings were held, on 2 July 2015 and 18 December 2015.	
Senate	Four meetings were held, on 1 July 2015, 2 September 2015, 9 November 2015 and 24 February 2016.	

2.3.7. ISO 9001:2008 in IIT Madras: April 2015 to March 2016

ISO summary

The International Organization for Standardization (ISO) is a world-wide federation that certifies the operation and existence of a quality management system, and ISO 9001:2000 is an international standard for quality systems. IIT Madras was awarded the ISO-9001:2000 certification for academic and support processes (QSM-I: Academic Section, Central Library, Central Workshop, Computer Centre, IC&SR, and User-Oriented Programmes) in 1999 and for administrative support processes (QSM-II: Administration, Central Electronic Centre, Engineering Unit, Finance & Accounts, Security Section and Stores & Purchase) in 2001. In 2011, all the academic and support units of IIT Madras were certified as per the new ISO standard, that is, ISO 9001:2008, and were subsequently re-certified in 2014. In addition to the ISO 9001:2008 certification, the Central Electronic Centre has been NABL-accredited for its Testing and Calibration Laboratories since 2004.

I. ISO Activities for the year 2015-2016

Internal audits

Unit/Section	Schedule	Schedule		
	First Audit	Second Audit		
QSM-I	20–23 April 2015	19–27 November 2015		
QSM-II	27–29 April 2015	30 November to 7 December 2015		

Management review (MR) meetings

Unit/Section	Schedule	
QSM-I and QSM-II	8 May 2015	(37th MR meeting)
QSM-I and QSM-II	15 December 2015	(38th MR meeting)

Recertification/surveillance audits (undertaken by TUV India Ltd.)

Unit/Section	Schedule	
QSM-I	15 May 2015	(Surveillance)
QSM-II	18 December 2015	(Surveillance)

ISO activities

• A one-day training programme on "Data Analysis, Workflow and Process Excellence" was conducted for IIT Madras staff members on 8 December 2015.

II. NABL activities during the year 2014–2015 (for Central Electronics Centre)

• The MR and the audit process for re-certification are in progress. The re-certification of NABL is due in June 2016.

2.3.8. List of Faculty Members and Officers in Academic and General Administration

(i) Academic Administration

Director Bhaskar Ramamurthi

Deans

Academic Courses K. Ramamurthy
Academic Research A.K. Mishra
Administration P. Sriram

Industrial Consultancy & Sponsored Research Krishnan Balasubramaniam

Students M.S. Sivakumar

Planning Ravinder David Koilpillai

International and Alumni Relations R. Nagarajan

(ii) Heads of Departments

Aerospace K. Bhaskar

Applied Mechanics Rama Subba Reddy (up to 15 September 2015)

S. Vengadesan (from 16 September 2015)

Biotechnology D. Karunagaran

Chemical Engineering P. Sesha Talpa Sai (up to 28 October 2015)

A. Kannan (from 29 October 2015)

Chemistry U.V. Varadaraju (up to 9 August 2015)

Indrapal Singh Aidhen (from 10 August 2015)

Civil Engineering A. Meher Prasad

Computer Science & Engineering P. Sreenivasa Kumar (up to 21 February 2016)

Krisnamoorthy Sivalingam (from 22 February 2016)

Electrical Engineering Harishankar Ramachandran

Engineering Design

Humanities & Social Sciences

Malathy Duraisamy

Management Studies

T.J. Kamalanabhan

Mathematics M. Thamban Nair Mechanical Engineering B.V.S.S.S. Prasad

Metallurgical and Materials Engineering

M. Kamaraj (up to 6 September 2015)

B.S. Murthy (from 7 September 2015)

Ocean Engineering V. Anantha Subramanian

Physics P.B. Sunil Kumar (up to 17 May 2015) M.S. Ramachandra Rao (from 18 May 2015)

(iii) Heads of Research Centres

Sophisticated Analytical & Instrumentation Facility S.S. Bhattacharyya

(iv) Heads of special facilities for interaction with other institutions

Centre for Industrial Consultancy & Sponsored Research Krishnan Balasubramanian

Centre for Continuing Education A. Ramesh

Centre Electronics Centre V. Jagadeesh Kumar

Computer Centre C. Balaji

Chairmen

GATE V. Subramanian JEE G. Markandeyulu

(v) Central administration

Registrar V.G. Bhooma
Joint Registrar (Academic) R. Esakkimuthu
Joint Registrar (Students) Jayakumar

Deputy Registrars

Academic Section D. Ravee

Administration S. Sundaravinayagam

Finance & Accounts Section S. Sambasivam (up to 31 January 2016)

D. Ravee (In-Charge) A.V. Sudarsanam

Stores and Purchase Section A.V. Sudarsanan IC&SR B. Nagarajan

Assistant Registrars

Academic Section

Administration

P. Jamuna

R. Chandrakasu

Finance & Accounts Section

B. Dhamodaran

S. Ravi

Recruitment Section K. Vijayalakshmi Internal Audit Section K. Kumarappan Office of the Dean (Students) / T&P V. Perumal

Engineering Unit Y.E.L. Sudhakar Rao Pujari

IC&SR P. Sarvaharana

Fire-cum-Safety Officer

N. Elumalai (up to 30 March 2016)

Chief Security Officer

N. Elumalai (from 31 March 2016)

Central Library

Deputy Librarian Mahendra N. Jadhav (up to 30 March 2016) Librarian Mahendra N. Jadhav (from 31 March 2016)

Assistant Librarian K. Saravanan

(vi) Heads of central services, facilities and sections

Chief Medical Officer-in-Charge Mahalakshmi M. Ravi

Chief Security Officer N. Elumalai (from 31 March 2016)

Chairman, Council of Wardens

Central Gas Blowing Section

Professor-in-Charge, Central Workshop

Chairman, Library Advisory Committee

K. Sethupathi

P.B. Sunil Kumar

N. Ramesh Babu

K. Ramamurthy

Co-ordinator, NSS John Bosco Lourdusamy (up to 31 December 2015)

Jyotirmaya Tripathy (from 1 January 2016)

Advisor, Sports K.P. Sudheer Advisor, Cultural Umakant Dash

Advisor, Co-curricular

Mahesh Pachagnula (up to 30 September 2015)

B. Arockiarajan (from 1 October 2015)

Advisor, Foreign Students Sudarshan Padmanabhan

Chief Vigilance Officer (part time)

Advisor (Placement & Training)

Advisor Montoring for Individual Transformation (MITs)

April S. Javashandra

Advisor, Mentoring for Individual Transformation (MITr)

Arul S. Jayachandran

Advisor, Weaker Section Students

M. Suresh Babu

Chairperson, Women's Forum
Professor in-charge, Workflow
Anil Prabhakar (up to 30 June 2015)
Rahul R. Marathe (from 1 July 2015)

Head, Centre for Innovation (CFI)

B. Ravindran

(vii) Engineering Unit

Chairman Ligy Philip Co-chairman S.R. Gandhi R. Arumugam (up to 29 February 2016)

Superintending Engineer Executive Engineers K. Viswanath

K. Dharmaraj M. Ramachandran V. Seenivasan

K. Ravichandran

Senior Horticulture Officer **Assistant Executive Engineers** M. Murali Prakash H. Anandaram K. Rizwan Ali N.R. Vineetha

(viii) IC&SR

Chief Techno-economic Officer R. Sundaram Senior Techno-economic Officer V. Suresh

Academic Programmes and Award of Degrees

The institute offered Ph.D. programmes in all the 16 departments, M.S. programmes in 12 departments, M.Tech. programmes in 28 streams/specializations, M.Sc. programmes in three branches, B.Tech. programmes in 10 branches, Dual Degree (B.Tech. and M.Tech.) programmes in 21 streams/specializations, Dual Degree (B.S. & M.S.) programmes in biological sciences and physics, an MBA programme, M.A. integrated programmes in three streams and a preparatory course for SC/ST students during the year under report.

3.1. Admissions 2015-2016

Candidates were selected for admission to the B.Tech. and Dual Degree programmes and the M.Tech. programme through JEE (Advanced) and the GATE score, respectively. Quite a few candidates were also selected for the M.Tech. programme under Sponsored, Quality Improvement and User-Oriented programmes through interviews and/or written tests. Selection for the Ph.D. and M.S. programmes was done through tests/interviews. For the M.Sc. programmes in mathematics, physics and chemistry, selection was made through a common test (JAM) conducted jointly by seven IITs. Selection for the M.B.A. programme was made through CAT and an interview. Selection was made for the M.A. Integrated programme through HSEE.

The total numbers of students and scholars admitted to various programmes in July 2015 and in January 2016 are provided in the following table.

Fresh admissions

Sl. No.	Department	B.Tech.	Dual Degree	M.Tech.	PG Diploma	M.Sc.	M.B.A.	M.A.	M.S.	Ph.D.	Total
1	Aerospace Engineering	45	12	24		<u> </u>	_	<u> </u>	17	17	115
2	Applied Mechanics	_	_	23	_	_	_	_	20	23	66
3	Biotechnology	_	56	7	_	_	_	_	2	29	94
4	Chemical Engineering	73	17	41	_	_	_	_	12	21	164
5	Chemistry	_	_	_	_	55	_	_	_	50	105
6	Civil Engineering	60	31	90	_	_	_	_	7	52	240
7	Computer Science and Engineering	42	14	60	_	_	_	_	21	11	148
8	Electrical Engineering	65	55	71	_	_	_	_	52	39	282
9	Engineering Design	_	54	_	_	_	_	_	8	7	69
10	Humanities and Social Sciences	_	_	_	_	-	_	42	_	23	65
11	Management Studies	_	_	_	39	_	62	_	11	19	131
12	Mathematics	_	_	15	_	51	_	_	_	19	85
13	Mechanical Engineering	77	71	109	_	_	_	_	39	51	347
14	Metallurgical and Materials Engineering	35	12	25	_	_	_	_	5	21	98
15	Ocean Engineering	31	17	56	_	_	_	_	17	24	145
16	Physics	30	7	13	_	43	_	_	_	22	115
17	Interdisciplinary	_	_	_	_	_	_	_	5	28	33
	Total	458	346	534	39	149	62	42	216	456	2302

In addition, four students (GE PD, 1; SC PD, 1; ST PD, 2) joined the preparatory course.

Fresh a	dmissions of OBC/SC/ST students					
SI. No.	Programme	ОВС	SC	ST	PD	Female
1	B.Tech.	124	70	34	10	74
2	Dual Degree	96	55	19	3	58
3	M.Tech.	137	55	27	_	87
4	PG Diploma in Metro Rail	_	_	_	_	4
5	M.B.A.	9	12	_	_	19
6	M.Sc.	43	23	10	_	36
7	M.A.	11	7	2	_	25
8	M.S.	44	7	2	_	47
9	Ph.D.	116	26	4	_	95
	Total	580	255	98	13	445

Total number of students admitted during the year

Foreign nationals	1	Q.I.P.	M.Tech.	4
			Ph.D.	7
OBC	580	Sponsored	M.Tech.	31
Scheduled Castes	255	Project	M.S.	38
Scheduled Tribes	98		Ph.D.	12
Physically Handicapped	13	External Registration	M.S.	10
Women Students	445		Ph.D.	22
Defence Officers (M.Tech.)	42	User-Oriented Programme (M	.Tech.)	54

3.2. Enrolment of Students/Scholars

The total numbers of students on roll in the various programmes of the institute during the academic year 2015–2016 are provided here:

Students on roll (department-wise)

Sl. No.	Department	B.Tech.	Dual Degree	M.Tech.	PG Diploma	M.Sc.	M.B.A.	M.A.	M.S.	Ph.D.	Total
1	Aerospace Engineering	153	100	47	_	_	_	_	61	106	467
2	Applied Mechanics	_	_	47	_	_	_	_	63	122	232
3	Biotechnology	26	214	17	_	_	_	_	16	195	468
4	Chemical Engineering	287	98	72	_	_	_	_	42	118	617
5	Chemistry	_	_	_	_	104	_	_	_	254	358
6	Civil Engineering	277	197	169	_	_	_	_	55	282	980
7	Computer Science and Engineering	168	144	116	_	_	_	_	103	91	622
8	Electrical Engineering	317	335	118	_	_	_	_	178	219	1167
9	Engineering Design	_	303	_	_	_	_	_	38	67	408
10	Humanities and Social Sciences	_	_	_	_	_	123	_	_	70	193
11	Management Studies	_	_	_	39	_	_	220	48	101	408
12	Mathematics	_	_	30	_	100	_	_	_	71	201
13	Mechanical Engineering	350	387	191	_	_	_	_	194	337	1459
14	Metallurgical and Materials Engineering	132	71	44	_	_	_	_	31	116	394
15	Ocean Engineering	142	89	97	_	_	_	_	66	143	537
16	Physics	125	43	18	_	85	_	_	_	179	450
	Total	1977	1981	966	39	289	123	220	895	2471	8961

Students on roll				
Foreign nationals	6	Q.I.P.	M.Tech.	5
			Ph.D.	55
OBC	2435	Sponsored	M.Tech.	54
Scheduled Castes	1007	Project	M.S.	94
			Ph.D.	68
Scheduled Tribes	425	External registration	M.S.	46
			Ph.D.	167
Physically handicapped	86	Registration kept alive	M.S.	19
			Ph.D.	9
Women students	1761	Part-time programme (Ph.D.)	M.S.	10
			Ph.D.	56
Defence Officers (M.Tech.)	89	User-Oriented Programme (M.Tech.)	115

OBC/SC/ST students on roll

Sl. No.	Course	OBC	SC	ST	Female	
1	B.Tech	526	341	186	246	
2	Dual Degree	542	309	138	255	
3	M.Tech	260	99	52	131	
4	M.Sc.	84	47	17	75	
5	M.B.A.	20	23	_	31	
6	M.A.	64	34	18	135	
7	Ph.D.	716	130	11	705	
8	M.S.	223	24	3	183	
	Total	2435	1007	425	1761	

The branch-wise/discipline-wise and year-wise details of students enrolled in B.Tech., Dual Degree and M.Tech. programmes are provided in the following tables.

B.Tech. students on roll

Sl. No.	Branch	2015	2014	2013	2012	2011 and Earlier Batch	Total es
1	Aerospace Engineering	45	34	38	30	12	159
2	Biotechnology	_	_	_	_	26	26
3	Chemical Engineering	73	63	68	68	23	295
4	Civil Engineering	60	59	62	61	33	275
5	Computer Science and Engineering	42	33	33	33	23	164
6	Electrical Engineering	65	72	70	71	32	310
7	Engineering Physics	30	31	25	24	14	124
8	Mechanical Engineering	77	82	77	75	32	343
9	Metallurgical and Materials Engineering	35	31	32	22	15	135
10	Naval Architecture	31	33	32	30	20	146
	Total	458	438	437	414	230	1977

Dual Degree (B.Tech. and M.Tech.) students on roll

Sl. No.	Branch	2015	2014	2013	2012	2011	2010 and Earlier Batches	Total
1	Aerospace Engineering	_	11	13	14	17	5	60
	AE (B.Tech.) and AM (M.Tech.)	12	7	7	7	6	4	43

Sl. No.	Branch	2015	2014	2013	2012	2011	2010 and Earlier Batches	Total
2	Biotechnology	27	13	19	19	17	11	106
	Biological Engineering	_	_	_	_	_	_	_
	Biological Sciences (B.S. and M.S.)	29	29	30	26	_	_	114
3	Chemical Engineering	17	20	14	18	21	6	96
4	Civil Engineering and Infrastructural Civil	31	30	24	29	38	20	172
	CE (B.Tech.) and AM (M.Tech.)		8	5	5	4	1	23
5	Computer Science and Engineering	14	29	28	29	31	27	158
6	Electrical Engineering	55	47	50	52	69	25	298
	EE (B.Tech.) and AM (M.Tech.)		8	9	7	8	3	35
7	Engineering Design	54	55	55	56	52	32	304
8	Mechanical Engineering	71	46	73	85	69	15	359
9	Metallurgical and Materials Engineering	12	13	11	19	14	6	75
10	Naval Architecture and Ocean Engineering	17	9	9	7	10	8	60
	NA (B.Tech.) and AM (M.Tech.)	_	6	8	8	19	1	42
11	Physics (B.S. and M.S.)	7	10	9	8	8	3	45
	Total	346	341	364	389	383	167	1990

M.Sc. students on roll

Sl. No.	Branch	2015	2014	Total
1	Chemistry	55	49	104
2	Mathematics	51	49	100
3	Physics	43	42	85
	Total	149	140	289

M.Tech. students on roll

Sl. No.	Department/Discipline/Batch	2015	2014	Extended Students	Total
1	Aerospace Engineering	23	23	1	47
2	Applied Mechanics	23	23	1	47
3	Biotechnology-Clinical Engineering	7	3	7	17
4	Chemical Engineering	26	25	1	52
	Catalysis Technology	6	3	2	11
	Nuclear Engineering	6	3	_	9
5	Civil Engineering				
	CE 1—Building Technology and Construction Management	11	9	2	22
	CE 2—Environmental Engineering	8	3	_	11
	CE 3—Geotechnical Engineering	7	8	1	16
	CE 4—Hydraulic and Water Resource Engineering	6	2	_	8
	CE 5—Structural Engineering	13	19	2	34
	CE 6—Transportation Engineering	8	6	_	14
	CE 7—Construction Technology and Management	34	29	1	64
6	CS 1—Computer Science and Engineering	60	49	7	116
7	Electrical Engineering				
	EE 1—Communication Systems	19	14	1	34
	EE 2—Power Systems and Power Electronics	10	4	3	17
	EE 3—Micro Electronics and VLSI Design	17	15	2	34

Sl. No.	Department/Discipline/Batch	2015	2014	Extended Students	Total
	EE 4—Control and Instrumentation System	13	8	_	21
	EE 5—Photonics	6	5	1	12
8	Industrial Maths and Scientific Computing	15	15	_	30
9	Mechanical Engineering				
	ME 1—Thermal Engineering	39	32	2	73
	ME 2—Mechanical Design	33	27	_	60
	ME 3—Manufacturing and Precision Engineering	20	15	1	36
	ME 4—Automotive Engine Technology	10	11	_	21
	NE—Nuclear Engineering	_	_	1	1
10	MM—Metallurgical and Materials Engineering	25	14	5	44
11	OE—Ocean Engineering	18	8	1	27
	Ocean Technology and Management	12	3	_	15
	Petroleum Engineering	15	10	_	25
	Offshore Structures and Engineering	10	20	_	30
12	Physics				
	PH—Solid State Technology	13	5	_	18
	Total	513	411	42	966

M.B.A. students on roll

Sl. No.	Branch	2015	2014	Total
1	Management Studies	62	61	123

M.A. students on roll

Sl. No.	Branch	2015	2014	2013	2012	2011	Total
1	Humanities and Social Sciences	42	42	42	43	51	220

M.S. scholars on roll

Sl. No.	Branch	Year I	Year II	Year III	Year IV	Year V and Others	Total
1	Aerospace Engineering	17	17	10	17	_	61
2	Applied Mechanics	20	14	15	14	_	63
3	Biotechnology	2	6	8	_	_	16
4	Chemical Engineering	12	15	8	4	3	42
5	Civil Engineering	7	19	17	10	2	55
6	Computer Science and Engineering	21	23	32	23	4	103
7	Electrical Engineering	52	36	31	43	16	178
8	Engineering Design	8	8	14	4	4	38
9	Management Studies	11	12	16	8	1	48
10	Mechanical Engineering	39	60	58	30	7	194
11	Metallurgical and Materials Engineering	5	5	15	5	1	31
12	Ocean Engineering	17	18	13	16	2	66
	Total	211	233	237	174	40	895

Ph.D. scholars on roll

SI. No.	Branch	Year I	Year II	Year III	Year IV	Year V and Others	Total
1	Aerospace Engineering	16	25	20	16	29	106
2	Applied Mechanics	29	25	15	23	30	122

Sl. No.	Branch	Year I	Year II	Year III	Year IV	Year V and Others	Total
3	Biotechnology	35	28	44	29	59	195
4	Chemical Engineering	22	28	22	13	33	118
5	Chemistry	56	53	36	33	76	254
6	Civil Engineering	49	57	71	37	68	282
7	Computer Science and Engineering	13	19	20	15	24	91
8	Electrical Engineering	39	46	48	37	49	219
9	Engineering Design	7	14	14	15	17	67
10	Humanities and Social Sciences	22	21	11	8	8	70
11	Management Studies	22	12	17	21	29	101
12	Mathematics	17	15	15	7	17	71
13	Mechanical Engineering	50	87	79	48	73	337
14	Metallurgical and Materials Engineering	25	18	23	15	35	116
15	Ocean Engineering	24	23	39	26	31	143
16	Physics	24	31	50	33	41	179
	Total	450	502	524	376	619	2471

3.3. Courses Offered

In the academic year 2015–2016, 2532 courses were offered, of which 1281 courses were offered in July–November 2015 and 1251 courses were offered in January–May 2016. The department-wise details of the courses offered are provided in the following table:

No. of courses offered

Sl. No.	Department	July-No	vember 2015		January	-May 2016	
		Core	Elective	Total	Core	Elective	Total
1	Aerospace Engineering	36	19	55	33	37	70
2	Applied Mechanics	40	17	57	46	22	68
3	Biotechnology	61	20	81	57	22	7 9
4	Chemical Engineering	53	40	93	58	26	84
5	Chemistry	50	3	53	58	23	81
6	Civil Engineering	87	31	118	68	40	108
7	Computer Science and Engineering	40	35	75	30	40	70
8	Engineering Design	33	15	48	39	12	51
9	Electrical Engineering	75	33	108	63	50	113
10	Humanities and Social Sciences	58	49	107	41	59	100
11	Management Studies	16	38	54	12	24	36
12	Mathematics	41	24	65	18	49	67
13	Mechanical Engineering	109	40	149	90	27	117
14	Metallurgical and Materials Engineering	39	24	63	37	28	65
15	Ocean Engineering	45	20	65	45	19	64
16	Physics	67	23	90	55	23	78
	Total	850	431	1281	750	501	1251

3.4. Convocation

The 52nd Convocation was held on 24 July 2015. Prof. Manjul Bhargava delivered the convocation address. A total of 2234 candidates were awarded various degrees, and 1854 candidates received their degrees in person. The department-wise details of the degrees awarded are provided in the following table.

Deg	rees awarded													
SI.	Department	Ph.D.	M.S.	M.Tech.	M.Sc.	M.B.A.	M.A.		Dual De	gree		B.Tech.	B.Tech.	Total
No.								B.Tech./B.S. (Honours)	M.Tech. /M.S.	B.Tech. /B.S.	M.Tech. /M.S.	Honours		
1	Aerospace Engineering	2	9	23	0	0	0	7	7	11	11	4	20	94
2	Applied Mechanics	8	4	20	0	0	0	1	1	24	24	0	0	82
3	Biotechnology	23	11	12	0	0	0	1	1	20	20	3	23	114
4	Chemical Engineering	14	15	36	0	0	0	5	5	21	21	4	63	184
5	Chemistry	28	0	0	43	0	0	0	0	0	0	0	0	71
6	Civil Engineering	13	6	76	0	0	0	5	5	35	35	0	57	232
7	Computer Science and Engineering	9	21	54	0	0	0	4	4	25	25	5	27	174
8	Electrical Engineering	22	32	54	0	0	0	11	11	45	45	3	49	272
9	Engineering Design	8	9	0	0	0	0	6	6	48	48	0	0	125
10	Humanities and Social Sciences	8	0	0	0	0	41	0	0	0	0	0	0	49
11	Management Studies	11	6	0	0	71	0	0	0	0	0	0	0	88
12	Mathematics	8	0	8	43	0	0	0	0	0	0	0	0	59
13	Mechanical Engineering	16	21	101	0	0	0	10	10	68	68	7	64	365
14	Metallurgical and Materials Engineering	13	6	21	0	0	0	1	1	12	12	0	24	90
15	Ocean Engineering	11	17	52	0	0	0	0	0	12	12	0	31	135
16	Physics	18	0	6	34	0	0	3	3	5	5	2	24	100
1	Total	212	157	463	120	71	41	54	54	326	326	28	382	2234

With this convocation, the total number of degrees awarded by the institute so far is 44,752:

_	в	•	<i>'</i>
Sl. No.	Programme		Number of Degrees
1	Ph.D.		4170
2	M.S.		3080
3	M.Tech.		13,631
4	M.Sc.		3171
5	M.B.A.		772
6	M.A.		155
7	Dual Degree	B.Tech.	2198
		M.Tech.	2198
8	Dual Degree	B.S.	54
		M.S.	54
9	B.Tech.		14,842
10	B.Tech. (Honours)		86

Sl. No.	Programme	Number of Degrees
11	PGDMEM	63
12	B.Sc. (Tech.)	20
13	DIIT	245
14	PGDMRT	13
	Total	44,752

3.5. Award of Prizes to Students

3.5.1. Convocation Prizes

Prizes awarded to students at the 52nd Convocation

Prizes awarded to students at the 52nd Convocation									
Sl. No.	Prize	Department	Student						
1	President of India Prize	Computer Science and Engineering	Srinivasan R.	CS11B059					
2	Bharat Ratna M. Visvesvaraya Memorial Prize	Computer Science and Engineering	Srinivasan R.	CS11B059					
3	B. Ravichandran Memorial Prize	Computer Science and Engineering	Srinivasan R.	CS11B059					
4	Governor's Prize	Engineering Physics	Akshay Krishna	EP11B002					
5	Hema Balasubramanian Excellence Award	Engineering Physics	Akshay Krishna	EP11B002					
6	Mr. V. Srinivasan Memorial Prize	Computer Science and Engineering	Babbula Spandana Raj	CS10B032					
7	Alumni Association Prize	Computer Science and Engineering	Babbula Spandana Raj	CS10B032					
8	Dr. Shankar Dayal Sharma Prize	Biotechnology	Aravindabharathi R.	BT11B003					
Bachel	or of Technology—B.Tech.								
1	HAL Prize	Aerospace Engineering	Anant Girdhar	AE11B004					
2	The Divashri Award	Biotechnology	Guruprasad Raghavan	BT11B014					
3	Reliance Heat Transfer Private Limited Prize	Chemical Engineering	Nirmal L.	CH11B093					
4	C.A. Sastry Endowment Prize	Chemical Engineering	Varshaa Naganathan	CH11B070					
5	Larsen & Toubro ECC Endowment Prize	Civil Engineering	Abhishek Basu	CE11B002					
6	Siemens Prize	Electrical Engineering	Abhilash S.	EE11B001					
7	Motorola Prize	Electrical Engineering	Pragathi Praveena	EE11B123					
8	Banco Foundation Prize	Mechanical Engineering	Anoop R.	ME11B152					
9	Sivasailam Merit Prize	Mechanical Engineering	Anoop R.	ME11B152					
10	Vaidy Krishnan Memorial Prize	Mechanical Engineering	No nomination						
11	Dr. Dhandapani Memorial Prize	Metallurgical and Materials Engineering	Divyasree P.K.	MM11B011					
12	American Bureau of Shipping Prize	Naval Architecture and Ocean Engineering	S. Rajaram	NA11B028					
Dual D	Degree (B.Tech. and M.Tech.)								
1	Dr. V. Mohan Raman Prize	Aerospace Engineering	Kautuk Kushansh	AE10B015					
2	Mayan Prize	Aerospace Engineering	Ashwin A. Kamat	AE10B055					
3	Institute Merit Prize	Applied Mechanics	Ambetkar Vighnesh Vidyadhar	NA10B051					
4	Biocon Prize	Biotechnology	V. Sowmya	BT10B069					
5	B. Ravichandran Memorial Prize	Chemical Engineering	Saurabh Bhandari	CH10B102					
6	Dr. N.R. Dave Prize	Civil Engineering	Hareesh Pallikara Bahuleyan	CE10B024					
7	Prema and Nagaraja Setty Prize	Engineering Design	Kavya Sudhir	ED10B017					

SI. No.	Prize	Department	Student	
8	Philips India Prize	Electrical Engineering	Arun Asokan Nair	EE10B078
9	Prof. G.V.N. Rayudu Memorial Prize	Mechanical Engineering	Manjunath Chinnappamudaliar Rajagopal	ME10B088
10	S. Anantharamakrishnan Memorial Prize	Metallurgical and Materials Engineering	Karthik A	MM10B021
11	Goodearth Shipbuilding Private Limited Prize	Naval Architecture and Ocean Engineering	Anirudha Sant	NA10B039
12	Prof. J. Sobhanadri Prize	Physics—B.S. and M.S.	B. Sudarsan	PH10B007
Master	of Arts-M.A.			
1	Prof. A. Ravindran Prize	Integrated M.A. Programme — Economics	Vaishali V.	HS10H039
2	Dr. Dilip Veeraraghavan Memorial Award	Integrated M.A. Programme — Development Studies	Pranathi Diwakar	HS10H024
3	Prof. A.V. Krishna Rao Memorial Award	Integrated M.A. Programme — English Studies	Evelyn Tanza Antony	HS10H010
Master	of Technology-M.Tech.			
1	Air India Prize	Aerospace Engineering	Abubakker Sithick Basha A.	AE13M001
2	Indira Sivasailam Merit Prize	Applied Mechanics	Akhil Varma	AM13M002
3	Prof. B.V.A. Rao Endowment Prize	Applied Mechanics	Praveen	AM13M010
4	Usha Kothandaraman Memorial Prize	Applied Mechanics	Praveen	AM13M010
5	Institute Merit Prize	Clinical Engineering	Sudesh Yadav	BT12M012
6	Dr. K. Subba Raju Memorial Prize	Chemical Engineering	Aparna M.	CH13M005
7	Mr. S.V. Balakrishnan Prize	Catalysis Technology	Not offered in this convocation	
8	Valli Anantharamakrishnan Merit Prize	Civil Engineering	Anis Mohammed V.	CE13M082
9	K. Devarajan Memorial Prize	Civil Engineering	Rajneesh Gupta	CE13M130
10	L&T Endowment Prize	Construction Technology & Management	K Suruthi	CE13M176
11	CMC Prize	Computer Science and Engineering	Harini A.	CS13M021
12	Prof. H.N. Mahabala Endowment Prize	Computer Science and Engineering	Harini A.	CS13M021
			Sharath Babu	CS13M045
			[Joint winners]	
13	Siemens Prize	Electrical Engineering	Prasanth K.	EE13M079
14	Prof. Achim Bopp Endowment Prize	Electrical Engineering	Sunil Sulania	EE13M110
			Abhisek Roy	EE13M101
			Prashanth K	EE13M079
			[Joint winners]	
15	Prof. Helmut Neunzert Endowment Prize	Industrial Mathematics & Scientific Computing	Vinay Kumar	MA13M010
16	Prof. B. Sengupto Prize	Mechanical Engineering	Vishnu Nath S.	ME13M130
17	Dr. S. Vaidyanathan Memorial Prize	Mechanical Engineering	Vishnu Nath S.	ME13M130
18	Mico-Bosch Prize	Mechanical Engineering	Saurabh Bhandari	CH10B102
19	Prof. Rama Rao Jayanti Memorial Prize	Nuclear Engineering	Sundar Namala	NE13M009
20	Giri Brothers Prize	Mechanical Engineering	Madhav Dubey	ME13M132
21	S. Anantharamakrishnan Merit Prize	Mechanical Engineering	Dileep Rajendran	ME13M071

	Prize	Department	Student	
22	Prof. Ramamohana Rao Memorial	Mechanical Engineering	Dileep Rajendran	ME13M071
	Prize		- *	
	Delphi-TVS Diesel Systems Ltd. Prize	Automotive Technology	Adheesh Sinha	AT13M009
24	Sudharshan Bhat Memorial Prize	Metallurgical & Materials Engineering	Anand H.	MM13M002
25	American Bureau of Shipping Prize	Ocean Engineering	Sooraj S.	OE13M012
26	Prof. K.A.V. Pandalai Prize	Ocean Technology and Management	Ram Kumar J.	OE13M037
27	Institute Merit Prize	Offshore Structural Engineering	Megha K.	OE13M064
28	Mr. R.R.P. Sinha & Vimla Dewi Prize	Petroleum Engineering	Sanoop M.	PE13M012
	Sri Krishnamurthy Sundarambal Prize	Solid State Technology	Mandakranta Ghosh	PH13M002
Master o	of Science—M.Sc.			
	Dr. S.R. Ramadas 60th Birthday Commemoration Award	Chemistry	Manisha Samanta	CY13C018
2	Ratna Rao Memorial Prize	Chemistry	Manisha Samanta	CY13C018
	Mira Paul Memorial Prize	Mathematics	Kuntal Som	MA13C018
	Prof. Chilukuri Ramasastry Memorial Prize	Physics	Simran Singh	PH13C037
M.B.A	-Master of Business Administration			
1	Coka Parthasarathy Prize	Management Studies	Prem G. Easwar	MS13A046
2	K.V. Arunkumar Memorial Prize	Management Studies	Paras Agarwal	MS13A040
M.S. and	d Ph.D.			
1	Prof. V. Ramamurti Award	Applied Mechanics	_	
2	Sudharshan Bhat Memorial Prize	Metallurgical and Materials Engineering	Ratna Sunil Buradagunta	MM10D004
3	Prof. C.N. Pillai Prize	Chemistry—Organic Chemistry and Biochemistry	Ganapathy D.	CY10D034
	Prof. G. Sundararajan Endowment Prize	Organic Chemistry	Kasipandi V.	CY07D026
5	Prof. Langmuir Prize	Chemistry—Physical and Theoretical Chemistry	Ammu Mathew	CY10DO21
6	Prof. Werner Prize	Chemistry—Inorganic and Analytical Chemistry	Joseph Ponniah S.	CY10D036
7	Prof. A.L. Laskar Prize	Physics	_	
8	Shree Gaayathree Devi Award	Civil Engineering	S. Jayalakshmi	CE09D009
			Chithra V.S.	CE09D023
			[Joint winners]	
	GE Ecomagination Excellence Award	Civil Engineering – Ecological and Environmental Protection	_	-
	Ms Lakshmikutty Amma and Mr. A. Krishnankutty Nair Prize	Mathematics	Rajesh S.	MA10D009
	Bhagyalakshmi and Krishna Ayengar Award	_	R. Aravind	CH11B010
12	Bhagyalakshmi and Krishna Ayengar Award	_	B. Shakthipriya	MM13M029
	Bhagyalakshmi and Krishna Ayengar Award	_	Milan Palei	PH13C017
	Bhagyalakshmi and Krishna Ayengar Award	_	D.V. Suriapparao	CH13S001

Sl. No.	Prize	Department	Student	
15	Bhagyalakshmi and Krishna Ayengar Award	-	Bahurudeen A.	CE11D002
16	S.R.I. Prize	_	C. Addarsh	ME11B154
17	Buti Foundation Gold Medal Award	_	Megha K.	OE13M064

3.5.2. Institute Day Prizes

On the basis of performance, the following students were awarded merit prizes on the 56th Institute Day, 17 April 2015, at the Student Activities Centre. Mr. Bhaskar Bhat, Managing Director, Titan Company Limited (Distinguished Alumnus of IIT Madras) was the chief guest.

Silver medal and cash award of ₹5000

For the student with the best academic record in the first two semesters of the B.Tech./Dual Degree programme (2014 batch)

CS14B060	Bhuvan Agrawal	Dual Degree	Mr. S. Subramanian Prize — I Prize
CS14B058	Arjun K.	B. Tech.	Mr. K. Krishnamurthi Prize—II Prize
E (1 1)	1 1 11 11 11 1	1.6 .1	

For the best academic record in the third and fourth semesters put together in the B.Tech./Dual Degree programme (2013 batch)

AE13B059 Raghul M. B.Tech. Prof. T.K. Varadan Prize BE13B028 Saransh Umale Dual Degree Dr. Anita Mehta-Damani Prize BS13B008 Devanshu Dual Degree Institute Merit Prize CE13B051 Sumon Das B.Tech. Computer Age Management Services Private Limited Prize CH13B086 N. Pradeep Dual Degree Dr. Anita Mehta-Damani Prize CS13B058 Susanna Maria Baby B.Tech. Mr. V. Ramachandran Prize EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize Institute Merit Prize				
BS13B008 Devanshu Dual Degree Institute Merit Prize CE13B051 Sumon Das B.Tech. Computer Age Management Services Private Limited Prize CH13B086 N. Pradeep Dual Degree Dr. Anita Mehta–Damani Prize CS13B058 Susanna Maria Baby B.Tech. Mr. V. Ramachandran Prize EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	AE13B059	Raghul M.	B.Tech.	Prof. T.K. Varadan Prize
CE13B051 Sumon Das B.Tech. Computer Age Management Services Private Limited Prize CH13B086 N. Pradeep Dual Degree Dr. Anita Mehta–Damani Prize CS13B058 Susanna Maria Baby B.Tech. Mr. V. Ramachandran Prize EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	BE13B028	Saransh Umale	Dual Degree	Dr. Anita Mehta-Damani Prize
CH13B086 N. Pradeep Dual Degree Dr. Anita Mehta–Damani Prize CS13B058 Susanna Maria Baby B.Tech. Mr. V. Ramachandran Prize EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	BS13B008	Devanshu	Dual Degree	Institute Merit Prize
CS13B058 Susanna Maria Baby B.Tech. Mr. V. Ramachandran Prize EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	CE13B051	Sumon Das	B.Tech.	1 0 0
EE13B127 B. Ramasubramanian B.Tech. Mr. V. Rajagopalan Memorial Prize ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	CH13B086	N. Pradeep	Dual Degree	Dr. Anita Mehta-Damani Prize
ED13B019 Gagan Dual Degree Ms Latha and Sampath Srinath Prize EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	CS13B058	Susanna Maria Baby	B.Tech.	Mr. V. Ramachandran Prize
EP13B025 Shagesh S. B.Tech. Ms Latha and Sampath Srinath Prize ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	EE13B127	B. Ramasubramanian	B.Tech.	Mr. V. Rajagopalan Memorial Prize
ME13B024 Dixit Yash Raghunandan B.Tech. Ms Jayashree Ananth Prize ME13B068 Sooraj Narayan B.Tech. [Joint Winners] MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	ED13B019	Gagan	Dual Degree	Ms Latha and Sampath Srinath Prize
ME13B068Sooraj NarayanB.Tech.[Joint Winners]MM13B040Gautham MuthusamyDual DegreeMr. Satish Pai PrizeNA13B014G. MaathangiB.Tech.Ms Latha and Sampath Srinath Prize	EP13B025	Shagesh S.	B.Tech.	Ms Latha and Sampath Srinath Prize
MM13B040 Gautham Muthusamy Dual Degree Mr. Satish Pai Prize NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	ME13B024	Dixit Yash Raghunandan	B.Tech.	Ms Jayashree Ananth Prize
NA13B014 G. Maathangi B.Tech. Ms Latha and Sampath Srinath Prize	ME13B068	Sooraj Narayan	B.Tech.	[Joint Winners]
	MM13B040	Gautham Muthusamy	Dual Degree	Mr. Satish Pai Prize
PH13B011 H.S. Sunil Simha Dual Degree Institute Merit Prize	NA13B014	G. Maathangi	B.Tech.	Ms Latha and Sampath Srinath Prize
	PH13B011	H.S. Sunil Simha	Dual Degree	Institute Merit Prize

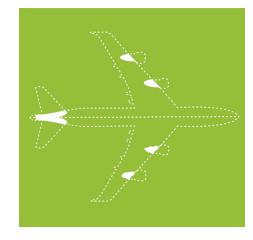
For the student with the best academic record in the fifth and sixth semesters in each branch of the B.Tech./Dual Degree programme (2012 batch)

8 1 8	,		
AE12B032	Sukruth S.	B.Tech.	Prof. E.G. Tulapurkara Prize
BE12B017	Nabeel Mohammed	Dual Degree	Dr. Anita Mehta-Damani Prize
CE12B008	Ayyalaraju Rama Aishwarya	Dual Degree	M.S.K. Chaitanya Varma Memorial Prize
CH12B094	Venkatachalam A.	B.Tech.	Dr. R.K. Viswanath Memorial Prize
CS12B059	Aditi R.	B.Tech.	Computer Age Management Service Pvt. Ltd. Prize
ED12B009	Ashay Makim	Dual Degree	Dr. Srikanth Sundararajan Prize
ED12B024	Joshi Sagar Suhas	Dual Degree	[Joint Winners]
EE12B127	Joseph Samuel	B.Tech.	Mr. Ramasarma V. Kolluri Memorial Prize
EP12B005	Arjun Natarajan Iyer	B.Tech.	Institute Merit Prize
ME12B069	Tejaswin P.	B.Tech.	Dr. Vivekanand Kochikar Award
MM12B028	Sanghvi Kevin Paresh	B.Tech.	Ratna Award
NA12B010	Dornadula Revanth Reddy	B.Tech.	Institute Merit Prize
PH12B009	Vinayak Vinod	Dual Degree	Institute Merit Prize

For the student Engineering	t with the best academic recor	d in the firs	t four semesters of the B.Tech. Programme in Mechanical
ME13B024	Dixit Yash Raghunandan		Sri Raghavendra Memorial Prize
For the studen Engineering	t with the best academic reco	rd in the fir	st six semesters of the B.Tech. Programme in Mechanical
ME12B009	Bhavik Rasyara		Dr. S. Chandrasekharan Memorial Prize
For the student Engineering	t with the best academic record	d in the first	seven semesters of the B.Tech. Programme in Mechanical
ME12B069	Tejaswin P.	B.Tech.	Dr. Dinesh Balagangadhar Prize
ME12B009	Bhavik Rasyara	B.Tech.	[Joint winners]
For the student (2011 batch)	t with the best academic record	d in the seve	enth and eighth semesters in the Dual Degree Programme
AE11B001	Aaditya Vijayakumar		Institute Merit Prize
NA11B052	Ruttala Veera Venkata Vinay I	Kumar	Institute Merit Prize (Applied Mechanics)
BT11B045	Anil Kiran Chokkalla		Mr. Madan Gopal Damani Prize
CE11B045	Pooja Battagani		Mr. Venkataraman Ravi Prize
CH11B089	Sahithi Gorthy		Dr. Anita Mehta-Damani Prize
CS11B061	Ramnandan S.K.		Computer Age Management Services Private Limited Prize
ED11B043	Athira Jane Jacob		Sarada Bhakara Reddy Award
EE11B087	Aman Goel		Electronics For You Prize (Microelectronics and VLSI Design Stream)
EE11B056	Nitin Jonathan Myers		D. Anand Subramanian Memorial Award (Communication Engineering Stream)
EE11B114	Kanneganti Sravya		Mr. Ramanan Ramamurthy Memorial Prize (Power Systems & Power Electronics Stream)
ME11B127	Dhawal Rajendra Thakare		Mr. Rajesh Achanta Prize (Product Design Stream)
ME11B109	Nakka Sai Phaneendra Kumar		Mr. Sagar Pushpala Prize (Intelligent Manuacturing Stream)
MM11B007	Avula Venkata Siva Nikhil		Prof. V. Sundaresan Prize
NA11B039	Kusum Kumari		Mr. Poovai T.R. Srinivasan and S. Alamelu Award
PH11B003	Jonnadula Lakshmi Sai Bharga	ıvi	Institute Merit Prize
For the studen	t with the best academic reco	rd in the fire	st and second semesters of the M.Tech. Programme
AE14M012	Mohit Garg		Institute Merit Prize
AM14M009	Nijin I.S.		Institute Merit Prize
CH14M031	Vasudharini S.V.		Messrs. Chevron Products Company Prize
NE14M003	Dahiphale Chandrakant Vaijar	nath	Prof. Rama Rao Jayanti Memorial Prize
CE14M031	Krishna Prasad E.		Ms Jayalakshmi Narasimhan Memorial Prize
CE14M114	Logeshwaran V.D.		Sambasivan Award
CS14M036	Patel Nirav Ashokbhai		Prakash Arora Pirze
EE14M020	Jyotish R.		Prof. M.K. Achuthan Prize
MA14M004	Kumar Saurabh		Institute Merit Prize
ME14M073	Myneni Manoj		Mr. Ramanan Ramamurthy Memorial Prize
AT14M009	Srikrishna A.S.		Institute Merit Prize
MM14M016	Soumya Mishra		Institute Merit Prize
OE14M004	Neralkar Kuldeep Mangaldas		Prof. Vallam Venkataswami Prize
OE14M054	Rajarshi Maitra		Institute Merit Prize
PE14M013	Shashwat Sharma		M.S. Ananth Prize
PH14M003	Karanvir Singh		Ms Lakshmi Ravikumar Memorial Prize

ME14M018	Dirgim Babu M.	Prof. N. Venka	tarayulu Memorial Prize		
For the stude			nesters of the M.B.A. Programme		
MS14A065	Vishwarath Reddy P.	Prof. T.N. Gov	indarajan Prize		
	ent with the best academic hematics and Physics	record in the first and second	semesters of the M.Sc. Programmes in		
CY14C003	Anindita Mahapatra	Ms Kalaimani	Natarajan Prize		
MA14C044	Santi Ranjan Das	Geetha Raghu	upathy Prize		
PH14C038	Soutick Saha	Chilukuri Ran	nasastry Memorial Prize		
For one M.A. student (2014 batch) with the best academic record in the first and second semesters					
HS14H020	Isabel Alex	Institute Meri	t Prize		
For one M.A	a. student (2013 Batch) with t	he best academic record in the	third and fourth semesters		
HS13H017	Madhura Niveditha Balasub	oramaniam Institute Meri	t Prize		
For the stud Programme (20		record in the fifth and sixth	semesters in each branch of the M.A		
HS12H018	Isha Ravi Bhallamudi	Development Studies	Institute Merit Prize)		
HS12H039	Shilpa Menon	English Studies	Institute Merit Prize		
For the stude Programme (20		ecord in the seventh and eightl	h semesters in each branch of the M.A.		
HS11H003	Aditi Aggarwal	Development Studies	Institute Merit Prize		
HS11H041	Sreenidhi Krishnan	English Studies	Institute Merit Prize		
For the B.Te		the best cumulative performan			
For the B.Te	ch./Dual Degree student with	the best cumulative performan			
For the B.Te Studies in the find CE12B057 For the B.Te	ch./Dual Degree student with fth, sixth and seventh semest Sistla Sai Manoj	the best cumulative performanters Rajalakshmi kent with the highest CGPA in	nce in the minor category under English Krishnamurthy English Prize		
For the B.Te Studies in the find CE12B057 For the B.Te	ch./Dual Degree student with fifth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude	the best cumulative performanters Rajalakshmi kent with the highest CGPA in rs	nce in the minor category under English Krishnamurthy English Prize		
For the B.Te Studies in the find CE12B057 For the B.Te minor in the fift CS12B028	ch./Dual Degree student with fifth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. studeth, sixth and seventh semeste Sure Manoj Kumar	the best cumulative performanters Rajalakshmi kent with the highest CGPA in rs	Arishnamurthy English Prize the Innovation and Entrepreneurship Viswanathan Prize		
For the B.Te Studies in the find CE12B057 For the B.Te minor in the fift CS12B028	ch./Dual Degree student with fifth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. studeth, sixth and seventh semeste Sure Manoj Kumar	Rajalakshmi Rent with the highest CGPA in rs	Arishnamurthy English Prize the Innovation and Entrepreneurship Viswanathan Prize In the M.B.A. Programme		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053	ch./Dual Degree student with fith, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. studeth, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. studeth./Dual Degree/M.A. studeth./Dual Degree/M.A. studeth.	Rajalakshmi kent with the highest CGPA in rs Ms Pattammal the Marketing Specialization in Dr. V. Kumar	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize in the M.B.A. Programme Prize		
For the B.Te Studies in the first CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te	ch./Dual Degree student with fith, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. studeth, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. studeth./Dual Degree/M.A. studeth./Dual Degree/M.A. studeth.	Rajalakshmi kent with the highest CGPA in rs Ms Pattammal the Marketing Specialization in Dr. V. Kumar	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize in the M.B.A. Programme Prize ne Management minor in the fifth, sixth		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te	ch./Dual Degree student with fth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel	Rajalakshmi kent with the highest CGPA in the Marketing Specialization in the Mighest CGPA in the Mighest	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize in the M.B.A. Programme Prize ne Management minor in the fifth, sixth		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te	ch./Dual Degree student with ofth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student with	Rajalakshmi kent with the highest CGPA in the Marketing Specialization in the Marketing Specialization in the With the highest CGPA in the Marketing Specialization in the Mr. S. Viswana the the best cumulative performs a semester	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize In the M.B.A. Programme Prize The Management minor in the fifth, sixth Athan Prize		
For the B.Te Studies in the first CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te category and m CH12B091	ch./Dual Degree student with ofth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student wi inor in HSS up to the seventh Srijith R.	Rajalakshmi kent with the highest CGPA in res Ms Pattammal the Marketing Specialization in Dr. V. Kumar Int with the highest CGPA in the Mr. S. Viswana the the best cumulative performs a semester Dr. Dilip Veer	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize In the M.B.A. Programme Prize The Management minor in the fifth, sixth athan Prize Than Courses taken under the HSS		
For the B.Te Studies in the first CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te category and m CH12B091	ch./Dual Degree student with ofth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student wi inor in HSS up to the seventh Srijith R.	Rajalakshmi kent with the highest CGPA in res Ms Pattammal the Marketing Specialization in Dr. V. Kumar Int with the highest CGPA in the Mr. S. Viswana the the best cumulative performs a semester Dr. Dilip Veer cord in the first, second and this	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize in the M.B.A. Programme Prize ne Management minor in the fifth, sixth athan Prize mance in courses taken under the HSS		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te category and m CH12B091 For the stude MS14A065	ch./Dual Degree student with ofth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student wi inor in HSS up to the seventh Srijith R. ent with the best academic re Vishwarath Reddy P.	Rajalakshmi kent with the highest CGPA in res Ms Pattammal the Marketing Specialization in Dr. V. Kumar Int with the highest CGPA in the Mr. S. Viswana the the best cumulative performs a semester Dr. Dilip Veer cord in the first, second and this	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize In the M.B.A. Programme Prize The Management minor in the fifth, sixth That hathan Prize That arishnamurthy English Prize The Management minor in the fifth, sixth That arishnamurthy English Prize The Innovation and Entrepreneurship The Innovation an		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te category and m CH12B091 For the stude MS14A065	ch./Dual Degree student with ofth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student wi inor in HSS up to the seventh Srijith R. ent with the best academic re Vishwarath Reddy P.	Rajalakshmi kent with the highest CGPA in res Ms Pattammal the Marketing Specialization in Dr. V. Kumar Int with the highest CGPA in the Mr. S. Viswana the the best cumulative performs a semester Dr. Dilip Veer cord in the first, second and thi Prof. T.S. Raja	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize In the M.B.A. Programme Prize The Management minor in the fifth, sixth The Management minor in the HSS The Management arise taken under the HSS The Management of the M.B.A. programme		
For the B.Te Studies in the fit CE12B057 For the B.Te minor in the fift CS12B028 For the stude MS14A053 For the B.Te and seventh ser EE12B127 For the B.Te category and m CH12B091 For the stude MS14A065 For the M.Sc MA14C047	ch./Dual Degree student with ffth, sixth and seventh semest Sistla Sai Manoj ech./Dual Degree/M.A. stude th, sixth and seventh semeste Sure Manoj Kumar ent with the highest CGPA in Shakeel Mohammed ch./Dual Degree/M.A. stude mesters Joseph Samuel ech./Dual Degree student wi inor in HSS up to the seventh Srijith R. ent with the best academic re Vishwarath Reddy P. c. (Maths) student with the best Subhankar Mondal	Rajalakshmi kent with the highest CGPA in res Ms Pattammal the Marketing Specialization in Dr. V. Kumar Int with the highest CGPA in the Mr. S. Viswana the the best cumulative performs semester Dr. Dilip Veer cord in the first, second and this Prof. T.S. Raja est academic record up to the the L.V.K.V. Sarm	Arishnamurthy English Prize the Innovation and Entrepreneurship I Viswanathan Prize In the M.B.A. Programme Prize The Management minor in the fifth, sixth The Management minor in the HSS The Management arise taken under the HSS The Management of the M.B.A. programme		

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. and Ph.D. programmes.

The areas of teaching and research of the department are (1) aerodynamics and flight mechanics, (2) propulsion and combustion and (3) aerospace structures.

4.1.2. Academic Programmes

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

New courses introduced

SI. No.	Course No.	Course Title	Credits
1	AS 1300	Thermodynamics for Aerospace Engineers	11
2	AS 3260	Propulsion I	10
3	AS 5211	Design of Subsonic Aircraft	12
4	AS 5212	Design of Supersonic Aircraft	12
5	AS 5213	Design of MAVs and UAVs	12

New labs established

- 1. Rotating Flows Laboratory
- 2. Ballistics Laboratory

Students on roll

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	40	34	38	29	4	145
Dual Degree	10	18	20	21	23 + 3	95
M.Tech.	23	23	_	_	_	46
M.S.	21	19	14	7	_	61
Ph.D.	18	28	20	17	23	106
Total	112	122	92	74	53	453

Number of postdoctoral fellows: 1

Students/scholars who attended conferences/workshops/seminars/symposia

Sl. No.	Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
India					
1	N. Chandra	AE12D011	National Symposium on Acoustics NSA 2015	7–9 October 2015, National Institute of Oceanography, Goa	NAL
2	Binuj A.R.	AE13M006	National Conference on IC Engines and Combustion (24th NCICEC-2015)	30 October to 1 November 2015, UPES, Dehradun	IIT Madras

Sl. No.	Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
3	Ripusudan Agrawal	_	24th NCICEC-2015	30 October to 1 November 2015, UPES, Dehradun	IIT Madras
4	Jadhav Dattatreya	AE10B042	24th NCICEC-2015	30 October to 1 November 2015, UPES, Dehradun	IIT Madras
5	Kannan B.T.	AE11D008	International Conference on computational Heat and Mass Transfer (ICCHMT–2015)	30 November–2 December 2015, NIT, Warangal	IIT Madras
6	Dheeraj Varma	AE13D035	International Symposium on Dynamics of the Indian Ocean: Perspective and Retrospective	30 November to 4 December 2015, Goa, India	IIT Madras
7	Amit Kumar Khatri	AE09D008	7th SAROD (Symposium on Applied Aerodynamics and Design of Aerospace Vehicles) 2015	3–5 December 2015, Thiruvananthapuram	IIT Madras
8	Madhur Thapliyal	AE13M026	7th SAROD (Symposium on Applied Aerodynamics and Design of Aerospace Vehicles) 2015	3–5 December 2015, Thiruvananthapuram	IIT Madras
9	Vikas Rana	AE12M020	7th SAROD (Symposium on Applied Aerodynamics and Design of Aerospace Vehicles) 2015	3–5 December 2015, Thiruvananthapuram	IIT Madras
10	K. Manokaran, M. Ramakrishna and T. Jayachandran	AE09D003	7th SAROD 2015	3–5 December 2015, Thiruvananthapuram	IIT Madras
11	Dheelibun Remigius W.	AE12D020	International Conference on Vibration Problems (ICOVP 2015)	13–19 December 2015, IIT Guwahati	IIT Madras
12	Thanusha M.T.	AE14S009	ICOVP 2015	13–19 December 2015, IIT Guwahati	IIT Madras
13	Abu Bakker Sithick Basha	AE13M001	CF-7 Conference	January 2016, IGCAR, Kalpakkam	IIT Madras
14	S. Manoj Prabakar	AE14S010	54th AIAA Aerospace Sciences Meeting	4–8 January 2016, San Diego, California, USA	Alumni and Boeing
15	Ashish Mishra	AE13D212	FRACMEET Conference	February 2016, IMSc, Taramani, Chennai	IIT Madras
16	Velari Yogeshkumar M.	AE14M027	10th High Energy Material Conference and Exhibit-2016	11–13 February 2016, Hyderabad, India	IIT Madras
17	Ramakrishnan M.	AE14D209	High Energy Materials Conference and Exhibits	11–13 February 2016, Hyderabad, India	IIT Madras
18	Gaurav Marothiya	AE10D016	International High Energy Materials Conference and Exhibits	11–13 February 2016, Hyderabad, India	IIT Madras
19	Nagendra Kumar	AE12D021	International High Energy Materials Conference and Exhibits	11–13 February 2016, Hyderabad, India	IIT Madras
20	Arunkumar R.	AE13D017	Fourth National Symposium on Shockwaves	25–26 February 2016, Karunya University, Coimbatore	IIT Madras
21	Arun S.	AE13D018	Fourth National Symposium on Shockwaves	25–26 February 2016, Karunya University, Coimbatore	IIT Madras
22	Kannan B.T.	AE11D008	International Conference on Recent Trends in Engineering and Material Sciences (ICEMS-2016)	17–19 March 2016, JNU, Jaipur	IIT Madras

SI. No.	Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroac	1				
1	B.T. Kannan	AE11D008	Seventh International Energy, Energy and Environment Symposium (IEEES7-2015)	27–30 April 2015, Valenciennes, France	IIT Madras
2	Krishna Rakend Reddy D.	_	IEEES7-2015	27–30 April 2015, Valenciennes, France	IIT Madras
3	Syed Ashruf	AE13D030	Seventh FM Global Open Source CFD Fire Modeling Workshop	6–7 May 2015, Norwood, MA, USA	IIT Madras
4	Pawar Samadhan Ananda	AE12D211	ASME Turbo Expo 2015	15–19 June 2015, Montreal, Canada	IIT Madras
5	Arsad Quraishi	AE13S001	30th ISTS/34IEPC/6th NSAT	4–10 July 2015, Kobe Convention Centre, Japan	IIT Madras
6	Meenatchidevi M.	AE12D019	22nd International Congress on Sound and Vibration (ICSV22)	12–16 July 2015, Florence, Italy	IIT Madras
7	R. Vishnu	AE14D003	ICSV22	12–16 July 2015, Florence, Italy	IIT Madras
8	V.R. Unni	AE13D006	ICSV22	12–16 July 2015, Florence, Italy	IIT Madras
9	Salil Harris	AE12S035	The Sixth International Conference on Computational Methods (ICCM2015)	14–17 July 2015, Auckland, New Zealand	IIT Madras
10	Manoj Prabakar S.	AE14S010	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
11	Chimakurthy Srikanth	AE13M022	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
12	Vaisakh S.	AE12D210	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
13	Aritra Chakraborty and V. Ramanan	AE14S017	10th Asia Pacific Conference on Combustion (ASPACC)	19–22 July 2015, Beijing, China	IIT Madras
14	V. Ramanan	AE10D015	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
15	Preethi R.S.	AE14S028	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
16	Aritra Chakraborty	AE14S017	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
17	Arun K. Ampi	AE12S001	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
18	Baraiya Nikhil Ashokbhai	AE14D001	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
19	Gnanaprakash K.	AE12D012	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
20	Kiran Kumar M.N.	AE12S021	ASPACC	19–22 July 2015, Beijing, China	IIT Madras
21	Keerthi Balakumar	AE10B043	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
22	Vinod Yeldho Baby	AE13M029	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
23	V.R. Unni	AE13D006	51st AIAA Propulsion and Energy	27–29 July 2015, Orlando, Florida, USA	IIT Madras
24	M. Murugesan	AE12D019	51st AIAA Propulsion and Energy	27–29 July 2015, Orlando, Florida, USA	IIT Madras

Sl. No.	Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
25	Ijaz Mohamed	AE14S005	30th International Symposium on Shock Waves	19–24 July 2015, Tel Aviv, Israel	IIT Madras
26	Vegad Chetankumar Sundarlal	AE13D005	ICLASS 2015	23–27 August 2015, Tainan, Taiwan	IIT Madras
27	N. David	AE13D002	15th European Turbulence Conference	25–28 August 2015, Delft, The Netherlands	IIT Madras
28	R. Sooraj	AE12D005	15th European Turbulence Conference	25–28 August 2015, Delft, The Netherlands	IIT Madras
29	S. Venkatachalam	AE11D004	Fourth International Conference on Fracture Fatigue and Wear (FFW 2015)	27–28 August 2015, Ghent, Belgium	IIT Madras
30	Gurusideswar S.	AE09D009	10th International Conference on Composite Science and Technology	2–4 September 2015, Lisbon, Portugal	Alumni and project
31	Pritish Seth	AE14M017	Fourth Asian/Australian Rotorcraft Forum	16–18 November 2015, IISc, Bengaluru, India	IIT Madras
32	Akshay R.	_	Fourth Asian/Australian Rotorcraft Forum	16–18 November 2015, IISC, Bangalore, India	IIT Madras
33	Manjul Sharma	AE12D022	68th Annual Meeting of the APS Division of Fluid Dynamics	22–24 November 2015, Boston, MA, USA	IIT Madras
34	S. Manoj Prabakar	AE14S010	Singapore Aerospace Technology and Engineering Conference (SATEC 2016)	15 February 2016, Singapore	IIT Madras

Students/scholars who won outside prizes and awards

SI. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	B.T. Kannan	AE11D008	Best Paper Award	ICCHMT 2015, NIT Warangal

Scholars/students who won convocation/Institute Day prizes

SI. No.	Student/Scholar	Roll No.	Prize	Prize Awarded by
1	Anant Giridhar	AE11B004	HAL Prize	IIT Madras
2	Kautuk Kushansh	AE10B015	Dr. V. Mohan Raman Prize	IIT Madras
3	Ashwin A. Kamat	AE10B055	Mayan Prize	IIT Madras
4	Abubakker Sithick Basha A.	AE13M001	Air India Prize	IIT Madras

4.1.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
Ramakrishna M., Ph.D., University of Texas, Arlington	Fluid mechanics, numerical methods, computer solutions
Sriram P., Ph.D., Georgia Institute of Technology	Structural mechanics, fatigue and fracture, parallel computing
Bhaskar K., Ph.D., IIT Madras	Structural mechanics, plates and shells, composite structures
Sujith R.I., Ph.D., Georgia Institute of Technology	Acoustics and combustion instability, optical flow diagnostics
Chakravarthy S.R., Ph.D., Georgia Institute of Technology	Propulsion, combustion and fluid mechanics
Velmurugan R., Ph.D., IIT Delhi	Composite structures analysis and design, impact mechanics, three-dimensional composites
Luoyi Tao, Ph.D., University of Pittsburgh	Continuum mechanics and its applications (fluids, solids, multiphase flows, etc.)

Name and Qualifications	Major Areas of Specialization
Murthy H.S.N., Ph.D., Purdue University	Fatigue and fracture, non-destructive evaluation, tribology, advanced materials, elasticity
Amit Kumar, Ph.D., Case Western Reserve University	Combustion, propulsion, fire research, CFD
Ramakrishna P.A., Ph.D., Indian Institute of Science	Combustion, propulsion and fuel cells
Nandan Kumar Sinha, Ph.D., IIT Bombay	Non-linear dynamics, bifurcation theory and continuation methods, flight dynamics and controls
Associate Professors	
Panchapakesan N.R., Ph.D., Cornell University	Fluid mechanics, stability and transition of fluid flows, turbulence
Sunetra Sarkar, Ph.D., Indian Institute of Science	Insect aerodynamics, fluid-structure interaction, uncertainty quantification
Rajesh G., Ph.D., Andong National University, S. Korea	Shock wave dynamics, high-speed flows, experimental aerodynamics
Sameen A., Ph.D., Indian Institute of Science	Stability, transition and turbulence, computational fluid dynamics
Muruganandam T.M., 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
Sivasambu Mahesh, Ph.D., Cornell University	Structure-property modeling of aerospace materials
Assistant Professors	
K.V. Nagendra Gopal, Ph.D., Indian Institute of Science	Computational mechanics and multi-scale modeling, fracture mechanics, structural dynamics and aero-elasticity
Ranjith Mohan, Ph.D., Florida Atlantic University	Helicopters, rotorcraft MAVs, spectral methods in fluid dynamics
Santanu Ghosh, Ph.D., North Carolina University	Computational fluid dynamics, turbulent flows, shock–boundary-layer interaction, immersed-boundary methods
Manikandan Mathur, Ph.D., Massachusetts Institute of Technology	Instabilities and mixing, stratified and rotating flows, Lagrangian coherent structures
Shankar Ghosh, Ph.D., University of Minnesota	Hypersonic flow simulation, non-equilibrium effects, computational fluid dynamics, turbulent flows
Shyam M. Keralavarma, Ph.D., Texas A&M University	Plasticity, ductile fracture, computational materials modeling, multiscale modeling
Joel George, Ph.D., Indian Institute of Science	Navigation, guidance and control of aerospace vehicles, multi-agent systems theory as applied to multiple unmanned aerial vehicle missions
Shantanu Shashikant Mulay, Ph.D., Nanyang Technological University	Continuum mechanics, large deformation of materials, fracture mechanics and plasticity
M. Senthil Murugan, Ph.D., Indian Institute of Science	Aeromechanics, dynamics and aero-elasticity, stochastic systems

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period
1	R. Velmurugan and K.V.N. Gopal	Composites Analysis and Design	12–16 October 2015
2	S.R. Chakravarthy	International Combustion Institute Winter School (ICIWS India 2015)	12–23 December 2015
3	R.I. Sujith	Interdisciplinary International Conference on Complex Systems Approach to Self-organization (CSAS 2016)	1–5 February 2016
4	Amitkumar	Fire Research (international workshop)	5–12 February 2016

$Short-term\ courses/workshops/seminars/symposia/conferences/training\ programmes\ attended\ by\ faculty\ members\ at\ academic\ institutions\ and\ public\ sector\ undertakings$

Sl. No.	Faculty Member	Title	Period and Venue
Works	hops		
1	Amitkumar	Seventh FM Global Open Source CFD Fire Modeling	6–7 May 2015, Norwood, USA

Sl. No.	Faculty Member	Title	Period and Venue
Semina	ars/Symposia/Conferences		
1	Sivasambu Mahesh	Pravartana 2015 Conference	25 April 2015, IIT Kanpur
2	M. Ramakrishna	Design Automation Conference 2015	8–11 June 2015, San Francisco, USA
3	Nandan Kumar Sinha	AIAA Atmospheric Flight Mechanics Conference	22–26 June 2015, Dallas, Texas, USA
4	R. Velmurugan	IUTAM Symposium on Growing Solids 2015 (SGS 2015)	23–27 June 2015, Moscow, Russia
5	S.R. Chakravarthy	22nd International Congress on Sound and Vibration	12–16 July 2015, Palazzo Dei Congressi Florence, Italy
6	N.R. Panchapakesan	Sixth International Symposium on Bifurcations and Instabilities in Fluid Dynamics 2015	15–17 July 2015, Paris, France
7	S.R. Chakravarthy	12th Asia Pacific Conference on Combustion (ASPACC)	19–22 July 2015, Beijing, China
8	T.M. Muruganandam	ASPACC 2015	20–22 July 2015, Beijing, China
9	R.I. Sujith	American Institute of Aeronautics and Astronautics (AIAA) conference—Propulsion and Energy 2015	27–29 July 2015, Orlando, Florida, USA
10	S.R. Chakravarthy	13th International Conference on Liquid Atomization and Spray Systems	23–27 August 2015, Tainan, Taiwan
11	R. Velmurugan	Second International Conference on Composites, Biocomposites and Nanocomposites (ICCBN 2015)	28–30 October 2015, DUT, South Africa

Meetings

- 1 Dr. R.I. Sujith visited the Technical University of Munich, Germany as a Visiting Scientist, 25 June to 24 July 2015.
- 2 Dr. Shyam Keralavarma visited the GE Global Research Center for initiating a research collaboration as part of the GE–IIT Madras Industry Connect Programme between 29 June and 3 July 2015.
- 3 Dr. Amitkumar attended NCCRD Meeting at Bremen Drop Tower, Germany, 22–24 July 2015.
- 4 Dr. R.I. Sujith attended the TANGO Project meetings at Genova, Italy, 14–17 September 2015.
- 5 Dr. R.I. Sujith visited the Technische Universitat Munchen, Germany, 18 September 2015.
- 6 Dr. N.R. Panchapakesan attended the 68th Annual Meeting of the APS Division of Fluid Dynamics at Boston, Massachusetts, USA, 22–24 November 2015.
- 7 Dr. A. Sameen attended the 68th Annual Meeting of the APS Division of Fluid Dynamics at Boston, Massachusetts, USA, 22–24 November 2015.
- 8 Dr. Manikandan Mathur attended the 68th Annual Meeting of the APS Division of Fluid Dynamics at Boston, Massachusetts, USA, 22–24 November 2015.
- 9 Dr. R. Velmurugan visited Durban University of Technology and discussed the progress in the work and future scope of the India–South Africa bilateral research project 'Application of Nanocomposite in Space Science'. He also discussed the setting up of high-strain-rate and projectile-impact test facilities at Durban University of Technology, Durban, South Africa, 4–11 December 2015.
- 10 Dr. Manikandan Mathur attended 2016 Ocean Sciences Meeting at New Orleans, Louisiana, USA, 21–26 February 2016.

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	Shyam Mohan Keralavarma	Micromechanical Modeling of Plastic Anisotropy Effects on Ductile Fracture	IIT Kanpur	25 April 2015
2	R.I. Sujith	Prognosis of an Impending Combustion Instability	Saastra University, Trichy	30 April 2015
3	G. Rajesh	Transitional Ballistics of Supersonic Projectiles	NIT Suratkal	18 September 2015
4	Manikandan Mathur	Lagrangian Coherent Structures (LCS) in the Ocean: Potential Use of SAR Imagery	SAC, ISRO, Ahmedabad	18–19 November 2015
5	R.I. Sujith	Complex Network Approach to Studying Thermoacoustic Instability	P.J. Paul Memorial Combustion Sciences Meeting, VSSC, Thiruvananthapuram	27–28 February 2016

SI. No.	Faculty Member	Title of Lecture	Institution	Date
6	R.I. Sujith	Prognosis of an Impending Combustion Instability	LPSC, Thiruvananthapuram	29 February 2016
7	Nandan Kumar Sinha	Launch Vehicle Dynamics and Control	IIST, Thiruvananthapuram	4–6 January 2016

Visits a	Visits abroad by faculty members				
Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Amitkumar	USA	6–7 May 2015	To attend the Seventh FM Global Open Source CFD Fire Modeling Workshop	IIT Madras
2	M. Ramakrishna	USA	8–11 June 2015	To attend the Design Automation Conference 2015	IIT Madras
3	Nandan Kumar Sinha	USA	22–26 June 2015	To attend the Conference on AIAA Atmospheric Flight Mechanics Conference	IIT Madras
4	R. Velmurugan	Russia	23–27 June 2015	To attend the IUTAM Symposium on Growing Solids 2015 (SGS 2015)	IIT Madras
5	R.I. Sujith	Technical University of Munich, Germany	25 June to 24 July 2015	Visiting Scientist	Germany
6	S.R. Chakravarthy	Italy	12–16 July 2015	To attend the 22nd International Congress on Sound and Vibration	IIT Madras
7	N.R. Panchapakesan	France	15–17 July 2015	To participate in the Sixth International Symposium on Bifurcations and Instabilities in Fluid Dynamics 2015	IIT Madras
8	S.R. Chakravarthy	China	19–22 July 2015	To attend the 10th Asia–Pacific Conference on Combustion (ASPACC)	IIT Madras
9	T.M. Muruganandam	China	20–22 July 2015	To participate in ASPACC	IIT Madras
10	Amitkumar	Germany	22-24 July 2015	To attend the NCCRD Meeting	IIT Madras
11	R.I. Sujith	USA	27–29 July 2015	To attend the American Institute of Aeronautics and Astronautics Conference (AIAA)—Propulsion and Energy 2015	Project
12	S.R. Chakravarthy	Taiwan	23–27 August 2015	To attend the 13th International Conference on Liquid Atomization and Spray Systems	IIT Madras
13	R.I. Sujith	Italy	14–17 September 2015	To attend the TANGO Project Meeting	Project
14	R.I. Sujith	Germany	18 September 2015	Visiting Scientist	Germany
15	R. Velmurugan	South Africa	28–30 October 2015	To attend the Second International Conference on Composites, Biocomposites and Nanocomposites (ICCBN 2015)	IIT Madras
16	N.R. Panchapakesan	USA	22–24 November 2015	To attend the 68th Annual Meeting of the APS Division of Fluid Dynamics	IIT Madras
17	A. Sameen	USA	22–24 November 2015	To attend the 68th Annual Meeting of the APS Division of fluid Dynamics	IIT Madras
18	Manikandan Mathur	USA	22–24 November 2015	To attend the 68th Annual Meeting of the APS Division of Fluid Dynamics	Project

SI. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
19	R. Velmurugan	Durban, South Africa	4–11 December 2015	To discuss the progress in the work and future scope of the India–South Africa bilateral research project 'Application of Nanocomposite in Space Science' and the setting up of a high-strain-rate and projectile-impact test facility	PCF
20	Manikandan Mathur	USA	21–26 February 2016	To attend the 2016 Ocean Sciences Meeting	Project

Honours and awards

Sl. No.	Faculty Member	Award
1	T.M. Muruganandam	Young Faculty Recognition Award for the year 2015 by IIT Madras
2	Job Kurian (Retired Professor)	Eminent Aerodynamicist by the Aerodynamics Community of the Country at SAROD 2015
3	P. Sriram	HAL Chair Professor at IIT Madras

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	S.R. Chakravarthy	Member	Progress in Energy and Combustion Science (Elsevier)
2	R.I. Sujith	Editor-in-Chief	International Journal of Spray and Combustion Dynamics (UK)
3	R.I. Sujith	Associate Editor	International Journal of Aerospace Engineering
4	R. Velmurugan	Member	Journal of Aerospace Sciences and Technologies
5	Sivasambu Mahesh	Member	International Journal of Plasticity (Elsevier)

4.1.4. Design and Development Activities

New facilities added

Sl. No.	Equipment	Value (lakhs of ₹)
1	Rotating tank	32.0
2	Two-stage gas gun and instrumentation	3.0
3	Peristaltic pump	8.40
4	High-speed camera	13.79
5	Bomb calorimeter	7.93

Patents filed

Sl. No.	Faculty Member	Topic of Patent
1	R. Velmurugan	High-Strain-Rate Tensile Testing Set-up by Impact Loading
2	G. Balaganesan	High-Strain-Rate Tensile Testing Set-up by Impact Loading
3	S. Gurusideswar	High-Strain-Rate Tensile Testing Set-up by Impact Loading

4.1.5. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Flow Characterization Studies and Performance Analysis of an Aero-spike Nozzle	23 February 2015 to 22 February 2018	ISRO	28.32	G. Rajesh

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
2	Development of the Coupled Field Theory for the Large Deformation of Hydrogels with Focus on the Fusion of Electromagnetics with Mechanics and Thermodynamics	31 March 2016 to 30 March 2019	SERB (DST)	26.42	Shantanu Shashikant Mulay
3	Condition Monitoring of Aerospace Structural Materials Adopting Multi-fusion Sensor System	1 March 2016 to 28 February 2018	ISRO	28.80	R. Velmurugan
4	Experimental Investigation of Ageing Related Issues in Composite Solid Propellants	1 March 2016 to 28 February 2019	ISRO	20.62	H.S.N. Murthy and P.A. Ramakrishana
5	Development of Autonomous Flight Testing Procedures for Small Unmanned Aerial Vehicles	23 July 2015 to 22 July 2018	NFSC	5.0	Joel George
6	Coupled Physical Processes in the Bay of Bengal and Monsoon Air–Sea Interaction	22 May 2015 to 21 May 2018	IITR	52.14	Manikandan Mathur

Industrial consultancy projects

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	R. Velmurugan	Testing of Composite Pipes	MEEK	3.11
2	R. Velmurugan	Design of Composite Beams for Highway Trucks	GAPL	2.0
3	R. Velmurugan	Design of Frangible Huts	Garg Associates, Delhi	2.0

RBIC projects

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	P.A. Ramakrishna	Development of Marginally Aluminized Composite Propellants with High Burn Rates	DRDL	9.60

Research publications

Papers published in refereed national journals: 1
Papers published in refereed international journals: 46

Papers presented at national conferences: 13
Papers presented at international conferences: 53

Papers published in refereed national journals

1. A.A. Sithick Basha and S. Mahesh. 2016. Mechanical and damage fields ahead of a stationary crack in a creeping solid. *Transactions of the Indian Institute of Metal*.

Papers published in refereed international journals

- 1. Murugesan M. and R.I. Sujith. 2015. Combustion noise is scale-free transition from scale-free to order at the onset of thermoacoustic instability. *Journal of Fluid Mechanics* 772: 225–245.
- 2. Aghalayam P., Vishnu R. and R.I. Sujith. 2015. Role of flame dynamics on the bifurcation characteristics of a ducted V-flame. *Combustion Science and Technology* 187(6): 894–905.
- 3. R.I. Sujith, V.R. Unni, Yogesh Prasad M.S., N.T. Ravi, S. Md. Iqbal and B. Pesala. 2015. Experimental investigation of bifurcations in a thermoacoustic engine. *International Journal of Spray and Combustion Dynamics* 7(2): 113–130.
- 4. R.I. Sujith, Subramanian P., Blumenthal R.S. and Polifke W. 2015. Distributed time lag response functions for the modeling of combustion dynamics. *Combustion Theory and Modelling* 19(2): 223–237.
- 5. R.I. Sujith and Nair V. 2015. A reduced-order model for the onset of combustion instability physical mechanisms for intermittency and precursors. *Proceedings of the Combustion Institute* 35(3): 3193–3200.
- 6. Shyam Mohan Keralavarma and Benzerga A.A. 2015. Numerical assessment of an anisotropic porous metal plasticity model. *Mechanics of Materials* 90: 212–228.
- 7. Nandan K. Sinha and Raghav H. Venkatesan. 2015. A new guidance law for the defense missile of non-maneuverable aircraft. *IEEE Transactions on Control Systems and Technology* 23: 2424–2431.
- 8. P. Sriram. 2015. India: Multi-author papers skew ranking. *Nature* 522: 419.

- 9. Keralavarma S.M. and Benzerga A.A. 2015. High-temperature discrete dislocation plasticity. *Journal of the Mechanics and Physics of Solids* 82: 1–22.
- 10. Sivasambu Mahesh. 2015. A minimum principle for microstructuring in rigid–viscoplastic crystalline solids. *Journal of the Mechanics and Physics of Solids* 84: 39–58.
- 11. Sivasambu Mahesh and C.N. Irfan Habeeb. 2015. Strength distribution of planar local load sharing bundles. *Physical Review E: Statistical, Nonlinear and Soft Matter Physics* 92: article no. 022125.
- 12. Sivasambu Mahesh, J. Singh, G. Kumar, P. Pant, D. Srivastava, G.K. Dey, N. Saibaba and I. Samajdar. 2015. Deformation twinning in zirconium: Direct experimental observations and polycrystal plasticity predictions. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science* 46(11): 5058–5071.
- 13. A. Sameen and Aswathy Nair K. 2015. Experimental study of slip flow at the fluid-porous interface in a boundary layer flow. *Procedia IUTAM* 15: 293–299.
- 14. T.M. Muruganandam and Sonu K. Thomas. 2015. Acoustic blower using fluidic diodes and a non-uniform resonator. *International Journal of flow Control* 7: 55–66.
- 15. T.M. Muruganandam and Sonu K. Thomas. 2015. Resonant gas oscillations in a linearly varying cavity: Rectangular versus circular cross-section. *Journal of Vibrations & Acoustics* 138(1): 1006
- 16. K. Ishitha and P.A. Ramakrishna. 2015. Reducing agglomeration of ammonium perchlorate using activated charcoal. *Propellants, Explosives, Pyrotechniques* 40: 838–847.
- 17. P.A. Ramakrishna and Rajiv Kumar. 2016. Studies on EVA based wax fuel for launch vehicle applications. *Propellants, Explosives, Pyrotechniques* 41: 295–303.
- 18. E.A. Gopalakrishnan and R.I. Sujith. Effect of external noise on the hysteresis characteristics of a thermoacoustic system. *Journal of Fluid Mechanics* 776: 334–353.
- 19. R.I. Sujith, Mukhopadhyay A. and Unni V.R. Online detection of impending instability in a combustion system using tools from symbolic time series analysis. *International Journal of Spray and Combustion Dynamics* 7(3): 243–256.
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- 26. S. Mahesh and A.A. Sithick Basha. 2015. The role of the constitutive model in creep crack growth modeling. *Engineering Fracture Mechanics* 150: 47–57.
- 27. K.V. Nagendra Gopal, N Chandra and S. Raja. 2015. A comprehensive analysis on the structural–acoustic aspects of various functionally graded plates. *International Journal of Applied Mechanics* 7(5): article no. 1550072.
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- 36. R. Velmurugan, Mohan T.P. and Kanny K. 2015. Damping characteristics of nanoclay filled hybrid laminates during medium velocity impact. *Composites Part B: Engineering* 82: 178–189 (article no. 3694).
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- 44. Amitkumar, Avinash G. and Raghavan V. 2016. Experimental analysis of diffusion flame spread along thin parallel solid fuel surfaces in a natural convective environment. *Combustion and Flame* 165: 321–333.
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Papers presented at national conferences

- 1. N. Chandra, S. Raja and K.V. Nagendra Gopal. Sound transmission characteristics of functionally graded structures. *National Symposium on Acoustics (NSA 2015), National Institute of Oceanography*, Goa, 7–9 October 2015.
- 2. Binuj A.R. and T.M. Muruganandam. Measurement of temperature in flames by laser induced incandescence (LII) of seeded nano-alumina particles in gas flow. 24th National Conference on IC Engines and Combustion (24th NCICEC-2015), UPES, Dehradun, 30 October to 1 November 2015.
- 3. Ripusudan Agrawal, Jadhav Dattatreya and T.M. Muruganandam. Experimental studies on effectiveness of water in quenching fire. *24th National Conference on IC Engines and Combustion (24th NCICEC-2015)*, UPES, Dehradun, 30 October to 1 November 2015.
- 4. Nair S.S. and Ranjith Mohan. Effect of rotor wake on aeromechanical instabilities in helicopters. *Proceedings of the Fourth Asian/Australian Rotorcraft Forum*, IISc, Bengaluru, India, 16–18 November 2015.
- 5. Pritish Seth, Akshay R. and Ranjith Mohan. A mechanism for higher harmonic control. *Fourth Asian/Australian Rotorcraft Forum*, IISc, Bengaluru, India, 16–18 November 2015.
- 6. Amit Kumar Khatri and Nandan Kumar Sinha. A bifurcation theoretic tool for aircraft conceptual design with maneuverability studies. *Seventh Symposium on Applied Aerodynamics and Design of Aerospace Vehicles (SAROD) 2015*, Thiruvananthapuram, 3–5 December 2015.
- 7. Madhur Thapliyal and Nandan Kumar Sinha. Bifurcation methods: A tool for airplane design performance and flight stability education. *Seventh Symposium on Applied Aerodynamics and Design of Aerospace Vehicles (SAROD) 2015*, Thiruvananthapuram, 3–5 December 2015.
- 8. Vikas Rana and Nandan Kumar Sinha. Configuration analysis of stratospheric airship. *Seventh Symposium on Applied Aerodynamics and Design of Aerospace Vehicles (SAROD) 2015*, Thiruvananthapuram, 3–5 December 2015.
- 9. K. Manokaran and M. Ramakrishna and T. Jayachandran. A non-zonal approach to improve simulation time by switching solver fidelity. *Seventh Symposium on Applied Aerodynamics and Design of Aerospace Vehicle (SAROD) 2015*, Thiruvananthapuram, 3–5 December 2015.
- 10. Abu Bakker Sithick Basha and S. Mahesh. Influence of constitutive law on creep crack fields. *Seventh Internal Conference on Creep, Fatigue, and Creep–Fatigue Interaction CF-7*, IGCAR, Kalpakkam. January 2016.

- 11. Ashish Mishra and S. Mahesh. Damage evolution and failure of unidirectional metal matrix composites. *FRACMEET Conference*, IMSc, Taramani, Chennai, February 2016.
- 12. Arunkumar R. and Rajesh G. Diffuser flow characteristics during vacuum ejector–diffuser start-up. *Fourth National Symposium on Shockwaves*, Karunya University, Coimbatore, 25–26 February 2016.
- 13. Arun S., Arunkumar R., Sameen A. and G. Rajesh. Numerical investigation of initial transients in a vacuum ejector. *Fourth National Symposium on Shockwaves*, Karunya University, Coimbatore, 25–26 February 2016.

Papers presented at international conferences

- 1. B.T. Kannan and N.R. Panchapakesan. Some measurements in multiple jets. *Seventh International Exergy, Energy and Environment Symposium (IEEES7-2015)*, Valenciennes, France, 27–30 April 2015.
- 2. Krishna Rakend Reddy D. and N.R. Panchapakesan. Study of growth rate in turbulent mixing layers. *Seventh International Exergy, Energy and Environment Symposium (IEEES7-2015, ENSIAME-UVHC)*, Valenciennes, France, 27–30 April 2015.
- 3. Syed Ashruf and Amitkumar. Sensitivity study of parallel panel fire test to fuel properties. *Seventh FM Global Open Source CFD Fire Modeling Workshop*, Norwood, MA, USA, 6–7 May 2015.
- 4. Pawar Samadhan Ananda and R.I. Sujith. Intermittency route to combustion instability in a laboratory spray combustor. *ASME Turbo Expo 2015*, Montreal, Canada, 15–19 June 2015.
- 5. Badrinath S. and Sunetra Sarkar. Intermittency behaviour in the flow past an oscillating airfoil. *45th AIAA Fluid Dynamics Conference*, Dallas, USA, June 2015.
- 6. Badrinath S. and Sunetra Sarkar. Analysis of the deflected vortex street produced by a flapping airfoil. *45th AIAA Fluid Dynamics Conference*, Dallas, USA, June 2015.
- 7. Arsad Quraishi and Amitkumar. Numerical study on diffusion effects in magnetoplasmadynamic arcjet thrusters. *30th ISTS/34IEPC/Sixth NSAT*, Kobe Convention Centre, Japan, 4–10 July 2015.
- 8. Meenatchidevi M, R.I. Sujith and Sridharakumar Narasimhan. Experimental investigation of onset of thermoacoustic instability in a turbulent combustor using complex networks and flow–acoustic–flame interaction during the transition to thermoacoustic instability in a turbulent lifted jet flame combustor. 22nd International Congress on Sound and Vibration (ICSV22), Florence, Italy, 12–16 July 2015.
- 9. N. Mukherjee, M.A. Heckl, A. Bigongiari, S.A. Pawar, R. Vishnu and R.I. Sujith. Nonlinear dynamics of a laminar V-flame in a combustor. *ICSV* 22, Florence, Italy, 12–16 July 2015.
- 10. V.R. Unni and R.I. Sujith. A unified framework to describe dynamics of thermoacoustic instability and blowout in a turbulent combustor. *ICSV* 22, Florence, Italy, 12–16 July 2015.
- 11. Salil Harris, Sunetra Sarkar and Amitkumar. Fluid–structure interaction study of a flexible flapping wing using a Navier–Stokes solver. *The Sixth International Conference on Computational Methods (ICCM2015)*, Auckland, New Zealand, 14–17 July 2015.
- 12. Manoj Prabakar S., and T.M. Muruganandam. Effect of Mach number on shock oscillations in supersonic diffusers. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–24 July 2015.
- 13. Chimakurthy Srikanth and T.M. Muruganandam. Effect of Mach number on shock oscillations in supersonic diffusers. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–24 July 2015.
- 14. Vaisakh S. and T.M. Muruganandam. Control of boundary layer separation in supersonic flow using injection through micro ramps. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–24 July 2015.
- 15. Aritra Chakraborty, V. Ramanan, T.M. Muruganandam, S.R. Chakravarthy, Raghavan V., Sumit Sarma, and Zeenathul Farida. Vertically spreading fire over PMMA surface. *10th Asia Pacific Conference on Combustion (ASPACC 2015)*, Beijing, China, 19–22 July 2015.
- 16. Rahul Dattaroy, S.R. Chakravarthy, T.M. Muruganandam and Ashis K. Sen. Flame dynamics in a sudden expansion meso-scale combustor. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 17. Preethi R.S., S.R. Chakravarthy, T.M. Muruganandam and Rajesh Kanna N. A novel multi-swirler lean direct injection combustor for low pollutant emissions. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 18. Aritra Chakraborty, T.M. Muruganandam and S.R. Chakravarthy. Soot formation in co-flowing partially premixed flames over wide range of premixedness. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 19. Arun K. Ampi and T.M. Muruganandam. High speed flow diagnostics and flow visualization of precursors and blow out in a shear layer stabilized flame. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 20. Manikandan B., Sonu K. Thomas and T.M. Muruganandam. An experimental investigation of lean blowout of a premixed flame impinging on a wall based on kernel theory. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 21. Baraiya Nikhil Ashokbhai, Baladandayuthapani N., S.R. Chakravarthy and Balachandran R. Experimental investigation of combustion dynamics in synthesis gas combustor. *ASPACC 2015*, Beijing, China, 19–22 July 2015.

- 22. Sampath R., Ramanan V. and S.R. Chakravarthy. Dynamics and diagnostics of flame-acoustic interactions. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 23. V.R. Unni and R.I. Sujith. Multifractal characterization of combustion dynamics. *51st AIAA Propulsion and Energy*, Orlando, Florida, USA, 27–29 July 2015.
- 24. M. Murugesan and R.I. Sujith. Intermittency in combustion dynamics. *51st AIAA Propulsion and Energy*, Orlando, Florida, USA, 27–29 July 2015.
- 25. M. Murugesan and R.I. Sujith. A complex system approach to investigate combustion dynamics. *51st AIAA Propulsion and Energy*, Orlando, Florida, USA, 27–29 July 2015.
- 26. Gnanaprakash K. and S.R. Chakravarthy. Plateau burning rate mechanism of composite propellant sandwiches involving binder melt flow. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 27. Kiran Kumar M.N. and Amitkumar. Numerical study of near limit self-spreading flames over thin solid fuels in quiescent microgravity. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 28. Keerthi Balakumar and G. Rajesh. An experimental study of the projectile aerodynamic characteristics in transitional ballistic regimes. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–24 July 2015.
- 29. Vinod Yeldho Baby and G. Rajesh. Experimental study on the interaction of under expanded jets in rarefied flow regimes. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–24 July 2015.
- 30. Ijaz Mohamed and G. Rajesh. A study of separation anchoring in thrust optimized parabolic nozzles. *30th International Symposium on Shock Waves*, Tel Aviv, Israel, 19–25 July 2015.
- 31. Vikram Ramanan, Balaji U.V., Kumar A.V. and S.R. Chakravarthy. Combustion dynamics of acoustically self-excited swirl gas combustor. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 32. Sampath R., Vikram Ramanan, Dandayudhapani B. and S.R. Chakravarthy. Study of combustion instability of a non-premixed backward facing step combustor using time resolved particle image velocimetry and chemiluminescence. *ASPACC 2015*, Beijing, China, 19–22 July 2015.
- 33. Vegad Chetankumar Sundarlal and Amitkumar. Correlating sheet breakup and ligament statistics to drop size distribution during atomization. *ICLASS* 2015, Tainan, Taiwan, 23–27 August 2015.
- 34. N. David, A. Sameen and Manikandan Mathur. An analytical criterion for centrifugal instability in non-axisymmetric vortices. *15th European Turbulence Conference*, Delft, The Netherlands, 25–28 August 2015.
- 35. R. Sooraj and A. Sameen. Effect of confinement on decay of vortex ring. *15th European Turbulence Conference*, Delft, The Netherlands, 25–28 August 2015.
- 36. S. Venkatachalam and H.S.N. Murthy. Fatigue damage evolution in CFRP using DIC. *Fourth International Conference on Fracture Fatigue and Wear (FFW 2015)*, Ghent, Belgium, 27–28 August 2015.
- 37. Sonu K. Thomas and T.M. Muruganandam. Valveless standing wave pump with saw-tooth channeled rectifying device. *44th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2015)*, USA, August 2015.
- 38. Gurusideswar S. and R. Velmurugan. High strain rate sensitivity of glass/epoxy/clay nanocomposites. *10th International Conference on Composite Science and Technology*, Lisbon, Portugal, 2–4 September 2015.
- 39. Nair S.S. and Ranjith Mohan. Analysis and control of aeromechanical instabilities in helicopters. *Proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition*, Houston, Texas, USA, 13–19 November 2015.
- 40. Manjul Sharma and A. Sameen. Topological changes in the axial vortex breakdown in confined geometries. 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, USA, 22–24 November 2015.
- 41. Kannan B.T. and N.R. Panchapakesan. Computation of an axisymmetric jet using OpenFOAM. *International Conference on Computational Heat and Mass Transfer (ICCHMT–2015)*, NIT, Warangal, 30 November to 2 December 2015.
- 42. Dheeraj Varma and Manikandan Mathur. Two-dimensional modeling of linear internal wave generation and propagation in the Bay of Bengal. *International Symposium on Dynamics of the Indian Ocean: Perspective and Retrospective*, Goa, 30 November to 4 December 2015.
- 43. Dheelibun Remigius W. and Sunetra Sarkar. Uncertainty quantification of a nonlinear rotating plate behaviour in compressible fluid medium. *International Conference on Vibration Problems (ICOVP 2015)*, IIT Guwahati, 13–19 December 2015.
- 44. Thanusha M.T. and Sunetra Sarkar. Uncertainty quantification of subcritical nonlinear aeroelastic system using interpolation method polynomial chaos method. *ICOVP 2015*, IIT Guwahati, 13–19 December 2015.
- 45. Harshal Kaushik, Ranjith Mohan and Arul Prakash. Utilization of wind shear for powering unmanned aerial vehicles in surveillance application: A numerical optimization study. *International Conference on Advances in Energy Research (ICAER 2015)*, IIT Bombay, India, 15–17 December 2015.

- 46. S. Manoj Prabakar and T.M. Muruganandam. Investigation of diffusers for two stream supersonic wind tunnels. 54th AIAA Aerospace Sciences Meeting, San Diego, California, USA, 4–8 January 2016.
- 47. Kedarisetty Siddhardha and Joel George. Novel two-phase algorithm to design three-loop autopilot using parameter plane technique and particle swarm optimization. *Fouth International conference on Advances in Control and Optimization of Dynamical Systems (ACODS 2016)*, NIT Trichy, 1–5 February 2016.
- 48. Gaurav Marothiya, and P.A. Ramakrishna. Enhancement of aluminium reactivity to achieve high burn rate for an end burning rocket motor. *International High Energy Materials Conference and Exhibit*, Hyderabad, India, 11–13 February 2016.
- 49. Sathesh Kumar G., Gaurav Marothiya, Sunitha Devi Jena, Abhishek Richhariya and P.A. Ramakrishna. Development of high burn rate composite propellant for nozzleless booster application. *International High Energy Materials Conference and Exhibit*, Hyderabad, India, 11–13 February 2016.
- 50. Y. Raj Alexander, Nagendra Kumar and P.A. Ramakrishna. Study of extinction characteristics of solid rocket motor propellant using rapid depressurization. *International High Energy Materials Conference and Exhibit*, Hyderabad, India, 11–13 February 2016.
- 51. S. Manoj Prabakar and T.M. Muruganantham. Tomographic reconstruction of supersonic jet by using background oriented schlieren. *Singapore Aerospace Technology and Engineering Conference (SATEC 2016)*, Suntec, Singapore International Convention and Exhibition Centre, Singapore, 15 February 2016
- 52. Kannan B.T. and N.R. Panchapakesan. A novel method for calculating half velocity widths for turbulent jets. *International Conference on Recent Trends in Engineering and Material Sciences (ICEMS-2016)*, Jaipur National University (JNU), Jaipur, 17–19 March 2016.
- 53. Rajaguru M. and Keralavarma S.M. A discrete dislocation model of creep in single crystals. *TMS 2016 Annual Meeting Supplemental Proceedings*, pp. 351–358.

Distinguished visitors to the department (faculty members/scientists)

Disting	Distinguished visitors to the department (faculty members/scientists)					
Sl. No.	Name of the Visitor and Designation	Date of Visit	Title of Talk			
1	Dr. Claudia Balzani, Leibniz University, Hannover	9 April 2015	Smart Blades: Wind Turbines Become Smart(er) (invited talk)			
2	Dr. S. Ramakrishnan, Former Director, VSSC	17 April 2015	India's Access to Space–Planetary Missions with Special Focus on Mars Mission (guest lecture)			
3	Dr. Christopher Lorence, General Manager, Engineering Technologies, GE Aviation	28 April 2015	Future of Aviation (guest lecture)			
4	Dr. Darius Modarress, Chief Technology Officer and Co-founder of MSE in Pasadena, California, USA	28 April 2015	Recent Advancements of Micro and Mini Optical Sensors with Emphasis on Mini LDV (guest lecture)			
5	Dr. V.K. Saraswat, Member of NITI Aayog, Government of India	8 June 2015	Methanol Economy (guest lecture)			
6	Mr. Murad Karmali, President of PCO Imaging Asia Limited, PCO, AG-Germany	27 July 2015	High-Speed Camera and Applications			
7	Dr. Santosh Shanbhogue, Research Scientist, Massachusetts Institute of Technology, USA	6 August 2015	The Link Between Flame-Stabilization and Combustion-Instability and Scaling These with the Extinction Strain Rate			
8	Mr. R. Santhosh, Research Associate, IISc, Bengaluru	14 August 2015	Transition and Acoustic Response of Vortex Breakdown Modes in Unconfined Swirling Coaxial Flow and Flame			
9	Dr. Praveen Nair, Scientist/Engineer, SF Propulsion Research Group, VSSC/ISRO, Thiruvananthapuram	14 September 2015	Fifty Years of International Space Programmes: Where We've Been and Where We're Going (invited talk)			
10	Dr. Yogish Gopala, Senior Research Scientist, FM Global, USA	14 September 2015	Large Scale Fire Testing at FM Global (guest lecture)			
11	Mr. G.K. Suryanarayana, Chief Scientist, NAL, Bengaluru	8 October 2015	Effects of Shear Layer Reattachment on the Nozzles of a Launch Vehicle (invited talk)			
12	Dr. Arnab Maity, Postdoctoral Researcher, Technical University of Munich, West Germany	15 October 2015	Adaptive Control of Aerospace Vehicles (seminar talk)			
13	Mr. Raghu Murtugudde, University of Maryland	21 December 2015	ENSO Diversity, Asymmetry and Extremes: A Unifying High-Frequency Driver (guest lecture)			

Sl. No.	Name of the Visitor and Designation	Date of Visit	Title of Talk
14	Dr. Renith Richardson, Leader, GT Simulations Group, and Mr. Vinay Ramanath, Senior Key Expert, Siemens Corporate Research and Technology	21 January 2016	Driving Digitalization at Siemens (guest lecture)
15	Dr. Kamesh Subbarao, Associate Professor, Department of Mechanical and Aerospace Engineering, University of Texas, Arlington	5 February 2016	To deliver a guest seminar talk titled 'Estimation Challenges in Space Debris (Unresolved Space Objects) Localization and Characterization'

Distinguished visitors (students)

- 1. Around 81 students and teachers of KCG College of Technology, Karapakkam, Chennai, visited the laboratories on 10 September 2015.
- 2. A group of 30 students and teachers of Nehru Children's Cultural Association, Thiruvanmiyur, visited the laboratories on 31 October 2015.
- 3. Around 55 students and 3 faculty members of Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, visited the laboratories on 18 February 2016.
- 4. Students from Alamathy village being coached by the Divine Mother Society (MS) under the leadership of Mr. N.T Nathan (B.Tech., 1970) visited the laboratories on 26 February 2016.

4.1.6. Other Activities

Faculty visits

SI. No.	Faculty Member	Purpose of Visit	Date and Venue
1	Shyam Keralavarma	Collaborative research meeting	29 June to 3 July 2015, GE Global Research Centre, Bangalore
2	T.M. Muruganandam	Collaborative discussion for drop tower facility at ZARM	23–24 July 2015, Bremen, Germany

Visits of students from abroad

Sl. No.	Student	University/Institution	Purpose of Visit
1	Mr. Saverio Oldani	Politecnico di Milano, Italy	Course work
2	Mr. Davide Pinato	Politecnico di Milano, Italy	Course work
3	Mr. Mohammad Shahsavari	Sharif University of Technology, Iran	Course work
4	Mr. Christoph Frauzem	RWTH Aachen, Germany	Course work
5	Mr. Martin Andre Pierre Paul Savereux-Joly	ESTACA, France	Course work
6	Mr. Maxime Kieran Maurice Lardeau	ESTACA, France	Course work
7	Ms Constance Marie Stephanie Chirol	ESTACA, France	Course work
8	Mr. Harikrishnan Ravichandran	University of Cincinnati, USA	Course work



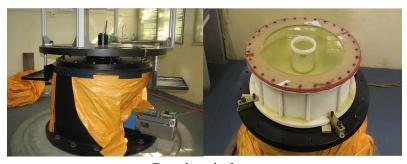
Ballistic range



High-speed camera

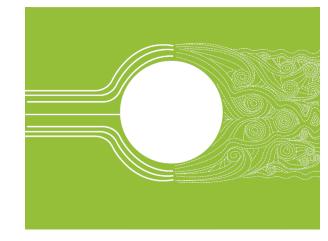


Peristaltic pumps



Rotating platform

Department of Applied Mechanics



4.2.1. Introduction

The Department of Applied Mechanics has been in existence since 1962 and has grown into a full-fledged interdisciplinary graduate research department over the years. The department focuses on academic activities in three broad areas: (1) biomedical engineering, (2) fluid mechanics and (3) solid mechanics.

The department also offers minor streams for undergraduate students.

4.2.2. Academic Programmes

New courses introduced

SI. No.	Course No.	Title
1	AM 6011	Theory of Free Surface Wave Motion
2	AM 5011	Virtual Reality Engineering
3	AM 5650	Nonlinear Dynamics
4	AM 5012	Industrial Fluid Dynamics
5	AM 5550	Vorticity Dynamics

New labs established

- 1. Energy and Emissions Lab
- 2. Micro and Nano-scale Transport Lab

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
Dual Degree	_	31	30	24	27	112
M.Tech.	_	_	_	24	21	45
M.S.	19	13	10	9	2	53
Ph.D.	27	23	12	29	24	115
Total	46	67	52	86	74	325

Endowment prizes instituted

SI. No.	Endowment Prize	Name of the Student
1	B.V.A. Rao Endowment Prize (M.Tech.)	Praveen (AM13M010)

Names of student/scholars who attended conferences/workshops/seminars/symposia

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
			Abroad		
1	S.N. Pandey	AM11D016	European Geophysical Union Meeting	April 2015, Vienna, Austria	_
2	Kiran Marri	AM13D026	52nd Rocky Mountain Bioengineering Symposium	7–9 April 2015, Salt Lake City, USA	MHRD

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
3	K. Sushanth	AM14S010	52nd Rocky Mountain Bioengineering Symposium	7–9 April 2015, Salt Lake City, USA	MHRD
4	K. Sushanth	AM14S010	41st North East Bioengineering Conference	15–18 April 2015, Troy, USA	Self
5	Kiran Marri	AM13D026	41st North East Bioengineering Conference	15–18 April 2015, Troy, USA	Self
6	Tarkes Dora P.	AM12D008	ASME-ATI-UIT 2015 Conference	17–21 May 2015, Naples, Italy	_
7	Vipin Koothur	AM11S037	Rayleigh-Bénard Turbulence	1–5 June 2015, Max Planck Institute for Dynamics and Self-organization Göttingen, Germany	_
8	Govindaraju Selvaraj Gunasegarane	AM06D012	Rayleigh-Bénard Turbulence	1–5 June 2015, Max Planck Institute for Dynamics and Self-organization Göttingen, Germany	-
9	Subramanyam Reddy M.	AM13D014	SEM Annual Conference and Exposition on Experimental & Applied Mechanics	8–11 June 2015, Costa Mesa, CA, USA	_
10	Christina C. Grace	AM12D027	Summer Institute on Optical Sensing Technologies, IC- IMPACTS	13–15 June 2015, University of Toronto, Canada	_
11	Hariprasad M.P.	AM13D007	Summer Institute in Optical Sensing Technologies, University of Toronto	14–19 June 2015, Toronto, Canada	IC-IMPACTS, Canada-India Research Center for Excellence
12	S.G. Karthiga Devi	AM11D012	The 13th International Conference on Liquid Atomization and Spray Systems (ICLASS 2015)	23–27 August 2015, National Cheng Kung University in Tainan, Taiwan	_
13	Dhivyaraja K.	AM13D201	ICLASS 2015	23–27 August 2015, Tainan, Taiwan	_
14	Navaneethakrishna Makaram	AM13S030	Engineering in Medicine and Biology Conference	25–29 August 2015, Milan, Italy	DBT
15	Kiran Marri	AM13D026	IEEE Fuzzy Systems and Knowledge Discovery (FSKD)	August 2015, Zhangjiajie, China	Self
16	Anusha Prakash	AM13S002	Blizzard Challenge	9 September 2015, Berlin, Germany	_
17	Priyanka V.	AM13S032	10th Asian-European International Conference on Plasma Surface Engineering (AEPSE2015)	20–24 September 2015, Ramada Plaza Jeju Hotel, Jeju Island, South Korea	_
18	C. Bhaskar Rao	AM14S017	The 14th International Tissue Elasticity Conference	21–24 September 2015, Bardolina, Verona, Italy	_
19	B. Lokesh	AM14D015	The 14th International Tissue Elasticity Conference	21–24 September 2015, Bardolina, Verona, Italy	_
20	Subramani Vikram	AE10B052	The 14th International Tissue Elasticity Conference	21–24 September 2015, Bardolina, Verona, Italy	_
21	Allmin Pratap Singh	AM14S016	EMBO EMBL Symposium	October 2015, Heidelberg, Germany	Self
22	Allmin Pratap Singh	AM14S016	MEDICA 2015	November 2015, Dusseldorf, Germany	_
23	Sowmya Sunakraneni	AM10D023	68th Annual Meeting of the APS Division of Fluid Dynamics	22–24 November 2015, Boston, MA, USA	_

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
24	Nachiketa Janardan	AM10D025	68th Annual Meeting of the APS Division of Fluid Dynamics	22–24 November 2015, Boston, MA, USA	_
25	Ajinkya Kulkarni	AM14S013	68th Annual Meeting of the APS Division of Fluid Dynamics	22–24 November 2015, Boston, MA, USA	-
26	Prasanth Anand Kumar Lam	AM10D018	ASME 2015 International Mechanical Engineering Congress and Exposition	11–19 November, Houston, Texas, USA	-
27	Prasanth Anand Kumar Lam	AM10D018	68th Annual Meeting of the APS Division of Fluid Dynamics	22–24 November 2015, Boston, MA, USA	-
28	Darshak K. Bhuptani	AM14S003	American Physical Society Division of Fluid Dynamics 2015	22–24 November 2015, Boston, MA, USA	-
29	Ashwij	AM11D021	Sixth International Conference on Mechanics of Biomaterials and Tissues	6–10 December 2015, Waikoloa, Hawaii, USA	-
30	Antony Samuel B.	AM13S022	54th AIAA Aerospaces Sciences Meeting, AIAA Science and Techology Forum and Exposition 2016	4–8 January 2016, San Diego, California, USA	_
31	Sowmiya C.	AM13D202	SPIE Medical Imaging	27 February to 3 March 2016, San Diego, CA, USA	-
32	Ali Arshad K.	AM14D401	SPIE International Symposium on Medical Imaging	27 February to 3 March 2016, San Diego, CA, USA	-
33	Luv Verma	AM13D028	SPIE Smart Structure Conference on Behavior and Mechanics of Multifunctional Materials and Composites	19–25 March 2016, Las Vegas, Nevada, USA	_
34	Meeshawn S. Marathe	AM13S029	Active and Passive Smart Structures and Integrated Systems X, SPIE Smart Structures/NDE 2016	19–25 March 2016, Las Vegas, Nevada, USA	-
35	Akash	AM14S014	SPIE Smart Structure Conference	21–24 March 2016, Las Vegas, Nevada, USA	-
India					
1	Suhail Parvaze	AM14D016	Workshop on Wavelet Transform: Basic Theory and Practice	24–25 April 2015, Manipal	_
2	Allmin Pratap Singh	AM14S016	Workshop on Wavelet Transform: Basic Theory and Practice	24–25 April 2015, Manipal	_
3	Christina Grace C.	AM12D027	Indian National Conference on Applied Mechanics (INCAM 2015)	13–15 July, 2015, IIT Delhi	-
4	Subramanyam Reddy M.	AM13D014	INCAM 2015	13–15 July 2015, IIT Delhi	_
5	Tarkes Dora P.	AM12D008	INCAM 2015	13-15 July 2015, IIT Delhi	_
6	Vivekanandan A.	AM14D008	INCAM 2015	13–15 July 2015, IIT Delhi	_
7	Ramesh Bojja	AM13M011	INCAM 2015	13–15 July 2015, IIT Delhi	_
8	Vivek Ramakrishnan	AM12D025	INCAM 2015	13–15 July 2015, IIT Delhi	-
9	M. Rajarathinam	AM12D019	INCAM 2015	13–15 July 2015, IIT Delhi	_
10	Inayath N.	AM13S005	INCAM 2015	13–15 July 2015, IIT Delhi	_
11	Monaj Prakash	AM13M011	INCAM 2015	13–15 July 2015, IIT Delhi	_
12	Harish Lambadi	AM13D025	INCAM 2015	13–15 July 2015. IIT Delhi	_
13	Indu Chanchal Polpaya	CH14D011	INCAM 2015	13–15 July 2015. IIT Delhi	-
14	Agesh Markose	AM14D009	INCAM 2015	13–15 July 2015, IIT Delhi	_

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
15	Umang Surana	CE10B084	INCAM 2015	13–15 July 2015, IIT Delhi	_
16	Srinidhi	AM14S009	17th AeSI CFD Symposium	August 2015, Bengaluru	_
17	Mallikarjunachari G.	AM12D005	Workshop on Nanomechanical Testing (Nanoyantrika 2015) (poster presentation)	20–22 September 2015, Hysitron Nanotechnology India Pvt. Ltd, Thiruvananthapuram	-
18	Mallikarjunachari G.	AM12D005	Nanoyantrika 2015 (poster presentation)	20–22 September 2015, HYSITRON Nanotechnology, India	_
19	P.A. Karthick	AM12D014	41st NSI Conference	October 2015, Coimbatore	_
20	K. Sushanth	AM14S010	41st NSI Conference	October 2015, Coimbatore	_
21	Dipta Shree	AM13D004	41st NSI Conference	October 2015, Coimbatore	_
22	Suhail Parvaze	AM14D016	41st NSI Conference	October 2015, Coimbatore	_
23	Priyanka V.	AM13S032	International Discussion Meeting on Emerging Themes in Nanophotonics	2–4 December 2015, Goa, India	_
24	Gowri A.	AM13D005	International Discussion Meeting on Emerging Themes in Nanophotonics	2–4 December 2015, Goa, India	_
25	Hariharan M.	AM14D002	International Discussion meeting on Emerging Themes in Nanophotonics	2–4 December 2015, Goa, India	-
26	Chandan Bose	AM14D403	XXVII International Union of Pure and Applied Physics (IUPAP) Conference on Computational Physics	2–5 December 2015, IIT Guwahati	-
27	Jeevananthan	AM13S025	FMFP-2015	14–16 December 2015, NIT Suratkal, Mangalore, Karnataka	-
28	Mallikarjunachari G.	AM12D005	International Conference on Nanoscience, Nanotechnology and Advanced Materials (Nanos-2015)	14–17 December 2015, India	-
29	Pankaj Kumar	ME11DO34	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	-
30	Chandan Bose	AM14D403	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	-
31	Hridya P. Lal	AM12D004	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	_
32	Hridya P. Lal	AM12D004	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	_
33	S. Krishnakumar	AM13D027	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	_
34	Venkatramani J.	AM12D026	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	-
35	Ramakrishna Kuppa	AM11D003	12th International Conference on Vibration Problems	14–17 December 2015, IIT Guwahati	-
36	Vishnu Pradeesh L.	AM14D019	12th International Conference On Vibration Problems	14–17 December 2015, IIT Guwahati, India	-
37	K. Aravind Kumar	AM14D402	12th International Conference On Vibration Problems	14–17 December 2015, IIT Guwahati, India	-
38	M. Rajarathinam	AM12D019	12th International Conference On Vibration Problems	14–17 December 2015, IIT Guwahati, India	_

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
39	P.V. Malaji	AM13D009	12th International Conference On Vibration Problems	14–17 December 2015, IIT Guwahati, India	_
40	Sandeep N. Naik	AM14S025	42nd National Conference on FMFP	14–16 December 2015, NIT Suratkal,	_
41	Christina Grace C.	AM12D027	IEEE Workshop on Recent Advances in Photonics (WRAP) 2015	16–17 December 2015, Bengaluru	_
42	B. Ramakrishna	AM12D002	WRAP 2015	16–17 December 2015, Bengaluru	_
43	Koushik Chandramouli	AM13D015	ISHMT 2015	17–20 December 2015, VSSC, Thiruvananthapuram	_
44	Sowmya Sunakraneni	AM10D023	ISHMT 2015	17–20 December 2015, VSSC, Thiruvananthapuram	_
45	Abhijit Biswas	AM10D009	Workshop on Computational Brain Research	4–8 January 2016, IIT Madras	_
46	Y. Appalanaidu	AM10D004	Seventh International Conference on Creep, Fatigue and Creep Fatigue Interaction	19–22 January 2016, IGCAR, Kalpakkam	_
47	K. Aravind Kumar	AM14D402	ACODS	1–5 February 2016, NIT Trichy	_
48	Vishnu Pradeesh L.	AM14D019	Advances in Control and Optimization of Dynamical Systems	1–5 February 2016, NIT Trichy	_
49	S.G. Karthiga Devi	AM11D012	BSSI 2016	24–26 February 2016, IIT Madras	_
50	Allwyn S. Rajamani	AM15D035	Optics Within Life Sciences	16–19 March 2016, TIFR Mumbai	

Names of students/scholars who won outside prizes and awards

SI. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	Christina C. Grace	AM12D027	Best Poster Presentation Award	Cash award of 500 CAD sponsored by Optical Society of America (OSA) during Summer Institute 2015, held by IC-IMPACTS, Canada–India Research Center for Excellence
2	Christina C. Grace	AM12D027	Trophy for Excellence in Creativity and Collaboration (team challenge event in entrepreneurship skills)	Summer Institute 2015, held by IC-IMPACTS, Canada-India Research Center for Excellence
3	Vivek Ramakrishnan	AM12D025	Third Prize for paper "The Use of Carrier Fringes for Automated Edge Stress Measurement in Tempered Glass Using Digital Photoelasticity"	Second Indian National Conference on Applied Mechanics (INCAM 2015)
4	Phani Madhavi	AM14M010	Pratibha–Eaton Excellence Award	10 October 2015
5	Sharat S. Embrandiri	AM12S027	Best Student-Written Paper	52nd Annual Rocky Mountain Bioengineering Symposium
6	Kiran Kumar Ramanaidu Marri	AM13D026	Third Best Paper Award	52nd Annual Rocky Mountain Bioengineering Symposium

SI. No.	Student/Scholar	Roll No.	Prize	Awarded by
7	Navaneethakrshna Makaram	AM13S030	Third Best Poster Award	52nd Annual Rocky Mountain Bioengineeringg Symposium
8	K. Dhivyaraja	AM13D201	Prime Minister's Fellowship for Doctoral Research	Science & Engineering Research Board, Department of Science and Technology, GoI
9	Chandan Bose	AM14D403	Best Student Paper Award (one of four best student paper awards presented)	XXVII International Union of Pure and Applied Physics (IUPAP) Conference on Computational Physics, IIT Guwahati
10	Y. Appalanaidu	AM10D004	Best Poster Award	Seventh International Conference on Creep, Fatigue and Creep Fatigue Interaction, IGCAR. Kalpakkam

Students/scholars who won convocation/Institute Day prizes

Sl.No.	Student/Scholar	Roll No.	Prize
1	Ravali Amba, DD student	AM14D014	Viswakarma Award for Combining Traditional Knowledge and Modern Science

4.2.3. Faculty Members and Their Activities

Faculty

Faculty		
Name	Areas of Specialization	
Professors		
S. Vengadesan [Head]	CFD and turbulence modelling—basics, advanced topics and applications to engineering problems, FSI, biofluid flows	
M. Ramasubba Reddy	Bio-signal processing, bioinstrumentation	
K. Ramesh	Digital photo mechanics, fracture mechanics, educational technology	
C. Lakshmana Rao	Impact mechanics, fracture mechanics, modelling of smart materials, numerical approach	
M.S. Sivakumar	Smart materials and structures, material modelling	
S. Ramakrishnan	Bioinstrumentation, image and signal processing, calibration of medical devices, medical informatics	
M. Manivannan	Haptics, medical simulation, biomechanics	
Mahesh Panchagnula	Spray combustion and atomization, surface tension phenomena, multiphase flows	
B.S.V. Prasad Patnaik	Flow control, CFD, FEM, micro/bio fluid flows	
Associate Professors		
A. Arockiarajan	Smart materials, composites, material modelling, computational mechanics and experimental mechanics	
Anuradha Banerjee	Fracture mechanics, composites	
Arul Prakash K.	CFD and heat transfer, LES and related techniques, thermal hydraulics, parallel computing	
A. Baburaj Puthanveettil	Near-wall phenomena in turbulent convection, interfacial phenomena and transport at small scales	
N. Sujatha	Biomedical imaging, speckle metrology	
Sayan Gupta	Vibrations, nonlinear dynamics, stochastic mechanics, fluid-structure interaction	
Arun Kumar Thittai	Ultrasound imaging, HiFU applications in therapy, acoustic radiation force application in mechanics, photoacoustics	
Sarith P. Sathian	Rarefied gas flows and nanofluidics	
Vagesh D. Narasimhamurthy	CFD, DNS, turbulence, transition, bluff body flows, premixed combustion, multiphase flows	
Assistant Professors		
Abhijit Chaudhuri	Modelling hydrothermal systems, water waves, mass transfer in heterogeneous systems	
Pijush Ghosh	Nanomechanics, biomaterials, mechanics of thin films, molecular dynamics simulation	

Name	Areas of Specialization	
Raghavendra Sai V.V.	Biosensors for healthcare, fibre optic sensors and instrumentation, nanotechnology	
Rinku Mukherjee	Applied aerodynamics—flow modelling, unsteady wake phenomenon, dynamic stall and formation flight, CFD	
Satyanarayanan S.	Aerosol mechanics, air quality, emission monitoring—sensor/spectroscopy	
Shaikh Faruque Ali	Vibration and its control, smart structures, energy harvesting	
Varadhan S.K.M.	Neuromechanics and biomechanics	
Saumendra Kumar Bajpai	Cell mechanics, tissue mechanics, biophysics of tumours, vascular mechanics	
Visiting faculty		
Dinesh Kumar Kant	Biomedical signal processing, modelling, neuroscience, image processing	

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Dates and Venue			
Confer	ences					
1	Ramakrishnan S.	BSSI Conference	February 2016, IC&SR, IIT Madras			
Worksl	hops					
1	Pijush Ghosh	Two-day workshop on C-4 Model	22–23 April 2016, IIT Kharagpur			
Short-t	Short-term courses					
1	K. Arul Prakash and Shaligram Tiwari	Theoretical and Computational Fluid Dynamics	23–30 November 2015, Newton Hall, IITM			
2	S.K.M. Varadhan and V.V. Raghavendra Sai	Medical Diagnostics, Therapeutics and Rehabilitation	16–20 November 2015, Newton Hall, IITM			
3	S. Vengadesan and Prof. Danesh K. Tafti, Virginia Tech., USA	GIAN programme, "Modelling Engineering Turbulent Flows"	19–25 December 2015, NPTEL Studio			
4	S. Vengadesan and Prof. Danesh K. Tafti, Virginia Tech., USA	GIAN programme, "Insect and Bird Aerodynamics—Theory and Methods"	24–30 December 2015, NPTEL Studio			
5	S. Vengadesan	20-hour online certificate course, "Foundations of Computational Fluid Dynamics", through NPTEL MOOC	July-October 2015, NPTEL Studio			

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Title	Institution	Period		
Confer	Conferences					
1	K. Ramesh	Evaluation of Interaction Effect in Multiple Cracks under Bi-axial Load Using Photoelastictiy	Texas A&M University	26–28 October 2015		
2	K. Ramesh	New Environment for Learning and Teaching Experimental Mechanics	Texas A&M University	26–28 October 2015		
3	Saumendra Bajpai	Soft Matter Young Investigators' Meeting	IIT Madras and IMS	19–21 December 2016		
4	S. Ramakrishnan	IEEE Engineering in Medicine and Biology Society	Milano, Italy	24–29 August 2015		
5	S. Ramakrishnan	EMBO EMBL Symposium	Heidelberg, Germany	6–10 October 2015		

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	Thittai A.K.	Introduction to Physics of Elastography	Third National Conference of the Breast Imaging Society of India—BISICON 2015—held at IISc, Bengaluru	15 November 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
2	V.V. Raghavendra Sai	Recent Advances in Biomedical Diagnostics	Andhra University, Visakhapatnam	14 March 2016
3	V.V. Raghavendra Sai	Fun with Visible Nanoparticles and Invisible Biomolecules	BioFest 2016, IIT Madras	5 March 2016
4	V.V. Raghavendra Sai	Recent Advances in Clinical Diagnostics—Biosensors	VIT, Vellore	9 February 2016
5	V.V. Raghavendra Sai	Recent Advances in Clinical Diagnostics—Biosensors	PSNA College of Engineering, Dindigul	6 October 2015
6	V.V. Raghavendra Sai	Some Real World Problems and Solutions—A Research and Development Perspective	Sri Venkateswara College of Engineering, Sriperumbudur	10 April 2015
7	K. Ramesh	Digital Photoelasticity Applied to Implant Dentistry	Department of Aerospace Engineering and Engineering Mechanic, University of Texas, Austin	30 October 2015
8	K. Ramesh	Experimental Evaluation of Fracture Parameters—An Overview	Department of Aerospace Engineering, Texas A&M University, USA	2 November 2015
9	K. Ramesh	Digital Photoelasticity of Glass	Department of Civil Engineering, Texas A&M University, USA	4 November 2015
10	S. Ramakrishnan	Recent Trends in Biosignal Processing	NIT Calicut	13–18 December 2015

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	Arul Prakash K.	Napoli, Italy	17–21 May 2015	Oral presentation at ASME-ATI- UIT 2015 Conference	_
2	Arul Prakash K.	Swansea, UK	21 May to 28 August 2015	Royal Academy of Engineering Research exchange visit	_
3	Baburaj A.P.	Gottingen, Germany	31 May to 6 June 2015	International conference, Rayleigh-Bénard Turbulence 2015	_
4	Anuradha Banerjee	Paris, France	1–6 June 2015	International Conference on Computational Modeling of Fracture and Failure	_
5	Mahesh Panchagnula	Santa Clara, CA, USA	23–26 July, 2016	Pan-IIT Global Leadership Conference	_
6	Mahesh Panchagnula	Iowa State University, USA	31 July 2015	Guest lecture, "Understanding Micro-structutre of a Spray"	_
7	Mahesh Panchagnula	Pennsylvania State University, USA	6 August 2015	Guest lecture, "Dissecting a Spray and Understanding It"	_
8	Mahesh Panchagnula	Lehigh University, USA	10 August 2015	Guest lecture, "Dynamics of Dense Wet Granular Materials in Confined Spaces"	_
9	Mahesh Panchagnula	National Cheng Kung University, Tainam, Taiwan	23–27 August 2015	13th International Conference on Liquid Atomization and Spray Systems (ICLASS 2015)	-
10	A. Arockiarajan	Department of Mechanical Engineering, California Institute of Technology, USA	23–31 July 2015	Guest lecture, "An Overview about Modelling and Experimental Studies on Smart Composites"	_
11	A. Arockiarajan	Santa Clara, USA	23–31 July 2015	IIT Alumni Global Leadership Conference	_

Sl. No.	Name of Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
12	Abhijit Chaudhuri	Singapore	25–29 July 2015	Second International Conference on Desalination Using Membrane Technology, MEMDES 2015	
13	Mahesh Panchagnula	Santa Clara, CA, USA	_	Pan-IIT Global Leadership Conference	_
14	Arun Kumar Thittai	Verona, Italy	20–25 September 2015	International Tissue Elasticity Conference	_
15	Sayan Gupta	Ljubljana, Slovenia	5–12 September 2015	International Conference on Engineering Vibration	_
16	Abhijit Chaudhuri	Strasbourg, France	18–21 October 2015	Fourth European Geothermal Workshop—EGW 2015	_
17	A. Arockiarajan	Dortmund, Germany	14-18 March 2016	External examiner for Ph.D. defence exam, making presentation in seminar series	_
18	K. Ramesh	Texas A&M University, USA	26–28 October, 2015	52nd Annual Technical Meeting, Society of Engineering Sciences	_
19	K. Ramesh	Department of Aerospace Engineering, Texas A&M University, USA	2–3 November, 2015	Exploring collaboration possibilities and Joint Doctoral Programmes	-
20	M. Ramasubba Reddy	San Diego, USA	27 February to 10 March 2016	International conference, "Ultrasonic Imaging and Tomography," for presentation of poster	-
21	Pijush Ghosh	Clausthal TU, Germany	December 2015 to January 2016	DAAD Fellowship	_

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date
Awards	5				
1	A. Arockiarajan	ISSS Young Scientist Award 2015	Institute of Smart Structures and Systems	_	July 2015
2	V.V. Raghavendra Sai	Young Engineer Award 2015	INAE	_	10 December 2015
3	M. Manivannan	CavinKare–MMA Innovation Award 2015	CavinKare and Madras Management Association	In recognition of developing a mannequin simulator for cardiopulmonary resuscitation (CPR) training	9 September 2015

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	Mahesh V. Panchagnula	Editor	International Journal of Spray and Combustion Dynamics

4.2.4. Design and Development Activities

Patents filed

Sl. No.	Faculty Member	Title
1	V.V. Raghavendra Sai and Gowri A.	An Optical Fiber Sensor and Method of Fabrication of the Sensor

4.2.5. Research and Consultancy

Sponsored research projects

-					
SI. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Research at High School Level—A Pilot Study of the Concept	29 June 2015 to 28 December 2016	Socially Relevant Projects, IIT Madras	5.14	Pijush Ghosh
2	Development of a Robust and User Friendly Software Package for White Light Based Stress Using Digital Photoelasticity	12 months	Indian National Academy of Engineering	6.84	K. Ramesh
3	Fatigue Life Characterization of Piezoelectric Stack Actuators and Macro-fibre Composites	3 years	Counicil of Scientific and Industrial Research	13	A. Arockiarajan
4	Analysis and Development of Numerical Algorithms and Computational Code for Blast Detonics	3 years	Armament Research Board	33.005	Prasad Patnaik
5	Polymer Coating on Setting Cement Surface—Fundamental Hydration Mechanics and Interface Design	3 years	Department of Science & Technology	59.03	Pijush Ghosh
6	Cellular Mechano-sensing in Engineered Collagen Interfaces	3 years	Department of Science & Technology	25	Saumendra Kumar Bajpai
7	Studies on Multi-frequency Energy Harvesting	3 years	Department of Science & Technology	30.901	Shaikh Farque Ali
8	Studies of Motor Learning and Co- articulation in Novel Typing Tasks	3 years	Department of Science & Technology	69.996	S.K.M. Varadhan
9	Contact Stress Parameter Evaluation Using Digital Photoelasticity	2 years	ISRO-IIT (Madras) Cell	22.308	K. Ramesh
10	Cellular Mechanosensing in Engineered Collagen Matrices	3 years	Department of Science and Technology	25.00	Saumendra K. Bajpai
11	Experimental and Numerical Investigation of Fracture behaviour of Dissimilar Metal Weld Joints	3 years	Inidira Gandhi Centre for Atomic Reasearch	29.8	Lakshmana Rao C.
12	Acoustic Wall Pressure Spectra by Turbulent Boundary Layer by CFD Approach for Underwater Vehicles	2 years	NRB	14.64	S. Vengadesan
13	Investigation on the Aerodynamics of Insect Hovering in Inclined Stroke Plane	2 years	SIGMA-ARDB	12.72	S. Vengadesan

Industrial consultancy projects

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Mahesh V. Panchagnula (PI)	Advanced Microspray Cooling Technologies for High Power Density Systems	Eaton	33.71
2	Mahesh V. Panchagnula (Co-PI)	An Experimental and Computational Study of Screech in After Burners	DRDO	206.48
3	Mahesh V. Panchagnula (Co-PI)	Development of Electrospray Based MEMS Microthruster	ISRO	39.83
4	Mahesh V. Panchagnula (Co-PI)	Joint National Center For Combustion Research and Development	DST	4580
5	Mahesh V. Panchagnula (Co-PI)	Center for Research on Confined Soft Matter	DST	203.8
6	S. Vengadesan	Design of Alternate Airflow Measurement	BHEL	12

RBIC projects (ongoing and new)

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Pijush Ghosh	An Innovative C-4 Model for High School Students	Technip India Ltd.	24.85

Retainer Consultancy (ongoing and new)

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Sayan Gupta, A. Arockiarajan and S. Faruque Ali	Stress Analysis of Lower Weight Optimized Flap Design for Quick Closing Non-return Valve	BHEL	2.1

Participation of faculty members with other institutions under MoUs

SI. No.	Faculty Member	Details	University/Institution
1	Saumendra K. Bajpai	Co-advising two M.Sc. students	Sri Ramachandra University (Medical School)
2	M. Manivannan	General MoU for student exchange	AIIMS Neuroengineering Centre, New Delhi
3	M. Manivannan	General MoU for student exchange	National Health System Resource Centre (NHRSC), New Delhi
4	S. Ramakrishnan	General MoU for student exchange	Innopolis University
5	S. Ramakrishnan	Supervision of exchange students and joint research in disciplines of mutual interest	Tallinn University of Technology
6	S. Ramakrishnan	Supervision of exchange students and joint research in disciplines of mutual interest	University of Applied Sciences: Technology, Business and Design, Hochschule Wismar, Germany
7	S. Ramakrishnan	Promotion of joint research and educational programmes among faculty, including externally funded projects, scientific conferences and faculty visits to the partner institutions	Drexel University, Philadelphia, PA, USA

Research publications

Total number of papers published in refereed international journals: 67

Refereed international journals

- 1. R.S. Kumar, B.S.V. Patnaik and S. Vedantam. 2015. Hydrodynamics of flow through microchannels with hydrophobic strips. *Micro Fluidics Nano Fluidics* 10: 1–10.
- 2. Cerine Lal and N. Sujatha. 2015. Correlation analysis of laser Doppler flowmetry signals: A potential non-invasive tool to assess microcirculatory changes in diabetes mellitus. *Medical & Biological Engineering & Computing* 53(6): 557–566.
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Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Date	Purpose of Visit
1	Dr. Ashish Suri, Professor of Neurosurgery, AIIMS	June 2015	Exploring MoU
2	Prof. Steve Lavella, Professor of Computer Science, UIUC	July 2015	Summer course
3	Chairman of Manipal Health Enterprises	22 April 2016	Exploring licensing some of the technologies developed in the laboratory

4.2.6. Other Activities

Faculty visits

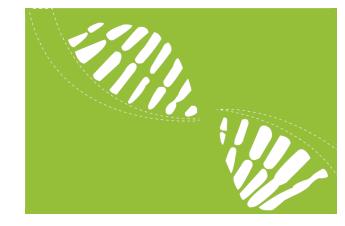
Sl. No.	Faculty Member	Purpose of Visit	Date and Place
1	M. Manivannan	Examiner of DSIR certification (Ministry of Science and Technology) for two industries in Chennai	16 May 2015
2	M. Manivannan	Technology transfer to SkillVeri	June 2015
3	M. Manivannan	Expert Member of Faculty Selection Committee	11 June 2015, Department of Bioengineering, IIT Bombay
4	M. Manivannan	M.S. thesis examiner	23 June 2015, CMC Vellore
5	M. Manivannan	Promotion review of work done by faculty in Department of Mechanical Engineering, IISc	15 July 2015, Bengaluru
6	M. Manivannan	Ph.D. thesis examiner	21 August 2015, IISc, Bengaluru

Sl. No.	Faculty Member	Purpose of Visit	Date and Place
7	M. Manivannan	Expert Member of Project Evaluation Committee	11 September 2015, Grand Challenges in TB Control (GC-TBC), an initiative of IKP Knowledge Park, along with USAID, BIRAC, and the Bill and Melinda Gates Foundation
8	M. Manivannan	Selection Committee Member, President's Nominee	15 October 2015, Sri Chitra Thirunal Institute of Medical Science and Technology, Thiruvananthapuram
9	M. Manivannan	Introducing a new course, Psychophysics	November 2015
10	M. Manivannan	Conducting a workshop on haptics as a part of an international conference	16 December 2015, IIT Kanpur
11	Anuradha Banerjee	Organizing next edition of Fracmeet	1–4 February 2016, Chandrasekhar Hall, Institute of Mathematical Sciences, Chennai
12	M. Manivannan	Expert committee meeting for reviewing projects	8 February 2016, Department of Biotechnology, MoS&T, New Delhi,
13	Ramasubba Reddy	Participating in the selection of an Institute Chair Professor by the selection committee	30 March 2016, IIT Bombay

Student visits

Sl. No.	Student	Purpose of Visit	Date and Place
1	Christina Grace C.	Research visit to ACUTE, Dr. Pouya Rezai's lab	16 June to 3 July 2015, York University, Toronto, Canada
2	S.G. Karthiga Devi	Using experimental imaging facility at Sri Venkateswara Institute of Medical Sciences (SVIMS) for research	11–13 January 2016, SVIMS, Tirupati

Department of Biotechnology



4.3.1. Introduction

The Department of Biotechnology at IIT Madras was founded in 2004 with a vision of 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 first batches of B.Tech. and Dual Degree students in iotechnology graduated in July 2006 and 2007, respectively. 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 also 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. The department has set up a Center of Excellence in Bioprocess Engineering to develop knowledge and expertise in this domain, a DST-funded National Facility to identify potential drug targets through cellular dynamics and a FIST facility for infrastructure. DBT provided support for a programme in cancer biology previously, and now DST is supporting a National Cancer Tissue Biobank. A Bioinformatics Center has also been set up with funding from DBT. The IIT Madras Bio-incubator, initiated by the department (funded by BIRAC), offers lab and office space, equipment, technical support and centralized utilities for process and product development.

4.3.2. Academic Programmes

A Dual Degree (B.Tech. and M.Tech.) programme in biological engineering (5 years), a Dual Degree (B.S and M.S.) programme in Biological Sciences (5 years) and M.S. (by research) and Ph.D. programmes are the academic programmes offered currently by the department. In addition, the department offers M.Tech. (Clinical Engineering) and Ph.D. (Biomedical Devices and Technology) programmes, jointly with Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram, and Christian Medical College, Vellore.

Five-year Dual Degree programme (B.S. and M.S.) in Biological Science

The Dual Degree in Biological Sciences (B.S. and M.S.) provides a strong foundation in biological sciences. It encompasses the study of living organisms and life processes at all levels, including individual organisms, tissues, cells, subcellular structures and molecules. The application of biological sciences to improvement of health, agriculture and the environment is unlimited, and currently there is a dearth of well-trained manpower in this area. Apart from the fundamental courses in biological sciences, the curriculum emphasizes other areas—chemical biology and computational biology. In addition to a few core theory and laboratory courses, a basket of elective courses are offered in each of these areas. Each student undertakes an extensive research project, spread over the last four semesters of the curriculum. Therefore, this programme provides intense research-based training, which is lacking in traditional M.Sc. Biology programmes. The curriculum imparts specific skills in interfacing cellular, molecular and computational biology, trains students to undertake academic research in frontier areas in world-class universities and equips them with skills to be employed in R&D laboratories of pharmaceutical and biotechnology industries in India and abroad. The Department of Biotechnology, IIT Madras, with its large faculty and diverse expertise in various disciplines of biology, such as cellular and molecular biology, structural biology, chemical biology and computational biology, is uniquely positioned to offer a research-oriented programme in biological sciences.

Five-year Dual Degree programme (B.Tech. and M.Tech.) in Biological Engineering

The Dual Degree B.Tech.-and-M.Tech. course in Biological Engineering brings together engineering principles and molecular life sciences to develop and operate biology-based technologies in diversified fields such as energy, the environment, bioprocesses, biomaterials, diagnostics, biopharmaceuticals and food processing. Hence, the curriculum in biological engineering is designed to be a broad-based one. The programme will impart knowledge in different areas of the biology–engineering interface. It emphasizes core courses in basic sciences and biological sciences and

provides a solid foundation in application of engineering principles to biological systems through courses in different areas such as bioprocess engineering, biomedical engineering, biomolecular engineering and computational biology. This will allow the students to have a wider appreciation of the biology–engineering interface and allow them to evolve interdisciplinary approaches to problem solving, research and technology development. In addition to core theory and practical courses, a basket of elective courses will be offered in bioprocess engineering, biomedical engineering and computational biology. The curriculum also aims to impart a more research-based training compared with traditional M.Tech. Biotechnology programmes. Each student undertakes an extensive research project spread over the last three semesters of the programme/study. The programme also allows the students sufficient time and courses to familiarize themselves with different areas of the biology–engineering interface before specializing. It opens up different avenues for taking up doctoral-level research and expands the scope of the industry-job market. The students graduating under this Dual Degree programme will be well-positioned to take up academic research at the Ph.D. level or explore the job market in bioprocess industries. The programme trains students to be employed as process engineers and R&D scientists in industries.

The M.Tech. (Clinical Engineering) programme is designed to train students to address the complete management of the technological aspects in a hospital as well as the medical technology needs of India.

New courses introduced

Sl. No.	Course No.	Title
1	BT3052	Membrane Biology and Signal Transduction
2	BT2121	Genetic Engineering Lab
3	BT4121	Biomaterials Laboratory
4	BT5430	Drug Delivery

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	_	_	_	<u> </u>	11+8	19
Dual Degree	49	42	48	47	17+11	214
M.Tech. Clinical Engineering	7	3	7	_	_	17
M.S.	2	6	8	_	_	16
Ph.D.	45	28	39	39	39	190
Total	103	79	102	86	86	456

Students/scholars who attended conferences/seminars/symposia

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
1	G. Venkata Subrahmanyam	BE12B011	iGEM Giant Jamboree (presented a project titled 'A Microbial System to Tackle AMP (Antimicrobial Peptide) Resistance Based on Natural Selection')	24–28 September 2015, Hynes Convention Center, Boston	IIT Madras
2	Nitish K. Singh	BS12B054	iGEM Giant Jamboree (presented a project titled 'Tackling the Emergence of Antibiotic Resistance: International Genetically Engineered Machine')	23–30 September 2015, Hynes Convention Center, Boston	IIT Madras
3	Gaurav Bilolikar	BE13B010	iGEM Giant Jamboree (presented the project titled 'Tackling the Emergence of Antibiotic Resistance: International Genetically Engineered Machine')	23–30 September 2015, Hynes Convention Center, Boston	IIT Madras
4	Saransh Umale	BE13B028	iGEM Giant Jamboree (presented the project titled 'Tackling the Emergence of Antibiotic Resistance: International Genetically Engineered Machine')	23–30 September 2015, Hynes Convention Center, Boston	IIT Madras
5	V. Siva Sai Krishna	BE13B033	iGEM Giant Jamboree (presented the project titled 'Tackling the Emergence of Antibiotic Resistance: International Genetically Engineered Machine')	23–30 September 2015, Hynes Convention Center, Boston	IIT Madras

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
6	Abhinav Sardana	BE14B002	Industrial training, Cancer Research Initiatives Foundation (CARIF)	8 June 2015 to 17 July 2015, UEP, Selangor, Malaysia	
7	Harsha Ohri	BS13B012	Winter Internship on analysis and cell imaging of genetically modified probes in Purkinje neurons of the cerebellum at Dr. Thomas Launey's lab, RIKEN	1 December 2015 to 14 January 2016, Wako, Saitama Prefecture, Tokyo	
8	Hindumathi R.	BT09D035	Trends in Nano Technology International Conference 2015 (TNT 2015, presented paper titled 'Synthesis and Characterization of Novel Nano- cocoon-like Structures of Polymer–CNT Nanocomposite')	7–11 September 2015, Diagora Congress Centre, Toulouse, France	
9	Sudhin Thampi	BT09D037	TNT 2015 (presented paper titled 'Prevention of Bacterial Adhesion onto Electrospun Fibroporous Poly(carbonate) Urethane Membrane by Embedding Graphene Oxide')	7–11 September 2015, Diagora Congress Centre, Toulouse, France	
10	Rohan Bendre	BT10B036	75th Scientific Sessions, American Diabetes Association	5–9 June 2015, Boston, Massachusetts, USA	
11	S. Lakshmi	BT10D008	The Biology of Genomes	5–9 May 2015. Cold Spring Harbor Laboratory, New York, USA	IIT Madras, Cold Spring Harbor Laboratory
12	Arathy S. Kumar	BT10D013	Protein Synthesis and Translational Control (international EMBO conference) (abstract titled 'Snail Regulated miR-493 Against IGFIR and Its Downstream Molecules in Head and Neck Cancer')	9–13 September 2015, EMBL (European Molecular Biology Laboratory), Heidelberg, Germany	
13	V.T. Fidal Kumar	BT10D016	Applied Nanotechnology & Nanoscience International Conference (ANNIC-2015) (abstract titled 'Electrochemical Interaction of Solution Deposited Al– ZnO and Ga–ZnO with NAD Dependent Dehydrogenases')	5–7 November 2015, Paris, France	IIT Madras
14	Swetha Raghavan	BT10D024	Cancer Genomics (presented posted titled 'Cloning and Characterization of the Human Pak1 Promoter')	28 June to 1 July 2015, Churchill College, Cambridge, UK	
15	Shabir Ahmad Zargar	BT10D026	American Association for Cancer Research—Annual Meeting 2015 (presented paper titled 'miR-155 Directly Targets PDCD4 and Activates BIC Promoter Through AP-1 Dependent Transcription to Replenish miR-155 Expression in SAS Cells')	18–22 April 2015, Pennsylvania Convention Center, Philadelphia, PA	
16	Pragathi Priyadharsini B.	BT10D028	Second International Conference on Reinforcement Learning and Decision Making (RLDM–2015) (presented paper titled 'A Computational Model of Gait Changes in Parkinson's Disease Patients Passing Through Doorways')	7–10 June 2015, University of Alberta, Edmonton, Canada	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
17	Srikiran Chandrasekaran	BT11B039	The 14th Asia Pacific Bioinformatics Conference	11–13 January 2016, San Francisco, CA, USA	Registration fee from RMF; travel paid by student
18	Chellam Gayathri	BT11D002	Beam time for data collection at the European Synchrotron Radiation Facility (ESRF) (proposal titled 'Structural Studies on an Archaeal Amino Acid Decarboxylase)	28 September to 7 October 2015, Grenoble, France	
19	M. Jayadev	BT11D004	First International Conference on Bioscience and Biotechnology, the International Institute of Knowledge (oral presentation titled 'Kibra: New Family Member of Ataxia Telangiectasia Mutated (ATM) Kinase Management')	12–14 January 2016, Colombo, Sri Lanka	
20	M. Jayadev	BT11D004	Third International Conference on Chemical Biological Sciences (ICCBS 2016) (oral presentation titled 'Phosphorylation Dependent Regulation of DNA Repair Function of Adaptor Protein KIBRA in Cancer Cells')	22–26 March 2016, Asia–Pacific Chemical, Biological & Environmental Engineering Society (APCBEES), Amsterdam, The Netherlands	
21	G.V. Pratap Reddy	BT11D006	International Conference—International Union of Pure and Applied Chemistry 2015 (IUPAC–2015) (abstract titled 'Enantioselective Decarboxylative Cyanomethylation of Isatins: A Strategy to Access Natural Products Consisting 3–Hydroxy Oxindole')	9–14 August 2015, Busan, South Korea	
22	B. Swarnalatha	BT11D010	ICCBS 2016 (oral presentation titled 'Unraveling the Role of p21 Activated Kinase 1 (Pak 1) in UV-B Induced Premalignant Skin Lesions')	22–26 March 2016, APCBEES Amsterdam, The Netherlands	
23	M. Kiranmayi	BT11D014	American Society of Human Genetics (ASHG) Annual Meeting–2015 (abstract titled 'The Gly364Ser Variant in the Catestatin Domain of Chromogranin A Enhances the Risk for Hypertension in India Populations')	6–10 October 2015, Baltimore, Maryland	IIT Madras
24	K.V.Y.N. Kumar	BT11D015	23rd Annual International Conference on Intelligent Systems for Molecular Biology and the 14th European Conference on Computational Biology (presented paper titled 'Discrimination and Prediction of Protein–Protein Binding Affinity')	10–14 July 2015, Dublin, Ireland	
25	M. Abhiram Charan Tej	BT11D016	Research project at Dr. Manas Kumar Santra's lab	6 April to 20 October 2015, National Centre for Cell Science (NCCS), Pune	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
26	Mandali Alekhya	BT11D017	International Joint Conference on Neural Networks (IJCNN) 2015 (presented paper titled 'A Computational Basal Ganglia Model to assess the Role of STN-DBS on Impulsivity in Parkinson's Disease')	11–17 July 2015, Killarney, Ireland	
27	Sarvepalli Jahnavi	BT11D020	2015 Fourth TERMIS (Tissue Engineering and Regenerative Medicine International Society) World Congress—Past, Present, Future: The Evolution of Regenerative Medicine (presented paper titled 'Development and Bio-mechanical Evaluation of a Bio-hybrid Scaffold for Heart Valve Tissue Engineering')	8–11 September 2015, Boston, MA, USA	
28	B. Swarnalatha	BT11D010	First International Conference on Bioscience and Biotechnology	12–14 January 2016, Colombo, Sri Lanka	
29	Ryan Thomas Philips	BT11D030	24th Annual Computational Neuroscience–CNS 2015 (presented paper titled 'Could the Prior Development of the Retinotopic Map Account for the Radial Bias in the Orientation Map in VI?'	18–23 July 2015, Prague, Czech Republic	
30	Aparajitha Srinivasan	BT12D002	Second International Conference on Natural Products Utilization (ICNPU) 2015, (presented paper titled 'Metabolic Engineering of Alpha Tocopherol in Helianthus annuus L.'	14–17 October 2015, Institute of Microbiology, Bulgarian Academy of Sciences, Plovdiv, Bulgaria	
31	Aparajitha Srinivasan	BT12D002	Exchange programme under Erasmus Mundus Action–II NAMASTE India– EU mobility project (Metabolic Flux Analysis of Sunflower Suspension Culture for Rational Engineering of Vitamin E Production)	8 September to 9 November 2016, Department of Plant Sciences, University of Oxford, UK	
32	Nagarajan R.	BT12D012	11th Student Council Symposium (SCS)	10 July 2015, Dublin, Ireland	IIT Madras alumni and self
33	Nagarajan R.	BT12D012	23rd Annual Conference on Intelligent Systems for Molcular Biology (ISMB)/14th European Conference on Computational Biology (ECCB) 2015 (presented poster titled 'Organism- Specific Protein–RNA Recognition: A Computational Analysis of Protein–RNA Complex Structures from Different Organisms')	12–14 July 2015, Dublin, Ireland	IIT Madras alumni and self
34	Venkat Reddy Chirasani	BT12D026	Biophysical Society Meeting	February 2015, Baltimore, USA	IIT Madras
35	Chandraprasad M.S.	BT12D031	Eighth International Conference on Euro Biotechnology (presented paper titled 'Novel <i>Pseudozyma antarctica</i> Strain Producing MEL and Application in Food and Drug Delivery')	18–20 August 2015, Fleming's Conference, University of Munchen Frankfurt, Germany	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
36	Chandraprasad M.S.	BT12D031	Eco-Bio 2016—Challenges in Building a Sustainable Bio-Based Economy (presented poster titled 'Mannosylerythritol Lipid Production from Mutated <i>Pseudozyma antarctica</i> JCM 10317 and Its Application in Food and Environmental Remediation')	6–9 March 2016, World Trade Center, Rotterdam, The Netherlands	IIT Madras
37	Prajakta Vidyadhar Naval	BT12D037	VI International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld 2015) (presented abstract titled 'Optimization of Culture Conditions for κ–Carrageenase Production by <i>Alteromonas macleodii</i> Strain KS62')	28–30 October 2015, University of Barcelona, Barcelona, Spain	IIT Madras
38	Piyush Kumar Gupta	BT12D040	Workshop on Development of Pre-clinical Orthotopic Tumor Xenograft Mouse Model and <i>In Vivo</i> Imaging	1–3 April 2015, ACTREC Mumbai	
39	Steffi Jose	BT12D047	The Fifth International Conference on Algal Biomass, Biofuels and Bioproducts	7 June 2015, San Diego, California	Institute and alumni
40	Ramiya B.	BT12D054	Award of Fulbright–Nehru Doctoral Fellowship—foreign exchange programme work on 'Development of Recombinant Cellulase from Fungal Strains for Lignocellulose Saccharification'	1 September 2015 to 31 May 2016, University of Illinois, Champaign, IL, USA	
41	Paresh N. Patel	BT13IPF02	25th International Society of Heterocyclic Chemistry Congress (presented paper titled 'Study on Interaction of Novel Heteroaryl Chalcones with Calf Thymus DNA Using Molecular Docking and Spectroscopic Techniques')	23–28 August 2015, University of California, Santa Barbara, California, USA	
42	Paresh N Patel	BT13IPF02	25th International Society of Heterocyclic Chemistry Congress (presented 'Studies on the Interaction of Novel Heteroaryl Chalcones with Calf Thymus DNA Using Molecular Docking and Spectroscopic Techniques')	23–28 August 2015, Santa Barbara, California, USA	DBT, IIT Madras (contingency grant) and IIT Madras Alumni Travel Grant
43	J. Madhumathi	Young Scientist (DST Project)	International Conference on Protein Engineering (OMICS International) (oral presentation titled 'Recombinant Fusion Proteins for Targeted Therapy of Leukemia')	26–28 October 2015, Chicago, USA	
44	Lakshmi Revathi Perumalsamy	Wellcome Trust DBT India Alliance Early Career Fellow	The Keystone Symposia on Cancer Pathophysiology: Integrating the Host and Tumor Environments (C3) (presented poster titled 'Role of a Non-enzymatic RAS Effector in Tumor Cell Migration')	28 March to 1 April 2016, Beaver Run Resort, Breckenridge, Colorado, USA	
45	Potunuru Uma Rani	BT09D017	International Conference on Cardiovascular Translational Research and 13th Annual Conference of the International Society for Heart Research (ISHR) (presented poster titled 'Anti- atherogenic Effect of <i>Gentiana lutea</i> Extract and Its Component Isovitexin')	22–24 January 2016, IC&SR, IIT Madras	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
46	K. Rathnakumar	BT09D032	International Conference on Cardiovascular Translational Research and 13th Annual Conference of the International Society for Heart Research (Indian Section) (presented poster titled 'Angiopoietin–2 Mediates Thrombin- Induced Monocyte Adhesion and Endothelial Permeability')	22–24 January 2016, IC&SR IIT Madras	
47	G.A. Karunya Kiritee	BT11B052	Biomedical Systems, Signals and Images (presented paper titled 'Automatic Seed Selection for Vertebral Segmentation on Spin MR Images Using Region Growing')	24–26 February 2016, IIT Madras	
48	Rakesh Nankar Pandeet	BT11D005	Medicinal Chemistry Conference- cum-Workshop (MEDCHEM 2015) on Antidiabetic Drug Discovery and Development	29–30 October 2015, IIT Madras	IIT Madras
49	K.Y.V.N. Kumar	BT11D015	International Conference on Next Generation Genomics, Biology, Bioinformatics and Technologies	1–4 October 2015, International Convention Centre, Hyderabad	
50	K. Yugandhar Kumar	BT11B015	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
51	M. Abhiram Charan Tej	BT11D016	International Conference on Cardiovascular Translational Research and 13th Annual Conference of the International Society for Heart Research (ISHR) (presented poster titled 'Effects of Impaired Glucose Tolerance on Vasculogenic Potential of Peripheral Blood Mono–nuclear Cells')	22–24 January 2016, IC&SR, IIT Madras	
52	Anju V. Nair	BT12D001	Bioprocessing India 2015 (presented paper titled 'A Mathematical Model for Cyclic (1,3) (1,6) β–Glucan Production')	17–19 December 2015, IIT Madras	IIT Madras
53	Anju V. Nair	BT12D001	Third Indo-German workshop on the Advances in Materials, Reaction, and Separation Processes	23–26 February 2016, IIT Guwahati, Assam	IIT Madras
54	Balaji R.	BT12D003	Bioprocessing India 2015 (presented poster titled 'Development and Characterization of Chitosan Based L–Glutamic Acid Hydrogel for Wound Healing Application: An <i>In Vitro</i> Study')	17–19 December 2015, IC&SR, IIT Madras	
55	R. Nagarajan	BT12D012	Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
56	R. Nagarajan	BT12D012	Sequencing and Data Analysis in Bioinformatics	9–13 February 2016, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), USA and National Institute for Research in Tuberculosis (NIRT– ICMR), Chennai	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
57	Chandraprasad	BT12D031	Bioprocessing India 2015 (presented paper titled 'Effect of C and N Sources on MEL Production from NTG Induced <i>P. antarctica</i> JCM 011317')	17–19 December 2015, IIT Madras	IIT Madras
58	Prajakta Vidyadhar Naval	BT12D037	International Conference on Translational Biotechnology BIOSANGAM-2016 (presented paper titled 'Optimization of Medium Component for κ–Carrageenase Production by <i>Alteromonas macleodii</i> Strain KS62)')	4–6 February 2016, MNNIT, Allahabad	IIT Madras
59	Piyush Kumar Gupta	BT12D040	International Conference 2015 on Next Generation Genomics, Biology, Bioinformatics and Technologies	1–4 October 2015, International Convention Centre, Hyderabad	
60	Shivudu G.	BT12D045	Bioprocessing India 2015: Innovative Bioprocesses with Engineered Cell Factories (presented 'Production of Xylooligosaccharides (XOS) Using Recombinant Endo–1,4–β–D–Xylanase and α–L–Arabinofuranosidase')	17–19 December 2015, IC&SR, IIT Madras	
61	Sreeja S.	BT12D046	Bioprocessing India 2015 (presented paper titled 'Process Strategies for Production of High Molecular Weight Hyaluronic Acid')	17–19 December 2015, IC&SR, IIT Madras	
62	Abrar Ali Khan	BT12D051	International Conference on Cardiovascular Translational Research and 13th Annual Conference of International Society for Heart Research (Indian Section) (presented paper titled 'Post-transcriptional Regulation of 3– Hydroxy–3–methyl Glutaryl– Coenzyme A Reductase Gene by MiRNA–27a')	22–24 January 2016, IIT Madras	-
63	Arijita Ghosh	BT12D052	Annual Meeting of Indian Biophysical Society—Molecules in Living Cells: Mechanistic Basis of Function (presented poster titled 'Modulation of ER Calcium by Leucine-Rich Repeat-Containing Protein 8B (LRRC8)')	8–10 February 2016, Bengaluru	IIT Madras
64	Narayani M.	BT12D053	30th Indian Society for Mass Spectrometry (ISMAS) Summer School on Proteomics and Metabolomics (PROTMET)	15–20 June 2015, CSIR–CCMB/CSIR– IICT, Hyderabad	DBT Project
65	Narayani M.	BT12D053	Peptide Engineering Meeting 7	5–7 December 2015, IISER Pune	-
66	Narayani M.	BT12D053	Gian Proteomics: Quantitative and Transproteomic Analysis Course	15–19 December 2015, IIT Bombay	-
67	Vignesh M.	BT12D207	Third International Conference on Cognition, Brain and Computation (presented 'A Novel Approach to Grid Cell Modeling Using Arbitrary Number and Phase Distribution of Head Direction Cells' and 'A Large Scale Cortico-basal Ganglia Model to Understand the Neural Interactions of Targeted Reaching')	5–7 December 2015, IIT Gandhinagar	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
68	Bhargavi Natarajan	BT12D208	International Conference on Cardiovascular Translational Research and 13th Annual Conference of International Society for Heart Research (Indian Section) (presented paper titled 'Role of Mitochondrial Transcription Factors in Essential Hypertension')	22–24 January 2016, IIT Madras	_
69	Paruchuri Anoosha	BT13D008	International Conference on Next Generation Genomics, Biology, Bioinformatics and Technologies (presented poster titled 'Discrimination of Driver and Passenger Mutations in Epidermal Growth Factor Receptor in Cancer')	1–4 October 2015, International Convention Centre, Hyderabad	
70	Paruchuri Anoosha	BT13D008	Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, IC&SR, IIT Madras	
71	Paruchuri Anoosha	BT13D008	Biomers 2013	16–17 November 2013, Department of Biotechnology, IIT Madras	
72	Paruchuri Anoosha	BT13D008	2015 NextGen Genomics, Biology, Bioinformatics and Techniques (NGBT)	1–3 October 2015, Hyderabad	
73	Raj Pranap Arun	BT13D014	2015 NextGen Genomics, Biology, Bioinformatics and Technologies	1–4 October 2015, International Convention Centre, Hyderabad	
74	C. Kabilan	BT13D026	Bioprocessing India 2015 (presented poster titled 'Docosahexaenoic Acid (DHA): Production from a Locally Screened Microbe and Downstream Processing')	17–19 December 2015, IIT Madras, Chennai	IIT Madras
75	Sree Ahila R.	BT13D027	International Conference on Advances in Chemical Engineering ICACE 2015 (presented paper titled 'Industrial Applications of Caffeine Degradation by <i>Pseudomonas</i> sp.')	20–22 December 2015, NITK Surathkal, Mangalore	
76	Aarthi Ravikrishnan	BT13D031	National Network for Mathematical and Computational Biology (NNMCB) National Meeting (presented paper titled 'Critical Assessment of Genome–Scale Metabolic Networks: The Need for a Unified Standard')	27–30 December 2015, Pune	Travel from PCF
77	Ahmed Fazil A.	BT13D032	International Conference on Polymeric Materials and Polymer Nanocomposites (ICNPM–2015)	13–15 November 2015, Kottayam, Kerala	
78	Sharon Mano Pappu J.	BT13D049	Bioprocessing India 2015 (presented paper titled 'Uniform Design Method for Optimization of Physical Parameters Affecting Xylitol Production by <i>D. nepalensis</i> NCYC 3413 in Batch Bioreactors')	17–19 December 2015, IC&SR, IIT Madras	
79	Sneha Maria	BT13D051	23rd National Heat and Mass Transfer Conference and First International ISHMT–ASTFE Heat and Mass Transfer (presented paper titled 'A Microfluidic Device for Blood Plasma Separation')	17–20 December 2015, Thiruvananthapuram	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
80	Vikas Arige	BT13D056	International Conference on Cardiovascular Translational Research and 13th Annual Conference of International Society for Heart Research (Indian Section) (presented poster titled 'Multiple Transcription Factors and MicroRNAs Interplay to Govern the Expression of Monoamine Oxidase B')	22–24 January 2016, IIT Madras	_
81	Kirubhakaran P.	BT13D063	Bioprocessing India 2015 (presented paper titled 'Effect of Specific Glucose Uptake Rate on Molecular Weight of Hyaluronic Acid from Pathway Engineered <i>L. lactis</i> by Fed Batch Fermentation')	17–19 December 2015, IC&SR, IIT Madras	
82	Meera Ramanan	BT13D071	Medicinal Chemistry Conference- cum–Workshop (MEDCHEM 2015) on Antidiabetic Drug Discovery and Development	29–30 October 2015, IIT Madras	IIT Madras
83	Puja Kumari	BT13D201	Bioprocessing India 2015 (presented paper titled 'Media Optimization for Cyclic β-Glucan Production by <i>Azospirillum lipoferum</i> MTCC 2306')	17–19 December 2015, IIT Madras	IIT Madras
84	R. Vishnupriya	BT13S014	First Indian <i>C. elegans</i> Meeting (40th Mahabaleshwar Seminar)	30 January to 2 February 2016, TIFR, Mumbai and Lonavala	IIT Madras
85	Manas Ranjan Swain	BT13IPF01	Bioprocessing India 2015: Innovative Bioprocesses with Engineered Cell Factories (presented poster titled 'Evaluation of Enzyme Digestibility and Structural Modifications of Rice Straw Pretreated by Combination of Dilute Acid Soaking and Aqueous Ammonia')	17–19 December 2015, IC&SR, IIT Madras	
86	Vineeta Sharma	BT14D013	International Workshop on Experimental Approaches to Proteomics	2–5 March 2016, Aravind Research Medical Foundation, Madurai	
87	K. Vishnu Priya	BT14D014	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
88	Gayathri S.	BT14D024	ICTP-ICTS Winter School on Quantitative Systems Biology	5–19 December 2015, International Centre for Theoretical Sciences, Bengaluru	Conference organisers
90	Manasa Murari	BT14D028	First Indian <i>C. elegans</i> Meeting (40th Mahabaleshwar Seminar)	30 January to 2 February 2016, TIFR, Mumbai and Lonavala	IIT Madras
91	Prabhakaran R.	BT14S005	The Third IIT Madras—Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics (presented paper titled 'Investigation of Aggregation Prone Regions in Human Proteome')	5–6 November 2015, Department of Biotechnology, IIT Madras	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
92	Venkatasubramaniam S.	BT14S006	International Conference on Cardiovascular Translational Research and 13th Annual Conference of International Society for Heart Research (Indian Section) (presented poster titled 'Mechanism of Regulation of Mouse Renalase Gene Transcription by Epinephrine')	22–24 January 2016, IIT Madras	_
93	Zeeshan S.	BT14S007	Third Indo-German Workshop on the Advances in Materials, Reaction, and Separation Processes'	23–26 February 2016, IIT Guwahati	
94	Zeeshan S.	BT14S007	First Industrial Biotechnology Forum	14–15 March 2016, Garching, Munich, Germany	TUM, Munich, Germany
95	Sherlyn Jemimah	BT15D008	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
96	Puneet Rawat	BT15D013	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
97	Ambuj Srivastava	BT15D029	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
98	Krishnan K.V.	BT15D041	Bioprocessing India 2015 (presented paper titled 'Design of Simulated Moving Bed (SMB) Reactor for Continuous Enzymatic Hydrolysis of Pre-treated Lignocellulosic Biomass')	17–19 December 2015, IC&SR, IIT Madras	
99	Kulandai Samy A.	BT15D045	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
100	Vivek R.	BT15D308	Bioprocessing India 2015 (presented paper titled 'Design of Aqueous Two Phase System for Purification of Hyaluronic Acid Produced by Metabolic Engineered <i>Lactococcus lactis</i> ')	17–19 December 2015, IC&SR, IIT Madras	
101	N. Arumugam	BT15S002	Bioprocessing India 2015 (presented poster titled 'Effect of Agitation on Release of Xylose on Corncobs')	17–19 December 2015, IC&SR, IIT Madras	
102	N. Arumugam	BT15S002	Bioprocessing India 2015 (presented poster titled 'Effect of Agitation on Release of Xylose on Corncobs')	17–19 December 2015, IC&SR, IIT Madras	
103	C. Ramakrishnan	BT15IPF04	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
104	Anantha Bharathi M.	BT15IPF05	CoE Workshop on Biomolecular Interactions	25–28 November 2015, NCBS, Bengaluru	
105	Anantha Bharathi M.	BT15IPF05	Seventh Annual Meeting of Proteomics Society—India (PSI)	2–6 December 2015, VIT University Vellore	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop		Financial Assistance from
106	Anantha Bharathi M.	BT15IPF05	Bioprocessing India 2015 (presented poster titled 'Implications of Single- Molecule Analysis for Bioprocess Monitoring and Control')	17–19 December 2015, IC&SR, IIT Madras	
107	Shweta Singha	Women Scientist	Medicinal Chemistry Conference- cum-Workshop (MEDCHEM 2015) on Antidiabetic Drug Discovery and Development	29–30 October 2015, IIT Madras	IIT Madras
108	Maya Raman	Women Scientist	Medicinal Chemistry Conference— cum–Workshop (MEDCHEM 2015) on Antidiabetic Drug Discovery and Development	29–30 October 2015, IIT Madras	
109	Sridevi Duggirala	Women Scientist	Medicinal Chemistry Conference– cum–Workshop (MEDCHEM 2015) on Antidiabetic Drug Discovery and Development	29–30 October 2015, IIT Madras	
110	S. Anusuya	1491AA	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
111	S. Anusuya	1491AA	Sequencing and Data Analysis in Bioinformatics	9–13 February 2016, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), USA and National Institute for Research in Tuberculosis (NIRT-ICMR), Chennai	
112	S. Anusuya	1491AA	Applied Statistics for Bioinformatics Using R	19–20 February 2016, Department of Computer Science and Engineering, Bannari Amman Institute of Technology, Sathyamangalam	
113	S. Anandakumar	UGC PDF	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015, Department of Biotechnology, IIT Madras	
Stude	nts/scholars who won	outside prize	s and awards		
SI. No	. Student/Scholar	Roll No.	Prize	Awarded by	
1	Lakshmi S.	BT10D008		12th Annual Conference of In Society for Heart Research, JN Delhi	
2	Lakshmi S.	BT10D008	Registration fee waiver grant towards attending the Biology of Genomes conference	Cold Spring Harbor Laborator	ry, USA
3	Beesetti P.S. Swarna Latha	BT11D010) Best Students Award	Biotech 2016, 12–13 January 20 Lanka	016, Sri

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
4	Beesetti P.S. Swarna Latha	BT11D010	Excellent Oral Presentation (APCBEES)	Third International Conference on Chemical and Biological Sciences (ICCBS 2016) Amsterdam, The Netherland, 23–25 March 2016
5	Venkata Subrahmanyan G.	BE12B011	3M Young Innovators Challenge Award	3M India and Confederation of Indian Industries (CII) at the 11th India Innovation Summit 2015, organized by CII on 6 August 2015 at Bengaluru
6	Nitish Kumar Singh	BS12B054	3M Young Innovators Challenge Award	3M India and Confederation of Indian Industries (CII) at the 11th India Innovation Summit 2015, organized by CII on 6 August 2015 at Bengaluru
7	Aparajitha Srinivasan	BT12D002	Best Poster Award (Springer book voucher worth €250	Springer at the international conference 'Natural Products Utilization: From Plants to Pharmacy Shelf', Bulgaria, 14–17 October 2015
8	Aparajitha Srinivasan	BT12D002	Fellowship for Ph.D. exchange at University of Oxford, November 2015–September 2016	Erasmus Mundus, Namaste EU-India Mobility Project 2015
9	Nagarajan R.	BT12D012	AU-CBT Excellence Award	Biotech Research Society of India
10	Nagarajan R.	BT12D012	Travel award	International Society of Computational Biology
11	Chandraprasad	BT12D031	Best Poster	Bioprocessing India 2015, IIT Madras
12	Prajakta V. Naval	BT12D037	Best Oral Paper Presentation Prize in Industrial Biotechnology	BIOSANGAM-2016, MNNIT, Allahabad
13	Arijita Ghosh	BT12D052	Best Poster Award	Indian Biophysical Society
14	P. Anoosha	BT13D008	Best Poster Award	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics
15	Vikas Arige	BT13D056	Best Poster Presentation Prize at 13th Annual Conference	International Society for Heart Research (Indian Section)

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize
1	Nagarajan R.	BT12D012	Institute Research Award

4.3.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization
Professors	
D. Karunagaran [Head]	Cancer biology, signal transduction, apoptosis
Anju Chadha	Biocatalysis, green chemistry, biosensors
T.S. Chandra	Microbiology and genetics
A. Jayakrishnan	Biomaterials science and technology
Guhan Jayarman	Metabolic engineering, synthetic biology, downstream processing
G.K. Suraishkumar	Reactive species, algal biofuels
S. Mahalingam	Molecular virology and cell biology
Rama Shanker Verma	Stem cell biology and tissue regeneration, cancer therapeutics
V. Srinivasa Chakravarthy	Computational neuroscience
Satyanarayana Gummadi	Bioprocess engineering

Name	Major Areas of Specialization
K. Subramaiam	Developmental biology
Amal Kanti Bera	Ion channels and signaling
Sanjib Senapati	Computational biophysics
Nitish R. Mahapatra	Cardiovascular genetics, molecular medicine
A. Gopala Krishna	Signal transduction and protein biochemistry
Associate Professors	
Michael Gromiha	Protein bioinformatics
K. Chandraraj	Biofuels, bioremediation, industrial enzymes
Rayala Suresh Kumar	Cancer biology
N. Manoj	Structural biology
V. Kesavan	Chemical biology
R. Baskar	Developmental genetics
Madhulika Dixit	Vascular biology
Assistant Professors	
R. Murugan	Theoretical biology and biophysics
Karthik Raman	Computational systems biology
Vignesh Muthuvijayan	Biomaterials and tissue engineering
Smita Srivastava	Plant biotechnology and bioprocess engineering
Athi Narayanan	Experimental/computational protein folding
Hamsa Priya Mohana Sundaram	Protein solution thermodynamics
Vani Janakiraman	Infection biology/infectious diseases
Professors Emeriti	
K.B. Ramachandran	Bioprocess engineering and modeling, metabolic engineering
Mukesh Doble	Biomaterials, drug design, biochemical engineering
Adjunct Faculty	
Venil N. Sumantran	Cancer biology
Dhinakar Kompala	Biochemical engineering
V. Mohan	Diabetes
Visiting Faculty	
Suresh K. Alahari	Cancer biology
INSA Senior Scientists	
K.K. Balasubramanian	Organic chemistry

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period
Confer	rences		
1	Mukesh Doble, Organizing Committee member (Treasurer)	Bioprocessing India 2015	17–19 December 2015
2	Nitish R. Mahapatra	International Conference on Cardiovascular Translational Research and 13th Annual Conference of International Society for Heart Research (Indian Section)	22–22 January 2016
3	K. Subramaniam and Sandhya Koushika (TIFR)	First Indian <i>C. elegans</i> Meeting	30 January to 2 February 2016
Sympo	sia		
1	M. Michael Gromiha and N. Manoj	The Third IIT Madras–Tokyo Tech Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015
2	Rama S. Verma	Genetic Diseases: From Mendelian to Malignancies	17 August 2015

Sl. No.	Co-ordinators	Title	Period				
Worksl	Workshops						
1	S. Mahalingam	Advanced Microscope Training Workshop	5–8 May 2015				
2	Mukesh Doble and S.N. Gummadi	Summer Workshop on Problem Solving Skills at Bioprocess Engineering 2015, Department of Biotechnology, IIT Madras	29 June to 3 July 2015				
3	S. Mahalingam	FACS Sorter Workshop	14–21 September 2015				
4	K. Subramaniam and Sandhya Koushika (TIFR)	First Indian C. elegans Workshop	27–29 January 2016				
5	Rama S. Verma	Biological and Hospital Waste Management	1–3 February 2015				
Short-t	Short-term courses						
1	Rama S. Verma	Three-Dimensional Cell-Based Therapeutic Approach for Tissue Repair and Regeneration	26 January to 5 February 2016				

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Title	Institution	Period
Works	hops			
1	M. Michael Gromiha	Workshop on Sequence Analysis and Molecular Dynamics Simulations	Anna University	20–23 January 2016
2	K. Subramaniam	First Indian C. elegans Workshop TIFR, Mumbai		27–29 January 2016
3	D. Karunagaran	Workshop on De-coding the Non-coding: Context-Dependent Regulation of Signaling Pathways by Micro RNAs—Implications of Cancer Therapy Central University of Kerala, Kerala		20 February 2016
4	Guhan Jayaraman	MIT Global Start-up Workshop	Hyderabad	21–23 March 2016
Semina	ars			
1	Nitish R. Mahapatra	UGC-SAP sponsored seminar, 'Innovation in Biomedical Sciences'	University of Madras	30 March 2016
2	D. Karunagaran	National Seminar on Current Trends in Life Sciences: Molecular Biology of Cancer	Government College Kariavattom, Thiruvananthapuram	10 February 2016
Sympo	sia			
1	Mukesh Doble	A Symposium on Diabetes (presented 'Synergistic Interaction Between Phyto- chemicals and Oral Anti-diabetic Drugs Leading to Enhanced Glucose Uptake in Cells')	Athens Institute for Education and Research, Athens, Greece	4–7 May 2015
2	Sanjib Senapati	The Third IIT Madras–Tokyo Tech Joint Symposium	IIT Madras	November 2015
3	M. Michael Gromiha	Indian Biophysical Society Symposium	IISc, Bengaluru	8–10 February 2016
4	T.S. Chandra	Invited talk titled 'Biotechnology for Food— Feed and Fuel: India-centric Research'	IIT Madras	28 February 2016
Confer	rences			
1	A. Jayakrishnan	Polymeric Prodrugs of Amphotericn B and Primaquine (keynote speaker)	Fifth International Symposium of Surface and Interface of Biomaterials, Sydney, Australia	7–15 April 2015
2	Madulika Dixit	75th Scientific Sessions (2015) of American Diabetes Association (oral presentation titled 'Cardioprotective Role of L-Carnosine on Rat Aortic Smooth Muscle Cells')	Boston, Massachusetts, USA	5–9 June 2015

Sl. No.	Faculty Member	Title	Institution	Period
3	K. Subramaniam	20th International <i>C. elegans</i> Meeting	University of California, Los Angeles	24–28 June 2015
4	K. Subramaniam	Biennial Meeting of the Indian Society for Developmental Biologists	CCMB, Hyderabad	15–18 July 2015
5	Nitish R. Mahapatra	18th International Symposium on Chromaffin Cell Biology (ISCCB-2015)	Pullman Reef Hotel, Cairns, Australia	17–21 August 2015
6	A. Jayakrishnan	International Symposium on Photonics, Applications and Nanomaterials (plenary speaker, 'Novel Nanotechnological Approaches to the Treatment of Leishmaniasis Using 2-Propyl Quinoline')	Thiruvananthapuram, India	28–30 October 2015
7	Smita Srivastava	NHBT-2015 (international conference, invited speaker 'Bioprocess Optimization Strategies to Enhance Production of High-Value Plant Metabolites by <i>In Vitro</i> Cultivation of Endophytes')	Thiruvananthapuram, India	22–25 November 2015
8	M. Michael Gromiha	Molecular Graphics and Modelling Conference	Bioinformatics Institute, Singapore	26–28 November 2015
9	Nitish R. Mahapatra	14th Congress of Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) and 84th Annual Meeting of Society for Biological Chemists (India)	BITS-Pilani, Hyderabad	27–30 November 2015
10	Vani Janakiraman	MCB75: From Molecules to Organisms	IISc, Bengaluru	11–14 December 2015
11	Smita Srivastava	Bioprocessing India 2015 (invited speaker, 'Microbial Endophytes as Alternative Production Platforms for High-Value Plant Secondary Metabolites')		17–19 December 2015
12	Karthik Raman	Bioprocessing India 2015	IIT Madras	17–19 December 2015
13	Karthik Raman	National Network for Mathematical and Computational Biology (NNMCB) Annual Conference	IISER Pune	27–29 December 2015
14	M. Michael Gromiha	Indian Science Congress	University of Mysore	3–7 January 2016
15	Nitish R. Mahapatra	Eighth RNA Group Meeting	CCMB, Hyderabad	7–10 January 2016
16	G.K. Suraishkumar	Second International Symposium on Teaching and Learning in Higher Technical Education (presented paper titled 'Strategies to Improve Learning of the Entire Class')	IIT Madras	22–23 January 2016
17	Mukesh Doble	Microbial Biofilms (CoMB) (delivered talk titled 'Antibiofilm Food Wrap')	Sastra University, Thanjavur	29–30 January 2016
18	D. Karunagaran	Sixth International Translational Cancer Research Conference on Prevention and Treatment of Cancer: Hypes and Hopes (talk titled 'miR-145 Differentially Modulates WNT Signalling in Colorectal Cancer Cells')	Hyatt Regency, Ahmedabad	4–7 February 2016
19	Sanjib Senapati	Supercomputing Frontiers 2016 (international conference)	Biopolis, Singapore	14–18 March 2016
20	Mukesh Doble	Advances in Remediation (talk titled 'Biological Techniques for Waste Water Treatment')	S.S.N. College of Engineering, Chennai	17 March 2016
21	A. Jayakrishnan	BiTERM 2016: International Conference on Biomaterials, Biodignostics, Tissue Engineering, Drug Delivery and Regenerative Medicine (plenary speaker, 'Novel Nanotechnological Approaches to the Treatment of Leishmaniasis Using 2-Propyl Quinoline')	IIT Delhi	15–17 April 2016

Sl. No.	Faculty Member	Title	Institution	Period	
Training programmes					
1	Amal Kanti Bera	AFM	UCSD	9–24 March 2016	

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	A. Jayakrishnan	Injectable Hydrogels	University of Queensland, Brisbane, Australia	17 April 2015
2	Sanjib Senapati	Talk and hands-on training: Molecular Dynamics Simulations for Rational Drug Designing	Cognizant, Chennai	14–15 May 2015
3	M. Michael Gromiha	Computational Approaches and Physical Interactions for Understanding Protein Structure and Function: Applications to Drug Design	Ethiraj College, Chennai	2 September 2015
4	Karthik Raman	Modelling Metabolic Networks: From Biofuels to Better Therapies	IMSc, Chennai	12 September 2015
5	A. Jayakrishnan	Anti-bacterial Polymers Based on New Hydantoin Monomers	Faculty of Pharmacy, University of Paris (XI), France	28 September 2015
6	M. Michael Gromiha	Protein Interactions: Integrating Computational Methods and Experimental Data for Understanding the Binding Specificity	Bioinformatics Institute, Singapore	25–27 November 2015
7	Nitish R. Mahapatra	Chromogranin A Gly364ser Variant Profoundly Alters the Risk for Hypertension in Human Populations Via Modulation of Endothelial Nitric Oxide Levels		28 November 2015
8	M. Michael Gromiha	Development of Databases and Algorithms for Distinguishing Between Amyloid Forming Peptides and Non-amyloids: Applications to Neurodegenerative Diseases	Shanghai Jiao Tong University, China	10–15 December 2015
		Analysis and Discrimination of Driver and Passenger Mutations in Cancer		
		Binding Specificity of Protein–protein and Protein–Ligand Interactions: Implications for Structure Based Drug Design		
9	Karthik Raman	In Silico Modelling of Metabolic Networks: Insights for Metabolic Engineering	Bioprocessing India 2015, IIT Madras	19 December 2015
10	Karthik Raman	Fast-SL: An Efficient Algorithm to Identify Synthetic Lethals in Metabolic Networks	IISER Pune/NCL Pune	27 December 2015
11	M. Michael Gromiha	Algorithms and Applications of Bioinformatics in Big Data Analysis Indian Science Congress, University of Mysore		3–7 January 2016
12	Nitish R. Mahapatra	A Functional miR-146a Binding Site IICT, Hyderabad in Renalase Gene Influences Several Cardiovascular and Metabolic Traits in Human Populations		8 January 2016
13	M. Michael Gromiha	Development of Databases and Algorithms for Distinguishing Between Amyloid Forming Peptides and Non-amyloids: Applications to Neurodegenerative Diseases Anna University Anna University		20–23 January 2016
14	Karthik Raman	Representation and Modelling of Metabolic Networks	Workshop on Biological Sequence Analysis, Anna University	20 January 2016

SI. No.	Faculty Member	Title of Lecture	Institution	Date
15	Vani Janakiraman	Hypersensitivity	National Seminar on Basic and Applied Immunology, University of Madras, Chennai	2 February 2016
16	M. Michael Gromiha	Integrating Computational Methods and Experimental Data for Understanding the Binding Specificity of Protein–Protein Complexes	Indian Biophysical Society	8–10 February 2016
17	Karthik Raman	Systems-Level Modelling of Biological Networks	National Seminar on Big Data Analytics in Biology, Vel's University	27 February 2016
18	M. Michael Gromiha	Exploring Preferred Driver and Passenger Mutations in Cancer Genes: Applications to Identify Potential Drug Targets	Tokyo Institute of Technology, Japan	13–19 March 2016
19	Nitish R. Mahapatra	Two Common Genetic Variations in the Neuroendocrine Secretory Granule Protein Chromogranin A Enhance the Risk for Cardio- metabolic Diseases in Indian Populations	Department of Medical Biochemistry, University of Madras	30 March 2016
20	Karthik Raman	Systems-Level Modelling of Biological Networks	Sathyabama University	30 March 2016

Visits abroad by faculty members

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	M. Michael Gromiha	Chuo University, Tokyo, Japan	1 April to 31 July 2015	Short-term research and delivering lectures	Chuo University
2	V. Srinivasa Chakravarthy	USA	June 2015	Meeting with collaborator at MIT	Project of the collaborator
3	K. Subramaniam	USA	23–29 June 2015	Presenting a paper at the 20th International <i>C. elegans</i> Meeting, University of California, Los Angeles	CPDA and PI's project
4	V. Srinivasa Chakravarthy	France	July 2016	Meeting with collaborator at INRIA, Bordeaux, France	Joint Indo- French project
5	Nitish R. Mahapatra	Australia	17–21 August 2015	Attending the 18th International Symposium on Chromaffin Cell Biology (ISCCB-2015)	CPDA
6	Sanjib Senapati	Australia	17–21 August 2015	Invited lecture at ISCCB 2015	
7	Rama S. Verma	Toronto, Canada	17–20 September 2015	Annual Fanconi Anemia Research Fund Scientific Symposium	
8	A. Jayakrishnan	France	18 September to 2 October 2015	Discussing the progress of the work in the Indo–French project 'Novel Nanotechnological Approaches to the Treatment of Leishmaniasis Using 2-Propyl Quinoline'	CEFIPRA, New Delhi
9	M. Michael Gromiha	Bioinformatics Institute, Singapore	25–27 November 2015	Delivering a plenary lecture at Molecular Graphics and Modelling Conference	A*STAR Bioinformatics Institute, Singapore
10	M. Michael Gromiha	Shanghai Jiao Tong University, China	10–15 December 2015	Lab visit and delivering invited talks	Shanghai Jiao Tong University
11	M. Michael Gromiha	Chuo University, Japan	25–29 January 2016	Research discussion and delivering an invited talk	Chuo University

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
12	Amal Kanti Bera	USA	9–24 March 2016	Training on AFM	ICMR
13	M. Michael Gromiha	Tokyo Institute of Technology, Japan		Lab visit and delivering a talk	Tokyo Institute of Technology
14	Sanjib Senapati	Singapore	14–18 March 2016		A*STAR, Singapore

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award
Awards	5				
1	Sathyanarayana N. Gummadi	Institute Research and Development Mid-career- Level Award (IRDA)	IIT Madras and IC&SR	Outstanding achievements in teaching, scholarship and creative research work	17 April 2015
2	M. Michael Gromiha	Outstanding Performance Award (DDN Prize)	Tokyo Institute of Technology, Japan	Second IPAB Contest for Computational Drug Discovery	17 July 2015
3	M. Michael Gromiha	Mid-career Award	IIT Madras	Career development	25 April 2016
4	Anju Chadha	S.K. Chaterjee Award for an IISc Alumnus, 2015	IISc, Bengaluru	Excellence in science	8 February 2016
5	Karthik Raman	Young Faculty Recognition Award	IIT Madras	Excellence in teaching and research	4 September 2015
6	Athi N. Narayanan	INSA Medal for Young Scientists for the Year 2015	_	_	2015
7	Rama Shanker Verma	Elected a Fellow of the BioTech Research Society (BRSI)	BRSI		2015

Books and monographs authored/co-authored

Sl. No.	Title	Editors	Author/ Co-author
1	Probiotics and Bioactive Carbohydrates in Colon Cancer Management (pp. 1–96, 2016)	Maya Raman, Padma Ambalam and Mukesh Doble	_
2	Principles of Downstream Techniques in Biological and Chemical Processes (pp. 1–234, 2015)	Mukesh Doble	_
3	Biopharmaceutical Informatics: Applications of Computation in Biologic Drug Development in Developability of Biotherapeutics (pp. 3–34, 2015)	S. Kumar, R.H. Robins, P.M. Buck, T.P. Hickling, A.M. Thangakani, L. Li, S.K. Singh and M. Michael Gromiha	S. Kumar and S.K. Singh

Fellowships of academies and professional societies

SI. No.	Faculty Member	Details	
1	Athi N Naganathan	Intermediate Fellowship, Welcome Trust DBT—India Alliance	
2	Amal Kanti Bera	ICMR International Fellowship, 2016	
3	M. Michael Gromiha	Selected as a Member of the National Academy of Sciences, Allahabad, India, 2015–2016	
4	M. Michael Gromiha	Foreign Visiting Associate Professorship, Chuo University, Japan, 2015–2016	
5	Rama Shanker Verma	Elected Fellow, BioTech Research Society (BRSI), 2015	
6	Rama Shanker Verma	Adjunct Professor, Biomechanical and Tissue Engineering, Faculty of Science, Engineering and Technology, Swinburne University of Technology, Victoria 3122, Australia	

Editoria	Editorial boards of journals					
SI. No.	Faculty Member	Position (Editor/Member)	Journal			
1	A. Jayakrishnan	Member of editorial board	Regenerative Engineering and Translational Medicine (Springer, New York)			
2	M. Michael Gromiha	Member of editorial board	Scientific Reports			
3	M. Michael Gromiha	Member of editorial board	Journal of Bioinformatics and Computational Biology			
4	M. Michael Gromiha	Guest Editor	IEEE-ACS Transactions on Computational Biology and Bioinformatics			
5	M. Michael Gromiha	Associate Editor	BMC Bioinformatics			

4.3.4. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Equipment	Value (lakhs of ₹)
1	Super-resolution microscope (SIM, dSTROM and PLAM)	550
2	Next-generation sequencer	350
3	Spectral confocal microscope with FCS/FCCS (LSM 880)	418

Patents filed

Sl. No.	Faculty Member	Title of Patent
1	Mukesh Doble	A Process for Reducing Cloud Point in Hydrocarbon Fuels Using Nanostructured Mannosylerythritol Lipids and Method of Producing the Same — 771/CHE/2015, 18 February 2015
2	Mukesh Doble	Process for Producing Hydrogel from Cyclic Beta Glucan and Carrageenan for Use in Cosmetic and Food Industry—4289/CHE/2015, 17 August 2015
3	Smita Srivastava and co-inventors Narayani M. and Anju Chadha	An Improved Process of Producing High Yields of Natural Cyclotides from Plant Tissues—7030/CHE/2015, 29 December 2015
4	G.K. Suraishkumar along with the student Mitan Sutradhar	A Safer, Highly Efficient and Eco-friendly Cigarette Filter and Production Method Thereof
5	Enakshi Bhattacharya, Anju Chadha, et al.	A Miniaturised Blood Serum Triglyceride Monitoring System, IN2013CH04937A, 2015
6	Sushil Mahata (UCSD) and Sanjib Senapati	A Novel Peptide Therapy to Counteract Insulin Resistance and Type 2 Diabetes

Patents awarded

SI. No.	Faculty Member	Title of Patent
1	T.S. Chandra	Carrier for Agricultural and Industrially Important Microorganisms and Their Products, Application no. 1298, Provisional Patent No. 3490/CHE/2015

4.3.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Molecular Mechanisms of Disease Caused by Disfunction of Cardiovascular GIRK Channels	2016–2018	UGS	95	Amal Kanti Bera
2	Design and Development of Multifunctional Gold Nano Structures <i>Candida parapsilosis</i> ATCC 7330	16 April 2015 to 15 April 2018	BRNS, DAE, GoI	24.31	Anju Chadha (PI)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
3	Towards 'Green Chemistry': Development of a Chemoenzymatic Route for the Synthesis Ethambutol, Antituberculosis Drug	22 December 2015 to 21 December 2018	DST, GoI	40.22	Anju Chadha (PI), K.K. Balasubraniam (INSA Sr. Scientist, Co-PI]
4	A Rapid, Ensemble and Free Energy Based Web–Tool for Engineering the Thermodynamic Stabilities of Proteins and Enzymes	3 years	DST	25.3	Athi N. Narayanan
5	Towards Designing Tunable Nanomachines: Taking Advantage of Protein Disorder	1 December 2015 to 30 November 2020	Wellcome Trust (DBT India Alliance — Intermediate Fellowship)	337.5	Athi N. Narayanan
6	Targets of Caffeine	1 March 2015 to 29 February 2017	ICMR	23.54	R. Baskar
7	Fixing Hybrid Vigour by Asexual Reproduction	8 July 2015 to 7 July 2017	DST	18.18	R. Baskar
8	Generation of Novel Gene Knockout Vector in the Social Amoeba Dictyostelium discoideum based on Drug Resistance Mechanism in Cancer	21 December 2015 to 20 October 2016	IC&SR Research Funds	4.5	R. Baskar, Sathyanarayana Naidu G.
9	Bio-templated Bacterial Ghosts as Drug Delivery Carrier: Preparation and Evaluation Studies for Targeted Sarcoma Cancer Therapy	2 years	DST-SERB, NPDF (H. Bava Bakrudeen)	19.2	K. Chandraraj
10	Fast Sampling Analyses for Anthropogenic Micro Pollutants in Wet Environmental Compartments	2013–2016	IGCS-DST	24.28	T.S. Chandra, R. Ravi Krishna
11	Genetic and Metabolic Engineering in Two Flavinogenic Hemiascomycete Fungi Ashbya gossypii and Eremothecium ashbyii for Enhanced Flavin Production Through Stress Mechanisms	2012–2016	DBT	36.89	T.S. Chandra
12	Signal Transduction Mechanism in Calumenin	2014–2017	BRNS	25	A. Gopalakrishna
13	Protein Folding Diseases	2013–2016	DST	25	A. Gopalakrishna
14	Metabolic Network Analysis of Pathogenic Organisms for Designing Novel Therapeutic Intervention Strategies	17 June 2013 to 16 June 2016	DBT	24.37	Karthik Raman, Manoj N.
15	Microfludic Platform for Identification and Isolation of Target Cells	3 years	DST (Science and Engineering Board)	47.068	Madhulika Dixit (Co-I)
16	Functional Role of Weibel-Palade Bodies in Thrombin Induced Endothelial Inflammation and Barrier Dysfunction	3 years	DBT	62.29	Madulika Dixit
17	Role Angiopoietins in Initiation of Endothelial Dysfunction and Progression of Cardiovascular Diseases	3 years	DST and SERB	47.62	Madhulika Dixit
18	National Facility on Community Based Cancer Biobank for Drug Targets	2013–2018	DST	3093	S. Mahalingam (PI), Madhulika Dixit (Co-PI)
19	Mechanism of HIV Genome Nuclear Transport	2014–2017	DBT	98	S. Mahalingam (PI), K. Subramanian (Co-PI)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
20	Role of a Ras effector—Ras Association (RaiGDS/AF-6) Domain Family Member in Tumour Invasion and Migration	5 years	Wellcome Trust, (DBT India Alliance Early Career Award)	172.83	S. Mahalingam
21	Dissecting Important Amino Acid Residues for Folding and Binding of Proteins	3 years (completed)	DST	24.7	M. Michael Gromiha, N. Manoj
22	Investigating Protein Aggregation Using Structural Analysis Prediction Methods and Molecular Dynamics Study with Applications to an Eye Disease, Corneal Dystrophy	3 years (ongoing)	DBT	37.53	M. Michael Gromiha, D. Velmurugan
23	Implication of Structure Based Drug Designing, High Throughput Screening and Structure Optimization Techniques for Designing Novel RNA Dependent RNA Polymerase (RDRP) Inhibitors for Dengue Infection	3 years (ongoing)	DST under Women Scientist Scheme-A (Dr. A. Anusuya)	16.25	M. Michael Gromiha
24	Exploring the Importance of Inter-residue Interactions in Protein Structure and Folding	3 years (ongoing)	DST-SERB, Young Scientist (Harihar)	25.2	M. Michael Gromiha
25	The Aggregation of Huntingtin and Alpha Synuclein-MD Simulation and Docking Studies	2 years	DST-SERB, NPDF, (Binny Priya S.)	19.2	M. Michael Gromiha
26	Development of Antifouling Coating Based on Surface Modification Approach	16 March 201 to 30 June 2016	BRNS	53.9	Mukesh Doble
27	Natural Products as Inhibitors for mPGES-1 for the Treatment of Inflammation and Cancer	27 August 2013 to 26 August 2016	DST	18.8	Mukesh Doble
28	Understanding <i>Candida parapsilosis</i> ATCC 7330 De-racemisation of Alfa- and Beta- Hydroxy Esters	22 March 2011 to 30 September 2016	DBT	20.896	Mukesh Doble/Anju Chadha
29	Design, Synthesis and Biological Evaluation of Novel Heterocyclic Drug Scaffolds as Potential	24 June 2014 to 23 June 2017	DST	23.1	Mukesh Doble
30	A Study of the Biodiversity and Bioactive Natural Products of Non-sporulating Fungi Associated	23 October 2015 to 22 October 2018	DBT	20.168	Mukesh Doble
31	Sorting of Deformable Objects in Microchannels for Biomedical Applications	19 November 2013 to 18 November 2016	DBT	48.35	Ashish Kumar Sen/ Mukesh Doble
32	Identification and Characterization of Functional Polymorphisms in the Physiological Dysglycemic Peptide Pancreastatin in an Indian Population	2014–2017	DST	32.70	Nitish R. Mahapatra
33	Transcriptional and Post-transcriptional Regulation of Monoamine Oxidase A and B	2012–2016	DBT	68.43	Nitish R. Mahapatra
34	Regulation of the Novel Catecholamine- Metabolizing Enzyme Renalase by Micro RNAs	2013–2016	DBT	51.07	Nitish R. Mahapatra
35	International Genetic Engineering Machine (iGEM–2015) Related Activities	3 years	Alumni Affairs	10	Nitish R. Mahapatra
36	Examining the Role of FANCA and FANCC Protein in the Regulation of Hematopoietic Stem Cell Self Renewal and Differentiation Through the WNT Signalling	3 years	CSIR	21.96	Rama Shanker Verma

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
37	Novel Application of TPGS Modified PLGA Nanotopographic Surfaces on Functioning of Cancer Cells	2 years	DST-SERB, NPDF (S. Malathi)	19.2	Rama Shanker Verma
38	Bioprocess Development for Caffeine Degradation Using Whole Cells and Enzymes: Industrial Applications	16 December 2015 to 15 December 2017	DBT	29.344	G. Sathyanarayana Gummadi
39	Education and Entrepreneurship Popularizing Bharati Script to Express Major Indian Languages	4 April 2016 to 3 April 2017	Cholamandalam, General Insurance Company Limited	4.15	V. Srinivasa Chakravarthy
40	Translational Control of Maternal mRNAs in Germline Stem Cells	17 July 2013 to 16 July 2016	DBT	51.328	K. Subramaniam
41	Characterization of Genes that Regulate Self-Renewal/Differentiation Decision in the <i>Caenorhabditis elegans</i> Germline	7 August 2014 to 6 June 2017	DST	50.46	K. Subramaniam
42	Nanos-Mediated Gene Expression During Primordial Germ Cell Development in Caenorhabditis elegans	30 March 2016 to 29 March 2019	DBT	76.224	K. Subramaniam
43	Reactive Species for Improved Bio-oil Yields from Microalgae	2013–2016	DST	32.83	G.K. Suraishkumar (PI), Karthik Raman (Co-PI)
44	Investigating the Therapeutic Potential of RUNX3 Peptide Loaded Self-Assembled Dipeptide Nanoparticles in Pre-clinical Models of Human	21 January 2016 to 20 April 2019	DBT	69.268	Rayala Suresh Kumar, V. Kesavan (Co-I)
45	Early Career Research Award	3 years	SERB	50	Vani Janakiraman
46	Development of a Novel, Rapid and Cost- Effective Method for Separation of Drug- Loaded Liposomes from Unencapsulated Drug Molecules	31 December 2015 to 30 December 2018	DBT	14.976	Vignesh Muthuvijayan, Edamana Prasad

Industrial consultancy projects

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	M. Michael Gromiha	Tool for Protein Aggregation Prediction	Pfizer	6.37
2	Rama Shanker Verma	FACS Analysis of Cancer Cells	IC	0.5

RBIC projects

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Mukesh Doble	Biodegradation of Polypropylene	RII, Mumbai	6.58
2	Mukesh Doble	Develop a Mathematical Model to Simulate the Segregation/Stratification of Solids in a Mixture bas	TATA Chemicals Limited	2.06
3	Rama Shanker Verma	Evaluation of FABS in HUVEC Cell Line	RBIC 2015	50.00
4	Rama Shanker Verma	FACS Analysis of Cancer Cells	IC	50.00
5	Rama Shanker Verma	Evaluation of FABS in HUVEC Cell Line	RBIC 2015	0.5

Exchange programmes with other universities including institutions/universities under MoUs

1. Zeeshan S. (BT14S007), DAAD, IIT master's sandwich scholarship, Technical University Munich (TUM), Germany, September 2015 to March 2016.

- 2. Puja Kumari (BT13D201), joint Ph.D. programme, Swinburne University of Technology, Australia, 29 February 2016 to 28 February 2017.
- 3. Ramiya B. (BT12D054), Award of Fulbright–Nehru Doctoral Fellowship. Foreign Student Advisor: Jennifer Avery. Visiting Student Researcher—Study in Biofuels, University of Illinois, Urbana Champaign—Graduate School, Champaign, IL, USA, 1 September 2015 to 31 May 2016.
- 4. Shonit Chamadia (BE12B030), Student Exchange Programme, INSA (Institute National des Sciences Appliquees), Lyon, France, 14 September 2015 to 29 January 2016.
- 5. Vidhya Subramanian (BT12D049), Energy, Environment and Sustainability Lab Exchange Programme (Indo-Korea Research Internship) and Joint Research Programme (India–ROK Joint Proposal), Seoul National University, South Korea, 8 June 2015 to 9 September 2015.
- 6. Nishank Nihar (BE12B020), CTU Exchange Programme, Czech Technical University, Prague, Czech Republic, 11 February 2016 to 30 June 2016.
- 7. Omkar Satyavan Mohite (BE12B015), Semester Exchange Programme, National Chiao Tung University (NCTU), Hsinchu city, Taiwan, 7 September 2015 to 15 January 2016.
- 8. Jatin Kataria (BE13B017), Spring Semester Exchange Programme, National Chiao Tung University, Taiwan, 17 February 2016 to 17 June 2016.

Participation with other institutions under MoUs

Sl. No.	Faculty Member	Details	University/Institution	
1	Smita Srivastava	Research collaborator	CIBA, Chennai	
2	T.S. Chandra with Dr. Godfrey Kyazze, FHEA, MIChemE	Priyadharshini Mani, Roll No. BT15F003, 1 August 2015 to 31 January 2016, Joint Ph.D. Exchange Programme	University of Westminster, UK	
	Senior Lecturer in Bioprocess Technology			
	Course Leader, M.Sc. Applied Biotechnology			
	Health and Safety representative, Department of Life Sciences			
	Faculty of Science and Technology, University of Westminster			
3	T.S. Chandra	Dr. Viktoria Schiller, Postdoctoral Research, June–August 2015	RWTH Aachen University through DAAD and IGCS, IIT Madras	
4	T.S. Chandra	Collborator	Championed MoU with National Ilan University, Taiwan with Dr. Chen and Dr. Kathiravan Srinivasan	

Research publications of faculty members and research scholars

Papers published in refereed national journals: 3
Papers published in refereed international journals: 93

Papers presented at national conferences: 2 Papers presented at international conferences: 2

Papers published in refereed national journals

- 1. G.K. Aradhyam, Pilli S.V., Anuradha D., Manoj N., Nagesh N. and Kumar R.S. 2015. Phenotypic variations in the 22q11 deletion syndrome—Study in a south Indian population. *Indian Journal of Pediatrics* 1–2. (Epub online only yet)
- 2. Muniraj, Sarangapani, Mukesh Doble, Ganesan Suresh and Sarangapani Muniraj. 2015. Efficient assembly of novel indolo quinoxaline architectures utilizing isatin through condensation and cyclization process. *Journal of the Indian Chemical Society* 92(6): 867–870.
- 3. Mukesh Doble, Perumal Govindaraj and A. Ravichand Ismavel. 2016. Antimicrobial silver nitrate release coating to prevent biofilm on stainless steel orthopedic implant. *Trends in Biomaterials and Artificial Organs* 29(4).

Papers published in refereed international journals

- 1. Anju Chadha and Pula Mahajabeen. 2015. Regio- and enantioselective reduction of diketones: preparation of enantiomerically pure hydroxy ketones catalysed by *Candida parapsilosis* ATCC 7330. *Tetrahedron: Asymmetry* 28: 1167–1173. doi:10.1016/j.tetasy.2015.09.001
- 2. Anju Chadha, Sowmyalakshmi and Venkataraman. 2015. Enantio- and chemo-selective preparation of enantiomerically enriched aliphatic nitro alcohols using *Candida parapsilosis* ATCC 7330. *RSC Advances* 5: 73807–73813. doi:10.1039/c5ra13593a
- 3. Anju Chadha, Sivakumari and Thakkellapati. 2015. *Candida parapsilosis* ATCC 7330 mediated oxidation of aromatic (activated) primary alcohols to aldehydes. *RSC Advances* 5:91594–91600. doi:10.1039/c5ra18532g
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- 5. Anju Chadha, Patel and Paresh N. 2015. Crystal structure of (E)-1,3-bis(6-methoxynaphthalen-2-yl)prop-2-en-1-one. *Acta Crystallographica Section E: Crystallographic Communications* 71(11): 884–885. doi:10.1107/S2056989015019714
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Papers presented at national conferences

- 1. Ghosh A. and Bera A.K. Modulation of ER calcium by leucine-rich repeat-containing protein 8B (LRRC8B). *Indian Biophysical Society Meeting*, 2016.
- 2. Chandra Kishore and Karunagaran D. Menadione downregulates Wnt signaling pathway and reverses EMT in colorectal cancer cells. *Asian Clinical Oncology Society*, 2016.

Papers presented at international conferences

- 1. Patel Paresh N. and Anju Chadha. Study on interaction of novel heteroaryl chalcones with calf thymus DNA using molecular docking and spectroscopic techniques. *The 25th ISHC Congress*, Santa Barbara, California, USA, 23–28 August 2015.
- Saravanan Krishnan, Shoba Narayan and Anju Chadha. Yeast based gold nano-bio composites as catalysts. Biomaterials & Biosensors (BIOMATSEN 2015), Turkey, 16–19 April 2015.

Disting	Distinguished visitors to the department							
Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit					
1	Dr. Lakshmi Gorrepati, Post-doctoral Fellow Carnegie Institution for Science, Baltimore, USA	24 April 2015	Talk titled 'Understanding Cellular and Molecular Effects of Pax7 Loss in Satellite Cells'					
2	Dr. Reuben Thomas Staff Research Scientist, Gladstone Institutes, San Francisco, USA	3 May 2016	Talk titled 'Choosing the Right Path: Statistically and Biologically'					
3	Dr. Badri Roysam, Hugh Roy and Lillie Cranz Cullen University Professor, Department of Electrical Engineering, University of Houston, USA	11 May 2015	Talk titled 'Bio-image Analytics: Applications to Cancer Immunotherapy and Tumour Tissue Mapping'					
4	Dr. Purnananda Guptasarma, Department of Biological Sciences, IISER Mohali	12 May 2015	Talk titled 'Extreme Protein Engineering'					
5	Dr. Rati Sharma, Postdoctoral Fellow, Department of Biophysics, Johns Hopkins University, USA	28 May 2015	Talk titled 'Directional Accuracy in a Model of Gradient Signaling during Yeast Mating'					
6	Prof. Suresh K. Alahari, Ph.D., Fred G. Brazda Professor of Biochemistry, Department of Biochemistry and Molecular Biology, LSU School of Medicine, and Visiting Faculty, Department of Biotechnology	10 July 2015	Talk titled 'Nischarin, A Novel Tumor Suppressor of Breast Cancer'					
7	Dr. Ashok Garai, Department of Physics, IISc, Bengaluru	7 August 2015	Talk titled 'Elastic Properties of Various DNAs: A Molecular Dynamics Study'					
8	Dr. Rama Soundararajan, Department of Translational Molecular Pathology, University of Texas, MD, Anderson Cancer Center, USA	29 July 2015	Talk titled 'Exploring the Molecular Links Connecting Hypertension and Breast Tumour Progression: Role of the Epithelial Sodium Channel'					
9	Dr. Pradeep Lal, Koichi Kawakami Laboratory, Division of Molecular and Developmental Biology, National Institute of Genetics, Japan	6 August 2015	Talk titled 'Genetic Identification of Neuronal Circuits Mediating Fear-Learning in Zebrafish'					
10	Dr. Himanshu Sinha, Department of Biological Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai	11 August 2015	Talk 'Defining Genotype to Phenotype Relationships: The Next Steps'					
11	Dr. Suresh Sudarsan, Applied Microbiology, The Blank Lab, Institute of Applied Microbiology, RWTH Aachen University, Germany	13 August 2015	Talk titled 'Lignin Biorefining: Challenges in Engineering the Microbial Metabolic Complexity'					
12	Dr. B.J. Rao, Department of Biological Sciences, TIFR, Mumbai	18 August 2015	Talk titled 'Chromosome Territories Relocate During DNA-Damage-Response in Mammalian Nuclei: Regulation and Signaling'					
13	Prof. Y. Akiyama, Dr. M. Sekijima, Dr. S. Chiba, Dr. T. Ishia and Y. Matsuzaki, Tokyo Institute of Technology	4–7 November 2015	Symposium					
14	YH. Taguchi and Dr. N. Uchikoga, Chuo University	4–7 November 2015	Symposium					
15	Dr. Sumit Bhaduri, FNA, Adjunct Faculty, Department of Chemistry, IIT Bombay	3 September 2015	Talk titled 'Catalysis of Innovation and Innovations in Catalysis'					
16	Dr. Manni Luthra Guptasarma, Department of Immunopathology, PG Institute of Medical Education and Research (PGIMER), Chandigarh	7 September 2015	Talk titled 'Modulation of Components of the Extracellular Matrix (ECM) in Fibrosis and Cancer'					
17	Dr. Ajit Varki, Distinguished Professor, Medicine and Cellular & Molecular Medicine; Co-Director, UCSD/Salk Center for Academic Research and Training, Anthropogeny (CARTA); Co-Director, Glycobiology Research and Training Center (GRTC), University of California, San Diego; Adjunct Professor, Salk Institute for Biological Studies; Executive Editor, <i>Essentials of Glycobiology</i> ; and Honorary Distinguished Visiting Professor, IIT Madras	7 October 2015	Talk titled 'Adventures in Anthropogeny: From Molecules to Mind'					

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
18	Dr. Damodara Reddy, Postdoctoral Fellow, Washington University Medical School, Saint Louis, USA	16 November 2015	Talk titled 'Structural Consequences of the Imidate Isosteres for the Peptide Bond and Development of Small Molecule Inhibitors for Human Histone Deacetylases, Epidermal Growth Factor Receptors and Bacterial Growth'
19	Dr. Paul Rasmussen, Nanostring Technology, Seattle, USA	12 November 2015	Talk titled 'Recent Advances in Gene Profiling Technology'
20	Dr. Lalji Singh, Bhatnagar Fellow, CSIR; Former VC, BHU; Former Director of CCMB, Hyderabad; and MD, Genome Foundation	29 January 2016	Eighth Dr. Joseph Thomas Memorial Lecture, talk titled 'Genetic Diversity in Indian Populations and Its Health Implications'
21	Dr. Nayaki Muthusamy, postdoctoral scholar, University of California, San Francisco, USA	5 January 2016	Talk titled 'Roles of ShcA in TGF-Beta- Induced Epithelial–Mesenchymal Transition'
22	Dr. Rohit Gupta, Director, Bioinformatics, Strand Life Sciences, Bengaluru	22 January 2016	Talk titled 'Computational Approaches to Detect and Prioritise Mutations Using Next- Generation Sequencing Data'
23	Dr. Eva García-González, Scientific Support, Humboldt University of Berlin, Specialist, Abcam, UK	25 January 2016	Talk titled 'Optimization Techniques for WB and Optimization Techniques for Immunohistochemistry/ Immunocytochemistry'
24	Dr. Dipankar Bhandari, Postdoctoral Fellow, Max Planck Institute for Developmental Biology, Germany	28 January 2016	Talk titled 'Nanos Family RNA Binding Proteins Recruit the CCR4-NOT Complex to Repress Translation of Their Target mRNAs'
25	Dr. Noam Levaot, Senior Lecturer, Department of Physiology and Cell Biology, Ben-Gurion University of the Negev, Israel	4 February 2016	Talk titled 'Molecular and Cellular Mechanisms of Bone Homeostasis'
26	Dr. Mani, Senior Director, Statistics Oncology— Rinat R&D—Therapeutic Vaccines Development, Pfizer, Inc. (Collegeville, Pennsylvania)	29 February 2016	Talk titled 'Big Data: Challenges and Opportunities—A Statistician's Perspective'
27	Prof. Yves Mély, Biophotonics and Pharmacology Laboratory, Université de Strasbourg, France	24 March 2016	Talk titled 'Advanced Fluorescence Probes and Microscopy Techniques to Monitor the Lipid and Nucleic Acid Binding Properties of HIV-1 Proteins'
28	Dr. Kedar Natarajan, Postdoctoral Fellow, Wellcome Trust, Sanger Institute and EMBL- European Bioinformatics Institute, UK	7 March 2016	Talk titled 'General Cell-Cycle Lessons from Single-Cell Profiling of Mouse Embryonic Stem Cells'

4.3.6. Other Activities of the Department/Centre

Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
1	V. Srinivasa Chakravarthy	Collaborative meeting	3–18 June 2015, Massachusetts Institute of Technology, Cambridge, USA
2	•		5–8 July 2015, North Dakota State University, USA
3	V. Srinivasa Chakravarthy	CNS 2015 (international conference)—24th Annual Computational Neuroscience Meeting	18–23 July 2015, Prague, Czech Republic
4	V. Srinivasa Chakravarthy	Project review meeting	22–28 July 2015, Institute of Neurodegenerative Diseases, Bordeaux, France
5	Sanjib Senapati	Oral presentation at the 18th International Symposium on Chromaffin Cell Biology (ISCCB–2015)	17–21 August 2015, Cairns, Queensland, Australia

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
6	K.B. Ramachandran	Chairing the Second Task Force meeting of 'Biosytems & Bioprocess Engineering'	13–14 August 2015, DBT, New Delhi
7	K.B. Ramachandran	Attending Research Council meeting, IMTECH	25–26 August 2015, Chandigarh
8	Rama Shanker Verma	37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society	28–29 August 2015, MiCo, Milano
9	K.B. Ramachandran	To attend Indian Oil R&D APEX Group Meeting Tomorrow	19 September 2015, Faridabad, New Delhi
10	K.B. Ramachandran	To attend Board of Studies meeting	10 October 2015, PSG College of Technology, Coimbatore
11	K.B. Ramachandran	To attend the First National Scientific Advisory Committee of the DBT	18 November 2015, Tamarind Hall, Habitat Center, New Delhi
12	K.B. Ramachandran	DBT meeting	27–28 January 2016, New Delhi

Student visits

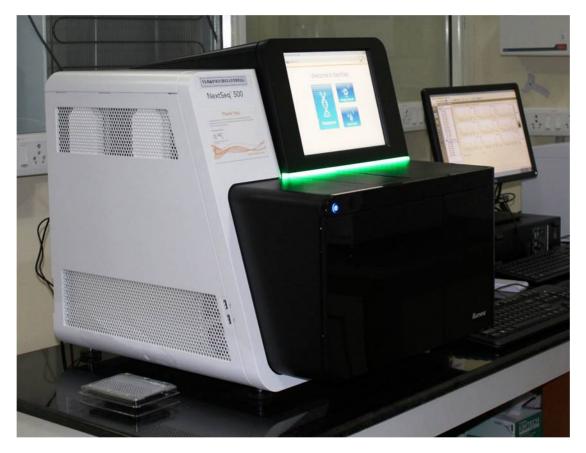
Sl. No.	Name of the Student	Purpose of Visit	Date and Venue
1	S. Ramprasad (BT14D019)	International Symposium on Photonics Applications and Nanomaterials ISPAN 2015 (presented paper titled 'Ceramic Polymer Hybrid Nanoparticles Based Envelope for Multiple Drug Delivery')	28–30 October 2015, SCTIMST, Thiruvananthapuram
2	R. Vasanthan (BT13D028)	International Symposium on Photonics Applications and Nanomaterials ISPAN 2015 (presented paper titled 'Synthesis of Some Anti-bacterial Polymers Based on New Hydantoin Monomer')	28–30 October 2015, SCTIMST, Thiruvananthapuram, India







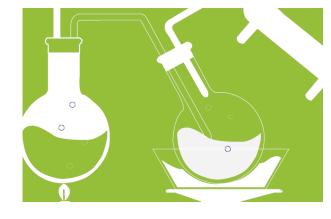








Department of Chemical Engineering



4.4.1. Introduction

The Department of Chemical Engineering was established in 1959. The department has permanent faculty members who carry out research in state-of-the-art areas. The focus of the research is on reaction and transport, energy, materials and the environment. The faculty work towards analysing these systems by understanding their behaviour at the molecular level as well as using a systems approach.

4.4.2. Academic Programmes

New courses introduced

Sl. No.	Course No. ai	nd Title					
1	CH6760	Hydrodynamics of Complex Fluids					
2	NPTEL onlin	NPTEL online course for certification titled 'MATLAB Programming for Numerical Computation' during					
	January–Mar	January–March 2016					

Students on roll as of September 2015 + research scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech	66	63	68	66	14	277
Dual Degree	18	20	14	19	20	91
M.Tech.	38	30	_	_	2	70
M.S.	11	16	6	4	4	41
Ph.D.	23	27	21	13	38	122
Total	156	156	109	102	78	601

Students/scholars/post-doctoral fellows who attended conferences/workshops/seminars/symposia

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroac	d				
Ph.D.					
1	Rahul Trivedi	CH10D016	2015 AIChE Annual Spring Meeting	26–30 April 2015, Austin, Texas, USA	IIT Madras
2	Nithya M.	CH11D006	37th Annual International Conference of IEEE—EMBC'15	25–29 August 2015, Italy	IIT Madras
3	Satheesh Kumar	CH11D011	AICHE Spring Summit 2015	26–29 April 2015, Austin, USA	IIT Madras
4	C. Ajith	CH11D017	Fourth International Symposium Frontiers of Polymer Science (FOP 2015)	20–22 May 2015, Reva del Garda, Italy	IIT Madras
5	Fathima Fasmin	CH11D024	227th ECS Meeting	24–28 May 2015, Chicago, Illinois, USA	IIT Madras
6	Jason Ryan Picardo	CH11D026	International Conference on Chemical Kinetics	28 June to 2 July 2015, Ghent, Belgium	IIT Madras
7	Jason Ryan Picardo	CH11D026	MacKie 2015	2–3 July, 2015, Ghent, Belgium	IIT Madras

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
8	Rajalakshmi C.	CH11D029	International Chemical Congress of Pacific Basin Societies (Pacifichem 2015)	15–20 December, 2015, Hawaii, USA	IIT Madras and IIT alumni
9	Tanneru Hemanth Kumar	CH11D031	227th ECS Meeting	24–28 May 2015, Chicago, Illinois, USA	IIT Madras
10	Danny Raj	CH11D038	AIChE 2015 Annual Meeting	8–13 November 2015, Salt Lake City, USA	IIT Madras
11	Danny Raj	CH11D038	Visit and giving seminar	14–21 November 2015, University of Florida, USA	_
12	Danny Raj	CH11D038	APSDFD 2015	22–24 November 2015, Boston, USA	_
13	Burela Siva Rama Krishna	CH12D001	International Conference on Chemical and Biochemical Engineering	20–22 July 2015, Paris	IIT Madras
14	Savitha R.	CH12D004	International Nanotech and Nanoscience Conference and Exhibition (Nanotech France 2015)	15–17 June 2015, Paris, France	IIT Madras
15	N. Trivikram Reddy	CH12D008	15th Conference of the International Association of Colloid and Interface Scientists (IACIS 2015)	24–29 May 2015, Mainz, Germany	IIT Madras
16	S. Manigandan	CH12D016	IACIS 2015	24–29 May 2015, Mainz, Germany	IIT Madras
17	Anupriya S.	CH12D026	11th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics	20–23 July 2015, South Africa	IIT Madras
18	Bhagavatula N.V.S.S.R. Dinesh	CH12D025	International Conference on Chemical and Biochemical Engineering	20–22 July 2015, Paris	IIT Madras
19	Bhagavatula N.V.S.S.R. Dinesh	CH12D025	68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics	22–24 November 2015, Boston, Massachusetts	IIT Madras
20	Purnima	CH13D005	SDEWES 2015	29 September to 3 October 2015, Dubrovnik, Croatia	IIT Madras
21	Amrutha	CH13D018	229th ECS conference	29 May to 2 June 2016, San Diego, California	IIT Madras
22	Srivalli	CH14D013	CAV 2015	6–10 December 2015, Switzerland	IIT Madras
M.S. 23	Pooja Bansal	CH12S014	15th Conference on the International	24–29 May 2015,	IIT Madras
23	rooja Bansai	C11125014	Association of Colloid and Interface Scientists	Mainz, Germany	III Wadias
24	Rahul P.R.	CH12S015	International Conference on Applied Chemistry—ICAC 2015	14–15 May 2015, Amsterdam, The Netherlands	IIT Madras
25	Aditya Prajapati	CH13S015	2015 AIChE Spring Meeting and 11th Global Congress on Process Safety	26–30 April 2015, Austin, USA	IIT Madras
26	Siddharth Rajendra Jain	CH13S022	AIChE Annual Meeting 2015	8–13 November 2015, Salt Lake City, USA	IIT Madras
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27	S. Seetharaman	CH15IPF01	All in One Conference (Invent-16)	30 January to 1 February 2016, Sharjah, UAE	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
India					
Ph.D.					
1	Chinta Sankar Rao	CH11D022	Symbolic Computing and Numerical Programming using MATLAB/ Mathematica	10–13 July 2015, NIT Warangal	IIT Madras
2	Tanneru Hemanth Kumar	CH11D031	CHEMCON 2015, Indian Chemical Engineers Congress, 68th Annual Session of Indian Institute of Chemical Engineers	25 December 2015 to 8 January 2016, IIT Guwahati	IIT Madras
3	G. Swaminathan Bhardwaj	CH11D036	Complex Fluids (Comp Flu)	2–4 January 2016, IISER, Pune	IIT Madras
4	Pratiba Biswal	CH11D037	Fifth International Conference on Advances in Energy Research (ICAER)	15–17 December, 2015, IIT Bombay	IIT Madras
5	R. Savitha	CH12D004	Advanced Oxidation Process AOP 2015	12–18 October 2015, Punjab University, Chandigarh	IIT Madras
6	Venkata Reddy Palleti	CH12D009	Fourth International Conference on Advances in Control and Optimization of Dynamical Systems	1–5 February 2016, NIT Trichy	IIT Madras
7	Bhagavatula N.V.S.S.R. Dinesh	CH12D025	Complex System Approach to Self- organization CSAS-2016	1–5 February, 2016, IIT Madras	IIT Madras
8	Abhishek Kumar Gupta	CH13D016	International Conference on Nanostructured Polymer-IC Materials and Polymer Nanocomposites (ICNPM-2015)	12–16 November 2015, Kottayam, Kerala	IIT Madras
9	Amrutha M.S.	CH13D018	CHEMCON 2015	25 December 2015 to 8 January 2016, IIT Guwahati	IIT Madras
10	Amrutha M.S.	CH13D018	Asian Pacific Corrosion Control Conference (APCCC17)	27–31 January 2016, IIT Bombay	IIT Madras
11	Amrutha M.S.	CH13D018	18th National Conference on Corrosion Control	24–26 February 2016, Hotel Green Park, Chennai	IIT Madras
12	Chandra Shekar Besta	CH14D002	Nature Inspired Computing for Engineering Applications	6–8 April 2015, IISc, Bengaluru	IIT Madras
13	Chandra Shekar Besta	CH14D002	International Conference on Advances in Chemical Engineering (ICACE 2015)	20–22 December 2015, NITK, Surathkal	IIT Madras
14	Chandra Shekar Besta	CH14D002	Advances in Control and Optimization of Dynamical Systems (Acods 2016)	2–5, February 2016, NIT Trichy	IIT Madras
15	Chandra Shekar Besta	CH14D002	International Conference on Advances in Dynamics, Vibrations and Control (ICADVC-2016)	23–28, February 2016, NIT Durgapur	IIT Madras
16	Sudhakar Kathari	CH14D009	Acods 2016	2–4 February 2016, NIT Trichy	IIT Madras
17	Babita Kumari Verma	CH14D207	Complex System Approach to Self- organization	1–5 February 2016, IIT Madras	IIT Madras
18	Nikita Saxena	CH14D208	Nature Inspired Computing for Engineering Applications	6–8 April 2015, IISc, Bengaluru	IIT Madras
19	Nikita Saxena	CH14D208	Symbolic Computing and Numerical Programming using MATLAB/ Mathematica	10–13 July 2015, NIT Warangal	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
20	Nikita Saxena	CH14D208	Advances in Control and Optimization of Dynamical Systems	2–5 February 2016, NIT Trichy	IIT Madras
21	B. Rajasekhar Reddy	CH14D400	CHEMCON 2015	25 December 2015 to 8 January 2016, IIT Guwahati	IIT Madras
22	Kunche Lakshmi Kumar	CH14D403	ICNPM-2015	12–16 November 2015, Kottayam, Kerala	IIT Madras
M.S.					
23	Piyali Dhar	CH14D407	CHEMCON 2015	25 December 2015 to 8 January 2016, IIT Guwahati	IIT Madras
24	Darsha Kumar D.M.	CH13S017	Indian Control Conference 2016	4–6 January 2016, IIT Hyderabad	IIT Madras
25	Vishnu Prasad	CH14S021	CHEMCON 2015	25 December 2015 to 8 January 2016, IIT Guwahati	IIT Madras
26	Sarkar Ila Jogesh Ramala	CH14S027	ESSI's Second National Conference on Materials for Energy Conversion and Storage (MECS 2016)	11–14 March 2016, Department of Physics, Pondicherry University	IIT Madras
27	C. Srinesh	CH14S300	Bioprocessing India 2015	17–19 December, 2015, IIT Madras	IIT Madras
M.Tech	1.				
28	R. Perumal	CH14M021	10th International High Energy Materials Conference and Exhibits	10–14 February 2016, DRDO, Hyderabad	IIT Madras
29	G. Sathesh Kumar	CH14M027	10th International High Energy Materials Conference and Exhibits	10–14 February 2016, DRDO, Hyderabad	IIT Madras

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	Pratiba Biswal	CH11D037	Energy and Environmental Science Oral Presentation Prize	IIT Bombay
2	Harish Venkatachalapathy	CH12B073	DAAD Working Internships in Science and Engineering Programme Scholarship	DAAD
3	Chandrashekar Besta	CH14D002	Second Prize in the International Conference on Advances in Chemical Engineering	NITK, Surathkal
4	Praneeth Srivanth	CH14B049	First Prize in the Inter-IIT Techspark Competition	Hindustan Unilever Limited
5	B. Shantini	CH14B064	First Prize in the Inter-IIT Techspark Competition	Hindustan Unilever Limited
6	Sai Pavan Abhishek Vinakollu	CH14B058	First Prize in the Inter-IIT Techspark Competition	Hindustan Unilever Limited
7	R. Alekhya	CH15B032	Aditya Birla Scholars for the Year 2015	Aditya Birla Group

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize		
Convo	Convocation 2015 prizes				
1	Nirmal L.	CH11B093	Reliance Heat Transfer Private Limited Prize		
2	Varshaa N.	CH11B070	C.A. Sastry Endowment Prize		
3	Saurabh Bhandari	CH10B102	B. Ravichandran Memorial Prize		
4	Aparna M.	CH13M005	Dr. K. Subba Raju Memorial Prize		
5	Saurabh Bhandari	CH10B102	Mico-Bosch Prize		

Sl. No.	Student/Scholar	Roll No.	Prize
6	R. Aravind	CH11B010	Bhagyalakshmi and Krishna Ayengar Award
7	D.V. Suriapparao	CH13S001	Bhagyalakshmi and Krishna Ayengar Award
Institut	te Day 2015 prizes		
1	Venkatachalam A.	CH12B094	Dr. Anita Mehta-Damani Prize
2	Shivani Patel	CH10B101	Dr. Anita Mehta-Damani Prize
3	Venkatachalam A.	CH12B094	Prof. Ramanujam Memorial Award
4	Ramachandran B.	CH11B053	Dr. R.K. Viswanath Memorial Prize
5	Aparna M.	CH13M005	Chevron Products Company Prize
6	Vaze Shruti Sanjay	CH13M035	Chevron Products Company Prize
7	Dipin S. Pillai	CH10D017	Institute Research Award
8	Vaishakh Nair	CH11D012	Institute Research Award
9	Jason Ryan Picardo	CH11D026	Institute Research Award
Alumn	i Day 2015 prizes		
1	Varun Govindaraj	CH10B072	Prof. M. Ramanujam Memorial Award
2	Anand Kumar Tripathi	CH11S011	Ms D.L. Saraswati Memorial Prize

4.4.3. Faculty Members and Their Activities

Faculty

racuity	
Name	Major Areas of Specialization
Professors	
A. Kannan [Head]	Mathematical modeling, simulation and optimization of chemical processes
Abhijit Deshpande	Rheology of complex fluids, polymers and polymeric composites, processing flow visualization
Arun K. Tangirala	Process systems engineering; control, identification and monitoring; applied signal processing
A.R. Balakrishnan	Thermodynamics of azeotropic mixtures; two-phase flow and boiling in narrow tubes
M. Chidambaram	Process control
R. Nagarajan	Fine particle science and technology; chemical vapour deposition; process intensification using acoustic fields
T. Panda	Bioprocess optimization, bio-microfluidics, bio-nanotechnology
Preeti Aghalayam	Chemical reaction engineering
S. Pushpavanam	Modeling and simulation; nonlinear dynamics; flow visualization
Raghunathan Rengasamy	Process systems engineering, fuel cells, computational discrete microfluidics
S. Ramanathan	Electrochemistry, chemical mechanical planarization for semiconductor processing
R. Ravi	Applied statistical mechanics; foundations of thermodynamics and mechanics; process dynamics and control
P.S.T. Sai	Chemical reactor analysis and design
Shankar Narasimhan	Process design, data mining, fault diagnosis
Sreenivas Jayanti	Fuel cells, combustion, energy systems
Susy Varughese	Physics and mechanics of polymeric materials; polymeric nanocomposites
Tanmay Basak	Microware application; mathematical modeling and simulation
Upendra Natarajan	Polymer science and engineering; molecular simulation; statistical thermodynamics of complex fluids; nanostructured hybrid composite materials
Associate Professors	
Niket S. Kaisare	Catalytic combustion; micro-reactors; advanced process control; energy and fuel processing
Raghuram Chetty	Electrocatalysis, fuel cells, wastewater treatment
R. Ravikrishna	Contaminated sediment remediation; contaminant fate and transport; air pollution process and control
Sridharakumar Narasimhan	Process system engineering, optimization, process control, fault diagnosis

Name	Major Areas of Specialization
Assistant Professors	
M.G. Basavaraja	Directed assembly of colloids; microstructure and rheology of colloids, surfactants, polymer and their mixtures; interfacial rheology; ionic liquids; particulate gels
Ethayaraja Mani	Molecular simulations, self-assembly, mathematical modeling
R. Ramnarayanan	Applying physical chemistry concepts to biology, light and state of matter interaction; solid state materials
T. Renganathan	Multiphase systems, gasification, capture of CO ₂
Sumesh P. Thampi	Hydrodynamics of complex fluids, interfacial flows, active matter
R. Vinu	Thermo-catalytic conversion of biomass to useful intermediates, photocatalysis for environmental decontamination, microkinetic modeling of complex reactions
Professors Emeriti	
K. Krishnaiah	Chemical reactor analysis and design fluidization
Hosted Fellows (Ramalingaswami Fellows)	
K. Vijaya Raghavan	Environmental biotechnology; water quality and waste water treatment
INSPIRE Fellows	
Nirav P. Bhatt	Data analysis, process systems engineering, kinetic modeling
Swagatika Sahoo	System biology, constraint-based metabolic modeling, human metabolism, metabolic disorders, inherited metabolic disorders

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period
Worksl	hops		
1	R. Ravikrishna and Sachin S. Gunthe (CE)	Winter School on Aerosol Measurement and Monitoring Techniques	6–12 December 2015

Short-term courses/workshops/seminars/symposia/conferences attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Title	Institution	Period
Worksl	iops			
1	Pushpavanam S.	Indo-German Workshop on Advances in Materials, Reaction and Separation Processes	IIT Guwahati	23 February 2016
2	Ramanathan S.	How to Prepare Project Proposal to get Financial Assistance from Sponsoring Agents (one-day workshop)	Government Engineering College, Thrissur	12 January 2016
3	Sreenivas Jayanti	Workshop on SNCR System for DeNOx Applications in the Cement Industry, by Lechler GmbH, Germany	Hotel My Fortune, Chennai	21 May 2015
4	Vinu R.	Catalysis workshop	University of Manchester, UK	16–17 July 2015
Sympo	sia			
1	Sreenivas Jayanti	National Symposium on Multiphase Flow	NIT Durgapur	23 February 2016
Confer	ences			
1	Abhijit P. Deshpande	Conference on Complex Fluids	IISER Pune	2–4 January 2016
2	Shankar Narasimhan	Europe–India Conclave (Transforming Transportation – IOT, Clean Energy, Smart Devices, Artificial Intelligence, Big Data & Telematics, Transportation, Smart Artificial Telematics, Insurance)	Hotel Taj Mahal, New Delhi	17 December 2015

Sl. No.	Faculty Member	Title	Institution	Period
3	Shankar Narasimhan	IEEE Recent Advances in Intelligent Computational Systems (address at the plenary session)	IEEE Kerala Section	11 December 2015
4	Sumesh M. Thampi	CompFlu 2016 IISER, Pune		2–4 January 2016
5	Sumesh M. Thampi	International Conference on Emerging Trends in Chemistry and Material Science (ETCM-2016)	Government Engineering College, Thrissur	9–11 December 2015
6	Sumesh M. Thampi	Soft Matter Young Investigators Meet 2015	IIT Madras and IMSc, Chennai	17–20 December 2015
7	Sumesh M. Thampi	XXVII IUPAP Conference on Computational Physics	IIT Guwahati	2–5 December 2015
8	Basavaraja M. Gurappa	Emerging Trends in Chemistry and Materials Science (ETCM-2016)	Department of Chemistry, Gogte Institute of Technology, Udyambag, Belgaum, Karnataka	23 January 2016
9	Basavaraja M. Gurappa	Nanoparticle Assembly: From Fundamentals to Applications (Faraday Discussion: Adsorption of Nano-ellipsoids to Fluid Interfaces and Their Effect on Emulsion Stability)	IIT Bombay, Mumbai	7–9 January 2016
10	Chidambaram M.	Recent Trends in Electronics and Instrumentation Engineering	Adhiyaman College of Engineering, Hosur	1 March 2016
11	Raghuram Chetty	Fourth International Hydrogen and Fuel Cell Conference 2015	The Gateway Hotel, Agra	6–8 December 2015
Short-to	erm courses			
1	Kannan A.	Video-based lectures titled 'Statistics for Experimentalists'	NPTEL, IIT Madras	June 2015
2	Sreenivas Jayanti	Computational Fluid Dynamics	NPTEL, IIT Madras	January–April 2016
Others				
1	Abhijit P. Deshpande	DST proposal presentation: Pectin/Protein Mixtures as Food Additives for Gelling	IIT Delhi	26 November 2015
2	Kannan A.	CAPE 2015 Conference (invited talk)	SAASTRA University, Thanjavur	8 October 2015
3	Nagarajan R.	Engineers Day (chief guest)	Sree Sastha Institute of Engineering and Technology, Chembarambakkam, Chennai	15 September 2016
4	Nagarajan R.	Saint Gobain Research India's University Day (presenter)	IC&SR Hall II	30 September 2015
5	Nagarajan R.	Board of Directors meetings	Indian Additives Limited	29 February 2016 and 6 March 2016
6	Nagarajan R.	DST Conclave 2015	Hotel Novotel, Hyderabad	6–7 July 2015
7	Panda T.	BoS meeting	Anna University, Chennai	13 October 2015
8	Ramanathan S.	Faculty Selection (Expert Member)	ISM, Dhanbad	1 March 2016
9	Sai P.S.T.	BoS meeting	GVP College of Engineering, Visakhapatnam	6 June 2015
10	Sai P.S.T.	BoS meeting	A.N. Institute of Technology and Science, Visakhapatnam	20 June 2015
11	Sai P.S.T.	DPC meeting	IIST, Thiruvananthapuram	16 July 2015

Special	Special lectures delivered by faculty members at other institutions					
Sl. No.	Faculty Member	Title of Lecture	Institution	Date		
1	Kannan A.	Chemistry of Adsorption	SAASTRA University, Thanjavur	9 October 2015		
2	Krishniah K.	Mind of Researcher	SCVE, Chennai	31 March 2016		
3	Niket S. Kaisare	Model Predictive Control (MPC): A Historical Perspective	Institute of Chemical Technology (ICT), Mumbai	30 May 2015		
4	Pushpavanam S.	Mixing Behavior in Micro Channels	IIT Guwahati	23 February 2016		
5	Raghuram Chetty	Fuel Cells in Transportation Applications (as part of the online certificate course 'Advances in Automotive Systems')	Department of Engineering Design, IIT Madras	30 December 2015		
6	Raghuram Chetty	Fuel Cells: The Perfect Power Partner (at faculty development programme, 'Renewable Energy: Policies and Practices')	Department of Chemical Engineering, TKM College of Engineering, Kollam, Kerala	2 December 2015		
7	Raghuram Chetty	Fuel Cells: Power Source for the Future (at AICTE-sponsored short term course under quality improvement programme, titled 'Recent Trends in Energy, Environment and E-waste Management')	Department of Chemical Engineering, Coimbatore Institute of Technology	6 November 2015		
8	Sai P.S.T.	Separation Processes in Environmental Applications	SSN College, Chennai	24 June 2015		
9	Sreenivas Jayanti	Fifty Years on Since Harlow & Welch (1965): Progress Made in the Computation of Two- Phase Flows	NIT Durgapur	23 February 2016		
10	Sreenivas Jayanti	Overview and Challenges in PEM Fuel Cells	BHEL, Hyderabad	6 January 2016		
11	Sreenivas Jayanti	Overview of Flow Batteries and Suitability for High Energy Storage	BHEL, Hyderabad	6 January 2016		
12	Sreenivas Jayanti	Shape Optimization of Fluid Flow Ducting Using a Shape Function, a Search Method and CFD: Some Early Results (The Distinguished Seminar Series, The Imperial)	Imperial College	29 June 2015		
13	Sreenivas Jayanti	NOx Generation and Mitigation in Boilers and Furnaces	Hotel My Fortune, Chennai by Lechler GmbH, Germany	21 May 2015		
14	Sumesh M. Thampi	Intrinsic Free Energy in Active Nematics	IIT Guwahati	2–5 December 2015		
15	Tanmay Basak	Invited lecture for academic excellence of students	MAM College of Engineering	8 March 2016		
16	Vinu R.	Catalytic Fast Pyrolysis of Renewable Feedstocks for Energy and Resource Recovery	IIT Madras	16–17 July 2015		

Visits abroad by faculty members

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	Arun K. Tangirala	Technische Universitat Munchen, Germany	2–28 July 2015	August–Wilhelm Scheer Visiting Professorship	Germany
2	Arun K. Tangirala	Whistler, Canada	7–10 June 2015	International Symposium on Advanced Control of Chemical Processes (ADCHEM 2015)	IIT Madras
3	Arun K. Tangirala	McMaster University, Canada	3–5 June 2015	To explore research collaborations	_
4	Niket Kaisare	Daejeon, South Korea	14 June to 10 July 2015	Research collaboration on diesel reforming	IIT Madras
5	Niket Kaisare	Seoul, South Korea	19 June 2015	Delivering talk titled 'Modeling and Control in Energy Applications: Perspectives from Industry and Academics'	IIT Madras

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
6	Pushpavanam S.	Boston, USA	22–24 November 2015	68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics	IIT Madras
7	Sridharakumar Narasimhan	Beijing, China	19–21 October 2015	IFAC Symposium on System Identification	IIT Madras
8	Raghunathan Rengasamy	University of Delaware, USA	16–25 November 2015	Collaborative work in systems biology and fault diagnosis	_
9	Nagarajan R.	USA	23–31 May 2015	Alumni meetings and university visits	_
10	Nagarajan R.	Singapore	7–8 December 2015	119th board meeting of Indian Additives Limited	IIT Madras
11	Nagarajan R.	Montpellier, University, France	16-18 July 2015	To explore a joint master's programme	IIT Madras
12	Sreenivas Jayanti	Zurich, Switzerland	3–5 June 2015	Second Frontiers in Computation Physics Conference: Energy Sciences	IIT Madras
13	Sreenivas Jayanti	Glasgow, Scotland, UK	16–17 June 2015	Sixth International Flow Battery Forum	IIT Madras
14	Sreenivas Jayanti	UK	18–28 June 2015	Project meetings	_
15	Sreenivas Jayanti	Imperial College, London	29 June 2015	To deliver a lecture	IIT Madras
16	Basavaraja M. Gurappa	Julich, Germany	3 June to 31 July 2015	DAAD research	_
17	K. Vijayaraghavan	Chonbuk National Univeristy, South Korea	2 May to 15 June 2016	Collaborative research works and delivering a series of lectures	South Korea

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date
Honou	irs				
1	Arun Tangirala	August-Wilhelm Scheer Visiting Professorship	TUV, Munich, Germany	Awarded to outstanding international researchers for engaging in intensive collaborations with TUM researchers	May 2015
Award	s				
1	Vinu R.	Young Faculty Recognition Award 2015	IIT Madras	Excellence in teaching and research	5 September 2015
2	Shankar Narasimhan	Prof. M.S. Ananth Institute Chair	IIT Madras	Distinguished and recognized by peers for research and/or technology development and excellence in teaching and service to the institute/nation/profession	16 March 2016

Books

- 1. T. Panda, R. Arun Kumar and Thomas Theodore. *Statistical Optimization of Biological Systems*, CRC Press, Taylor & Francis Group, FL, USA, 2016.
- 2. K. Vijayaraghavan. Biosorption of Metals: A Complete Handbook, Vinanie Publishers, ISBN 978-81-932494-0-6.

Others

- 1. Abjijit P. Deshpande was nominated an expert member of the selection committee for Scientists/Sr. Scientists in NAL, CS&IR, Bengaluru, on 3 February 2016.
- 2. Panda T. was nominated a BoS member of the Faculty of Technology at Anna University, Chennai, from April 2015 to 2018 and a BoS member at GITAM University, Vishakhapatnam, on 26 March 2016.

- 3. P.S.T. Sai was nominated a subject expert of the Faculty Selection Committee of NIT, Warangal on 4 February 2016.
- 4. Sreenivas Jayanti was nominated to the Faculty Selection Committee in the Department of Chemical Engineering at IIT Kharagpur on 11 March 2016.
- 5. Kannan A. was nominated to the IIT Roorkee Faculty Selection Committee with effect from 17 November 2015
- 6. Shankar Narasimhan was co-opted a member of the SERB Programme Advisory Committee in Chemical and Environmental Engineering with effect from 17 November 2015.

Fellowships of academies and professional societies

Sl. No.	Faculty Member	Year of Admission			
INAE					
1	Shankar Narasimhan	2013			
2	Balakrishnan A.R.	2003			
TNASc					
1	Balakrishnan A.R.	1996			
Institute o	of Engineers				
1	Balakrishnan A.R.	2013			
CSIR-C	CSIR—Central Institute of Mining and Fuel Research, Dhandbad				
1	Sreenivas Jayanti	2013–2016			

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/ Member)	Journal
1	A.R. Balakrishnan	Editor	International Journal of Heat and Mass Transfer
2	A.R. Balakrishnan	Editor	International Communications in Heat and Mass Transfer
3	A.R. Balakrishnan	Editor	Journal of Energy, Heat and Mass Transfer
4	A.R. Balakrishnan	Editor-in-Chief	Journal of the Institution of Engineers (India): Series E (Chemical and Textile Engineering)
5	Panda T.	Member	Advances in Science, Engineering and Medicine (American Scientific Publishers, USA)
6	Raghuram Chetty	Member	Nano Hybrids
7	Shankar Narasimhan	Member	Indian Chemical Engineer: International Journal of Advances in Engineering Sciences and Applied Mathematics
8	Tanmay Basak	Associate Editor	International Journal of Heat and Mass Transfer
9	Tanmay Basak	Associate Editor	International Communications in Heat and Mass Transfer

4.4.4. Design and Development Activities

New facilities added or major equipment procured

- 1. 150-user University License (software for chemical process simulation) for 5 years with effect from March 2016, hosted by server, provided by ME and housed in CC
- 2. Inauguration of renovated Chemical Engineering Auditorium (MSB241) on 18 January 2016, with contributions from Dr. M.G. Parameswaran (BT/1977/CH) and Dr. Shrikumar Suryanarayan (BT/1982/CH)

Patents filed

SI. No.	Faculty Members/Students	Title of Patent
1	Pushpavanam S., Palanivelu and Ragavindra Dhirhi	Molten Fluid Flowrate Controller. (with Heater and Temperature Controller)
2	Raghunathan Rengaswamy, Shankar Narasimhan, Resmi Suresh, Ganesh Sankaran and Sam Mathew	A Generalized Framework for Optimizing Resource Utilization in Resource Sharing Networks

Patents	Patents obtained					
SI. No.	Faculty Members	Title of Patent				
1	Sreenivas Jayanti and Sivaji Seepana	A Method of, and, an Apparatus for Combusting Hydrocarbon Fuels for Providing a Clean Heat/Energy Source, No. 258154				

4.4.5. Research and Consultancy

Sponsored research projects

Sponso	red research projects				
Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Dynamic Light Scattering	2015–2016	Maintenance of Capital Equipment	6.20	Abhijit P. Deshpande
2	Large Amplitude Oscillatory Shear of Physically Aggregating Complex Fluids	2014–2017	DST	54.26	Abhijit P. Deshpande, Basavaraja M. Gurappa
3	Development of Unsupervised Detection and Classification Methods in Seismic Data Analysis	2016–2019	Board of Research in Nuclear Sciences	22.15	Arun K. Tangirala
4	Institute Research and Development Junior Level Award	2014–2017	Research Fund	20.00	Arun K. Tangirala
5	Center for Research on Confined Soft Matter	2014–2016	Team Research Project	200	Basavaraja M. Gurappa, Abhijit P. Deshpande, Ethayaraja Mani, Sunil Kumar P.B., Dilip Kumar Sathapathy, Aditi Simha, Nandita Madhavan, Edamana Prasad
6	Nanoparticle Films for Water Evaporation Retardation: Film Elasticity, Rupture and Re- formation	2013–2016	CSIR	27.40	Basavaraja M. Gurappa
7	Oppositely Charged Particles at Interface: Microstructure, Mechanical Properties and Their Application in Emulsion and Foam Stabilization	2015–2018	DST	61.10	Basavaraja Madivala Gurappa, Ethayaraja Mani
8	Self-assembly of Charged Janus Colloids: A Route to Advanced Functional Materials	2013–2016	DST	5.97	Ethayaraja Mani
9	Role of Indian Spice Nanoemulsions in Enhancing Antibacterial Antifungal and Anticancer Efficacy	2015–2018	DST	33.20	Nagarajan R.
10	Process Intensification	2014–2015	Alumni Association	3.05	Nagarajan R.
11	Model Order Reduction for Convection Diffusion Process with Applications to Reformer	20152017	Nissan Research Support Program	10.73	Niket S. Kaisare, Sridharakumar Narasimhan
12	Multi-scale Modeling Analysis and Control of Reacting Systems for Energy Applications	2014–2016	New Faculty Initiation Grant	5.00	Niket S. Kaisare
13	Identification of Heterogeneous Reaction Systems Based in Multi- sensor Data—INSPIRE Faculty Award	2013–2018	DST	86.27	Nirav Pravinbhai Bhat
14	Empowerment of the Differently Abled Persons	2015–2016	Socially Relevant Projects	3.00	Pushpavanam S.

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
15	Development of Dry Slag, Granulation Technology and Energy Recovery System for Blast Furnace Slag for Producing Clinker Compatible Product	NULL	Ministry of Steel	40.00	Pushpavanam S., Ajay Kumar Shukla, Sabita Sarkar
16	Svagata.eu: Experience Europe as an Indian	2013–2017	European Commission	4.00	S. Pushpavanam
17	A Computational Experimental Framework for Conceptualization, Design and Synthesis of Large- Scale Complex Droplet-Based Microfluidic Networks	2014–2016	New Faculty Scheme	35.00	Raghunathan Rengaswamy
18	Titania Nanotubes as an Alternative Catalyst Support for Direct Methanol Fuel Cells	2013–2016	Ministry of New and Renewable Energy	52.12	Raghuram Chetty (PI), S. Ramaprabhu (Co-PI, PH)
19	High Resolution Scanning Electron Microscope (HR-SEM)	2016–2017	Maintenance of Capital Equipment	6.50	Raghuram Chetty
20	PVD-Electrochemical Hybrid Method to Eliminate Toxic H ₂ Se in CIGS Solar Cell Fabrication Process	2013–2016	DST-SERI	93.90	S. Ramanathan, Kasi Viswanathan
21	Mechanistic Investigations of Electrochemical Reactions Using Nonlinear Electrochemical Impedance Spectroscopic Experiments	2015	DST	45.00	Ramanathan S., Kamaraj M. (MM)
22	Gas Chromatography–Mass Spectrometry (GC–MS)	2015–2016	Maintenance of Capital Equipment	1.15	Ravikrishna R.
23	High Pressure Liquid Chromatography (HPLC) System	2016–2017	Maintenance of Capital Equipment	1.15	Ravikrishna R.
24	Gas Chromatography (GC-MS)	2016–2017	Maintenance of Capital Equipment	1.00	Ravikrishna R.
25	Unsteady State Phase Holdup Characteristics of Three-Phase Inverse Fluidized Bed	2012–2016	New Faculty Scheme	5.00	Renganathan T.
26	GTWG Proposal on Advance Coal Technology	2014–2017	DST	63.63	Sreenivas Jayanti, Preeti Aghalayam
27	Experiment Design Using Convex Optimization	2013–2016	Board of Research in Nuclear Sciences	19.16	Sridharkumar Narasimhan
28	Improving Targeting Community Health Through a Women's Cancer Screening Program	2014–2016	Socially Relevant Projects	3.00	Sridharkumar Narasimhan, Basavaraja Madivala Gurappa
29	Soft and Active Matter for Microfluidics and Micromachines	2016–2019	New Faculty Scheme	30.00	Sumesh P. Thampi
30	Active Soft Matter to Power Micro-machines	2015–2017	New Faculty Initiation Grant	5.00	Sumesh P. Thampi
31	Systems Biology for Enumeration of Clinical Heterogeneity of Metabolic Disorders—INSPIRE	NULL	DST	86.27	Swagatika Sahoo
32	Molecular Interaction Between Water-Soluble Polymers and Ionic Surfactants: Insights from Atomistic Molecular Dynamics Simulation	2013–2017	DST	17.00	Upendra Natarajan

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
33	Design and Development of Hybrid Biofilter to Treat Polluted Urban Runoff: Role of Soil, Plants Microbes and Sorbent Materials	2013–2016	DST	13.75	Vijayaraghavan K.
34	Green Roofs: An Extensive Study to Assess the Role of Substrate, Plants and Soil Microbes to Improve Runoff Quality	2012–2017	DBT, GoI	85.97	Vijayaraghavan K.
35	SDT Q600—Simultaneous Thermogravimetric Analyzer / Differential Scanning Calorimeter	2015–2016	Maintenance of Capital Equipment	3.40	Vinu R.
36	Fourier Transform Infrared Spectrometer	2016–2017	Maintenance of Capital Equipment	2.50	Vinu R.
37	2D–Gas Chromatograph–Mass Spectrometer (2D-GC/MS)	2016–2017	Maintenance of Capital Equipment	1.00	Vinu R.
38	PEG Decomposition Studies	2016–2017	Sandvik Asia Private Limited, Dapodi, Pune	0.45	Vinu R.
Sponso	ored international collaborative proje	ct			
39	Optimization of Thermal and Shock Wave Damage during Selective Tissue Cell Removal Using Laser Pulse Shaping	2012–2015	DST (Indo-South African Collaborative Project)	11.01	S.K. Das, Panda T. and Franz-Josef Kahlen

Industrial consultancy projects

Sl. No. 	Faculty Members	Title	Industry	Amount (lakhs of ₹)
1	Basavaraja Madivala Gurappa, Abhijit P. Deshpande	Microstructure Characterization of Emulsion Using Interfacial Rheology	Unilever Industries Private Limited	16.18
2	Kannan A.	Performance Guarantee Test Certification for TB4 and TGS Cross-flow Cooling Towers	VA Tech Wabag Limited	6.84
3	Nagarajan R., Pradeep T.	Stain-Free Glass and Building Materials	Saint–Gobain Research India Limited	41.04
4	Preeti Aghalayam	Analysis of Coal Using Various Characterization Techniques	Common Code	_
5	Preeti Aghalayam	Reduction in Detailed Reaction Mechanisms for Carbon Black Production	Aditya Birla Science and Technology	7.65
6	Pushpavanam S., Sabita Sarkar	Modeling a Cell Settler	Sudhin Biopharma Company	15.12
7	Pushpavanam S., Ajay Kumar Shukla	Development of Technology for Clinker Production Through Dry Granulation of BF Slag and Energy Recovery	JSW Steel Limited	15.00
8	Raghuram Chetty	HR-SEM Analysis CH	Common Code	5.00
9	Renganathan T., Krishnaiah K.	Design of Chlorine Dioxide Generator	Vasu Chemical Industries	5.62
10	Shankar Narasimhan	Data Reconciliation in Thermal Power Plants	ABB Limited	10.70
11	Sreenivas Jayanti	Assessment of Flow Regimes in Horizontal Boiling Tube	Common Code	_
12	Vinu R.	Analysis of PEG Decomposition Using Py-GC/MS	Common Code	_

RBIC p	RBIC projects					
SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)		
1	Vinu R., Sreenivas Jayanti	Screening of EFB, Woody Biomass and Casuarina for Fast Pyrolysis Product Distribution and Fast Pyrolysis Kinetics	Valmet Chennai Private Limited	3.44		
2	Vinu R., B.V.S.S.S. Prasad (ME), Chakravarthy S.R. (AE), Sundararajan T. (ME)	Modelling and Design of Lab-Scale and Pilot-Scale Rotary Kiln Boiler for MSW Combustion and Heat Recovery with Emissions Treatment	BHEL, Trichy	17.86		
3	Vinu R.	Improving the Selectivity of Ethylbenzene Hydroperoxide During the Oxidation of Ethylbenzene in the SMPO Process	Shell India Markets Private Limited	25.08		

Faculty members' participation with other institutions under MoUs

SI. No.	Faculty Member	Details of Participation	University/Institution
1	Basavaraja M. Gurappa	DAAD research stay	Forschungszentrum Julich Gmbh, Institute of Complex Systems, Germany
2	Ethayaraja Mani	DAAD-IIT Madras bilateral Faculty Exchange Fellowship	Institute for Theoretical Physics, TU-Berlin, Germany

Research publications of the faculty members and research scholars

Papers published in refereed national journals: 3
Papers published in refereed international journals: 86

Papers presented at national conferences: 10 Papers presented at international conferences: 47

Papers published in refereed national journals

- 1. Ram V.D., Karlmarx A. and Chidambaram M. 2016. Identification of unstable second-order transfer function model with a zero by optimization method. *Indian Chemical Engineer* 58(1): 29–39. ISSN: 00194506. doi:10.1080/00194506.2014.990240, Taylor and Francis Limited.
- 2. Naidu L.D., Saravanan S., Chidambaram M., Goel M., Das A. and Babu J.S.C. 2015. Nanofiltration in transforming surface water into healthy water: Comparison with reverse osmosis. *Journal of Chemistry* 2015: article no. 326869. ISSN: 20909063. doi:10.1155/2015/326869
- 3. Srinivasan K., Balamurugan and Jayanti S. 2015. Shape optimisation of curved interconnecting ducts. *Defence Science Journal* 65(4): 300–306. ISSN: 0011748X. doi:10.14429/dsj.65.8353

Papers published in refereed international journals

- Panta Jojibabu, M. Jagannatham, Prathap Haridoss, G.D. Janaki Ram, Abhijit P. Deshpande and Srinivasa Rao Bakshi. 2016. Effect of different carbon nano-fillers on rheological properties and lap shear strength of epoxy adhesive joints. *Composites Part A: Applied Science and Manufacturing* 82: 53–64. doi:10.1016/j. compositesa.2015.12.003
- 2. D. Ebenezer, Abhijit P. Deshpande and Prathap Haridoss. 2016. Cross-linked poly(vinyl alcohol)/sulfosuccinic acid polymer as an electrolyte/electrode material for H₂–O₂ proton exchange membrane fuel cells. *Journal of Power Sources* 304: 282–292. doi:10.1016/j.jpowsour.2015.11.048
- 3. Trivikram Reddy Nallamilli, Bernard P. Binks, Ethayaraja Mani and Madivala G. Basavaraj. 2015. Stabilization of Pickering emulsions with oppositely charged latex particles: Influence of various parameters and particle arrangement around droplets. *Langmuir* 31(41): 11200–11208.
- 4. Santosh Vasant Daware and Madivala G. Basavaraj. 2015. Emulsions stabilized by silica rods via arrested demixing. *Langmuir* 31(24): 6649–6654.
- 5. M. Sabapathy, S.D. Christdoss Pushpam, M.G. Basavaraj and E. Mani. 2015. Synthesis of single and multipatch particles by dip-coating method and self-assembly thereof. *Langmuir* 31(4): 1255–1261.
- 6. Venkateshwar Rao Dugyala, Sri Muthukuru Jyothi, Ethayaraja Mani, Madivala G. Basavaraj. 2016. Role of electrostatic interactions on the adsorption kinetics of nanoparticles at fluid–fluid interfaces. *Physical Chemistry Chemical Physics* 18: 5499–5508.
- 7. Sam David Christdoss Pushpam, Madivala G. Basavaraj and Ethayaraja Mani. 2015. Pickering emulsions stabilized by oppositely charged colloids: Stability and pattern formation. Physical Review E 92 (5): 052314.

- 8. Rajeev Ashna, Erapalapati Venkataramana, Nandita Madhavan and Madivala G. Basavaraj. 2016. Conversion of expanded polystyrene waste to nanoparticles via nanoprecipitation. *Journal of Applied Polymer Science* 133(4): 42904. doi:10.1002/app.42904
- 9. Thriveni G. Anjali and Madivala G. Basavaraj. 2015 Measurement of contact angle of particles at fluid–fluid interface: An overview. *Journal of Surface Science and Technology* 31(1–2): 133–144.
- 10. Venkateshwar Rao Dugyala and Madivala G. Basavaraj. 2015. Self-assembly of nano-ellipsoids into ordered structures via vertical deposition. *RSC Advances*. doi:10.1039/C5RA09632D (Paper)5, 60079–60084
- 11. Manigandan Sabapathy, Viswas Kollabattula, Madivala G. Basavaraj and Ethayaraja Mani. 2015. Visualization of the equilibrium position of colloidal particles at fluid–water interfaces by deposition of nanoparticles. *Nanoscale* 7: 13868–13876.
- Besta C.S. and Chidambaram M. 2015. Centralized P/PI control system design based on equivalent transfer functions for unstable TITO process. *Ninth IEEE International Conference on Industrial and Information Systems, ICIIS 2014*, Gwalior, India, 15–17 December 2014. doi:10.1109/ICIINFS.2014.7036613
- 13. Dhanya Ram V. and Chidambaram M. 2015. Simple method of designing centralized PI controllers for multivariable systems based on SSGM. *Instrumentation, Systems and Automation Society Transactions* 56: 252–260. ISSN: 00190578. doi:10.1016/j.isatra.2014.11.019
- 14. Sankar Rao C. and Chidambaram M. 2015. Subspace identification of transfer function models for an unstable bioreactor. *Chemical Engineering Communications* 202(10): 1296–1303. ISSN: 00986445. doi:10.10 80/00986445.2014.912635
- 15. Chandra Shekar Besta and M. Chidambaram. 2016. Tuning of centralized PI controllers by BLT method for TITO systems. *Chemical Engineering Communications* 203(4): 527–538. ISSN: 0098-6445(print), 1563-5201(online). doi:10.1080/00986445.2015.1039121
- Ram V.D., Karlmarx A. and Chidambaram M. 2016. Identification of unstable second-order transfer function model with a zero by optimization method. *Indian Chemical Engineer* 58(1): 29–39. ISSN: 00194506. doi:10.1080/00194506.2014.990240
- 17. Samdavid S., Renganathan T. and Krishnaiah K. 2016. Hydrodynamics of a cocurrent downward liquid–liquid extraction column. *RSC Advances* 6(15): 12439–12445. ISSN: 20462069. doi:10.1039/c5ra23649e
- 18. Srivalli H., Nirmal L. and Nagarajan R. 2015. Effect of cavitation on removal of alkali elements from coal. *Journal of Physics: Conference Series* 656(1): article no. 012107, *Ninth International Symposium on Cavitation, CAV 2015*, SwissTech Convention Center, Lausanne, Switzerland, 6–10 December 2015, code 118001. ISSN: 17426588. doi:10.1088/1742-6596/656/1/012107
- 19. Balakrishnan S., Reddy V.M. and Nagarajan R. 2015. Ultrasonic coal washing to leach alkali elements from coals. *Ultrasonics Sonochemistry* 27: 235–240. ISSN: 13504177. doi:10.1016/j.ultsonch.2015.05.014
- 20. Balakrishnan S. and Nagarajan R. 2015. Role of bouncing potential in molten ash impaction. *Chemical Engineering Communications* 202(10): 1360–1367. ISSN: 00986445. doi:10.1080/00986445.2014.927358
- 21. M. Bhuvaneshwari, V. Iswarya, S. Archanaa, G.M. Madhu, G.K. Suraish Kumar, R. Nagarajan, N. Chandrasekaran and Amitava Mukherjee. 2015. Cytotoxicity of ZnO NPs towards fresh water algae *Scenedesmus obliquus* at low exposure concentrations in UV-C, visible and dark conditions. *Aquatic Toxicology* 162: 29–38. doi:10.1016/j.aquatox.2015.03.004
- 22. Varun Govindaraj, Deepjyoti Mech, Gaurav Pandey, R. Nagarajan and Jitendra S. Sangwai. 2015. Kinetics of methane hydrate formation in the presence of activated carbon and nano-silica suspensions in pure water. *Journal of Natural Gas Science and Engineering* 26: 810–818. doi:10.1016/j.jngse.2015.07.011
- 23. Jerome P. Ortmann and Niket S. Kaisare. 2016. Modeling of cryo-adsorption of hydrogen on MOF-5 pellets: Effect of pellet properties on moderate pressure refueling. *International Journal of Hydrogen Energy* 41(1): 342–354. doi:10.1016/j.ijhydene.2015.10.138
- 24. Bhatt N. and Visvanathan S. 2015. Incremental kinetic identification based on experimental data from steady-state plug flow reactors. *Computer Aided Chemical Engineering* 37: 593–598. ISSN: 15707946. doi:10.1016/B978-0-444-63578-5.50094-3
- 25. Nithya Murugesan, Siddhartha Singha, Tapobrata Panda and Sarit K. Das. 2016. A diffusion based long-range and steady chemical gradient generator on a microfluidic device for studying bacterial chemotaxis. *Journal of Micromechanics and Microengineering* 26(3): 035011. ISSN: 09601317. doi:10.1088/0960-1317/26/3/035011
- 26. Singha S. and Panda T. 2015. Optimization of laccase fermentation and evaluation of kinetic and thermodynamic parameters of a partially purified laccase produced by *Daedalea flavida*. *Preparative Biochemistry and Biotechnology* 45(4): 307–335.
- 27. Sminu Bhaskaran, Ganesh Samdani, Preeti Aghalayam, Anuradda Ganesh, R.P. Singh, R.K. Sapru, P.K. Jain and Sanjay Mahajani. 2015. Experimental studies on spalling characteristics of Indian lignite coal in context of underground coal gasification. *Fuel* 154: 326–337. doi:10.1016/j.fuel.2015.03.066

- 28. Naidu V.S., Aghalayam P. and Jayanti S. 2016. Evaluation of CO₂ gasification kinetics for low-rank Indian coals and biomass fuels. *Journal of Thermal Analysis and Calorimetry* 123(1): 467–478. ISSN: 13886150. doi:10.1007/s10973-015-4930-4
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- 36. Rajalakshmi Chockalingam, Upendra Natarajan. Atomistic molecular dynamics simulations of structure and thermodynamic properties of asymmetric polyelectrolyte block copolymer micelle in salt-free aqueous solution. *International Chemical Congress of Pacific Basin Societies, Pacifichem 2015*, 15–20 December 2015, Hawaii, USA.
- 37. Rajalakshmi Chockalingam and Upendra Natarajan. Molecular dynamics simulations of concentration effect on conformations, hydrogen bond dynamics and translational diffusion of poly(methacrylic acid) in salt-free aqueous solution. *International Chemical Congress of Pacific Basin Societies, Pacifichem 2015*, 15–20 December 2015, Hawaii, USA.
- 38. A.K. Gupta and U. Natarajan. Counterion specific collapse of fully ionized PAA in water–ethanol mixture in presence of Li+ and Cs+ alkali metal cations: A molecular dynamics simulation study. *International Conference on Nanostructured Polymeric Materials and Polymer Nanocomposites, ICNPM-2015*, Mahatma Gandhi University, Kottayam, India, 13–15 November 2015.
- 39. K. Lakshmikumar and U. Natarajan. 2015. Structure and dynamics of aqueous solutions containing polyacylic acid and non-ionic surfactant pentaethyleneglycol *n*-octyl ether. *International Conference on Nanostructured Polymeric Materials and Polymer Nanocomposites, ICNPM-2015*, Mahatma Gandhi University, Kottayam, India, 13–15 November 2015.
- 40. Siddharth Rajendra Jain and R. Vinu. 2015. Mechanistic modeling of autoxidation of ethylbenzene. *AICHE Annual Meeting 2015*, Salt Lake City, Utah, USA.
- 41. Perepu S.K. and Tangirala A.K. 2015. Identification of equation error models from small samples using compressed sensing techniques. *IFAC Proceedings Volumes (IFAC-PapersOnline), Ninth IFAC Symposium on Advanced Control of Chemical Processes, ADCHEM 2015*, Whistler, Canada, 7–10 June 2015, 48(8): 795–800. ISSN: 14746670. doi: 10.1016/j.ifacol.2015.09.06
- 42. Perepu, S.K and Tangirala A.K. 2015. Classical PID control in presence of missing data using compressed sensing techniques. *Manufacturing for the 21st Century 2015—Topical Conference at the 2015 AIChE Spring Meeting and 11th Global Congress on Process Safety 2015*, pp. 5–9, Austin, United States; 26–30 April 2015. ISBN: 978–151080691-7.
- 43. Sudhakar Kathari and Arun K. Tangirala. 2016. Estimation of network connectivity strengths in linear causal dynamic systems, *IFAC-Papers Online*, *Fourth IFAC Conference on Advances in Control and Optimization of Dynamical Systems ACODS 2016*, Tiruchirappalli, India, 1–5 February 2016, 49(1): 77–82.
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- 46. Murugesan N., Panda T. and Das S.K. 2015. *E.coli* DH5α cell response to a sudden change in microfluidic chemical environment. *Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS*, 4 November 2015, 2015 (Article no. 7319076): 3213–3216, *37th Annual*

- International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2015, MiCo Center, Milano Congressi CenterMilan, Italy, 25–29 August 2015 (category number, CFP15EMB-ART; code, 116805).
- 47. Fasmin F. and Ramanathan S. 2015. Effect of CO poisoning of PEM fuel cell anode on impedance spectrasimulations. *ECS Transactions* 66 (27): 1–14, *Symposium on Physical and Analytical Electrochemistry, Electrocatalysis, and Photoelectrochemistry General Session—227th ECS Meeting*, Chicago; United States, 24–28 May 2015 (Code 112362, ISSN: 19385862). doi:10.1149/06627.0001ecst

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit (Title of Seminar)
1	Mr. V. Ravichandran, Chief Engineer, HPC	6 April 2015	Cellulose Nanofiber Composites as Mechanically Adaptive Brain Electrodes
2	Dr. Arjit Sarkar, Postdoctoral Research Associate, University of Pennsylvania, Philadelphia, USA	15 April 2015	Deformation of Colloidal Microstructures
3	Dr. Kadhiravan Shanmuganathan, Polymer Sciences and Engineering Division, National Chemical Laboratory	22 April 2015	How to Use Virgo Most Effectively
4	Dr. Babu Joseph, Department of Chemical and Biomedical Engineering, University of South Florida, Tampa, Florida	28 May 2015	Catalyst Design for Liquid Fuel Production from Renewable Resources
5	Dr. Arun Ramachandran, Assistant Professor, Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Ontario, Canada	20 July 2015	The Influence of Secondary Currents on Transport Processes in Concentrated, Viscous, Non-colloidal Suspensions
6	Dr. Aravind Asthagiri, Associate Professor, Chemical and Biomolecular Engineering Department, Ohio State University	13 August 2015	Understanding CO ₂ Electroreduction on Cu Electrodes Through First- Principles Modeling
7	Dr. Shigeyuki Komura, Department of Chemistry, Tokyo Metropolitan University, Japan	8 September 2015	Dynamics of Multi-component Membranes
8	Dr. Aravind Kumar Chandiran, Department of Chemistry, University of California, Berkeley	1 December 2015	Electron Transfer Dynamics in Photoelectrochemical Devices
9	Dr. Kirti Sahu, Head, Department of Chemical Engineering, IIT Hyderabad	16 December 2015	Some Interacting Dynamics of Bubbles and Drops
10	Prof. Gade Pandu Rangaiah, Department of Chemical Engineering, National University of Singapore	5 December 2016	Talk on research activities in NUS
11	Dr. Riddhiman Dhar, Postdoctoral Researcher, EMBL- CRG Systems Biology Program, Centre for Genomic Regulation (CRG), Barcelona, Spain	11 January 2016	Studying Phenotypic Variation in Isogenic Yeast Population Using High Throughput Microscopy
12	Mr. Ajoy Bhattacharya, Associate GM and Head (Production), Liquid Purification Technologies, Business Unit, LANXESS India Private Limited	1 March 2016	Industrial project discussions
13	Dr. R.C. Yalamanchili, COO, Yalamanchili Company	15 March 2016	Constituting award in the department
14	Dr. Rusi Taleyarkhan, Professor, School of Nuclear Engineering, Purdue University, USA	28 March 2016	To discuss collaboration, select IIT Madras students—joint research and technology commercialization/manufacturing in India

4.4.6. Other Activities of the Department

Faculty and staff members

Sl. No. Description

- 1 Ms M. Saraswathi, Senior Assistant, was awarded the Non-academic Staff Recognition Award for the year 2014 in recognition of the meritorious service rendered in the institute.
- 2 Mr. K. Thirunavukkarasu, Junior Technical Superintendent, was awarded the Non-academic Staff Recognition Award for the year 2014 in recognition of the meritorious service rendered in the institute.

Sl. No. Description

- Dr. Kannan A., Professor, took charge as the Head of the Department with effect from 29 October 2015.
- 4 Dr. Arun K. Tangirala was appointed a Professor with effect from 29 July 2015.
- 5 Dr. R. Nagarajan, Professor, was nominated the Dean (I&AR) for a fresh term of 2 years with effect from 6 September 2015.
- 6 Mr. Aslam Basha Z. was appointed a Technical Officer with effect from 27 July 2015.
- 7 Dr. Arun K. Tangirala, Professor, was nominated the Chairman, Managing Committee of Vanavani Matriculation Higher Secondary School, IIT Madras, for 2 years with effect from 27 October 2015.
- 8 Dr. Sumesh P. Thampi, was appointed an Assistant Professor with effect from 21 September 2015.
- 9 Dr. Swagatika Sahoo joined as INSPIRE Faculty on 4 January 2016.
- 10 Dr. A.R. Balakrishnan, was re-employed as a Professor with effect from 1 November 2015.
- Mr. R. Selva Ganapathy, Junior Technical Superintendent, Department of Chemical Engineering, won the Silver Medal at the Olympic round and the Bronze Medal at the Ranking Round of the 70 m Outdoor Recurve for men in the Eighth Tamilnadu State Archery Championships held during 3–4 October 2015 at Dr. MGR Janaki College of Arts and Science, Chennai.
- 12 Dr. R. Nagarajan, Professor, was permitted to serve as an Independent Director on the Board of Indian Additives Limited, nominated by the Chennai Petroleum Corporation Limited, for a duration of 5 years from September 2015.

Results obtained from research work

Sl. No. Scholar/Faculty Member

Ph.D.

- Balakrishnan S. and R. Nagarajan: Modeling and Simulation of Fly Ash Deposition on Boiler Heat-Transfer Surfaces and Its Mitigation Strategies for Indian Coals
- 2 Basavaraja R.J. and Sreenivas Jayanti: Future-Ready Design of a High-Efficiency Gas-Fired Power Plant Based on Chemical-Looping Combustion
- Beula C. and P.S.T. Sai: Esterification of Long-Chain Fatty Acids with Ethanol using Bronsted Acidic Ionic Liquids as Catalysts
- 4 Chinta Sankar Rao and M. Chidambaram: Subspace Identification of Unstable Systems
- 5 Dhanya Ram V. and M. Chidambaram: Identification and Control of Linear Multi-input Multi-output Systems
- 6 G. Keerthiga, Raghuram Chetty and B. Viswanathan: Electrochemical Reduction of Carbon Dioxide on Copper and Zinc-Based Electrodes in Aqueous Electrolytes
- 7 K. Jagadeeshwar and Abhijit P. Deshpande: Network Structure and Properties of Poly(Vinyl Alcohol) and Hyaluronic Acid Crosslinked Hydrogel Systems
- 8 Manokaran A. and S. Pushpavanam: Insights from Spatio-temporal Studies of a Polymer Electrolyte Fuel Cell Under Different Degradation Conditions
- 9 Mercy Anna Philip and R. Nagarajan: Ultrasound-Assisted Formulation and Characterization of PS/Alumina and PMMA/Alumina Nanocomposites
- Nabil M. and Sridharakumar Narasimhan: Optimal Selection of Sensors and Controller Parameters for Economic Optimization of Process Plants
- 11 Siddhartha Singha and T. Panda: Studies on Laccases from Daedalea flavida
- 12 Simi Santosh and M. Chidambaram: Improved Tuning of Unstable Cascade Control Systems
- 13 Srinivasan K. and Sreenivas Jayanti: Design of Fluid Flow Ducting Elements Using Shape Functions, a Search Method and CFD
- 14 Venkata Sesha Praveen Bulusu and S. Ramanathan: Characterization and Modification of Ceria Abrasives for Shallow Trench Isolation Chemical Mechanical Polishing

M.S.

- 1 Anand Kumar Tripathi and R. Vinu: Characterization of Thermal Stability of Engine Oils and Resource Recovery from Waste Engine Oils
- 2 Aanton Kumanan S.A. and Abhijit P. Deshpande: Rheological Characterization of Different Glass Fibre-Networks in Composites
- 3 Ashutosh Singh and Pushpavanam S.: Linear Stability Analysis of Stratified Fluid Flow in a Channel with an Insoluble Surfactant
- 4 D. Sujish and R. Ravi Krishna: Selective Separation of Strontium from a Simulated Intermediate Level Nuclear Waste Solution

Sl. No. Scholar/Faculty Member

- 5 Dadi V. Suriapparao and Vinu R.: Energy and Resource Recovery from Waste Plastics, Lignocellulosic Biomass and Municipal Solid Wastes via Microwave-Assisted Pyrolysis
- 6 Daware Santosh Vasant and Basavaraja M. Gurappa: Pickering Emulsion and Bijel Stabilized by Shape Anisotropic Particles
- 7 Debashish Panda and Kannan A.: Steady State and Dynamic Analysis of Design Improvements to Reactive Distillation Column
- 8 Easter Prince I., Arun K. Tangirala and R. Nagarajan: Study of the Effect of Media Wear on Particulate Comminution
- 9 G.S.N.V.K.S.N. Swamy Undi and Sreenivas Jayanti: Experimental Studies of Seawater Flue Gas Desulphurization Using Fountain-Type Gas-Liquid Contactor
- 10 Gorugantu Sri Bala and R. Vinu: Pretreatment of Cellulose via Conventional and Non-conventional Techniques
- 11 Kulkarni Shekhar Rajabhau and S. Pushpavanam: Transport Phenomena of Slug Glow in Microchannels
- 12 Mohamed Shahid U.N., Abhijit P. Despande and Lakshmana Rao C.: Piezoelectric Hydrogel Composites
- 13 Musmade Lalit Raghunath and M. Chidmbaram: Controllers Tuning by Learning Automata
- 14 Peter Kavitha S. and Arun K. Tangirala: Development of a Soft-Sensor for Fineness in a Cement Ball Mill
- 15 Rahul Kumar and Ravi R.: Application of Corrections to Maxwell's Equal Area Rule in Phase Equilibrium Calculations

Socially relevant activities carried out by the department

- An article on the Intellimeter, which is a joint project by IIT Madras and GyanData, appeared in *The Indian Express* dated 14 February 2016. The project was initially aimed at providing a solution to problems associated with auto-metering, tampering, outdated tariff rates, etc. This project is led by Prof. Ragunathan Rengasamy and Prof. Shankar Narsimhan.
- Ninth Edition of Annual Technical Festival ChemClave-2016, 4–6 March 2016: It provided an opportunity to all budding chemical engineers to compete, exchange ideas, collaborate and learn and be entertained.
- 3 The Magic of Believing in Yourself, 19 March 2016: Designed to enable scholars to reach great heights in their research work and future careers, initiated by, Prof. Preeti Aghalayam.
 - Jasco HPLC training was conducted for 20 students. The system, functionalities and operating mechanism were explained by a service engineer to the students. The session was titled 'How Can a Newcomer Start Using HPCL?'
- A seminar titled 'Heat Transfer and Fluid Flow (HTFF-15)' was organized in honour of Prof. Arcot R. Balakrishnan on his 65th birthday by research scholars who worked under him, on Friday, 12 February 2016 at Chemical Engineering Auditorium, IIT Madras. The chief guest was Prof. Sarit Kumar Das, Director, IIT Ropar, and Prof. Bhaskar Ramamurthi, Director, IIT Madras presided over the function.
- 5 Prof. Shankar Narasimhan S. is permitted to serve as Additional Director at MPM Inosoft Private Limited, Nagpur, Maharashtra.

International collaboration

1. Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
1	Ethayaraja Mani	Research under DAAD-IIT Madras	1 July to 31 August 2015, Technishe
		Faculty Exchange Programme	Universitat, Berlin, Germany

2. Student visits

Sl. No.	Student	Purpose of Visit	Date and Venue
1	G. Swaminathan Bharadwaj (CH11D036)	Student exchange visit	1 December 2014 to 31 May 2015, Tokyo Metropolitan University, Japan
2	Pinjala Vishnu Vardhan (CH13D004)	Research as part of a collaboration research project	16–30 June 2015, Loughborough, Keele and Birmingham universities
3	Jason Ryan Picardo (CH11D026)	Fulbright–Nehru Doctoral Research Fellowship	15 August 2015 to 15 June 2016, University of Florida
4	Kavimonica (CH14D210)	Project work	1 November 2015 to 31 July 2016, University of Twente, The Netherlands

Major infrastructure development in the department

 The renovated Chemical Engineering Auditorium (MSB 241) was inaugurated by Prof. Bhaskar Ramamurthy, Director, IIT Madras, on 18 January 2016.

Department of Chemistry



4.5.1. Introduction

The Department of Chemistry was a part of the Department of Chemical Engineering during the period 1959–1961 and was established as an independent department in 1961, with Prof. V. Srinivasan as the Head-in-Charge. Prof. M.V.C. 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). Prof. Sastri was also responsible for establishment of the Special Instruments Laboratory (established in 1970—later known as RSIC and presently known as SAIF) and the MSRC (established in 1974 with Prof. Sastri as the Head and Prof. V. Srinivasan as the Associate Head).

The department offers M.Sc. and Ph.D. programmes in chemistry. As of date, 811 students have graduated with the M.Sc. degree and 594 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). Presently, the department is very well equipped, with modern instrumentation facilities, and is actively engaged in quality teaching and research in frontier areas.

4.5.2. Academic Programme

New courses introduced

Sl. No.	Course No.	Title
1	CY1051	Chemistry II (BT)

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
M.Sc.	54	53	_	_	_	107
Ph.D.	59	57	38	46	72	272
Total	113	110	38	46	72	379

Endowment prize instituted

Keshav-Rangnath Excellence in Research Award for two research scholars and the respective guides

- Cash award for PG scholar: ₹25,000
- Faculty Guide: ₹25,000 will be credited to the PCF account

Student/scholars who attended conferences/seminars/symposia

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroac	d				
1	Jinu P.Y.	CY09D028	North American Solid State Chemistry Conference—2015	22–24 May 2015, Florida, USA	_
2	Divya Velpula	CY10D031	13th International Fischer Symposium: A Meeting on Nanoscale Electrochemistry	6–11 June 2015, Lubeck, Germany	_
3	Mukkamala Ramesh	CY11D018	16th Tetrahedron Symposium	16–19 June 2015, Grand Hyatt Berlin, Germany	_

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
4	Yadagiri Dongari	CY12D045	16th Tetrahedron Symposium	16–19 June 2015, Grand Hyatt Berlin, Germany	_
5	Sudarsan Reddy	CY11D033	16th Tetrahedron Symposium	16–19 June 2015, Grand Hyatt Berlin, Germany	_
6	Umesh Babu	CY10D056	Eighth International Conference on Materials for Advanced Technologies of the Materials Research Society of Singapore	28 June to 3 July 2015, SUNTEC, Singapore	_
7	Rajeshkhanna G.	CY11D076	Eighth International Conference on Materials for Advanced Technologies of the Materials Research Society of Singapore	28 June to 3 July 2015, SUNTEC, Singapore	_
8	Karthikayini M.P.	CY12D016	Eighth International Conference on Materials for Advanced Technologies of the Materials Research Society of Singapore	28 June 2015 to 3 July 2015, SUNTEC, Singapore	_
9	Sathyanarayana Maddukuri	CY11D031	Eighth International Conference on Materials for Advanced Technologies of the Materials Research Society of Singapore	28 June to 3 July 2015, SUNTEC, Singapore	_
10	Krishnadas K.R.	CY11D016	Gordon Research Conference on Clusters and Nanostructures 2015	5–10 July 2015, Melia Golf Vichy Catalan Business and Convention Center, Girona, Spain	_
11	Depanjan Sarkar	CY12D055	Gordon Research Conference on Clusters and Nanostructures 2015	5–10 July 2015, Melia Golf Vichy Catalan Business and Convention Center, Girona, Spain	_
12	Shridevi S. Bhat	CY12D031	Gordon Research Conference on Clusters and Nanostructures 2015	5–10 July 2015, Melia Golf Vichy Catalan Business and Convention Center, Girona, Spain	_
13	Rakesh	CY12D023	12th International Conference on Materials Chemistry (MC12)	20–23 July 2015, University of York, UK	_
14	Lasitha P.	CY11D065	IUPAC 45th World Chemistry Congress	9–14 August 2015, Busan, South Korea	-
15	Pappuru Sreenath	CY11D023	International Conference and Exhibition on Biopolymers and Bioplastics—2015	10–12 August 2015, San Francisco, USA	-
16	Dipa Mandal	CY10D030	International Conference and Exhibition on Biopolymers and Bioplastics—2015	10–12 August 2015, San Francisco, USA	-
17	Anjana S.S.	CY11D044	IUPAC 45th World Chemistry Congress	9–14 August 2015, Busan, South Korea	_
18	Anil Kumar Paidi	CY12D001	15th European Conference on Solid State Chemistry (ECSSC15)	23–26 August 2015, University of Vienna, Austria	-
19	Satish Konatham	CY10D049	ECSSC15	23–26 August 2015, University of Vienna, Austria	-
20	Somenath Panda	CY12D033	250th ACS National Meeting and Exposition	16–20 August 2015, Boston, USA	-
21	Sanjeeb Sutradhar	CY12D027	250th ACS National Meeting and Exposition	16–20 August 2015, Boston, USA	

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
22	Gee Varghese	CY11D058	250th ACS National Meeting and Exposition	16–20 August 2015, Boston, USA	_
23	Sreenath P.	CY11D023	International Conference and Exhibition on Bio-polymers	9–15 August 2015, San Francisco, USA	
24	Alok Kumar Tripathi	CY11D002	14th International Conference on Methods and Applications in Fluorescence (MAF-14)	13–16 September 2015, Wurzburg, Germany	_
25	Madhumita Tarai	CY12D020	MAF-14	13–16 September 2015, Wurzburg, Germany	-
26	Ivy Sarkar	CY11D061	MAF-14	13–16 September 2015, Wurzburg, Germany	_
27	Vikram Singh	CY11D091	MAF-14	13–16 September 2015, Wurzburg, Germany	-
28	Ashutosh Kumar	CY12D052	First European Conference on Physical and Theoretical Chemistry	12–18 September 2015, Catania, Italy	_
29	Avik Kumar Pati	CY11D049	MAF14	13–17 September 2015, Wurzburg, Germany	-
30	T. Madhu Babu	CY11D067	Materials Research Society (MRS 2015)	29 November to 4 December 2015, Boston, USA	_
31	Mahesh Potnuru	CY10D004	ChemCYS 2016 (presented poster)	16–18 March 2016, Blankenberge, Belgium	_
32	Prashant Kumar	CY12D021	2016 MRS Spring Meeting and Exhibit	28 March to 1 April 2016, Phoenix, Arizona, USA	_
33	Vivek B.	CY12D044	International symposium at 2016 MRS Spring Meeting	28 March to 1 April 2016, Phoenix, Arizona, USA	-
34	Akhil Pratap Singh	CY11D039	Recent Advances in Analytical Sciences (RAAS 2016)	7–9 April 2016, IIT (BHU), Varanasi	-
35	Aravindan N.	CY12D082	19th Topical Meeting of the International Society of Electrochemistry (presented poster)	17–20 April 2016, Auckland, New Zealand	-
36	Ashis Das	CY12D083	19th Topical Meeting of the International Society of Electrochemistry (presented poster)	17–20 April 2016, Auckland, New Zealand	-
37	Subrata Mondal	CY11D088	19th Topical Meeting of the International Society of Electrochemistry (presented poster)	17–20 April 2016, Auckland, New Zealand	_
38	Soujit Sengupta	CY12D035	Self-propagated Combustion Based Exfoliation of Graphite: A Colossal Step Towards Large- Scale Production of Graphene and Its Application in Water Desalination	19–22 April 2016, Porto Antico Di Genova Centro Congressi, Genoa, Italy	_
39	Prashant Kumar	CY12D021	2016 MRS Spring Meeting And Exhibit	28 March to 1 April 2016, Phoenix, Arizona, USA	-
India					
1	Chennrui Bharath Kumar	CY13D009	Recent Advances in Chemistry (RAC, national seminar)	30 March to 1 April 2015, Kakatiya University, Warangal	-

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
2	Amey Kirwai	CY11D003	21st Conference of National Magnetic Resonance Society, India	6–9 March 2015, Guru Nanak Dev University, Amritsar	-
3	Elias Jesupackiam	CY11D057	Solid State Chemistry and Allied Areas (ISCAS-2015)	8–10 May 2015, University of Delhi	_
4	Satish Konatham	CY10D049	ISCAS-2015	8–10 May 2015, University of Delhi	-
5	Anil Kumar Paidi	CY12D001	ISCAS-2015	8–10 May 2015, University of Delhi	-
6	Preethi S.	CY14D073	10th Mid-year CRSI Symposium	23–25 July 2015, NIT Trichy	-
7	Aravindan N.	CY12D082	The National Symposium on Electrochemical Science & Technology (NSEST-2015)	24–25 July 2015, IISc Bengaluru	-
8	Ashis Das	CY12D083	NSEST-2015	24–25 July 2015, IISc Bengaluru	_
9	Rajesh Rao	CY12D068	Fifth Indian Peptide Symposium	24–25 September 2015, JNCASR, Bengaluru	IIT Madras
10	Dasthaiah Keshapolla	CY14D049	Thermophysical Properties of Ionic Liquids and Application in Metal Ion Extraction (collaborative research)	1 November–30 December 2015, IGCAR, Kalpakkam	-
11	Debajyoti Basak	CY10D029	Challenges in Organic Materials and Supramolecular Chemistry (ISACS–18)	19–21 November 2015, IISc, Bengaluru	_
12	Basaiahgari Anusha	CY14D044	10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems	20–21 November 2015, Punjab University, Chandigarh	_
13	Ch. Bharath Kumar	CY13D009	10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems	20–21 November 2015, Punjab University, Chandigarh	-
14	Arivazhagan C.	CY13D003	Modern Trends in Inorganic Chemistry (MTIC-XVI–2015)	3–5 December 2015, Jadavpur University, Kolkata	-
15	Sankeerthana B.	CY14D021	International Conference on Nanomaterials for Energy, Environment (ICNEECS-15)	10–12 December 2015, Madurai Kamaraj University, Madurai	-
16	Amaresh Chandra Pradhan	CY13IPF01	ICNEECS-15	10–12 December 2015, Madurai Kamaraj University, Madurai	_
17	Malaya Kumar Sahoo	CY14D010	ICNEECS-15	10–12 December 2015, Madurai Kamaraj University, Madurai	_
18	Rajeshkhanna Gaddam	CY11D076	Third International Conference on Nanostructured Materials and Nanocomposites (ICNM-2015)	12–14 December 2015, Hindustan College of Science and Technology, Farah (Mathura), UP	-
19	Sudhakar G.	CY12D092	Modern Trends in Inorganic Chemistry-16 (MTIC–XVI)	1–7 December 2015, Jadhavpur University, Kolkata	-
20	Shobhana Krishnaswamy	CY14IPF04	13th Conference of the Asian Crystallographic Association	5–8 December 2015, Science City, Kolkata	-

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
21	Rosmita Borthakur	CY15IPF01	MTIC-XVI	3–5 December 2015, Jadhavpur University, Kolkata	_
22	Soumyakanta Prusty	CY12D036	MTIC-XVI	1–7 December 2015, Jadhavpur University, Kolkata	-
23	Nidhi Sharma	CY11D073	XI J-NOST Conference	14–17 December 2015, NISER, Bhubaneswar	_
24	Prabhakara Rao Tharra	CY13D059	XI J-NOST Conference	14–17 December 2015, NISER, Bhubaneswar	_
25	Chinta Bhawani Shankar	CY14D005	XI J-NOST Conference	14–17 December 2015, NISER, Bhubaneswar	_
26	Somraj Guha	CY12D034	XI J-NOST Conference	14–17 December 2015, NISER, Bhubaneswar	-
27	Manthena Chaitanya	CY13D019	XI J-NOST Conference	14–17 December 2015, NISER, Bhubaneswar	-
28	Divya Velpula	CY10D031	International Conference on Nanomaterials and Nanotechnology (NANO-2015)	7–10 December 2015, KSR College, Tiruchengode	_
29	Madhumita Tarai	CY12D020	Trombay Symposium on Radiation and Photochemistry (TSRP-2016)	5–9 January 2016, BARC, Mumbai	-
30	Ramya C.B.	CY14D075	TSRP-2016	5–9 January 2016, BARC, Mumbai	_
31	Siripina Vijaya Kumar	CY13D029	TSRP-2016	5–9 January 2016, BARC, Mumbai	_
32	Ivy Sarkar	CY11D061	TSRP-2016	5–9 January 2016, BARC, Mumbai	_
33	Anju T.R.	CY12D003	MATCON 2016	14–16 January 2016, CUSAT, Kochi	_
34	Kartik R.	CY14D400	MATCON 2016	13–17 January 2016, Ernakulam	_
35	Vivek Anand	CY13D073	MATCON 2016	13–17 January 2016, Ernakulam	_
36	Veerababu M.	CY12D042	Fourth Joint Indo-French Meeting of the Associated International Laboratory of Solid State Chemistry	18–20 January 2016, IISc, Bengaluru	_
37	Satyanarayana M.	CY11D031	Fourth Joint Indo-French Meeting of the Associated International Laboratory of Solid State Chemistry	18–20 January 2016, IISc, Bengaluru	-
38	Rakesh	CY12D023	Fourth Joint Indo-French Meeting of the Associated International Laboratory of Solid State Chemistry	18–20 January 2016, IISc, Bengaluru	-
39	Sagarika Samantray	CY14D020	Seminar on Structural Analysis Through X-ray Diffraction (SAXD-2016)	28–29 January 2016, Pondicherry University, Pondicherry	-
40	Manju C.K.	CY13D018	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	-
41	Shridevi Bhat	CY12D031	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	_

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
42	Rajeshkhanna G.	CY11D076	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	_
43	Sankeerthana B.	CY14D021	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	_
44	Malaya Kumar Sahoo	CY14D010	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	_
45	Vasudeva Rao P.	CY13D058	18th CRSI National Symposium in Chemistry	5–7 February 2016, Punjab University, Chandigarh	_
46	Sanjeeb Sutradhar	CY12D027	MRSI North-east Symposium on Advanced Materials for Sustainable Application	19–20 February 2016, CSIR–NEIST, Jorhat, Assam	_
47	Prashant Kumar	CY12D021	MRSI North-east Symposium on Advanced Materials for Sustainable Application and 27th Annual General Meeting of MRSI	18–21 February 2016, CSIR–NEIST, Jorhat, Assam	_
48	Siripina Vijaya Kumar	CY13D029	Spectroscopy and Dynamics of Molecules and Clusters—2016	18–21 February 2016, Mahabaleswar, Maharashtra	_
49	Veerababu M.	CY12D042	18th CRSI National Symposium in Chemistry	5–7 February 2016, Institute of Nano Science & Technology, Punjab University	_
50	Parth Gupta	CY15D037	Gaussian Software (national workshop)	29 February to 4 March 2016, Chennai	_
51	Akhil Pratap Singh	CY11D039	International Conference on Advanced Materials (ICAM- 2016) for Energy, Environment and Health	4–7 March 2016, IIT Roorkee	_
52	Rakesh	CY12D023	Second National Conference on Materials For Energy Conversion and Storage (Mecs- 2016)	11–13 March 2016, Pondicherry University	_
53	Anjaiah S.	CY12D002	Mecs-2016	11–13 March 2016, Pondicherry University	_
54	Bhartendu K. Srivastava	CY12D007	DNA Experiments in Collaboration with Dr. Joshy Joseph	15 March to 2 April 2016, NIIST, Thiruvananthapuram	_
55	Sudip Mandal	CY14D084	19th National Convention of Electrochemists (NCE-19)	28–29 March 2016, NIT, Trichy	

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	Dipa Mandal	CY10D030	International Conference and Exhibition on Biopolymers and Bioplastics	OMICS International, San Francisco, USA
2	Malaya Kumar Sahoo	CY14D010	Second Prize for oral presentation at ICNEECS-15	School of Chemistry, Madurai Kamaraj University
3	Vikram Singh	CY11D091	Best Poster Award in the Photochemistry category	13th Trombay Symposium on Radiation & Photochemistry (TSRP-2016) at Bhabha Atomic Research Centre, Mumbai

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
4	Arnab Dey	CY14D001	Best Student Oral Award for work titled 'ODNP Enhanced Magnetic Resonance Imaging at 0.35 T'	22nd Conference of the National Magnetic Resonance Society, India, IIT Kharagpur
5	Sanjeeb Sutradhar	CY12D027	Best Poster Prize for work titled 'Non-enzymatic Glucose Sensor Based on Fullerene- C_{60} Mediated Gold Nanocomposites'	MRSI North-east Symposium, Johrat, Assam
6	Anjaiah Sheelam	CY12D002	Best Poster Award for Work titled 'Nitrogen Functionalised Few Layer Graphene: An Electro Catalyst for Oxygen Reduction Reaction' and a cash prize of ₹1000	Pondicherry University
7	Depanjan Sarkar	CY12D055	Malhotra Weikfield Foundation Nanoscience Award (certificate and a cash prize of ₹50,000)	Eighth Bangalore INDIA NANO, Bengaluru
8	K.R. Krishanadas	CY11D016	One of the Best Poster awards (certificate and a cash prize of ₹20,000)	Eighth BANGALORE NANO, Bengaluru
9	Bushra Alam	CY14C013	Best Poster Award—Second Prize	NCE-19, NIT, Trichy

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize
1	D. Ganapathy	CY10D034	Prof. C.N. Pillai Prize
2	Ammu Mathew	CY10D021	Prof. Langmuir Prize
3	S. Joseph Ponniah	CY10D036	Prof. Werner Prize
4	V. Kasipandi	CY07D026	Prof. G. Sundararajan Endowment Prize
5	Jitendriya Swain	CY10D035	Prof. Ramamurthy Prize (department prize)
6	Nirod Kumar Sarangi	CY08D035	Keshav-Renganath Excellence in Research Award
7	C. Pratap Kumar Chhotaray	CY11D026	Keshav-Renganath Excellence in Research Award

4.5.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
N. Chandrakumar, Ph.D. (IIT Kanpur)	Magnetic resonance imaging and spectroscopy
S. Sankararaman, Ph.D. (Victoria, Canada)	Synthetic and mechanistic organic chemistry
R. Dhamodharan, Ph.D. (University of Massachusetts, USA)	Chemistry of macromolecules
A.K. Mishra, Ph.D. (IIT Kanpur)	Fluorescence spectroscopy
T. Pradeep, Ph.D. (IISc, Bengaluru)	Solid state chemistry, materials science
M.V. Sangaranarayanan, Ph.D. (IISc, Bengaluru)	Electrochemistry
U.V. Varadaraju, Ph.D. (IISc, Bengaluru)	Solid state chemistry, materials science
P. Selvam, Ph.D. (IIT Madras)	Catalysis, solid state chemistry
Archita Patnaik, Ph.D. (BHU)	Physical chemistry, colloid and interface science, nanoscience and nanotechnology
S. Baskaran, Ph.D. (IIT Kanpur)	Organic synthesis and asymmetric synthesis
Indrapal Singh Aidhen, Ph.D. (University of Pune)	Synthetic organic chemistry
K. Mangala Sunder, Ph.D. (McGill, Canada)	Theoretical spectroscopy
K. Vidyasagar, Ph.D. (IISc, Bengaluru)	Solid state chemistry
P. Bhyrappa, Ph.D. (IISc, Bengaluru)	Bioinorganic and supramolecular chemistry, materials chemistry

Name and Qualifications	Major Areas of Specialization
G. Ranga Rao, Ph.D. (IISc, Bengaluru)	Materials chemistry, solid state electrochemistry, surface chemistry, heterogeneous catalysis
Sanjay Kumar, Ph.D. (IIT Kanpur)	Theoretical chemistry, quantum chemistry
N. Narasimha Murthy, Ph.D. (IISc, Bengaluru)	Bio-inorganic chemistry, inorganic chemistry, spectroscopy
Dillip Kumar Chand, Ph.D. (IIT Kanpur)	Supramolecular chemistry, inorganic chemistry
G. Sekar, Ph.D. (IIT Kanpur)	Enantioselective organic synthesis
Associate Professors	
Sundaragopal Ghosh, Ph.D. (IIT Bombay)	Organometallic and metalloborane chemistry
B. Rajakumar, Ph.D. (IISc, Bengaluru)	Atmospheric chemistry, gas-phase kinetic and high-resolution cavity ring-down spectroscopy, computational chemistry
K.M. Muraleedharan, Ph.D. (RRL, Thiruvananthapuram)	Medicinal chemistry, bio-organic chemistry
Edamana Prasad, Ph.D. (RRL, Thiruvananthapuram)	Divalent lanthanide and dendrimer chemistry
Arti Dua, Ph.D. (IISc, Bengaluru)	Statistical mechanics, polymer theory, stochastic processes
Amrendra Vijay, Ph.D. (IISc, Bengaluru)	Theoretical physical chemistry
Nandita Madhavan, Ph.D. (University of Illinois at Urbana Champaign, USA)	Oligopeptide synthesis, polymer chemistry, organic materials
Ramesh Gardas, Ph.D. (South Gujarat University)	Solution thermodynamics, ionic liquids
Debashis Chakraborty, Ph.D. (University of Gottingen, Germany)	Organometallic chemistry
Assistant Professors	
Pazhamalai Anbarasan, Ph.D. (IISc, Bengaluru)	Organic synthesis
Beeraiah Baire, Ph.D. (IISc, Bengaluru)	Organic synthesis
R. Kothandaraman, Ph.D. (IISc, Bengaluru)	Electrochemical systems and electrocatalysis
P. Venkatakrishnan, Ph.D. (IIT Kanpur)	Organic functional materials
Md. Mahinddin Baidya, Ph.D. (CLMU, Munich, Germany)	Organic synthesis
Kartik Chandra Mondal, Ph.D. (Karlsruhe Institute of Technology, Germany)	Inorganic chemistry
Arnab Rit, Ph.D. (University of Muenster, Germany)	Inorganic-organometallic chemistry

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period
Confer	ences		
1	Indrapal Singh	Synthesis of PPAR Agonist and SGLT Inhibitors, medicinal chemistry conference	29–30 October 2015
Worksl	hops		
1	P. Selvam	Roadmap for Catalysis Research in India	22-23 January 2016
Short t	erm Course		
1	S. Sankararaman	Application of Spectroscopic Methods in Organic Structure Determination (36 modules)	8 weeks

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Course/Workshop/Seminar/ Conference/Training Programme	Institution	Period
Meetin	ngs			
1	T. Pradeep	18th Meeting of the Japan–India Science Council	Tokyo, Japan	15–18 March 2015
2	K.M. Muraleedharan	Viva voce	Indian Institute of Chemical Technology (IICT), Hyderabad	18 March 2015

Sl. No.	Faculty Member	Course/Workshop/Seminar/ Conference/Training Programme	Institution	Period
3	N. Chandrakumar	Inauguration of CRESCIENCE 2015	BSA University, Chennai	18 March 2015
4	A.K. Mishra	Expert committee meeting for syllabus revision	Central University, Tamil Nadu	30 March 2015
5	G. Sekar	Viva voce examinations	JNTU, Hyderabad	30 March 2015
6	M.V. Sangaranarayanan	Assessment Committee meeting (Chairman)	CECRI, Karaikudi	8–9 April 2015
7	A.K. Mishra	Viva voce examination	NIT, Hamirpur	13–14 April 2015
8	G. Sekar	Viva voce examination	JNTU, Hyderabad	30 March 2015
9	A.K. Mishra	Viva voce examination	Alagappa University, Karaikudi	17 April 2015
10	A.K. Mishra	Viva voce examination	Kerala University	17 April 2015
11	A.K. Mishra	Viva voce examination	CUSAT, Cochin	23 April 2015
12	R. Kothandaraman	Collaborative research work	High Energy Battery Limited	12–13 May 2015
13	U.V. Varadaraju	Collaborative research work	High Energy Battery Limited	12–13 May 2015
14	G. Ranga Rao	Ph.D. viva voce	JNTU, Anantapur	18 May 2015
15	M.V. Sangaranarayanan	Ph.D. viva voce	IIT Hyderabad	21 May 2015
16	M.V. Sangaranarayanan	Ph.D. viva voce	Madura College, Madurai	27 May 2015
17	A.K. Mishra	Ph.D. viva voce	Kerala University	29 May 2015
18	M.V. Sangaranarayanan	Ph.D. viva voce	CECRI, Karikudi	29 May 2015
19	G. Ranga Rao	Ph.D. viva voce	JNTU, Hyderabad	9–12 June 2015
20	M.V. Sangaranarayanan	Meeting of selection committee for Ph.D. admission	CECRI, Karaikudi	22 June 2015
21	M.V. Sangaranarayanan	60th Research Council meeting	CECRI, Karaikudi	23 June 2015
22	M.V. Sangaranarayanan	Ph.D. viva voce	VIT, Vellore	26 June 2015
23	G. Ranga Rao	Ph.D. viva voce	NIT, Rourkela	20–21 July 2015
24	M.V. Sangaranarayanan	Ph.D. viva voce	CECRI, Karaikudi	10 August 2015
25	M.V. Sangaranarayanan	Synopsis meeting	VIT, Vellore	13 August 2015
26	R. Kothandaraman	Meeting	VIT, Vellore	28 August 2015
27	G. Ranga Rao	Ph.D. viva voce exam	VIT, Vellore	3 September 2015
28	M.N. Sudheendra Rao	Academic audit meeting	NIT Karnataka	30 September 2015
29	U.V. Varadaraju	Selection Committee meeting	NIT Manipur	8–9 October 2015
30	M.N. Sudheendra Rao	Academic audit meeting	NIT Karnataka	29 October 2015
31	S. Sankararaman	Professional development	Jaipur	27–30 October 2015
32	R. Dhamodharan	CUTN—IQAC meeting	Tiruvarur	26–27 October 2015
33	M.V. Sangaranarayanan	Review Committee meeting	NIT Trichy	20 October 2015
34	Sundargopal Ghosh	Ph.D. viva voce exam	IICT, Hyderabad	9 October 2015
35	Edamana Prasad	Ph.D. viva voce exam	VIT, Vellore	6 November 2015
36	R. Dhamodharan	Ph.D. viva voce Exam	VIT, Vellore	6 November 2015
37	M.V. Sangaranarayanan	Ph.D. viva voce exam	IISc, Bengaluru	30 November 2015
38	M.V. Sangaranarayanan	Interview	CECRI, Karaikudi	21 December 2015
39	M.V. Sangaranarayanan	Ph.D. viva voce exam	IIT Hyderabad	18 December 2015
40	M.V. Sangaranarayanan	Research Council meeting	CECRI, Karaikudi	29–30 December 2015
41	P. Anbarasan	OC symposium	IISc, Bengaluru	26 December 2015
42	P. Anbarasan	81st INSA Anniversary General Meeting for INSA Medal for Young Scientists	IISER, Bhopal	28–30 December 2015

SI. No.	Faculty Member	Course/Workshop/Seminar/ Conference/Training Programme	Institution	Period
43	G. Ranga Rao	Ph.D. viva voce exam	JNTU, Hyderabad	25 January 2016
44	S. Sankararaman	Open defence exam	Institute of Chemical Technology, Matunga, Mumbai	21 January 2016
45	K. Mangala Sunder	Confidential work	IICT, Hyderabad	1 February 2016
46	Indrapal Singh Aidhen	Ph.D. viva voce and discussion pertaining to ongoing collaborative efforts	CSIR-IIIM, Jammu	26 February 2016
47	K. Mangala Sunder	Chair for a session	Mahabaleshwar	19–21 February 2016
48	Sundargopal Ghosh	Outreach Programme, IIT Madras	Jadvpur University and RKM, Narendrapur	4 March 2016
49	Sundargopal Ghosh	Outreach Programme, IIT Madras	University of Burdwan, West Bengal	9 March 2016
50	R. Dhamodharan	Invited talk to Faculty Association	IIT Jodhpur	11 March 2016
51	Ramesh Gardas	Outreach Programme, IIT Madras	Central University Of Gujarat, Sri Kadi Sarva Vishwa Vidhyalaya Nirma University and L.D. Engineering College, Ahmedabad	10 March 2016
52	Ramesh Gardas	Outreach Programme, IIT Madras	S.V. NIT Surat, Veer Narmad South Gujarat University, Sarvajanik College of Engineering and Technological Institute, Surat	11 March 2016
53	Beeraiah Baire	Outreach Programme, IIT Madras	Central University of Gujarat, Sri Kadi Sarva Vishwa Vidhyalaya, Nirma University and L.D. Engineering College, Ahmedabad	10 March 2016
54	Beeraiah Baire	Outreach Programme, IIT Madras	S.V. NIT Surat, Veer Narmad South Gujarat University and Sarvajanik College of Engineering and Technological Institute, Surat	11 March 2016
55	Ramesh Gardas	Ph.D. viva voce	North Maharashtra University, Jalgaon	12 March 2016
56	M.V. Sangaranarayanan	Ph.D. viva voce	IGCAR, Kalpakkam	5 April 2016
57	M.V. Sangaranarayanan	Ph.D. viva voce	Visveswarayya Technology University, Bangalore	12 April 2016
Worksh	iops			
1	Edamana Prasad	Faculty Development and Education Technology	IIT (BHU) Varanasi	30–31 March 2015
Semina	rs			
1	K.M. Muraleedharan	Organic Synthesis	St. Joseph's College, Irinjalakkuda, Thrissur, Kerala	28–29 January 2016
2	K.M. Muraleedharan	Green Strategies and Technologies	Postgraduate and Research Department of Chemistry, St. Joseph's College, Devagiri, Calicut	18–19 February 2016
Sympos	sia			
1	T. Pradeep	Monolayer Protected Clusters 2015	Fuji area, Japan	13–16 July 2015

Sl. No.	Faculty Member	Course/Workshop/Seminar/ Conference/Training Programme	Institution	Period
Confer	ences			
1	Nandita Madhavan	Kaleidoscope – A Discussion Meeting	International Convention Centre, Goa	2–5 July 2015
2	Nandita Madhavan	5th Indian Peptide Symposium	JNCASR, Bengaluru	24–25 September 2015
3	K.M. Muraleedharan	MedChem India 2015 Conference	Select Biosciences India at Hotel Radisson Hitec City, Hyderabad	10–11 September 2015
4	K.M. Muraleedharan	Drug Discovery and Development: Global Scenario— Indian Perspective	NIPER, Hyderabad	20–21 November 2015

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	T. Pradeep	Mass Spectrometric Imaging of Living Objects, AgriNANO-2015	Institute of Frontier Technology, Regional Agricultural Research Station, Tirupati	11 March 2015
2	T. Pradeep	On the Birth of Metals: Thrust Areas in Chemistry	Government Arts College, Nandanam, Chennai	12 March 2015
3	T. Pradeep	Understanding Cancer Therapy Using Mass Spectrometry and Single Particle Plasmonics	Kovai Medical Center and Hospital	25 April 2015
4	T. Pradeep	Safe Water Through Advanced Materials	CII-UNICEF CSR Conference and Exhibition on Swachh Bharat Abhiyan, Chennai	12 May 2015
5	U.V. Varadaraju	Redox Flow Batteries	RGUKT, Nuzvid	29 June to 1 July 2015
6	Nandita Madhavan	Kaleidoscope: A Discussion Meeting in Chemistry 2015	The International Centre, Goa	2–5 July 2015
7	N. Chandrakumar	Lecture	Symposium on Recent Advances in NMR Spectroscopy, MRI-MRS Centre, IISc, Bengaluru	16–17 July 2015
8	G. Sekar	Oral presentation	Trichy	23–25 July 2015
9	Archita Patnaik	Oral presentation	Coimbatore	7 August 2015
10	S. Sankararaman	Paper presentation	Chemical Frontiers 2015 Conference, Goa	15–18 August 2015
11	K. Mangala Sunder	Special lectures on MOOC programme in India and elsewhere	UGC Staff College, Gujarat, Vallabh Vidhya Nagar, Ahmedabad	19 August 2015
12	G. Ranga Rao	Plenary Lecture in RAICS-2015	MNIT, Jaipur	20–21 August 2015
13	T. Pradeep	Chemistry of Noble Metal Clusters	Prof. S.V. Anantakrishnan Memorial Lecture, MCC, Chennai	28 August 2015
14	T. Pradeep	Chemistry of Nano Molecules	Stella Maris College, Chennai	7 September 2015
15	Nandita Madhavan	Small can Be Big: Mimicking Protein Function Using Small Peptides	TIFR, Mumbai ASET Colloquium	6 November 2015
16	K.M. Muraleedharan	Select Biosciences Conference 2015	Hyderabad	11 September 2015
17	P. Anbarasan	Lecture	VELS University, Chennai	21 September 2015
18	N. Chandrakumar	Talk at INSPIRE Camp	MRI-MRS Centre (Chemistry)	9 October 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
19	T. Pradeep	Affordable Clean Water Using Nanomaterials	Indian Institute of Toxicology Research, Lucknow	13 October 2015
20	N. Chandrakumar	Talk at INSPIRE Camp	MRI-MRS Centre (Chemistry)	15 October 2015
21	K.M. Muraleedharan	Drug Discovery and Development: Global Scenario—Indian Perspective	NIPER, Hyderabad	20–21 November 2015
22	Sundargopal Ghosh	National Conference on Contemporary Development in Chemical Sciences (CDCS-15)	Tezpur University	23–24 November 2015
23	Dillip Kumar Chand	Two's Company, Three's Crowd?	IMMT (CSIR), Bhubaneswar	22 December 2015
24	Indrapal Singh Aidhen	Lecture at CARBO-XXX	Pondicherry University, Pondicherry	29 December 2015
25	Dillip Kumar Chand	29th Annual Conference of Orissa Chemical Society and National Seminar on Recent Advances in Materials Science for Sustainable Energy and Environment	IGIT, Sarang	24–25 December 2015
26	Ramesh Gardas	10th National Conference on Thermodynamics of Pharmaceutical, Chemical and Biological Systems (TPCB-2015)	Punjab University, Chandigarh	20–21 November 2015
27	Ramesh Gardas	National Conference on Ionic Liquids for Clean Energy and Environment (ILCEE 2015)	CSIR—National Chemical Laboratory, Pune	16–17 December 2015
28	Ramesh Gardas	XXXIV Annual Conference Indian Council of Chemists	Uka Tarsadia University, Gujarat	26–28 December 2015
29	Ramesh Gardas	The Potential Applications of Ionic Liquids (UGC-sponsored state-level seminar)	P.T. Sarvajanik College of Science, Surat, Gujarat	28 December 2015
30	Ramesh Gardas	Ionic Liquids: Introduction, Properties and Applications	Department of Chemistry, Veer Narmad South Gujarat University, Surat, Gujarat	31 December 2015
31	P. Venkatakrishnan	Indo–French Workshop on Solid-State Materials	SSCU, IISc, Bangalore	18 January 2016
32	U.V. Varadaraju	Fourth Joint Indo-French Meeting of the Associated International Laboratory of Solid State Chemistry	IISc, Bangalore	20 January 2016
33	Ramesh Gardas	Regulating the Physico-chemical Properties of Ionic Liquids for Various Applications at International Symposium on Application of Ionic Liquids (ISOIL 2016)	IICT, Mumbai	21–22 January 2016
34	K.M. Muraleedharan	Organic Synthesis	St. Joseph's College, Irinjalakkuda, Thrissur, Kerala	29 January 2016
35	U.V. Varadaraju	Energy Storage and Conversion (invited talk)	RGUKT-APIIIT	8–10 February 2016
36	N. Chandrakumar	DNP-Enhanced NMR Spectroscopy and Imaging at Low and Moderate Fields	Kharagpur	17–20 February 2016
37	K.M. Muraleedharan	Green Strategies and Technologies	Devagiri College, Calicut	19 February 2016
38	S. Sankararaman	Carbonylative Sonogashira Coupling— Aldol Condensation Cascade Towards Synthesis of Novel Coumarin	Lucknow	21–24 February 2016
39	P. Anbarasan	Metal Catalyzed Trifluoromethyl(thiol) ations using CF3TMS	Madurai Kamaraj University	19 February 2016

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
40	Indrapal Singh Aidhen	Amorfrutin and Dapagliflozin Inspired Chemistry	Indian Institute of Integrative Medicine, Jammu	26 February 2016
41	P. Selvam	Catalysis by Nanostructured Materials	Loyola College, Chennai	2 March 2016
42	Arnab Rit	National Symposium on Emerging Trends in Chemistry (ETC-2016)	North-Eastern Hill University, Shillong	28–29 March 2016
43	M.V. Sangaranarayanan	National Convention of Electrochemists (NCE-19)	NIT Trichy	28 March 2016
44	R. Kothandaraman	NCE-19	NIT Trichy	28 March 2016
45	P. Anbarasan	Invited lecture	Karpagam University, Coimbatore	6 April 2016
46	Indrapal Singh Aidhen	Twenty Years at IIT Madras: Synthetic Pursuits from WA to Natural Product Synthesis (Prof. S. Swaminathan Endowment Award Lecture)	University of Madras, Chennai	7 April 2016
47	Sundargopal Ghosh	Oral presentation	Indore	14 April 2016
48	Archita Patnaik	Oral presentation	Varanasi	8–9 April 2016

Visits abroad by faculty members

SI. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	T. Pradeep	Tsukuba, Japan	18 March 2015	Brief visit	_
2	P. Selvam	University of Geneva	27 May to 7 June 2015	Brief visit	_
3	P. Selvam	Dubendorf, Zurich, Switzerland	9 June 2015	Brief visit	_
4	T. Pradeep	Toronto, Canada	15–17 June 2015	Brief visit	_
5	T. Pradeep	University of Alberta, Edmonton	18–21 June 2015	Brief visit	_
6	T. Pradeep	Calgary, Canada	22-23 June2015	Brief visit	_
7	Mangala Sunder K.	Chicago, Vancouver (Canada) and Edmonton (Canada)	20 June to 12 July 2015	Oral presentation	_
8	P. Selvam	University of Manchester, UK	15–18 July 2015	Research workshop on catalysis	_
9	P. Selvam	Cardiff, UK	20–27 July 2015	Oral presentation titled 'Oxidation of Glycerol Over Size- and Shape- Controlled Nanogold'	_
10	P. Anbarasan	Manchester, UK	15-17 July 2015	Research work	_
11	Edamana Prasad	Montreal, Canada	12–17 July 2015	Oral presentation titled 'Fascinating Material Properties from Dendritic Structures'	_
12	T. Pradeep	University of Tokyo, Japan	13–16 July 2015	Brief visit: ISMPC 15 Symposium	_
13	T. Pradeep	Johannesburg, South Africa, and Gaborone, South Africa, Botswana	3–5 August 2015	Oral presentation titled 'Affordable Clean Water Using Nanomaterials, Emerging Frontiers for Sustainable Water—A Trilateral Partnership	_
14	T. Pradeep	BITRI, Gaborone	6 August 2015	Plenary lecture titled 'Affordable Clean Water Using Nanomaterials'	_

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
15	T. Pradeep	Boston, USA	17 August 2015	Oral presentation at 250th National Meeting and Exposition	_
16	T. Pradeep	Purdue University, USA	19 August 2015	Oral presentation titled 'Chemistry of Noble Metal Clusters'	_
17	P. Selvam	Zelinsky Institute of Organic Chemistry, Moscow, Russia	26–28 August 2015	Brief visit	-
18	P. Selvam	Kazan, Russia	30 August 2015 to 4 September 2015	XII European Congress on Catalysis	_
19	P. Selvam	Catania, Sicily, Italy	6–11 September 2015	Third International Conference on Catalysis for Renewable Sources: Fuel, Energy, Chemicals (CRS-3)	_
20	B. Rajakumar	University of Sydney, Australia	29 September 2015 to 2 October 2015	Fifth Asian Spectroscopy Conference (ASC5)	_
21	Nandita Madhavan	Tutzing, Germany	20–23 October 2015	Indo-German conference	-
22	T. Pradeep	Jordan	17 October 2015	IWA Development Congress (plenary lecture titled 'Affordable Clean Water Using Nanomaterials')	_
23	P. Selvam	Sendai, Japan	27–30 October 2015	International Symposium 2015: Global/Local Innovations for Next Generation Automobiles	_
24	T. Pradeep	International Toxicology Conclave, Indian Institute of Toxicology Research, Lucknow	5 November 2015	Extraction of Silver by Glucose	_
25	T. Pradeep	Bonn, Germany	22–23 November 2015	IGSTC Scientific Committee meeting	-
26	T. Pradeep	Madikeri	16–29 November 2015	'Clean Water and Materials', Indian Academy of Sciences refresher course	_
27	T. Pradeep	Institute for Nanotechnology, Karlsruhe Institute of Technology, Karlsruhe, Germany	24 November 2015	Chemistry of Atomically Precise Clusters of Noble Metals	_
28	T. Pradeep	University of Tokyo, Japan	2–9 December 2015	JSPS-DST Asian Academic Seminar 2015	_
29	Sundargopal Ghosh	Honolulu, Hawaii, USA	15–20 December 2015	PacifiChem 2015 (symposium)	-
30	Selvam P.	London, UK	4–8 April 2016	A Novel Acid- Mediated Synthesis of Ordered Mesoporous Aluminosilicate	-
31	K. Mangala Sunder	Open University Malaysia (OUM), Kuala Lumpur, Malaysia	2–3 May 2016	Quality Assurance and Accreditation of Massive Open Online Courses (MOOCs)	_

Honou	Honours and awards obtained by faculty members					
Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date	
Honou	ırs					
1	Archita Patnaik	Core Member, Young Scientist and National Postdoctoral Scheme Expert Committee in Chemical Sciences, SERB	Department of Science and Technology (DST), India	2015–2018	16 August 2015	
2	Archita Patnaik	Core Member, Women Scientist Programme (WOS-A)—Expert Committee in Chemical Sciences	DST	2013–2015	10 April 2013	
3	Archita Patnaik	Selection Committee Member	IIT (BHU), Varanasi	2015	13–14 April 2015	
4	Archita Patnaik	Selection Committee Member	Faculty Recruitment at VIT, Vellore	2015	15 September 2015	
5	T. Pradeep	Elected as a Fellow	The Indian National Science Academy (INSA), New Delhi	2016	2016	
6	T. Pradeep	Elected as a Fellow	The National Academy of Sciences, India (Allahabad)	2015	2015	
7	M.V. Sangaranarayanan	President (for a period of two years)	Society for the Advancement of Electrochemical Science and Technology (SAEST), India	_	September 2015	
8	Ramesh L. Gardas	Elected as Joint Secretary for the period 2016–2018	The Indian Thermodynamics Society	_	January 2016	
Award	s					
1	Archita Patnaik	Keshav Ranganath Excellence in Research Award	IIT Madras	2015	2015	
2	Ramesh Gardas	Junior-Level Research and Development Award	IIT Madras	_	17 April 2015	
3	T. Pradeep	J.C. Bose National Fellowship	_	_	2015	
4	T. Pradeep	Appointed a graduate faculty member, Purdue University	_	_	-	
5	T. Pradeep	Life Time Achievement Research Award of IIT Madras and Designated an 'Institute Professor'	IIT Madras	_	2015	
6	Indrapal Singh Aidhen	Excellence in Carbohydrate Research Award	The Association of Carbohydrate Chemists and Technologists—India (ACCT(I))	_	January 2015	
7	P. Anbarasan	INSA Medal For Young Scientists 2015	INSA	_	July 2015	
8	P. Anbarasan	Associate Member of IAS	Indian Academy of Science, Bengaluru	_	July 2015	
9	P. Selvam	Rev. Fr. Yeddanapalli Memorial Endowment Award for 2016	Loyola College, Chennai	_	2016	
10	Arnab Rit	INSPIRE Faculty Award	DST	_	February 2016	

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date
11	Indrapal Singh Aidhen	S. Swaminathan Endowment Lecture Award	University of Madras, Chennai	_	April 2016
12	P. Anbarasan	Junior-Level Research and Development Award (IRDA) (2015–2016)	IIT Madras	_	April 2016

Books, monographs authored/co-authored

Sl. No.	Title	Publisher	Author/Co-author
1	Aromatic Compounds Via Pericyclic Reactions in Arene Chemistry (in Reaction Mechanisms and Methods in Aromatic Compounds, edited by	Wiley	S. Sankararaman
	J. Mortier)		

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	S. Baskaran	Associate Editor (January 2015 to December 2017)	Journal of Chemical Sciences
2	T. Pradeep	Member	Scientific Reports (Nature Group)
3	T. Pradeep	Member	International Journal of Water and Wastewater Treatment

4.5.4. Design and Development Activities

Patents applied for

- On-line Water Purifier for Hand Pumps, design application, application no. 271059, 6 April 2015
- Method for Co-localization of Plasmonic Nanoparticles and Biomolecules with Plasmonic and Raman Scattering Microspectroscopy, T. Pradeep and Kamalesh Choudhari, 1864/CHE/2015, 9 April 2015
- Cellulose Derived Graphenic Fibers for Capacitive Desalination of Brackish Water and Preparation Method of the Electrode Thereof, T. Pradeep, N. Pugazhenthiran, Soujit Sen Gupta, Anupama Prabhath and J.R. Swathy, 3951/CHE/2015, 31 July 2015
- Methods of Making Alloys of Precise Composition in Solution by Inter-cluster Reactions in Solution, T. Pradeep, K.R. Krishnadas, Atanu Ghosh, Ananya Baksi, Indranath Chakrabarti and Ganapathy Natarajan, filed on 14 December 2015
- Method for Preparing Crossed bilayer Assembly of 1D Nanowires Using Atomically Precise Clusters, T. Pradeep, Anirban Som, Indranath Chakraborty, Tuhina Adit Maark and Shridevi Bhat, filed on 28 December 2015
- Composition for Sustained Release of Carbonate and a Water Purification Device Based on the Same with Enhanced Biocidal Activity, T. Pradeep, Swathy J.R. and Nalendhiran Pugazhenthiran, filed on 29 December 2015

4.5.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	2D Surface Confined Organometallic Nano-hybrids: Synthesis, Molecular Assembly and Charge Transfer	2015–2018	CSIR, New Delhi	6.0	Archita Patnaik
2	2D/3D Molecular Patterns over Broad Length Scales: Versatility in Molecular Synthesis, Chemistry at Interfaces and Applications	2016–2018	DST-JSPS, Indo–Japan Council	Two travels from each side per year along with local hospitality at both ends	Archita Patnaik and Takashi Nakanishi

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
3	Analysis of Chemically Modified Electrodes for Sensing Applications	1 March 2015 to 28 February 2018	CSIR	3.0	M.V. Sangaranarayanan
4	Electrochemical Synthesis at Liquid/Liquid Interfaces and Applications	9 January 2013 to 8 January 2016	DST	42.6	M.V. Sangaranarayanan
5	DST Project	Ends in December 2016	CHY/13-14/306/DSTX/ AKMI	_	A.K. Mishra
6	IIT Madras project (IC&SR)	Ends in July 2016 but may be extended by 2 months	CHY/15-16/835/RFRI/ AKMI	_	A.K. Mishra
7	IGSTC (Indo–German project)	2016–2019	Project number yet to be sanctioned	_	A.K. Mishra

Research publications of the faculty members and research scholars

Papers published in refereed national journals: 3
Papers published in refereed international journals: 68

Papers presented at national conferences: 6
Papers presented at international conferences: 17

Papers published in refereed national journals

- 1. P. Bhyrappa and V. Velkannan. 2015. Synthesis of antipodal β-trisubstituted *meso*-tetraphenylporphyrins and the crystal structure of hexaphenylporphinatozinc (II) bispyridinate complex. *Journal of Chemical Sciences* 127: 663–670.
- 2. P. Bhyrappa and K. Karunanithi. 2016. Crystal structures of *meso*-tetrakis (2',6'/3',5"-difluorophenyl) porphyrins and their metal complexes: Influence of position of the fluoro groups on their structural properties. *Journal of Chemical Sciences* 128: 501–509.
- 3. Aidhen, I.S., Harikrishna K., Sivaraman B. and Ananya R. 2015. Some interesting 1H NMR features of ortho substituted N-methoxy-N-methyl benzamides. *Indian Journal of Chemistry: Section B—Organic Chemistry Including Medicinal Chemistry* 54B(1): 77–83.

Papers published in refereed international journals

- 1. P. Bhyrappa and V. Velkannan. 2015. Unsymmetrically mixed β-octasubstituted *meso*-tetraphenylporphyrins: Structural and electrochemical redox properties. *Polyhedron* 87: 170–179.
- 2. P. Bhyrappa, U.K. Sarangi and B. Varghese. 2015. Mixed β-pyrrole substituted *meso*-tetraphenylporphyrins and their metal complexes: Synthesis, structures and electrochemical redox properties. *Inorganica Chimica Acta* 426: 171–182.
- 3. P. Bhyrappa and K. Karunanithi. 2015. Structural elucidation of a few electron-deficient porphyrin/fullerene cocrystallates: Influence of fullerene on the porphyrin ring conformation. *Inorganica Chimica Acta* 427: 51.
- 4. Archita Patnaik and Nivarthi Ramesh. 2016. Iso-oriented fluorescent colloidal nanocrystals of bis-cyanostyryl thiophenes: Crucial secondary halogen interactions toward stability and transport. *The Journal of Physical Chemistry C* 120: 1909–1917.
- 5. M.V. Sangaranarayanan and Sivasubramanian. 2015. A facile formation of silver dendrites on indium tin oxide electrodes using electrodeposition and amperometric sensing of hydrazine. *Sensors and Actuators B* 213: 92–101.
- 6. M.V. Sangaranarayanan, K. Saravanakumar and L. Rajendran. 2015. Current-potential response and concentration profiles of redox polymer mediated enzyme catalysis in biofuel cells: Estimation of Michaelis-Menten constants. *Chemical Physics Letters* 621: 117–123.
- 7. M.V. Sangaranarayanan and Ashis Das. 2015. Electroanalytical sensor based on unmodified screen printed carbon electrodes for the determination of levothyroxine. *Electroanalysis* 27: 360–367.
- 8. M.V. Sangaranarayanan and V. Divya. 2015. Nanomaterials at liquid/liquid interfaces: A review. *Journal of Nanoscience and Nanotechnology* 15: 6863–6882.
- 9. M.V. Sangaranarayanan and Subrata Mondal. 2015. A novel rapid synthetic protocol for controllable sizes, conductivities and monomer units of soluble polypyrrole. *European Polymer Journal* 71: 596–611.

- 10. M.V. Sangaranarayanan, Debranjan Mandal, Subrata Mondal, Dulal Senapati, Biswarup Satpati and M.V. Sangaranarayanan. 2015. Charge-density modulated shape-dependent electrocatalytic activity of gold nanoparticles for oxidation of ascorbic acid. *The Journal of Physical Chemistry C* 119: 23103–23112.
- 11. M.V. Sangaranarayanan and Silpaja Chandrasekar. 2016. Exact enumeration of conformations for two and three dimensional lattice proteins. *Computer Physics Communications* 190: 8–11.
- 12. M.V. Sangaranarayanan and N. Aravindan. 2016. Influence of solvent composition on the anti-corrosion performance of copper-polypyrrole coated stainless steel. *Progress in Organic Coatings* 95: 38–45.
- 13. M.V. Sangaranarayanan, N. Aravindan and M. Kanagaraj. 2016. Tuning the magnetic and structural properties of nickel-polypyrrole composites through moderate stirring. *Materials Chemistry and Physics* 174: 6–10.
- 14. Madhavan N. and Potnuru M. 2016. Robust carboxylated polymer pores from a cyclic peptide template. *Polymer Chemistry* 7: 31–35.
- 15. Madhavan N., Rajeev A., Erapalapati V and Basavaraj M.G. 2016. Conversion of expanded polystyrene waste to nanoparticles via nanoprecipitation. *Journal of Applied Polymer Science* 133: 42904.
- Madhavan N. and Naganna N. 2015. An improved soluble polynorbornene support for peptide synthesis. RSC Advances 5: 93027.
- 17. Madhavan N. and Erapalapati V. 2015. Versatile soluble oligomeric styrene supports for peptide synthesis. *Journal of Polymer Science Part A: Polymer Chemistry* 53: 2501.
- 18. Madhavan N., Behera H. and Ramkumar V. 2015. Cation transporting peptides: Scaffolds for functionalized pores. *Chemistry: A European Journal* 21: 10179–10184.
- 19. Madhavan N. and Benke B.P. 2015. Aminobenzoic acid incorporated octapeptides for cation transport. *Bioorganic & Medicinal Chemistry* 23: 1413–1420.
- 20. Ashok Kumar Mishra and Vikram Singh. 2016. White light emission from a mixture of pomegranate extract and carbon nanoparticles obtained from the extract. *Journal of Materials Chemistry C* 4: 3131–3137. doi:10.1039/C6TC00480F
- 21. Ashok Kumar Mishra, Ivy Sarkar, A. Hemamalini and Thangamuthu Mohan Das. 2016. Introduction of an α,β-unsaturated carbonyl conjugated pyrene–lactose hybrid as a fluorescent molecular probe for microscale anisotropic media. *RSC Advances* 6: 27933–27943. doi:10.1039/C5RA26146E
- 22. Ashok Kumar Mishra and John Prakash. 2016. Convenient determination of luminescence quantum yield using a combined electronic absorption and emission spectrometer. *Review of Scientific Instruments* 87: 13110. doi:10.1063/1.4940234
- 23. Ashok Kumar Mishra, Madhumita Tarai and Keshav Kumar. 2016. Study on the miscibility behavior of diesel–*n*-butanol–ethanol blends and fluorimetric estimation of diesel fraction. *Energy Fuels* 30: 1096–1102. doi:10.1021/acs.energyfuels.5b02619
- 24. Ashok Kumar Mishra and Vikram Singh. 2016. Green and cost-effective fluorescent carbon nanoparticles for the selective and sensitive detection of iron(III) ions in aqueous solution: Mechanistic insights and cell line imaging studies. *Sensors and Actuators B* 227: 467–474. doi:10.1016/j.snb.2015.12.071
- Ashok Kumar Mishra, Ivy Sarkar, H. Surya Prakash Rao and Avinash Desai. 2015. Utilizing an aggregate forming microenvironment sensitive coumarin–cholesterol conjugate as a sensor of pluronic organization and micro-polarity. RSC. Advances 5: 97279–97288. doi:10.1039/C5RA16549K
- 26. Ashok Kumar Mishra and Keshav Kumar. 2015. Understanding the effect of calibration set design for the application of MCR-ALS analysis on excitation–emission matrix fluorescence (EEMF) data sets under commonly used non-negativity constraints. *Chemometrics and Intelligent Laboratory Systems* 149: 70–77. doi:10.1016/j.chemolab.2015.10.002
- 27. Ashok Kumar Mishra and Vikram Singh. 2015. White light emission from an aqueous vegetable cocktail: Application towards pH sensing. *Dyes and Pigments* 125: 362–366. doi:10.1016/j.dyepig.2015.10.017
- 28. Ashok Kumar Mishra, Alok Kumar Tripathi and M. Mohapatra. 2015. Fluorescence of N-acylated dansylamide with a long hydrophobic tail: Sensitive response to premicellar aggregation of sodium deoxycholate. *Physical Chemistry Chemical Physics* 17: 29985–29994. doi:10.1039/C5CP04263A
- Ashok Kumar Mishra, Avik Kumar Pati and Santosh J. Gharpure. 2015. Contrasting solid-state fluorescence
 of diynes with small and large aryl substituents: Crystal packing dependence and stimuli-responsive fluorescence switching. The Journal of Physical Chemistry A 119: 10481–10493. doi:10.1021/acs.jpca.5b08445
- 30. Ashok Kumar Mishra and Jitendriya Swain. 2015. Location, partitioning behavior, and interaction of capsaicin with lipid bilayer membrane: Study using its intrinsic fluorescence. *The Journal of Physical Chemistry B* 119: 12086–12093. doi:10.1021/acs.jpcb.5b05351
- 31. Ashok Kumar Mishra and Keshav Kumar. 2015. Application of partial least square (PLS) analysis on fluorescence data of 8-anilinonaphthalene-1-sulfonic acid, a polarity dye, for monitoring water adulteration in ethanol fuel. *Journal of Fluorescence* 25: 1055–1061.

- 32. Ashok Kumar Mishra and Keshav Kumar. 2015. Parallel factor (PARAFAC) analysis on total synchronous fluorescence spectroscopy (TSFS) data sets in excitation–emission matrix fluorescence (EEMF) layout: Certain practical aspects. *Chemometrics and Intelligent Laboratory Systems* 147: 121–130. doi:10.1016/j. chemolab.2015.08.008
- 33. Ashok Kumar Mishra, Ivy Sarkar, Hema Malini and Thangamuthu Mohan Das. 2015. Synthesis and evaluation of a glucose attached pyrene, as a fluorescent molecular probe in sugar and non-sugar based micro-heterogeneous media. *RSC Advances* 5: 64604–64613. doi:10.1039/C5RA11481K
- 34. Ashok Kumar Mishra and Vikram Singh. 2015. White light emission from vegetable extracts. *Scientific Reports* 5: 11118. doi:10.1038/srep11118
- 35. Ashok Kumar Mishra and Jitendriya Swain. 2015. 1-Naphthol as an ESPT fluorescent molecular probe for sensing thermotropic microenvironmental changes of pluronic F127 in aqueous media. *Physical Chemistry Chemical Physics* 17: 16752–16759. doi:10.1039/C5CP01833A
- 36. S. Sankararaman, B. Sureshbabu and V. Ramkumar. 2015–2016. A mild and efficient method for the synthesis of structurally diverse 1,2,3-triazolylidene palladium(II) diiodo complexes: Comparison of catalytic activities for Suzuki–Miyaura coupling. *Journal of Organometallic Chemistry* 799–800: 232–238.
- 37. S. Sankararaman, A. Mohan and V. Ramkumar. 2015–2016. Synthesis and structures of (-) menthyl and (+) neomenthyl substituted enantio pure bis(1,2,3-triazol-5-ylidene)PdI₂ complexes and PEPPSI type (1,2,3-triazol-5-ylidene) (pyridine) PdI₂ complexes: Comparison of catalytic activities for C–C coupling. *Journal of Organometallic Chemistry* 799–801:115–121.
- 38. S. Sankararaman, A. Dasgupta and V. Ramkumar. 2015. Catalytic asymmetric hydrogenation using a [2.2] paracyclophane based chiral 1,2,3-triazol-5-ylidene–Pd complex under ambient conditions and 1 atmosphere of H₂. RSC Advances 5: 21558–21561.
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- 40. Aidhen I.S., Sudarshan K. and Manna M.K. 2015. Synthesis of 3-arylisocoumarins by using acyl anion chemistry and synthesis of thunberginol A and cajanolactone A. *European Journal of Organic Chemistry* 2015(8): 1797–1803.
- 41. K.M. Muraleedharan and Bhartendu K. Srivastava 2016. Aryl-triazolyl peptides for efficient phase selective gelation and easy removal of dyes from water. *RSC Advances* 6: 29197–29201.
- 42. K.M. Muraleedharan, Napoleon John Victor and Gana Janardhanan. 2015. N-methylpyrrolidone hydroperoxide/Cs₂CO₃ as an excellent reagent system for the hydroxy-directed diastereoselective epoxidation of electron-deficient olefins. *Chemistry: A European Journal* 42: 14742–14747.
- 43. K.M. Muraleedharan and Dhayalan Balamurugan. 2015. Conformational switching in heterochiral $\alpha, \beta^{2,3}$ -hybrid peptides in response to solvent polarity. *European Journal of Organic Chemistry* 24: 5321–5325.
- 44. K.M. Muraleedharan and Dhayalan Balamurugan. 2015. Can helical peptides unwind one turn at a time? Controlled conformational transitions in α,β^{2,3}-hybrid peptides. *Chemistry: A European Journal* 21: 9332–9338. doi:10.1021/acs.jpcb.5b05351
- 45. T. Pradeep, K.R. Krishnadas, Atanu Ghosh, Ananya Baksi, Indranath Chakraborty and Ganapati Natarajan. 2015. Inter-cluster reactions between Au25(SR)18 and Ag44(SR)30. *Journal of the American Chemical Society* 138: 140–148. doi:0.1021/jacs.5b09401
- 46. T. Pradeep, Rudra Kumar, Soujit Sen Gupta, Shishir Katiyar, V. Kalyan Raman, Siva Kumar Varigala and Ashutosh Sharma. 2016. Carbon aerogels through organo–inorganic co-assembly and their application in water desalination by capacitive deionization. *Carbon* 99: 375–383. doi:0.1016/j.carbon.2015.12.004
- 47. T. Pradeep, Depanjan Sarkar, M.K. Mahitha, Anirban Som, Anyin Li, Michael Wleklinski and R.G. Cooks. 2015. Metallic nanobrushes made using ambient droplet sprays. *Advanced Materials* 28: 2223–2228. doi:10.1002/adma.201505127 (in press)
- 48. T. Pradeep, K.D.M. Rao, Abhay A. Sagade, Robin John, T. Pradeep and G.U. Kulkarni. 2015. Defining switching efficiency of multi-level resistive memory with PdO as example. *Advanced Electronic Materials* 2. doi:10.1002/aelm.201500286 (in press)
- 49. T. Pradeep and Soujit Sen Gupta. 2015. A profile of heavy metals in rice (*Oryza sativa* ssp. *indica*) landraces, Debal Deb. *Current Science* 109: 407–409.
- 50. T. Pradeep, Gaurab Saha, Shihabudheen M. Maliyekkal and P.C. Sabumon. 2015. A low cost approach to synthesize sand like AlOOH nanoarchitecture (SANA) and its application in defluoridation of water. *Journal of Environmental Chemical Engineering* 3: 1303–1311. doi:10.1016/j.jece.2014.11.030
- 51. T. Pradeep, Ganapati Natarajan, Ammu Mathew, Yuichi Negishi and Robert L. Whetten. 2015. A unified framework for understanding the structure and modifications of atomically precise monolayer protected gold clusters. *The Journal of Physical Chemistry C* 119: 27768–27785. doi:10.1021/acs.jpcc.5b08193

- 52. T. Pradeep, Rahul Narayanan, Depanjan Sarkar, Anirban Som, Michael Wleklinski and R.G. Cooks. 2015. Anisotropic molecular ionization at 1 V from tellurium nanowires (Te NWs). *Analytical Chemistry* 87: 10792–10798. doi:10.1021/acs.analchem.5b01596
- 53. T. Pradeep, Nalenthiran Pugazhenthiran, Soujit Sen Gupta, Anupama Prabhath, Muthu Manikandan, Jakka Ravindran Swathy and V. Kalyan Raman. 2015. Cellulose derived graphenic fibers for capacitive desalination of brackish water. ACS Applied Materials & Interfaces 7: 20156–20163. doi:10.1021/acsami.5b05510
- 54. T. Pradeep, Ammu Mathew, Elizabeth Varghese, Susobhan Choudhury and Samir Kumar Pal. 2015. Efficient red luminescence from organic-soluble Au25 clusters by ligand structure modification. *Nanoscale* 7: 14305–14315. doi:10.1039/C5NR03457D
- T. Pradeep, R.G. Cooks, Michael Wleklinski, Depanjan Sarkar and Adam Hollerbach. 2015. Ambient preparation and reactions of gas phase silver cluster cations and anions. *Physical Chemistry Chemical Physics* 17: 18364–18373. doi:10.1039/C5CP01538C
- 56. T. Pradeep, R.G. Cooks, Depanjan Sarkar, Rahul Narayanan, Michae Wleklinski, Yafeng Li and Soumabha Bag. 2015. Zero volt paper spray ionization and its mechanism. *Analytical Chemistry* 87: 6786–6793. doi:10.1021/acs.analchem.5b01225
- 57. T. Pradeep, R.G. Hemalatha, Hemanta R. Naik and Vasundhara Mariappa. 2015. Rapid detection of fusarium wilt in basil (*Ocimum* sp.) leaves by desorption electrospray ionization mass spectrometry (DESI MS) imaging. *RSC Advances* 5: 50512–50522. doi:10.1039/c4ra16706f
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- 59. Haiwon Lee and T. Pradeep. 2015. Noble metal clusters protected with mixed proteins exhibit intense photoluminescence. *RSC Advances* 5: 48039–48045. doi:10.1039/c5ra06964e
- 60. Sarit K. Das, T. Pradeep, Soujit Sen Gupta, Indranath Chakraborty, Shihabudheen M. Maliyekkal, Tuhina A. Maark and Dheeraj K. Pandey. 2015. Simultaneous dehalogenation and removal of persistent halocarbon pesticides from water using graphene nanocomposites: A case study of lindane. *ACS Sustainable Chemistry & Engineering* 3: 1155–1163. doi:10.1021/acssuschemeng.5b00080
- 61. T. Pradeep, Radha Gobinda Bhuin, Rabin Rajan J. Methikkalam and Bhalamurugan Sivaraman. 2015. Interaction of acetonitrile with water-ice: An infrared spectroscopic study. *The Journal of Physical Chemistry C* 119: 11524–11532. doi:10.1021/jp512607v
- 62. T. Pradeep, Pulickel M. Ajayan, Mohamad A. Kabbani, Chandra Sekhar Tiwary, Pedro A.S. Autreto, Gustavo Brunetto, Anirban Som, K.R. Krishnadas, Sehmus Ozden, Ken Hackenberg, Yongi Gong, Douglas S. Galvao, Robert Vajtai and Ahmad T. Kabbani. 2015. Ambient solid-state mechano-chemical reactions between functionalized carbon nanotubes. *Nature Communications* 6: 7291. doi:10.1038/ncomms8231
- 63. T. Pradeep and Kamalesh Chaudhari. 2015. Initial growth kinetics of luminescent quantum clusters of silver within albumin family protein templates. *The Journal of Physical Chemistry C* 119: 9988–9994. doi:10.1021/acs.jpcc.5b00496
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- 68. T. Pradeep, B. Subramaniam, D.T. Allen, B.J. Hwang and P. Licence. 2015. Advancing the use of sustainability metrics. *ACS Sustainable Chemistry & Engineering* 3: 2359–2360. doi:10.1021/acssuschemeng.5b01026

Papers presented at national conferences

 Sanjeeb Sutradhar and Archita Patnaik. Non-enzymatic glucose sensor based on fullerene-C₆₀ mediated gold nanocomposite. *Materials Research Society of India (MRSI) Symposium and 27th Annual General Meeting of MRSI, CSIR-NEIST*, Jorhat, India, 2016.

- 2. Nikhil Aggarwal and Archita Patnaik. A new class of nitroanilinic dimer, the PNA O-dimer: Electronic structure and emission characteristics of O-dimeric aggregates. *10th Mid-year Chemical Research Society of India (CRSI) Symposium in Chemistry*, 2015.
- Geevarghese V. Jacob and Archita Patnaik. Intermolecular proton switching coupled electron transfer across nanogold–metal organic molecular wire junction: Insights on irreversible seed-mediated nanoparticle aggregation. 10th Mid-year Chemical Research Society of India (CRSI) Symposium in Chemistry, 2015.
- 4. Santosh Ramdas Borkar, Jitendriya Swain, Indrapal Singh Aidhen and Ashok Kumar Mishra. Synthesis of neutral polar head amphiphiles based on FTY720 scaffold and study of its aqueous phase aggregation. *CARBO-XXX 30th Carbohydrates Conference*, Department of Chemistry, Pondicherry University, 29–31 December 2015.
- 5. Rajeswar Reddy Mannem, Harikrishna Kommidi and Indrapal Singh Aidhen. Design and synthesis of C-linker modified β-glucogallin and aryl ketones β-*C*-glucosides via Weinreb amide functionality. *Chemistry In-house Symposium (CiHS) 2015*, IIT Madras, 12 August 2015.
- 6. Vikram Singh and Ashok Kumar Mishra. FRET mediated cool white light emission from a mixture of pomegranate juice and turmeric extract. *Chemistry In-house Symposium*, IIT Madras, 2015.

Papers presented at international conferences

- 1. Sanjeeb Sutradhar and Archita Patnaik. Tunable intermolecular interaction in N-methylfulleropyrrolidine (8-NMFP) mediated with assembly of gold nanoparticles. *250th ACS National Meeting & Exposition*, 2015.
- 2. Geevarghese V. Jacob and Archita Patnaik. Proton coupled electron transfer through 2,2',6',2"-terpyridine molecular wire between grapheme–gold nanoparticle junction. 250th ACS National Meeting & Exposition, 2015
- 3. Archita Patnaik. Structure and dynamics of H₂O vis-à-vis phenylalanine recognition at a DPPC lipid membrane via interfacial H-bond types. *International Conference on Advances in Micro/Nano Technologies*, PSG Institute of Advanced Studies, 2015.
- 4. Indrapal Singh A., Ramesh Mukkamala, Christopher W. and Sascha. A common building block for the syntheses of amorfrutin and cajaninstilbene acid libraries toward efficient binding with peroxisome proliferator-activated receptors. *16th Tetrahedron Symposium*, Berlin, Germany (poster), 2015.
- 5. Ramesh Mukkamala and Indrapal S. Aidhen. Convenient route for syntheses of non-toxic peroxisome proliferator-activated receptors binding ligands with geranyl group. *Conference-cum-Workshop on Anti-diabetic Drug Discovery and Development*, IIT Madras, 29–30 October 2015.
- 6. Ramesh Mukkamala, Asik Hossain and Indrapal S. Aidhen. New building block towards synthesis of lunularic acid, hydrangeic acid and their analogues. *Conference-cum-Workshop on Anti-diabetic Drug Discovery and Development*, IIT Madras, 2015.
- 7. Kasireddy Sudarshan, Manash Kumar Manna and Indrapal Singh Aidhen. Synthesis of 3-aryl isocoumarins using acyl anion chemistry and synthesis of thunberginol A and cajanolactone. *16th Tetrahedron Symposium*, Berlin, Germany (poster), 16–19 June 2015.
- 8. Vikram Singh and Ashok Kumar Mishra. White light emission from natural plant extracts. *14th Conference on Methods and Applications in Fluorescence*, Wurzburg, Germany, 2015.
- 9. Alok Kumar Tripathi and Ashok K. Mishra. Long hydrophobic tail containing dansylamide as fluorescent probe for organized and micro-heterogeneous media. *14th Conference on Methods and Applications in Fluorescence*, Wurzburg, Germany, 2015.
- 10. Ivy Sarkar and Ashok K. Mishra. Probing of micro-heterogeneity using aggregate forming new fluorescent molecular probe, coumarin-cholesterol (Cum-Chl). *14th Conference on Methods and Applications in Fluorescence*, Wurzburg, Germany, 2015.
- 11. Madhumita Tarai and Ashok K. Mishra. Analysis of diesel–ethanol blends using synchronous fluorescence spectroscopy (SFS) and partial least square (PLS) analysis. *14th Conference on Methods and Applications in Fluorescence*, Wurzburg, Germany, 2015.
- 12. Avik Kumar Pati, Santosh J. Gharpure and Ashok K. Mishra. Insights into the photophysics of butadiynes. *14th Conference on Methods and Applications in Fluorescence*, Wurzburg, Germany, 2015.
- 13. Alok Kumar Tripathi and Ashok K. Mishra. Spectroscopic study on the interaction of ct-DNA with 9-aminoacridine derivative containing a long hydrophobic tail. *Recent Advances in Analytical Sciences (RAAS-2016)*, 2015.
- 14. Madhumita Tarai and Ashok K. Mishra. Quality monitoring of diesel–ethanol blend using combination of total synchronous fluorescence spectroscopy (TSFS) and chemometry. *TSRP-2016*, BARC Mumbai, 2016.
- 15. Vikram Singh and Ashok Kumar Mishra. Vegetable cocktail a green and sustainable source of white light emission. *Trombay Symposium on Radiation & Photochemistry*, BARC, Mumbai, 2016.
- 16. Vikram Singh and Ashok Kumar Mishra. Development of green and cost-effective novel fluorescent sensors for analytical applications. *Recent Advances in Analytical Science*, IIT (BHU) Varanasi, 2016.

17. Ivy Sarkar and Ashok K. Mishra. Spectroscopic evaluation of a pyrene–glucose conjugate in sugar and non-sugar based micro-heterogeneous media. *Trombay Symposium on Radiation & Photochemistry*, BARC, Mumbai, 2016.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. Dean Venables, Department of Chemistry and Environmental Research Institute, University College Cork	27 March 2015	Guest lecture
2	Dr. Amitava Das, Senior Principal Scientist, Organic Chemistry Division, CSIR–NCL, Pune	10 April 2015	Guest lecture
3	Prof. Arumugam Manthiram, University of Texas, Austin, USA	17 April 2015	Guest lecture
4	Dr. Chakrapani Subramanyam, Global Research and Development Center in Groton, Connecticut, USA	9 April 2015	Guest lecture
5	Prof. JF. Halet, University of Rennes, France	28 April 2015	Guest lecture
6	Prof. B.R. Jagirdar, Department of Inorganic and Physical Chemistry, IISc, Bengaluru	22 June 2015	Guest lecture
7	Dr. Dhanya Suresh, Scientific Officer-H, Radiation and Photochemistry Division, BARC, Mumbai	30 June 2015	Guest lecture
8	Dr. V. Chandrasekhar, Director, National Institute of Science Education and Research, Bhubaneshwar	6 July 2015	Guest lecture
9	Prof. Raghavan B. Sunoj, Professor, Department of Chemistry, IIT Bombay	7 July 2015	Guest lecture
10	Prof. V. Thangadurai	27 July 2015	Guest lecture
11	Dr. Dattatri K. Nagesha, Head, Faculty of Life Sciences, JSS University, Mysuru	13 August 2015	Guest lecture
12	Dr. N.N. Namboothiri, Department of Chemistry, IIT Bombay	7 September 2015	Guest lecture
13	Dr. Amit Kumar Samanta, Department of Chemistry, University of Southern California, Los Angeles, California, USA	30 September 2015	Guest lecture
14	Dr. Sanjiv Sambandan, Assistant Professor, Instrumentation and Applied Physics, IISc, Bengaluru	29 October 2015	Guest lecture
15	Prof. Harkesh B. Singh, Department of Chemistry, IIT Bombay	20 November 2015	Guest lecture
16	Prof. George A. O'Doherty, Northeastern University, Boston	23 November 2015	Guest lecture
17	Prof. C.N.R. Rao, National Research Professor, Honorary President and Linus Pauling Research Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru	11 January 2016	Guest lecture
18	Dr. R. Aldrin Denny, Senior Principal Scientist, Pfizer Inc., Worldwide Medicinal Chemistry, Pfizer Global R&D, Cambridge, Massachusetts, USA	12 January 2016	Guest lecture
19	Dr. Madhav Ranganathan, Assistant Professor, Department of Chemistry, IIT Kanpur	27 January 2016	Guest lecture
20	Prof. Anjali Pal, Department of Civil Engineering, IIT Kharagpur	1 February 2016	Guest lecture
21	Dr. Bhalamurugan Sivaraman, Reader, Atomic Molecular and Optical Physics Division, Physical Research Laboratory, Ahmedabad	4 February 2016	Guest lecture
22	Prof. Robin Ras, Soft Matter and Wetting, Department of Applied Physics, Aalto University, Finland	5 February 2016	Guest lecture
23	Prof. Haridas Pal, Radiation and Photochemistry Division, Bhabha Atomic Research Centre, Trombay, Mumbai	29 February 2016	Guest lecture
24	Prof. Prasenjit Ghosh, Department of Chemistry, IIT Bombay	4 March 2016	Guest lecture
25	Dr. Sung Jae Kim, Energy, Environment and Sustainability Laboratory, Department of Electrical and Computer Engineering, Seoul National University	7 March 2016	Guest lecture
26	Dr. T Prem Kumar, Senior Principal Scientist, Electrochemical Power Systems Division, Central Electrochemical Research Institute, Karaikudi, Tamil Nadu	5 April 2016	Guest lecture

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
27	Dr. Michael Tam, Professor and University Research Chair, Department of Chemical Engineering, Waterloo Institute for Nanotechnology, University of Waterloo, Canada	18 April 2016	Guest lecture
28	Dr. Vaidehi Narayan, Professor, Department of Molecular Immunology, Beckman Research Institute of City of Hope, Duarte, CA, USA	25 April 2016	Guest lecture
29	Dr. Thomas Colacot, Global R&D Manager, Johnson Matthey Catalysis & Chiral Technologies, West Deptford, NJ, USA	25 April 2016	Guest lecture
30	Dr. Thomas A. Kodenkandath, Scientist, Hazen Research, Highlands Ranch, CO, USA	25 April 2016	Guest lecture
31	Dr. Hemanth Noothalapati, Raman Center for Medical and Biological Applications, Shimane University, Matsue, Shimane, Japan	29 April 2016	Guest lecture

Other Activities of the Department/Centre

Student visits

SI. No.	Student	Purpose of Visit	Date and Venue
1	S. Vidhya	To work with Dr. Sung Jae Kim	8 July to 5 October 2015, Seoul National University, South Korea
2	Avijit Baidya	To work with Prof. Robin Ras	16 July to 9 October 2015, Aalto University, Finland
3	Gana Natarajan	Talk—Third International Symposium on Monolayer Protected Clusters	13–16 July 2015, Japan

Activities initiated

Sl. No.	Title	Date
1	Chemistry In-house Symposium (CiHS-2015)	12 August 2015

Major infrastructure development in the department

- Technology developed at IIT Madras for the production of cysteamine bitartrate, an API for treatment of cystinosis, Steadfast Medishield Pvt. Ltd., Ghaziput, Delhi. Value: ₹5.0 lakhs.

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 is contributing to the development of the nation's infrastructure and generation of human resources. The academic programmes of the department, leading to B.Tech., Dual Degree, M.Tech., M.S. and Ph.D. degrees, are some of the best in the country and, perhaps, in the world. The faculty members have received advanced degrees and/or training from reputed Institutions in India, Germany, the UK, the USA, Japan, Singapore, Canada, the Netherlands, the former USSR, etc. The faculty members, along with research scholars in the department, carry out innovative and challenging high-end research and industrial projects.

Broadly, the departmental activities embrace teaching, research, consultancy and training. Alumni of the department hold prestigious positions in leading academic institutes, industries and government organizations across the world. The activities of the department are carried out under different disciplines, administratively organized into five divisions: Building Technology and Construction Management (BTCM), Environmental and Water Resources Engineering (EWRE), Geotechnical Engineering (GT), Structural Engineering (ST) and Transportation Engineering (TR). There are 14 well-equipped laboratories attached to different divisions. The Environmental and Water Resources Engineering and Structural Engineering laboratories received substantial initial funding from the Federal Republic of Germany.

4.6.2. Academic Programmes

The department provides training to students in both theoretical and practical aspects of civil engineering. The students are trained in the current state-of-the-art technologies to enable them to adapt themselves to fast-changing technological developments in the world.

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.

New courses introduced

Sl. No.	Course No.	Title
1	CE4011	Introduction to Atmospheric and Climate Sciences
2	CE6013	River Engineering

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	61	59	52	62	33	267
Dual Degree	34	38	39	34	62	207
M.Tech.	86	76	5	1	_	168
M.S.	11	15	17	10	1	54
Ph.D.	72	58	50	55	45	280
Total	264	246	163	162	141	976

Student/scholars who attended conferences/seminars/symposia

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroa	d				
1	Balu E. George	CE14D008	Super Pile Design and Construction Conference, USA	6–8 May 2015, USA	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
2	Sangeetha S.	CE12D053	The Sixth Jordanian International Civil Engineering Conference (JICEC'06)	Jordan	IIT Madras
3	Leon Raj J.	CE12D044	JICEC'06	Jordan	IIT Madras
4	Poluraju P.	CE13D005	JICEC'06	Jordan	IIT Madras
5	Aswathy E.V.	CE13D018	EGU General Assembly 2015	Austria	IIT Madras
6	Tabish Umar Ansari	CE12S023	EGU General Assembly 2015	Austria	IIT Madras
7	Velmurugan M.	CE11D036	Fifth Annual International Conference on Civil Engineering, Structural Engineering and Mechanics	Greece	IIT Madras
8	Mekhala C.	CE10D027	2015 IEEE Sensors Applications Symposium (SAS 2015)	Croatia	IIT Madras
9	Sangeetha S.	CE12D053	XVth IWRA, World Water Congress	UK	IIT Madras
10	Leon Raj J.	CE12D044	JICEC'06	Jordan	IIT Madras
11	Praveen V.	CE10D031	18th Euro Working Group on Transportation (EWGT-2015)	The Netherlands	IIT Madras
12	Anusha S.P.	CE12D033	2015 IEEE Intelligent Vehicles Symposium	Seoul, South Korea	IIT Madras
13	Divya Priya B.	CE12D007	Fifth International Symposium On Geotechanical Safety and Risk (ISGSR)	The Netherlands	IIT Madras
14	Srijith Balakrishnan	CE12SO21	EWGT-2015	The Netherlands	IIT Madras
15	Sanjay Radhakrishanan	CE12S017	EWGT-2015	The Netherlands	IIT Madras
16	Sunitha P.	CE12D023	Seventh International Conference On Seismology and Earthquake Engineering	Iran	IIT Madras
17	Ranjith K.S.	CE13S026	32nd International Symposium on Automation and Robotics in Construction and Mining	Finland	IIT Madras
18	Rakhi Jain	CE13S042	International Conference on Civil, Structural and Transportation Engineering	Canada	IIT Madras
19	Aysha Zeneeb Majeeb	CE12D035	50th International Conference on Earthquake Engineering and Seismology (IZIIS-50)	Germany	IIT Madras
20	Gokulnath C.	CE13D034	Ninth European Solid Mechanics Conference (ESMC 2015)	Spain	IIT Madras
21	Ajeesh S.S.	CE12D031	2015 World Congress on Advances in Structural Engineering and Mechanics (ASEM15)	South Korea	IIT Madras
22	Senthil Kumar R.	CE12D055	ASEM15	South Korea	IIT Madras
India					
1	Neha Agarwal	CE13S20	International Conference on New Frontiers in Chemical, Energy and Environmental Engineering	NIT Warangal	IIT Madras
2	Neha Agarwal	CE13S20	IGCS Conference on Sustainability	27–28 October 2015, IIT Madras	IIT Madras
3	Srijith Balakrishnan	_	International Conference on Recent Trends and Challenges in Civil Engineering (RTCCE-2014)	MNNIT, Allahabad	IIT Madras
4	Hema Priyamvada R.	CE12D040	18th National Conference of Indian Aerobiological Society on Impact of Aerosols on Health, Heritage, and Environment (NCIAHHE-2015)	Tumkur University, Karnataka	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
5	Jothi Menon	CE13D041	IGCS Conference on Sustainability	27–28 February 2016, IIT Madras	IIT Madras
6	Cicily Kurian	CE13D022	ICDMSDR 2016	22–24 February 2016, NIT Trichy	IIT Madras
7	Chethana	CE13D021	Workshop on Developments in Pavement Design, Evaluation and Material Characterization	15–17 November 2015, IIT Kharagpur	IIT Madras
8	Pavan Reddy Yasa	CE13S037	Seventh Workshop on Big Data Analytics/Bench Marking	14–15 October 2015, Delhi	IIT Madras
9	K.P. Ramaswamy	CE14D054	Third International Conference on Modeling and Simulation in Civil Engineering (ICMSC 2015)	9–22 December 2015, Kollam	IIT Madras
10	Santhosh Loganathan	CE13D052	An Industry Academia Conference on Construction Management	4–5 December 2015, Hyderabad	IIT Madras

Students/scholars who won outside prizes and awards

Studen	Students/scholars who won outside prizes and awards					
Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by		
1	Praveena Gangadharan, Dr. Indumathi M. Nambi, J. Senthilnathan (Technical Superintendent and former Ph.D. scholar)	CE12D048	Gandhian Young Technological Innovation Award in the 'More from Less for Many' category for their project titled 'Novel Technique for Energy Generation Coupled with Treatment of Wastewater and Resource Recovery Using E-Waste as Electrode Material in Microbial Fuel Cell'	Dr. R.A. Mashelkar, Chairperson of National Innovation Foundation-India (NIF) at Rashtrapati Bhavan		
2	Neha Agarwal, S.M. Shiva Nagendra	CE13S20	Best Paper Award for paper titled 'PM10, PM2.5 and PM1 Mass Concentrations in Different Work Environment'	International Conference on New Frontiers in Chemical, Energy and Environmental Engineering, NIT Warangal		
3	Srijith Balakrishnan, (M.S. research scholar), R. Sivanandan	CE12S021	Best Paper Award for their paper titled 'Lane Choice Behaviour of Vehicles on Urban Roads Under Free-Flow Conditions'	International Conference on Recent Trends and Challenges in Civil Engineering (RTCCE-2014) Motilal Nehru National Institute of Technology, Allahabad		
4	Hema Priyamvada R.	CE12D040	Third Prize (best oral presentation) in the P.H. Gregory Young Scientist Award Contest for her paper titled 'The Diversity and Distribution of Ascomycota (AMC) and Basidiomycota (BMC) at a Tropical Evergreen Biome: Implication for Environmental Health and Climate'	18th National Conference of Indian Aerobiological Society on Impact of Aerosols on Health, Heritage, and Environment (NCIAHHE-2015), organized with Tumkur University		
5	Chithra V.S., S.M. Shiva Nagendra	CE09D023	Rekha Nandi and Bhupesh Nandi Prize for their paper titled 'Particulate Matter Mass and Number Concentrations Inside a Naturally Ventilated School Building Located Adjacent to an Urban Roadway', published in <i>The Journal of the Institution of Engineers (India): Series A</i>	The Institution of Engineers (India)		
6	Aswathy E.V.	CE13D018	Best Paper Award (a certificate and a cash prize of ₹10,000) for the paper titled 'Effect of Meteorological Parameters on Concentrations of Fluorescent Biological Aerosol Particles Measured at High Altitude Site in Southern Tropical India'	19th National Space Science Symposium, held at Vikram Sarabhai Space Center (VSCC), Thiruvananthapuram		

Studen	Students/scholars who won convocation/Institute Day prizes				
Sl. No.	Student/Scholar	Roll No.	Prize	Donor	
1	Sushree Sangeeta Panda	CE13M101	Prof. Juergen Plaehn Prize	Alumni Day	
2	Anu Jose	CE13M042	Rajnikant Gandhi Memorial Award	Alumni Day	
3	Gandhis Rushabh	CE11S009	Mr. K. Sreekarsha Memorial Prize	Alumni Day	
4	V. Pranav Jeyam	CE12B063	Computer AGE Management Services Private Limited Prize	Institute Day	
5	Hareesh Pallikara Bahuleyan	CE10B024	Mr. Venkataraman Ravi Prize	Institute Day	
6	Anu Jose	CE13M042	Ms Jayalakshmi Narasimhan Memorial Prize	Institute Day	
7	K. Suruthi	CE13M176	Institute Merit Prize	Institute Day	
8	Anu Roy	CE13M061	Prof. Gerhard Rouve Memorial Prize	Institute Day	
9	Abhishek Basu	CE11B002	Larsen & Turbo ECC Endowment Prize	Convocation	
10	Hareesh Pallikara Bahuleyan	CE10B024	Dr. N.R. Dave Prize	Convocation	
11	Anis Mohammed V.	CE13M082	Valli Anantharamakrishnan Merit Prize	Convocation	
12	Rajneesh Gupta	CE13M130	K. Devarajan Memorial Prize	Convocation	
13	K. Suruthi	CE13M176	Larsen & Toubro Endowment Prize	Convocation	
14	S. Jayalakshmi	CE09D009	Shree Gaayathree Devi Award	Convocation	
15	V.S. Chithra	CE09D023		Convocation	
16	A. Bahurudeen	CE11D002	Bhagyalakshmi and Krishna Ayengar Award	Convocation	

4.6.3. Faculty and Their Activities

Faculty

Major Areas of Specialization
Composite technology
Building technology and construction management
Geotechnical engineering
Structural engineering
Geotechnical engineering
Building technology and construction management
Environmental engineering
Building technology and construction management
Structural engineering
Water resources engineering
Water resources engineering
Structural engineering
Structural engineering
Transportation engineering
Geotechnical engineering
Building technology and construction management
Building technology and construction management
Geotechnical engineering
Structural engineering
Building technology and construction management
Transportation engineering
Water resources engineering
Water resources engineering

Name and Qualifications	Major Areas of Specialization
A. Veeraragavan, Ph.D. (Bangalore University)	Transportation engineering
Amlan Kumar Sengupta, Ph.D. (University of Missouri)	Structural engineering
G. Appa Rao, Ph.D. (IISc, Bengaluru)	Structural engineering
G.R. Dodagoudar, Ph.D. (IIT Bombay)	Geotechnical engineering
Karthik K. Srinivasan, Ph.D. (Texas, Austin)	Transportation engineering
Associate Professors	
Arul Jayachandran, Ph.D. (IIT Madras)	Structural engineering
Indumathi M. Nambi, Ph.D. (Clarkson University)	Environmental engineering
Benny Raphael, Ph.D. (University of Strathclyde, UK)	Building technology and construction management
Balaji Narasimhan, Ph.D. (Texas A&M University)	Water resources engineering
Lelitha Devi, Ph.D. (Texas A&M)	Transportation engineering
S.T.G. Raghukanth, Ph.D. (IISc, Bengaluru)	Structural engineering
U. Saravanan, Ph.D. (Texas A&M)	Structural engineering
S.M. Shiva Nagendra, Ph.D. (IIT Delhi)	Environmental engineering
Ashwin Mahalingam, Ph. D. (Stanford University)	Building technology and construction management
T. Thyagaraj, Ph.D.(IISc, Bengaluru)	Geotechnical engineering
Ashwin Mahalingam, Ph. D. (Stanford University)	Building technology and construction management
Assistant Professors	
Arun Menon, Ph.D. (University of Pavia, Italy)	Structural engineering
Dali Naidu Arnepalli, Ph.D. (IIT Bombay)	Geotechnical engineering
Gitakrishnan Ramadurai, Ph.D.(University of Rensselaer)	Transportation engineering
Radhakrishna G. Pillai, Ph.D.(Texas A&M)	Building technology and construction management
Rupen Goswami, Ph.D. (IIT Kanpur)	Structural engineering
Sachin S Gunthe, Ph.D. (IITM Pune)	Atmospheric chemistry and physics
Sivakumar Palaniappan, Ph.D.(Arizona State University)	Building technology and construction management
Subhadeep Banerjee, Ph.D. (NUS, Singapore)	Geotechnical engineering
Vidya Bhushan Maji, Ph.D. (IISc, Bengaluru)	Geotechnical engineering
Venu Chandra, Ph.D. (IIT Kanpur)	Hydraulics and water resources engineering
Soumendra Nath Kuiry, Ph.D. (IIT Kharagpur)	Hydraulics and water resources engineering
Atul Narayanan, Ph.D. (Texas A&M)	Transportation engineering
Mathava Kumar, Ph.D. (IIT Madras)	Environmental engineering
Adjunct Faculty	
N. Raghavan, Ph.D.	Structural engineering
Mohan M. Kumaraswamy, Ph.D.	Building technology, construction management
Visiting Faculty	
Franziska Steinbruch, Ph.D. (Tech. University of Mining and Technology, Freiberg, Germany)	Water resources engineering

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

SI. No.	Co-ordinators	Title	Institution	Period
Confer	rences			
1	Shiva Nagendra	First Indian International Conference on Air Quality Management (IICAQM 2016)	IIT Madras	15–16 February 2016
2	B.S. Murty/Krishna Vasudevan	Indo-German Conference on Sustainability	IIT Madras	27–28 February 2016

Sl. No.	Co-ordinators	Title	Institution	Period
Worksl	hops			
1	Ravindra Gettu	Materials and Structural Testing and Simulation for Civil Engineering	IIT Madras	2 June 2015
2	Subhadeep Baneerjee, T. Thyagaraj	Evaluation of Soil Parameters for Numerical Modelling	Indian Geotechnical Society Chennai Chapter in association with IIT Madras and Anna University	4 July 2015
3	A. Boominathan	TC-3 Workshop on Natural Disaster Mitigation and Management	SGSITS, Indore	12 September 2015
4	K. Rajagopal	Numerical and Physical Modeling (TC-8 workshop)	Guru Nanak Dev Engineering College, Ludhiana	3 October 2015
5	A. Boominathan	Role of Geotechnology in Disaster Mitigation	Institution of Engineers (India) Odisha State Centre, Bhubaneswar	3 October 2015
6	A. Boominathan	Assessment and Mitigation of IIT Roorkee Liquefaction Hazards for Seismic Microzonation		27–28 November 2015
7	Ligy Philip	Indo-Australia Workshop on Water Scarcity and Ways to Reduce the Impacts	IIT Madras	15–16 February 2016
8	A. Boominathan	Geotechnical Challenges in Developing Coastal Cities	Andhra University, Visakhapatnam	5–6 March 2016
9	Indumathi M. Nambi	International Workshop on Antibiotics and Antimicrobial Resistance in Water Systems— Prevalence and Impacts	IIT Madras	7 March 2016
Short-t	term courses			
10	Balaji Narasimhan	Introduction to Soil and Water Assessment Tool (SWAT) Using Open Source Tools	IIT Madras	4–9 January 2016
11	S. Mathava Kumar, Venu Chandra	Investigation, Remediation IIT Madras and Management of Soil and Groundwater		7–9 January 2016
12	Atul Narayan	Rutting and Fatigue Cracking of Bituminous Pavements	IIT Madras	1–6 February 2016
13	Shiva Nagendra	Urban Air Pollution and Health Risks (Winter School)	IIT Madras	11–13 February 2016

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Co-ordinators	Title	Institution	Period
Worksl	hops		_	
1	K.P. Sudheer	Climate Change Impact	Madhya Pradesh Government (Bhopal)	23 April 2015
2	Amlan K.Sengupta	Material and Structural Testing and Simulation for Civil Engineering	IIT Madras	2 June 2015
3	J. Murali Krishnan	Indian Army Workshop	Indian Army (Jammu)	24-26 June 2015
4	Ligy Philip	Infrastructure Reinvigoration	Defence Department (Jammu and Kashmir)	25–27 June 2015
5	Subhadeep Baneerjee	Evaluation of Soil Parameters for Numerical Modelling	Indian Geotechnical Society Chennai Chapter in association with IIT Madras and Anna University	4 July 2015

Sl. No.	Co-ordinators	Title	Institution	Period
6	T. Thyagaraj	Evaluation of Soil Parameters for Numerical Modelling	Indian Geotechnical Society Chennai Chapter in association with IIT Madras and Anna University	4 July 2015
7	A. Veeraragavan	Challenges and Opportunities in Civil Engineering School of Civil Engineering Reva University, Bengalur		15 September 2015
8	Balaji Narasimhan	South Asian Climate Services Users Forum	IMD and WMO in Chennai	6 October 2015
9	S.M. Shiva Nagendra	Comprehensive Environmental Pollution Index for Assessing the Industrial Clusters	Karnataka Pollution Control Board (Bengaluru)	7 November 2015
10	G.R. Dodagoudar	Computational Geotechnics and Soil Dynamics	technics and LBS Institute of 24 Nove Technology for Women, Thiruvananthapuram	
11	Indumathi M. Nambi	Resilient Cities—Chennai Summit	Chennai Corporation	1 February 2016
12	K.P. Sudheer	National Hydrology Programme of the Government of India	NIH (Bengaluru)	2 March 2016
Semina	nrs			
1	S.R. Gandhi	Geotechnical Challenges in Developing Coastal Cities	Andhra University, Visakhapatnam	5–6 April 2016
Confer	ences			
1	S.R. Gandhi	DFI India Conference	NIT Surathkal	31 July 2015
2	S.M. Shiva Nagendra	Conference on Transportation of Men and Material by 2020	Green India (Chennai)	25 September 2015
3	Soumendra Nath Kuiry	Dam Safety Conference	IISc, Bengaluru	11–13 January 2016
Trainin	g programmes			
1	S. Mathava Kumar	Introduction to Sustainable Engineering	Kerala Technological University, Thiruvananthapuram	18–19 June 2015
2	K. Ananthanarayanan	Continuing Education Programme	IIT Hyderabad	6–7 November 2015

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	B.S. Murty	Contaminant Transport Modeling	National Institute of Technology, Jaipur	9 April 2015
2	G.R. Dodagoudar	(1) Earthquake Resistant Design of Foundations	Kalasalingam University, Srivilliputhur	5 May 2015
		(2) Liquefaction and Remedial Measures		
3	Dali Naidu Arnepalli	Barrier Systems for Disposal of Hazardous and Non-hazardous Wastes	Kalasalingam University, Srivilliputhur	10 May 2015
4	S. Mathava Kumar	(1) Regional and Local Environmental Issues	Kerala Technological University, Thiruvananthapuram	18–19 June 2015
		(2) Sustainable Energy—Conventional and Non-conventional		
5	S.M. Shiva Nagendra	Monitoring and Analysis of Air Samples in Industries	Hyatt Regency Hotel, Chennai	14 July 2015
6	K. Rajagopal	Finite Element Methods for Analysis of Constructions in Soft Clay Soils	National Institute of Rock Mechanics, Kolar Gold Mines	22 July 2015
7	Rupen Goswami	Earthquake Resistant Design	Rajalakshmi Engineering College, Chennai	23 July 2015

SI. No.	Faculty Member	Title of Lecture	Institution	Date
8	S.R. Gandhi	Stabilization of Hill Slopes with Piles	NIT Surathkal	31 July 2015
9	A. Boominathan	Estimation of Ground Motion Parameters Based on Topography and Basin Effects	SGSITS, Indore	12 September 2015
10	A. Veeraragavan	Scope for Civil Engineers in Construction Industries	School of Civil Engineering, Reva University, Bengaluru	15 September 2015
11	S.M. Shiva Nagendra	Alternate Fuels for Transport Emission Reduction	Green India Chennai	25 September 2015
12	S.M. Shiva Nagendra	Air Quality Modelling and GIS Applications in Air Quality Management	Guru Nanak Dev Engineering College, Bidar	26 September 2015
13	K. Rajagopal	Finite Element Methods for Analysis of Constructions in Soft Clay Soils	Guru Nanak Dev Engineering College, Ludhiana	3 October 2015
14	A. Boominathan	A Site-Specific Seismic Study and Stability Analysis of Rock Slopes	Institution of Engineers (India) Odisha State Centre, Bhubaneswar	3 October 2015
15	Ravindra Gettu	The Use of Amorphous Metallic Fibres in Concrete	Asian Conference on Concrete, Kolkata	6–10 October 2015
16	S.M. Shiva Nagendra	Comprehensive Environmental Pollution Index (CEPI) for the Assessment of Industrial Clusters: Concepts and Procedure	Karnataka Pollution Control Board, Bengaluru	7 November 2015
17	K. Ananthanarayanan	Engineering Economics	IIT Hyderabad	6–7 November 2015
18	A. Boominathan	Soil Liquefaction and Associated Ground Failures	IIT Roorkee	27 November 2015
19	G.R. Dodagoudar	Computational Soil Dynamics	LBS Institute of Technology for Women, Thiruvananthapuram	23 November 2015
20	G.R. Dodagoudar	Necessity and Role of IRE	CET College, Thiruvananthapuram	24 November 2015
21	S.R. Gandhi	Design Construction of Pile Foundation	Indian Geotechnical Conference, Pune	16–19 December 2015
22	S. Mohan	Modeling of Open Dumping Sites of Municipal Solid Waste	University of Illinois, Chicago	29 December 2015
23	S. Mathava Kumar	Importance of Water and Waste Water Quality Parameters in Environmental Pollution Control	KCG College of Technology, Karapakkam, Chennai	13 February 2016
24	G.R. Dodagoudar	Earthquake Engineering and Soil– Pile–Structure Interaction	NIT Trichy	5 March 2016
25	G.R. Dodagoudar	Piled-Raft Foundations for High Rise Buildings	NMIMS University, Mumbai	29 March 2016
26	S.R. Gandhi	Geotechnical Investigation for Heritage Structures	National Centre for Safety of Heritage Structures, Mumbai	11 March 2016
27	S.R. Gandhi	Foundation Retrofitting for Heritage Structures	National Centre for Safety of Heritage Structures, Mumbai	11 March 2016
28	S.R. Gandhi	Design of Pile Foundation	National Centre for Safety of Heritage Structures, Mumbai	11 March 2016
29	T. Thyagaraj	Laboratory and In-Situ Geotechnical Testing Methods	NIT Trichy	11 March 2016
30	Sachin S. Gunthe	Aerosol–Biopshere–Climate Interaction: Indian Perspective	IIT Bombay	16 March 2016
31	Sachin S. Gunthe	Role of Meteorology in Air Pollution	Vellore Institute of Technology, Vellore	30 March 2016

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
32	Radhakrishna G. Pillai	Challenges of Civil Engineering in India and Need for Higher Studies	E.S. Engineering College, Villupuram	24–25 March 2016
33	Radhakrishna G. Pillai	Challenges of Civil Engineering in India and Need for Higher Studies	International Conference on Structural Engineering and Construction Management, Kothamangalam	30 March 2016

Visits abroad by faculty members

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	Arun Menon	Nepal	25–31 May 2015	To take part in the joint ICOMOS–ICCROM–ICOM–Smithsonian Needs Assessment Mission	_
2	Arun Menon	Nepal	16–24 June 2015	Workshop by ICCROM-ICOMOS-ICOM in connection with the structural stabilization of a temple at Sankhu	_
3	Arun Menon	Manila	25–27 January 2016	Review of draft Philippine standard for unreinforced masonry heritage structure for the National Historical Commission of the Philippines	_
4	Ashwin Mahalingam	Singapore	10–11 April 2015	Presenting paper titled 'Design Issues in Public–Private Partnerships' at international symposium	_
5	Ashwin Mahalingam	UK	24–26 June 2015	12th Annual Engineering Project Organizations Conference	IIT Madras
6	Balaji Narasimhan	The Netherlands	18–22 May 2015	Hands-on Global Soil Information Facilities (training course)	_
7	Balaji Narasimhan	Italy	20–23 June 2015	SWAT International Conference and SWAT International Summer School 2015	IIT Madras
8	Balaji Narasimhan	Japan	20–23 June 2015	MARCO Satellite International Workshop 2015	_
9	Benny Raphael	Switzerland	30 April 2015	To attend a thesis exam as a Thesis Co- supervisor of Mr. Didier Vernay at Ecolle Polytechnique Federale De Lausanne	_
10	Benny Raphael	Finland	15–18 June 2016	32rd International Symposium on Automation Robotics in Construction and Mining 2015	_
11	Benny Raphael	Singapore	13–14 August 2015	Ph.D. viva of a student for whom he served as a thesis co-supervisor at National University of Singapore	_
12	Dali Naidu Arnepalli	Germany	22–27 February 2016	New Generation Sensors for Unsaturated Soils and Water Technology (Indo– German workshop)	_
13	Gitakrishnan Ramadurai	Rome	1–2 October 2015	Urban Freight and Behavior Change 2015 (conference)	_
14	Indumathi M. Nambi	USA	15–18 May 2015	Third International Symposium on Bioremediation and Sustainable Environmental Technologies	_
15	Radhakrishna G. Pillai	Oslo, Norway	30 May to 2 June 2015	RILEM TC SCI-1st International Conference on Effect of Characteristics at the Steel/Concrete Interface on Chloride- Induced Corrosion Initiation	_
16	Radhakrishna G. Pillai	Switzerland	17–26 June 2015	First International Conference on Calcined Clay for Sustainable Concrete	_
17	Radhakrishna G. Pillai	Germany	4 March 2016	RILEM Technical Committee meeting	_

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
18	Sachin S. Gunthe	USA	2 June to 29 July 2015	To take up a position as Visiting Scholar at the School of Engineering and Applied Sciences at Harvard University	_
19	S.M. Shiva Nagendra	Leipzig, Germany	30 May to 30 June 2015	Collaborative research project work at Helmholtz Centre for Environmental Research at Leipzig	_
20	S.M. Shiva Nagendra	Singapore	2–8 August 2015	12th Annual Meeting of the Asia Oceania Geosciences Society and Seventh Asia Pacific Hydrology and Water Resources	_
21	S.T.G. Raghu Kanth	Kualalumpur, Malaysia	21–22 August 2015	Seventh Asia Pacific Young Researchers and Graduates Symposium	_
22	Soumendra Nath Kuiry	Sri Lanka	4–7 January 2016	Eighth International Perspective on Water Resources and the Environment	IIT Madras
23	Subhadeep Banerjee	New Zealand	1–4 November 2015	Sixth International Conference on Earthquake Geotechnical Engineering	_
24	U. Saravanan	Spain	6–10 July 2015	Ninth European Solid Mechanics Conference	_
25	V. Lelitha Devi	Seoul	26–30 June 2015	2015 IEEE Intelligent Vehicles Symposium	IIT Madras
26	Vidya Bhushan Maji	Canada	10–13 May 2015	13th International Congress of Rock Mechanics: ISRM Congress 2015	_
27	Ravindra Gettu	Spain and France	4–8 March 2016	RILEM Spring Meeting and RILEM Technical Committee meeting	_
28	Ravindra Gettu	Spain	9–10 March 2016	Creep Behavior in Cracked Section of Fibre Reinforced Concrete (international workshop)	_
29	Ravindra Gettu	Melbourne, Australia	30 August to 2 September 2015	Concrete 2015, 27th Biennial National Conference of Concrete Institute of Australia, in conjunction with the 69th RILEM Week	_
30	K. Rajagopal	Seoul	21–24 June 2015	Council meetings of International Geosynthetics Society	_
31	A. Boominathan	New Zealand	1–4 November 2015	Sixth International Conference on Earthquake Geotechnical Engineering	_
32	A. Veeraragavan	USA	11–28 July 2015	11th International Conference on Low Volume Roads	IIT Madras
33	A. Veeraragavan	Sri Lanka	11–13 December 2015	Sixth International Conference on Structural Engineering and Construction Management	IIT Madras
34	B.S. Murty	Germany	26 May to 10 June 2015	Sustainable Water Management In Rural Landscapes (Summer School)	_
35	G. Appa Rao	USA	11–15 April 2015	American Concrete Institute Spring 2015 Convention (international conference)	_
36	K.N. Satyanarayana	Germany	4–8 June 2015	2015 Global Leadership Forum for Construction Engineering and Management Programs GLF CEM	IIT Madras
37	K.N. Satyanarayana	Sri Lanka	12–14 June 2015	Fourth World Construction Symposium 2015	IIT Madras
38	K.P. Sudheer	Germany	4–13 June 2015	Sustainable Water Management in Rural Landscapes (IGCS Summer School)	_
39	Koshy Varghese	Germany	4–8 June 2015	2015 Global Leadership Forum for Construction Engineering and Management Programs GLF CEM	_

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
40	Koshy Varghese	Finland	15–18 June 2016	32rd International Symposium on Automation Robotics in Construction and Mining 2015	_
41	Koshy Varghese	Ghana	10–12 August 2015	Sixth WABER Conference	_
42	Koshy Varghese	USA	28 January to 2 February 2016	P2SL-LCI-AIA Lean Design Forum 2016 and the Mid-year Meeting of the International Group for Lean Construction	_
43	Ligy Philip	Germany	26 May to 10 June 2015	Sustainable Water Management in Rural Landscapes (Summer School)	_
44	Ligy Philip	South Africa	24–26 August 2015	International Workshop for the Development of a Uniform Methodology Assessment of Soil Transmitted Helminthes from Fecal Waste Samples	_
45	Manu Santhanam	Germany	7–11 March 2016	RILEM Spring Meeting and RILEM Technical Committee meeting	_
46	Manu Santhanam	South Africa	26 April to 9 May 2015	To visit University of the Witwatersrand, Johannesburg, and University of Cape Town, Rodebosch, Cape Town	_
47	Manu Santhanam	UK	15–17 June 2015	UKIERI UGC Thematic Award discussion	_
48	Manu Santhanam	Switzerland	18–26 June 2015	First International Conference on Calcined Clay for Sustainable Concrete	_
49	Manu Santhanam	Melbourne, Australia	30 August to 2 September 2015	Concrete 2015, 27th Biennial National Conference of Concrete Institute of Australia, in conjunction with the 69th RILEM Week	_
50	Murali Krishnan	USA	13–16 March 2016	2016 Association of Asphalt Paving Technologists Annual Meeting/ISAP International Forum	IIT Madras
51	Manu Santhanam	Germany	4 March 2016	RILEM Technical Committee meeting	_
52	P. Alagusundaramoorthy	USA	10–14 January 2016	TRB 95th Annual Meeting	_
53	R.G. Robinson	Singapore	3–4 December 2015	Soft Ground Engineering (international conference)	_
54	Ravindra Gettu	Melbourne, Australia	30 August to 2 September 2015	Concrete 2015, 27th Biennial National Conference of Concrete Institute of Australia, in conjunction with the 69th RILEM Week	IIT Madras
55	S. Mohan	USA	8 December 2015 to 5 January 2016	To visit University of Chicago	_
56	S.R. Gandhi	USA	6–8 May 2015	Superpile 2015 Piling Design and Construction Conference	IIT Madras
57	K. Ananthanarayanan	Tucson, Arizona	26 March to 5 April 2016	Sixth International Conference on Constructed Environment	IIT Madras

Honours and awards obtained by faculty members

SI. No	Faculty Member	Award	Awarded by	Awarded for	Date
Honou	ırs				
1	Ravindra Gettu	Vice-President of RILEM, 2015–2018	International Union of Laboratories and Experts in Construction Materials, Systems and Structures, Paris, France	The first Asian to hold this position in an international body of concrete research	September 2015

SI. No	Faculty Member	Award		Awarded by		Awarded fo	or	Date
2	Ravindra Gettu	Honorary Workshop Behaviour Sections of Reinforced Valencia, S	on Creep in Cracked Fibre Concrete,			_		9–10 March 2016
3	Sachin S. Gunthe	Fulbright- Academic Professions Excellence	and	USIEF		The research be carried of collaboration that vard Union the topic 'Secondary Aerosol Fo Biogenic ar Anthropog Interaction Climate Sys	out in on with niversity c of Organic rmation: nd enic in Indian	December 2016 to July 2017
4	K. Rajagopal	Chairperso	on	Asian Activity Commit of International Geosynthetics Society,		_		January 2016
5	K. Rajagopal	Council M	ember	International Geosynth Society, USA	etics —			July 2010
Awards								
1	G. Appa Rao	Outstandir Investigato	or Award	DAE				July 2015
2	A. Veeraragavan	Distinguish Alumnus A		IIT Madras		Distinguish to IIT Mad		_
3	K. Rajagopal	Chairperson		International Geosynth Society	hetics Asian Ac Committe			_
4	S.T.G. Raghukanth	Young Fac Recognitio (YFRA) 20	n Award	IIT Madras		_		4 September 2015
5	Subhadeep Banerjee	A.S. Arya `Earthquak Award for	e Engineer	IIT Roorkee	_			September 2015
6	Devdas Menon	Guru Shre	shta Award	Rotary Club of Madras Northwest			Excellence in teaching	
7	K. Rajagopal	Life Time Achievement Award		Central Board of Irriga and Power, New Delhi	tion	For signification contribution field of geo for its deve and growth country	ns to the synthetics lopment	6 November 2015
8	Gitakrishnan Ramadurai	Best Paper	Award	EWGT 2015		_		June 2015
Books a	and monographs auth	nored/co-au	ıthored					
SI. No.	Faculty Member		Title		Publi	sher	Author/Co-	author
Books								
1	Amlan K. Sengupta (a of one chapter and me editorial committee)		Handbook on Buildings	n Precast Concrete	India Instit	n Concrete ute	_	
2	Lelitha Vanajakshi			Oata Fusion: From nd Architectural Design ns			Press Shrikant Fulari, Shar C. Subramanian and Ajitha	

Sl. No.	Faculty Member	Title	Publisher	Author/Co-author
3	X. Romão	Chapter 13—Traditional Construction in High Seismic Zones: A Losing Battle? The Case of the 2015 Nepal Earthquake, in Seismic Retrofitting: Learning from Vernacular Architecture (Editors: Mariana R. Correia, Paulo B. Lourenco and Humberto Varum)	CRC Press	E. Paupério and A. Menon

Fellowships of academies and professional societies

Faculty Member	Details	Year of Admission	
Others			
Rupen Goswami Indian Roads Congress		Life Member-2003	
	Indian Society of Earthquake Technology	Life Member–2005	
	Earthquake Engineering Research Institute, Oakland, CA	Member-2011	
	Indian Concrete Institute	Life Member–2015	

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	Sachin S. Gunthe	Co-editor	Atmospheric Chemistry and Physics (ACP). ACP is an interactive, open-access, peer-reviewed journal of the European Geosciences Union with an impact factor of 5.298.
2	K. Rajagopal	Guest Editor (Volume 43, 2015)	Soft Ground Improvement with Geosynthetics, Geotextiles and Geomembranes (Elsevier)
3	K. Rajagopal	Guest Editor (Volume 45, Issue 4, 2015; special issue titled 'Transportation Geotechnics')	Indian Geotechnical Journal (Springer)
4	K. Rajagopal	Member of editorial board	Journal of Geotextile and Geomembranes (Elsevier)
5	K. Rajagopal	Member of editorial board	International Journal of Geosynthetics and Ground Improvement (Springer)
6	K. Rajagopal	Member of editorial board	Indian Geotechnical Journal (Springer)

4.6.4. Design and Development Activities

S.M. Shiva Nagendra

Design and development of indoor air purifier for indoor air pollution control

Dali Naidu Arnepalli

Development of Geo-environmental Research Laboratory, which houses state-of-the-art equipment such as an atomic absorption spectrophotometer, a UV-vis spectrophotometer, a UV weatherometer, a gas chromatograph, a flexible wall permeameter, an ultra sieve shaker, gas permeability and diffusion test set-ups, a geotechnical centrifuge, a melt-indexer, environmental stress crack resistance apparatus, an ultra gas pycnometer, a time domain reflectometer, an autoclave, a laminar air flow chamber, a BOD incubator and a temperature and humidity control chamber

K. Rajagopal

In-plane permeability device for determining the transmissivity capacity of geotextiles and geocomposites at different normal pressures

Venu Chandra

Developed an annular flame set-up in the Hydraulics Laboratory, which is used to study the behaviour of cohesive sediments.

New facilities added or major equipment procured					
Sl. No.	Equipment	Value (₹)			
1	WG projector	28,395			
2	LCGC—top loading	39,503			
3	Anemometer	2,70,000			
4	3 KVA UPS	69,675			
5	Dell Precision T5810, Dell Monitor U2913WM	1,81,327			
6	Dell Optiplex 9020	93,250			
7	High speed horizontal metal cutting band-saw machine with electricals	97,823			
8	5 KVA UPS	1,28,575			
9	Three channel digital indicator	1,00,125			
10	6 m height aluminium mobile	1,17,500			
11	Hot air oven	41,129			
12	Profometer PM-630	5,06,829			
13	HP LV1911 and HP 280	38,272			
14	Dell OptiPlex, E 2214H	59,600			
15	Technico Laboratory	1,57,500			
16	Elcometer with accessories	2,04,362			
17	E 2014H item ID M2	31,600			
18	Epson EB-X18	32,737			
19	Split AC 1.5 TR	39,340			
20	Fume hood	1,20,000			
21	Xcell probe	4,35,219			
22	Elga water purification unit	4,09,336			
23	PUF insulated cabinet	52,500			
24	Dell Optiplex 9030 AIO	55,500			
25	Refrigerated outdoor unit	1,51,600			
26	Office table	15,666			
27	Strain gauges	1,01,890			
28	Softening point	7,95,895			
29	Split A/C 1.5 ton	36,940			
30	Dell Precision	3,94,440			
31	Work station table	4,32,810			
32	Single mixed flow pump	1,67,496			
33	Flow meter	1,23,750			
34	Dell Optiplex	53,678			
35	Ultrasonic level	68,322			
36	Overhead projector	1,18,400			
37	Projector accessories	57,400			
38	Split A/C 1.5 ton	39,340			
39	Probe sonicator	1,48,050			
40	1 KVA UPS	23,716			
41	5 KVA UPS	1,06,403			
42	Comtech high back chair	1,46,560			
43	Miniscanner with spares	2,64,003			
44	Keyboard and CPU stand	33,150			
45	Lab refrigerator	47,250			
46	Biometric finger	43,176			

Sl. No.	Equipment	Value (₹)
47	Table and chairs	1,97,650
48	Wooden chairs	49,500
49	Wall mount for file storage	38,300
50	Pentagon Hydro System 150	50,715
51	HP 240	48,660
52	Overhead projector	59,200
53	Audio system	1,99,862
54	High back chair	1,75,872
55	Cooling incubator	1,23,690
56	Hot air oven	30,450
57	Writing table and chair	44,470
58	Overhead projector	35,000
59	10 KVA UPS	1,37,932
60	Window AC 1.5 ton	32,290
61	Revolving fixed low-back chair	1,02,707
62	Desktop	31,153
63	APC 600 VA UPS	2400
64	Pedestal fan and chair	23,800
65	Pedestal fan and chair	23,850
66	Chair	3150

Patents filed

Sl. No.	Faculty Member	Title of Patent
1	Benny Raphael	A Light Pipe (2015)
2	Benny Raphael	A Strain Based Automated System for Monitoring Construction Progress (2015)

4.6.5. Research and Consultancy

Sponsored research projects

SI. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Evaluation of Dynamic Properties and Seismic Isolation Performance of Soil– Rubber Mixtures	17 November 2015 to 16 November 2018	Ministry of Earth Sciences, New Delhi	88.50	Boominathan A., Subhadeep Banerjee
2	Industrial Wastewater Treatment Adopting Pulsed Power Techniques	17 June 2015 to 16 June 2017	DST	60.31	Ligy Philip, Sarathi R.
3	Dynamic Behaviour of Anchor Plates in Soft Clay with Geosynthetic Reinforcement	19 May 2015 to 18 May 2018	DST	33.92	Subhadeep Banerjee
4	Investigation on Local Scour Around Different Shaped Piers	26 February 2016 to 25 February 2019	DST	32.36	Venu Chandra
5	Displacement Based Approach for the Seismic Design of Earth Retaining Structures	26 November 2015 to 25 November 2017	Ministry of Earth Sciences, New Delhi	22.44	Subhadeep Banerjee, Boominathan A.
6	Development Characterization and Prototype Application of High Performance Fibre Reinforced Concrete	3 August 2015 to 2 August 2018	DST	17.92	Ravindra Gettu
7	Pharmaceutical and Personal Care Products Removal and Their Bio-toxicity Assessment in Membrane Bioreactor with Immobilized Biomass (iMBR) and Carrier-Supported Biomass (casMBR)	26 February 2016 to 25 February 2019	WTI, DST	34.75	Mathava Kumar, Venu Chandra

Indus	Industrial consultancy projects						
SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)			
1	Rupen Goswami	Analysis and Design Strategies for Blast Resistant Design of Structures	EON Designers	4.00			
2	Radhakrishna G. Pillai	Condition Assessment of Construction Materials and Structural Systems	Common Code	0.00			
3	Dodagoudar G.R.	Design Verfication of 55 MW STG Foundation	Indian Cane Power Limited	2.20			
4	Nageswara Rao B.	Determination of Relaxation and Mechanical Properties of the High Tension Prestressing Wires	Common Code	0.00			
5	Boominathan A.	Vibration Measurement During Pile Driving and Mitigation Measures	P. Manickam & Company	2.00			
6	Nageswara Rao B.	Consultancy Charges for Analysis of Clariflocculator Grade Slab Failure and Recommendation on Remedial Measures for Repair	Meenakshi Energy Private Limited	4.50			
7	Alagusundaramoorthy P.	Design Review and Vetting the Design and Drawings of a Multistoreyed Hotel Complex at OMR, Chennai	Sri Satya Sai Constructions	12.36			
8	Alagusundaramoorthy P.	Analysing and Testing of Strands, Bearing Pads and Structural Elements for Civil Infrastructure Applications	Common Code	0.00			
9	Alagusundaramoorthy P.	Analysing and Checking the Adequacy of Structural Foundation of EMI–EMC Testing Facility at CPRI, Bengaluru	Central Power Research Institute	3.09			
10	Arun Menon	Technical Assistance for Restoration of Madras High Court Heritage Buildings	Public Works Department	3.37			
11	Devdas Menon	Testing of PSC Sleepers	PCM Strescon Overseas Ventures Limited	11.18			
12	Boominathan A.	Geotechnical Investigation for the Construction of Rajagopuram at Arulmigu Kasinathaswamy Temple, Ambasamudran	Arulmigu Kasinathaswamy Temple	3.93			
13	Nageswara Rao B.	Analysis of Raw Water Reservoir Leakage Issue at Bhubaneshwar Power and Recommendations on Remedial Measures for Repair of the Same	Bhubaneshwar Power Private Limited	4.50			
14	Indumathi M. Nambi	Textile CETP Performance Evaluation	Karaipudur Common Effluent Treatment Plant Private Limited	2.81			
15	Indumathi M. Nambi	Design Adequacy Check and Performance Evaluation of STP	ASV Constructions Private Limited	1.12			
16	Mohan S.	Water Supply Distribution System for the Newly Encompassed Area	Madurai Corporation	44.41			
17	Mohan S.	Revamping Water Supply Distribution System for the Erstwhile Corporation Area	Madurai Corporation	39.25			
18	Mohan S.	Solidwaste Management—Disposal of MSW Through Pyrolysis Process	Madurai Corporation	15.30			
19	Mohan S.	Dedicated Water Supply Scheme to Madurai Corporation	Madurai Corporation	28.00			
20	Mohan S.	Underground Sewerage Scheme for Newly Encompassed Area	Madurai Corporation	61.73			
21	Indumathi M. Nambi	Tannery CETP Performance Evaluation and Improvisation	Madhavaram Leather MFRS Facility Private Limited	11.46			

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
22	Indumathi M. Nambi	ETP Sludge Evaluation for Incineration	Rohini Textile Industry Private Limited	1.12
23	Devdas Menon	Proof Checking of Proposed Doubling Between Thanjavur, Ponmalai and Golden Rock	Rail Vikas Nigam Limited	5.90
24	Devdas Menon	Proof Checking of Proposed Doubling Between Villupuram and Dindigul	Rail Vikas Nigam Limited	1.80
25	Alagusundaramoorthy P.	Analysing and Testing the Relaxation Properties of Strands for Prestressed Concrete Structures	Common Code	1.42
26	Meher Prasad A.	Proof Checking of Godrej Azure at OMR	SSPDL Green Acres LLP	28.09
27	Meher Prasad A.	Proof Checking of IITMRP	Architect Hafeez Contractor	13.48
28	Manu Santhanam	Testing and Evaluation of Concrete	Common Code	0.20
29	Indumathi M. Nambi	Treatability Studies for Hexavalent Chromium Bearing Leachate and Run-off	ERM India Limited	8.99
30	Nageswara Rao B.	Testing of Elastomeric Bearing as per IRC 83 (Part-2)	Common Code	0.29
31	Ravindra Gettu	Testing of Concrete Used in Flooring	STA Concrete Flooring Solutions	1.35
32	Nageswara Rao B.	Static and Dynamic Load test with Tendon Anchorage Assembly, and Load Transfer Test (according to IS 1343 2012)	RETECH	3.45
33	Nageswara Rao B.	Review of 'Condition Assessment Report on Civil Structures of 1×350 MW Thermal Power Project of KVK Nilachal Power Private Limited at Kandarei Village, Odisha, Submitted by Tata Projects Limited'	KVK Nilachal Power Private Limited	1.14
34	Nageswara Rao B.	Proof Checking of 'Bridge Across River Mullaiyar in NH 45 Aat Ch 178/100 in Karaikal'	Public Works Department	2.28
35	Nageswara Rao B.	Proof Checking of 'Bridge Across river Vanjiar Downstream of Existing Lemaire Bridge Connecting Puduthurai Village in Karaikal'	Public Works Department	3.42
36	Alagusundaramoorthy P.	Design Review and Vetting the Drawings and Modifications in the Structural Design of EMC Building at Global Automative Research Centre, Chennai	National Automotive Testing and R&D Infrastructure Project	9.94
37	Alagusundaramoorthy P.	Condition Assessment of Concrete Pedestals and Plinth Beams in APSL Building, at GARC, Chennai	National Automotive Testing and R&D Infrastructure Project	9.42
38	Alagusundaramoorthy P.	Retrofitting of Foundations in APSL Building, Global Automative Research Centre, Chennai	CITEC Engineering India Private Limited	1.97
39	Alagusundaramoorthy P.	Design Review and Vetting the drawings of Pre-engineered APSL Building at Global Automotive Research Centre, Chennai	Zamil Steel Buildings (I) Private Limited	7.58
40	Alagusundaramoorthy P.	Analysing and Testing of Strands, Bearing Pads and Structural Elements for Civil Infrastructure Applications	Common Code	3.44
41	Arun Menon	Structural Safety of Buildings	Common Code	0.50
42	Arun Menon	Structural Audit of Bharat Insurance Building	Life Insurance Corporation of India	1.71
43	Ligy Philip	Audit of TNWML Operated CHWTSDF in Gummidipoondi	Industrial Waste Management Association	2.25
44	Dali Naidu Arnepalli	Technical Evaluation of Reservoir Seepage at RSTEPL—125 MW Concentrated Solar Thermal Power Plant	Areva Renewable Energies India Private Limited	1.71

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
45	Arul Jayachandran S.	Design Checking of Structures for Stability and Strength	Common Code	1.62
46	Nageswara Rao B.	Determination of Relaxation and Mechanical Properties of the High Tension Pre-stressing Wires	Freyssinet Menard India Private Limited	2.96
47	Nageswara Rao B.	Testing of Anchorage Assembly, HTS Strands, Corrugated HDPE Sheating Ducts	Public Works Department	3.00
48	Mohan S.	Design Checking and Monitoring of Secured Landfill	Tamil Nadu Waste Mangement Limited	9.12
49	Satish Kumar S.R.	Proof Checking of PEB for Colgate Palmolive at Sricity	Lloyd Insulations (India) Limited	1.71
50	Satish Kumar S.R.	Proof Checking PEB for Hanger at Koraput, Orissa	C.R. Narayana Rao	2.85
51	Indumathi M. Nambi	Design Adequacy Check and Performance Evaluation of STP	Faery Estates Private Limited	2.28
52	Meher Prasad A.	Testing of Load Bearing Tower of 2.4 m, 2.6 m, 2.8 m, 3.2 m, 4.2 m, 5 m, 6 m and 6.8 m height and Teston d3 Screw Jack Foot 800 mm and 500 mm	Doka India Private Limited	12.69
53	Dali Naidu Arnepalli	Review of Design Drawings, QA/QC for Construction of Height Expansion of Jarosite Pond-III at HZL, Debari, Rajasthan	Gareware-Wall Ropes Limited	2.28
54	Nageswara Rao B.	Proof Checking of Design and Drawings of Proposed Rigid frame Roofing System to Terrace of SEA Building in Factory at ITI Kanjikode, Palakkad	Floreat Building Systems Private Limited	1.14
55	Devdas Menon	Mechanical Testing and Relaxation Testing	D P Wires Private Limited	1.24
56	Nageswara Rao B.	HTS Strands Testing	Common Code	3.34
57	Indumathi M. Nambi	Design Adequacy Check	Express Exclusive Developers Private Limited	1.14
58	Devdas Menon	Proof Checking—Vetting of Structural Design of Buildings Coming up in Life Sciences Park, Thiruvananthapuram	Kerala State Industrial Development Corporation Limited	15.16
59	Nageswara Rao B.	Checking the Stability/Strength of Sheds in Taloja (T-16) Plant to Install Solar Panels in Auto Plant, Arch Plant, NMD, FG Warehouse, Glass Palette Shed, Alpha Wash Machine Room, RG Box Issue Area, Screening Area	Asahi India Glass Limited	4.00
60	Meher Prasad A.	Vetting of Structural Design and Drawings of Tower A, B, C & D Buildings for Hallmark Emerald Project at Paranur, Chennai	L&T Construction, Buildings & Factories	6.21
61	Indumathi M. Nambi	Design Adequacy Check and Performance Evaluation of STP	Add-Albatross Properties Private Limited	1.71
62	Nageswara Rao B.	Vetting of Design and Drawing of Coal Conveyor System	Krishnapatnam Port Company Limited	2.57
63	Nageswara Rao B.	Vetting of Design and Drawing of Pandavaiyaru Bridge at Chainage 16424 m	GVR Infra Projects Limited	1.50
64	Rajagopal K.	Proof Checking and Recommendations for the Reinforced Soil Retaining Wall at Kolathur	Chennai Metropolitan Development Authority	1.14
65	Manu Santhanam	Evaluation of Aggregate Sample	Larsen and Toubro Limited	1.71
66	Devdas Menon	Proof Checking of Bridges at Karaikal and ECR	VAX Consultants Private Limited	3.14
67	Devdas Menon	Proof Checking of Post-tensioned Beams for Sky Forest for Indiabulls at Mumbai and Post- tensioned Beams for Cochin International Airport Limited	Utracon Structural System Private Limited	1.45

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
68	Devdas Menon	Proof Checking for Design of Railway Sleeper for Turnout	Civtech Consultants Private Limited	1.43
69	Ligy Philip	Performance of Trial Run of Zero Liquid Discharge Systems Installed by Messrs. Veerapandi Common Effluent Treatment Plant and Vetting the Modified Process	Veerapandi Common Effluent Treatment Plant Private Limited	6.84
70	Indumathi M. Nambi	Evaluation of Electrochemical Treatment Technology for Dyes Effluent	Almighty Research & Pollution Control Machineries Private Limited	1.71
71	Rajagopal K.	Ground Improvement Work for New Broad Gauge Line in Orissa constructed by RVNL	Tracks & Towers Infratech Private Limited	2.85
72	Sreenivasa Murthy B.	Technical Assessment of DPRs of Integrated Water Supply and Sewerage Project of Nellore Municipal Corporation Under JICA Assistance	Public Health and Municipal Engineering Department	13.68
73	Satish Kumar S.R.	Proof Checking of PEB Design for SMCC Cataler Building	Common Code	2.21
74	Ligy Philip	Vetting Design/Drawings and Issue of Stability Certificate for the Project 'Shine' Located at Old Survey No. 66/6, New S. No. 66/12A, 87/1C and 88/3, Kazhipattur Village, Kancheepuram District	Radiance Realty Developers India Limited	1.14
75	Boominathan A.	Geotechnical Studies for Construction of Rajagopuram Perumal Temple at Thirukkolur	Arulmigu Athinathar Alwar Temple	5.13
76	Gandhi S.R.	Foundation for Navalur Residence Tower	L&T Construction, Buildings & Factories	1.71
77	Gandhi S.R.	Design of Approach Embankment	National Highways Authority of India	2.28
78	Ravindra Gettu	Performance Assessment of Forta Fibres for Concrete Floors	JB Associates	3.65
79	Devdas Menon	Proof Checking of Superstructure Design	Southern Railway	1.14
80	Indumathi M. Nambi	Design Adequacy Check of Two STPs (170 KLD + 300 KLD)	Enhanced WAPP Systems (India) Private Limited	1.71
81	Gandhi S.R.	Recommendation for Foundation of Madhavaram Building	Common Code	1.37
82	Ligy Philip	Water, Wastewater and Soil Sample Analysis	Common Code	0.64
83	Appa Rao G.	Proof Checking of 25V of 40 m Span Pre-cast PSC Girder Bridge Design	Roads and Buildings Department	9.12
84	Nageswara Rao B.	Check the Building Stability of Madura Coats Private Limited Tuticorin Mill Compound	Madura Coats Private Limited	5.70
85	Meher Prasad A.	Design and Construction of Bridge across River Mandovi Including Approaches on NH 17 between Pundalik Nagar Junction Porvorim and Merces Junction-Proof Checking	Goa State Infrastructure Development Corporation Limited	57.00
86	Appa Rao G.	Proof Checking of Structural Design and Drawing of Sewage Treatment Plant, Goithaha Varanasi	Larsen and Toubro Limited	5.13
87	Meher Prasad A.	Proof Checking of IIITC	Teemage Precast IN	1.71
88	Ravindra Gettu	Performance Assessment of the Hybrid Combination of Durus S400 and Fibrin XT Fibres in Structural Concrete	Sunil Chemical Industries	3.65
89	Nageswara Rao B.	Assessment of Structural Soundness of Bank of India Premises Located at Plot No. 14 Pt., D No. 1, Ranganathan Avenue, Kilpauk, Chennai, RS No. 311/12, Measuring 8000 sq. ft	Bank of India	1.71

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
90	Devdas Menon	Construction of Proposed Hospital Building Having Basement Floor + GF + 8 Upper Floors near Rettai Eri, Chennai, Structural Design and Drawing Proof Check	Walfs Infra India Private Limited	11.25
91	Meher Prasad A.	Proof Checking of Vetting of Structural Design Documents and Drawings—Geotechnical Design Documents and Drawings—Apollo Proton Therapy and Cancer Treatment Hospital in Chennai	Apollo Hospitals Enterprise Limited	15.13
92	Nageswara Rao B.	Testing of Elastomeric Bearings	Common Code	0.29
93	Nageswara Rao B.	Testing of Post-tensioning Accessories	Public Works Department	2.57
94	Nageswara Rao B.	Inspection of the Piers and Pedestals of Bridge Between Dhola and Sadiya Ghats and Analysis of the Same Accompanied by the Report for Taking Appropriate Repair Works	Navayuga Dhola Infra Projects Private Limited	1.71
95	Maji V.B.	Neyveli New Thermal Power Project, Essar Limited.	Common Code	0.50
96	Nageswara Rao B.	Vetting of Structural Design and Drawings of Kalyana Mandapam, Entrance Gate, South Gate Parking and UG Sump for HAL Hyderabad	Wadia Techno Engineering Services Limited	2.28
97	Meher Prasad A.	Design Proof Checking Work and Certification	Merit Technologies India Limited	1.14
98	Alagusundaramoorthy P.	Condition Assessment of Anchor Bolts in Concrete Pedestals of APSL Building at Global Automotive Research Centre, Chennai	National Automotive Testing and R&D Infrastructure Project	5.49
99	Alagusundaramoorthy P.	Analysis and Design of Integrated Agricultural Extension Centres for Tamilnadu Government	Agricultural Engineering Department	2.05
100	Nageswara Rao B.	Checking and Certification of Structural Adequacy of Rail Supporting System—OPGCL- Track Hopper	BGR Energy Systems Limited	2.50
101	Devdas Menon	Proof Checking of Proposed Doubling Between Thanjavur Jn and Ponmalai Jn	Rail Vikas Nigam Limited	5.24
102	Mohan S.	Environmental Impact Assessment and EMP Report Preparation on the Mine Water Generation, Treatment, and Disposal and Its impacts on the Groundwater/Surface Water and on the Soil for the Mine II Expansion	Neyveli Lignite Corporation Limited	7.17
103	Arun Menon	Conservation of Tango Monastery, Bhutan	The Courtauld Institute of Art	1.71
104	Gandhi S.R.	Vetting of Geotechnical Investigation Report and Recommendations	C.E. Testing Company Private Limited	2.60
105	Alagusundaramoorthy P.	Analysis and Design of Pre-engineered Steel Roofing Structure, RCC Structure and Retrofitting of Foundation in EMI-EMC Testing Facility at CPRI, Bengaluru	Central Power Research Institute	8.55
106	Alagusundaramoorthy P.	Stability Check of Fatigue and Certification Building at Global Automotive Research Centre, Chennai	National Automotive Testing and R&D Infrastructure Project	8.84
107	Alagusundaramoorthy P.	Analysing and Testing of Strands, Bearing Pads and Structural Elements for Civil Infrastructure Applications	Common Code	2.90
108	Arul Jayachandran S.	Design Checking and Stability Evaluation of Steel and Steel Concrete Structures	Common Code	0.62
109	Arul Jayachandran S.	Proof Checking of the Designs/Drawings of Three RoBs Including Substructure Along the Four Laning Between Kaithal to Rajasthan Border	IRB Infrastructure Developers Limited	6.84

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
110	Nageswara Rao B.	Structural Stability Study and Analysis of IBS Office Building at Thiruvananthapuram	IBS Software Services Private Limited	3.42
111	Muralikrishnan J.	Investigation of Mechanical Properties of Pavement Cores	L&T Infrastructure Development Projects Limited	2.85
112	Indumathi M. Nambi	Vetting of DPR and Design Adequacy Check	Ikos GAIA Infra Private Limited	2.85
113	Satish Kumar S.R.	Proof Checking of Structural Design of Festival City Build	Mist Avenue Private Limited	11.40
114	Radhakrishna G. Pillai	Corrosion and Service Life Assessment of Concrete Structures	Larsen and Toubro Limited	5.00
115	Ligy Philip	Approval for STP Design and Operation with Safety Measures at Muktha Triveni, Thiruverkadu	Muktha Foundations Private Limited	1.14
116	Indumathi M. Nambi	Vetting of DPR and Design Adequacy Check	Perarignar Anna Handloom Silk Park Limited	2.85
117	Appa Rao G.	Proof Checking of Design and Drawings of Major Bridge Across Chitravathi River	Roads and Buildings Department	5.70
118	Arul Jayachandran S.	Proof Checking the Design of 45 m, 30.5 m and 20 m Tower	Jhamuna Tower Tech	1.43
119	Mohan S.	Design Checking and Construction Advice for the Landfill for Hazardous Waste Disposal Site at Virudhunagar	Tamil Nadu Waste Mangement Limited	8.55
120	Nageswara Rao B.	Proof Checking of Turnout Design, Derailing Switch and Switch Expansion Joint	Voestalpine VAE VKN India Private Limited	8.00
121	Nageswara Rao B.	Design Verification of Sandwich Panels	Rinac India Limited	1.71
122	Ligy Philip	Evaluation of Biosludge Management Through Biobricks	Arulpuram Common Effluent Treatment Company Private Limited	2.50
123	Ligy Philip	TSS and Turbidity Monitoring at Kattupalli Shipyard cum Port for the period of October 2015 to September 2016	Larsen & Toubro Shipbuilding Limited	3.71
124	Nageswara Rao B.	Static Load Test with Tendon—Anchorage Assembly (according to IS 1343-2012)	Public Works Department	2.57
125	Devdas Menon	Vetting/Proof Checking of Design and Drawings of the Proposed Second Ishwar Gupta Setu Over the River Ganges at Kalyani, West Bengal, India	West Bengal Highway Development Corporation Limited	22.80
126	Devdas Menon	Testing of Elastomeric Bearings	Common Code	1.33
127	Ligy Philip	To Evaluate the Effectiveness of Remediation of Chromium (VI) Contaminated Site in and Around Lohianagar, Ghaziabad and Suggest Required Future Actions if Any	Shriram Pistons & Rings Limited	2.39
128	Ligy Philip	Feasibility Study on Marine Disposal of Salts Generated from Effluent Treatment Plants of Textile Dyeing Units	Industrial Waste Management Association	1.71
129	Ravindra Gettu	Design Consultancy for Floor in Nacelle Factory for Top View Infratech India at Satyavedu	S.S. Infrastructure Development Consultants Private Limited	2.28
130	Sreenivasa Murthy B.	Vetting of Pipeline and Open-Channel Designs	Common Code	0.57
131	Devdas Menon	Proof Checking of ROBs in Madurai– Ramanathapuram Four Laning Project Substructure – 19 Nos, Superstructure – 16 Nos	KNR Construction Limited	31.75

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
132	Nageswara Rao B.	Checking Design Adequacy of Slab & Columns based on Core Sample Results & NDT Report	Coromandel Engineering Company Limited	1.00
133	Rajagopal K.	Proof Checking and Approval of the Design of Reinforced Soil Approach Road at Coimbatore	KNR Construction Limited	1.71
134	Ligy Philip	Validation of the Design and Corroboration on the Indigenous Development of Innovative Vertical Moving Bed Biofilm Reactors (MBBR) by Thermax Limited	Thermax Limited	7.41
135	Boominathan A.	Soil Investigation for Construction of Tenements at Indhira Gandhi Kuppam	Tamilnadu Slum Clearance Board	17.67
136	Rupen Goswami	Checking of Load Capacity and Stability of Proposed G+4 Configuration of Shelving	Reliance Corporate IT Park Limited	1.71
137	Meher Prasad A.	Proof Checking of Lansum Oxygen Towers— Residential Apartments	Lansum Estates LLP	45.60
138	Nageswara Rao B.	Condition Assessment of Concrete in the Reinforced Concrete Structural Elements of the Phase I Building at Kakkanad, Kochi for Messrs. Smart City, Kochi	Smart City Kochi Infrastructure Private Limited	10.00
139	Indumathi M. Nambi	Design Adequacy Check of Three STPs	Brigade Enterprises Limited	1.50
140	Devdas Menon	Proof Checking for the Preparation of DPR for Planning and Construction of ROB In Lieu of Existing Level Crossing at Kolathur–Villivakkam	Bridges Department	8.55
141	Devdas Menon	Proof Checking of Design and Drawings of ROB at CH: 486+896 and CH: 493+500; Four Laning of Jabalpur–Lakhnadon Section of NH-7 from km 465.50 to km 546.425 in the State of Madhya Pradesh	Larsen and Toubro Limited	5.36
142	Gandhi S.R.	Review of Geotechnical Report for a Power Plant	C E Testing Company Private Limited	2.28
143	Appa Rao G.	Proof Checking of Design and Drawings of ROBs Four Numbers on AH-02	Public Works Department	9.12
144	Arul Jayachandran S.	Proof Checking the Design of Administrative Building TNFU Nagapattinam	Tamilnadu Fisheries University	3.93
145	Ligy Philip	Validation of Systems for 'A Platform for Integrated Sanitation Investment Planning'—A Decision Support Tool by CSTEP	Centre for Study of Science Technology & Policy	1.20
146	Mohan S.	Impact of the Bridge Piers Constructed in the Cooum River on Its Flow	National Highways Authority of India	7.87
147	Satish Kumar S.R.	Proof Checking Design of PEB for Messrs Berollex at SriCity, AP (IPR/14/P/089)	Tiger Steel Engineering	2.51
148	Satish Kumar S.R.	Proof Checking Design of PEB for Flash Electronics at Chakan	S.N. Pingle Consultants	1.25
149	Ravindra Gettu	Design Consultancy and Peer Review of Fibre Concrete Overlay for Apollo Tyres Plant	Apollo Tyres Limited	3.44
150	Rajagopal K.	Consultancy Services to NTPC Simhadri for Construction of Ash Dykes	National Thermal Power Corporation Limited	1.71
151	Nageswara Rao B.	Jack Calibration and Efficiency Test	Common Code	0.59
152	Arun Menon	Structural Restoration of Ekambaranathar Temple, Kancheepuram	Arulmigu Ekambaranathar Temple	1.71
153	Nageswara Rao B.	Vetting the Design of Raw Water Reservoir Wall	BGR Energy Systems Limited	1.72
154	Nageswara Rao B.	Design Validation of the Existing Structures at Your Bawal Plant (Haryana) for Solar Panel Fixing	Asahi India Glass Limited	4.58

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
155	Alagusundaramoorthy P.	Analysing and Testing Bearing Pads for Bridge Applications	Hevea Rubber Technologies Private Limited	2.29
156	Satish Kumar S.R.	Proof Checking of Design of PEB for SMCC for Toyota Tsusho Cataler Building	Common Code	0.30
157	Arul Jayachandran S.	Investigations on the Damaged Steel Roof Structure and Glass Facade at Vizag Airport	Multi Color Steel (India) Private Limited	3.70
158	Rajagopal K.	Recommendations on the Suitability of PVDs for Ground Improvement Work at Kakinada Port	Kakinada Port	5.73
159	Nageswara Rao B.	Testing Charges of Pot Bearings in Accordance with IRC 83 (Part III)-2002 Specifications	Poly Fluoro Limited	1.60
160	Nageswara Rao B.	Review of NDT Test Results Submitted by BHEL for TG Column and Deck Slab	Bharat Heavy Electricals Limited	2.86
161	Alagusundaramoorthy P.	Repair and Rehabilitation of RCC Retaining Wall for Rakindo Kovai Township Limited	Rakindo Kovai Township Private Limited	2.58
162	Alagusundaramoorthy P.	Repair and Rehabilitation and Review of the Design of Pier and Foundation of the Bridge Across Cheyyar River at Kalasapakkam, Tamilnadu	Panchayat Union, Tiruvannamalai	6.39
163	Appa Rao G.	Characterisation of Mechanical and Bond Properties of Shotcrete Layers	Irrigation and CAD (Project Wing) Department	2.86
164	Nageswara Rao B.	Pull Out Tests on Ripple Anchor Fasteners	Ripple Construction Products Private Limited	3.00
165	Boominathan A.	Evaluation of Dynamic Stiffness of Piles	Trupti Infrastructure Private Limited	6.87
166	Gandhi S.R.	Review of Pile Foundation Design	Afcons Infrastructure Limited	1.15
167	Meher Prasad A.	Architectural and Structural Design Work for Demonstration Housing Project at Nellore	Building Materials & Technology Promotion	22.90
168	Arun Menon	Investigations on the Structural Distress at Bhatner Fort, Hanumangarh, Rajasthan	Archaeological Survey of India	5.65
169	Nageswara Rao B.	Checking Structural Stability Study of RCC Over Head Water Tank at Ambur Municipality	Municipal Corporation	1.72
170	Sreenivasa Murthy B.	Guntur Municipal Corporation (GMC) and Vijayawada Municipal Corporation (VMC)— Government of India Funded UGD and Storm Water Projects in GMC and VMC—Vetting	Public Health and Municipal Engineering Department	16.03
171	Nageswara Rao B.	Proof Checking and Vetting of Design and Drawings for Wagon Loading Station for CPCL	McNally Bharat Engineering Company Limited	6.00
172	Dali Naidu Arnepalli	Geotechnical Properties of Soil— Sevittupanapakkam	Common Code	0.69
173	Devdas Menon	Proof Checking of Proposed Reconstruction of Bridge in Mohammed Ali Road Across	Municipal Corporation	3.19
174	Devdas Menon	Office of the Executive Engineer	Common Code	0.75
175	Devdas Menon	Proof Checking for the Structural Design Residential Multi-storied Building at Chembarambakkam, Poonamallee Taluk	Developer Group India Private Limited	20.84
176	Ravindra Gettu	Toughness Characterization of a Range of Fibre Reinforced Concretes and Structural Lightweight Concrete Used in Practice	NECTARC	5.27
177	Appa Rao G.	Proof Checking of Structural Design Calculations and Drawings of ROB	Madhucon Projects Limited	2.86

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
178	Meher Prasad A.	Sipcot Industrial Park—Consultancy Work— Pillaipakkam—Comprehensive Development of Infrastructure—Construction of 5 LL OHT— Design and Drawings of 5 LL OHT with Pile Foundation—Adopting Latest IS Codes—to Be Vetted by IIT Madras	Tamil Nadu Water Supply and Drainage Board	1.72
179	Manu Santhanam	Evaluation of Repair Products	Mapei Construction Products India Private Limited	2.86
180	Nageswara Rao B.	Testing of Light Weight Hollow Core Precast Wall Panel	Common Code	1.32
181	Nageswara Rao B.	Conducting Detailed Investigation for the Structural Safety of TV Tower at Ananthapur	All India Radio	6.87
182	Veeraraghavan A.	Investigation on Distress on Port Blair Runway and Suggest Remedial Measures	Military Engineering Services	8.55
183	Ravindra Gettu	Testing of Concretes with Brugg Contec Polymer Fibres	Brugg Contec AG	3.96
184	Nageswara Rao B.	Structural Design of Foundation, Pier and Deck Slab for Widening of Road at Ayiramthengu, Kayankulam near Kollam, Kerala	Central Public Works Department	8.59
185	Satish Kumar S.R.	Proof Checking of PEB for TNCSC at Nagapattinam	Metal Scope I Private Limited	3.60
186	Ligy Philip	Carrying Out Environment Audit for Our Industry for CMR Toyotsu Aluminium India Private Limited	CMR-Toyotsu Aluminium India Private Limited	5.73
187	Ligy Philip	Feasibility Study of Marine Disposal of Salts Generated from Common Effluent Treatment Plants (CETPs) of Tanneries	The All India Skin and Hide Tanners and Merchants Association	2.29
188	Meher Prasad A.	Proof Checking of Structural Design	Common Code	0.69
189	Mohan S.	Hazardous Waste Estimation and Development of Strategies for Its Treatment and Disposal	Pioneer Processing India	2.00
190	Dali Naidu Arnepalli	Stability Analysis of Ash Dyke at NCC Power Projects Limited, Nellore	Gayatri Projects Limited	2.28
191	Nageswara Rao B.	Conducting Third Party Quality Assurance (TPQA) for Construction of School Building at Kendriya Vidyalaya, Davangere (Karnataka)	Hindustan Steelworks Construction Limited	2.29
192	Alagusundaramoorthy P.	Analysing and Testing of Strands, Bearing Pads and Structural Elements for Civil Infrastructure Applications	Common Code	3.36
193	Meher Prasad A.	Monotonic Test of Gypsum Wall Panel — One No. and Cyclic Load Test — 19 Nos	Saint-Gobain Research India Limited	13.68
194	Alagusundaramoorthy P.	Construction of Multi-storied Blocks at Manali New Town Area and Soil Investigation for Suitable Foundation	Tamilnadu Slum Clearance Board	8.59
195	Nageswara Rao B.	Calibration of Hydraulic Jack	Common Code	2.12
196	Alagusundaramoorthy P.	Analysing and Testing of Pot Bearings for Bridge Applications	Modern Road Makers Private Limited	1.60
197	Alagusundaramoorthy P.	Condition Assessment of Helipad Hangar and the Connecting RCC Building	Reliance Industries Limited	13.97
198	Devdas Menon	Heavy Duty Tower of Plan Size 6 m—Six Towers and Three Towers Heavy Duty Tower Spindle with Nut—Three Nos, Heavy Duty Tower—Basic Frame 1.8 m Long and 1.2 m Long—Three Nos, Steel Waler 2.4 m Long—Three Nos and 0.8 m Long—Three Nos Steel Waler 1.6 m + Steel Waler 0.80 m	Larsen and Toubro Limited	8.60

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199	Ligy Philip	Vetting the DPR and Estimate of STP Project—Wellington Cantonment Board	Ministry of Defence	5.73
200	Nageswara Rao B.	Reviewing and Vetting Structural, Civil Drawings and Design Calculation of Gallery and Trestles of Belt Conveyor from Stability and Safety Aspect of Design	McNally Bharat Engineering Company Limited	1.72
201	Gandhi S.R.	Design and Stability Check for Landfill	Colourtex Industries Private Limited	2.29
202	Alagusundaramoorthy P.	Review of the Design and Vetting the Drawings of Main Crash Area and Angular Crash Area in APSL Building at Global Automotive Research Centre, Chennai	Zamil Steel Buildings (I) Private Limited	1.89
203	Boominathan A.	Engineering Services for Evaluation of Dynamic Soil and Pile Parameters	Nirma Limited	4.58
204	Rajagopal K.	Technical Evaluation of Different Geosynthetics for Various Ground Improvement Projects	Common Code	0.69
205	Arul Jayachandran S.	Design of Wet Ash/Earth Filling and Pile Design for 40 m Dia Tank at Ennore	Bharat Petroleum Corporation Limited	6.00
206	Indumathi M. Nambi	Vetting of DPR and Design Adequacy Check	Tamil Nadu Water Investment Company Limited	2.29
207	Thyagaraj T.	Evaluation of Strength Characteristics of Kaliapani Opencast Mine Dump Samples at Jajpur District	National Institute of Rock Mechanics	1.72
208	Nageswara Rao B.	Structural Proof Checking of Proposed Krishna Lila Theme Park	Krishna Lila Park — ISKCON Bangalore	14.31
209	Devdas Menon	Proof Checking of U-Type PSC Girder Suitable for 18.3 Span for 25 T Loading of Indian Railway Standard	Rail Vikas Nigam Limited	1.15
210	Indumathi M. Nambi	Design Adequacy Check of STP (180 KLD) in ONGC Residential Building and Office Complex	ECO Care Engineering Private Limited	1.72
211	Nageswara Rao B.	Prestressing Strands Relaxation Test	Common Code	3.50
212	Boominathan A.	Dynamic Pile Load Test on Pile Cracker at RIL, Haziara	Reliance Industries Limited	4.01
213	Nageswara Rao B.	Assessing Feasibility of Erection of 100 m Guyed Mast at Doordarshan HPT Mahabubnagar	All India Radio	2.29
214	Nageswara Rao B.	Testing of Turnout Sleeper	Voestalpine VAE VKN India Private Limited	15.24
215	Manu Santhanam	Investigations on Gandhi Bhavan	Panjab University	4.01
216	Nageswara Rao B.	Checking and Vetting of Design and Drawings of Major Bridge 98, Major Bridge 104, Multi-cell Box Culvert (Bridge No. 119)	Vijay Nirman Company Private Limited	2.29
217	Sreenivasa Murthy B.	Vetting of Designs for Surge Tank and Other Transient Control Measures	Megha Engineering and Infrasture Limited	10.00

RBIC projects

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Alagusundaramoorthy P.	Condition Assessment and Repair and Rehabilitation of Fire Damaged Concrete Structural Members in Induced Draught Cooling Tower in #1 in IL&FS 2×600 MW Cuddalore Power Project	Shandong Tiejun Electric Power Engineering Company Limited	31.74

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
2	Koshy Varghese	Third Party Review for Setting Up Strand Arrangement for Lowering of Blocks S4 at SBC	Larsen and Toubro Limited	32.02
3	Satyanarayana K.N.	Development of Detailed Project Report for Construction and Demolition Waste Management in Chennai City	Corporation of Chennai	8.76
4	Satish Kumar S.R.	Prototyping Testing of BRB and Establishing Manufacturing Methodology for ESP Structure	Bharat Heavy Electricals Limited	11.40
5	Ligy Philip	Evaluation of DRDO Waste Water Treatment System	Bill & Melinda Gates Foundation	97.87
6	Mohan S.	Development of Models for Integrated Operation of Major Reservoirs and to Study the Impact of Enbloc Allocations in Krishna Basin	Irrigation and CAD (Project Wing) Department	47.88
7	Ligy Philip	Sustainable Waste Management and Resource Recovery for Clean and Healthy Villages	Technip India Limited	114.00
8	Sreenivasa Murthy B.	Developing Improved Design of Septic Tanks to Prevent Groundwater Contamination in the Context of Namakkal District	Arghyam	52.31
9	Sudheer K.P.	Technical Support for Building the Capacities of State Knowledge Management Centre on Climate Change—EPCO	Society for Development Alternatives	14.25
10	Koshy Varghese	Evaluation of Design and Drawings for Twin Box Launching Girders for Bridge Construction	Larsen and Toubro Limited	16.03
11	Balaji Narasimhan	Development of a Real-Time Reservoir Inflow Forecast System Using a Hydrologic Model Based on Input from Ensemble Weather Forecasts for Improving Reservoir Operation Decision at Some Pilot Basins—Tamil Nadu	Regional Integrated Multi-hazard Early Warning System	17.25
12	Ligy Philip	Assessment of Migration of Plasticizers in Consumer Products Such as Hair Oils, Soft Drinks, Fruit Juice, Liquor and Pharma Products Packed in PET and Tetra Packets Under Different Environmental Conditions	Galaxy Trust	10.31
13	Ligy Philip	Evaluation of Small Scale Decentralized Sanitation Systems	Bill & Melinda Gates Foundation	128.86
14	Ligy Philip	Preparation of Awareness Videos on Plastic Waste Management and Recycling	Tamil Nadu Pollution Control Board	3.68
15	Shiva Nagendra S.M.	To Study the Dipersion of Selected Air Pollutants Concentration Emitted from Various Sources at Chennai Port, Chennai for Selected Scenarios	Chennai Port Trust	8.00
16	Ravindra Gettu	Assessment of the Compatibility between Superplasticizers and Concrete Raw Materials from Different Parts of India	Chryso SAS	90.06
17	Benny Raphael	Consulting services for the study titled 'Development of Web Enabled Single Window System for Online Submission, Processing and Disposal of Planning Permission Applications, Building Permit Applications, Completion Certificate and Occupancy Certificate'	Chennai Metropolitan Development Authority	74.75
18	Shiva Nagendra S.M.	Microanalysis of Particulate Matter Characteristics in Contrasting Areas of Delhi Megacity and Chennai Metrocity	Central Pollution Control Board	3.92
19	Mohan S.	Groundwater Flow Modelling of NLC Mines Area and Its Future Expansion Mines Area	Neyveli Lignite Corporation Limited	17.18
20	Alagusundaramoorthy P.	Investigating the Condition of Road Bridge Over the Ellis Saddle Surplus Sluice in Mettur Dam and Repair and Rehabilitation	Public Works Department	22.87

Retai	Retainer consultancy			
SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Arul Jayachandran S.	Consultancy for Developing and Installation of Geodesic Dome Structures of Temcor Rollwell Domes Private Limited, Mumbai, for their future requirements		10.00
2	Arul Jayachandran S.	Design Checking and Consulting for Better Performance of PEB Structures	Lloyd Insulations (India) Limited	10.00
3	Gitakrishnan Ramadurai	Strategic Planning Advisor for JNPTIA– Agency: CIDCO	City and Industrial Development Corporation of Maharashtra Limited	7.98
4	Veeraraghavan A.	Pavement Expert-L7t-IDPL Projects	L&T Infrastructure Development Projects Limited	8.55

Research publications of the faculty members and research scholars

Papers published in refereed national journals: 19 Papers published in refereed international journals: 79

Papers presented at national conferences: 16 Papers presented at international conferences: 56

Papers published in refereed national journals

- 1. Rajagopal K., Ganesh Kumar S., Sridhar G., Radhakrishnan R. and Robinson R.G. 2015. A case study of vacuum consolidation of soft clay deposit. *Indian Geotechnical Journal* 45(1): 51–61.
- 2. Rajagopal K., Veeraragavan A. and Nithin S. 2015. State of the art summary of geosynthetic inter-layer systems for retarding reflection cracking. *Indian Geotechnical Journal* 45: 472–487.
- 3. Ajitha Thankappan and Lelitha Vanajakshi. 2015. Development and application of a traffic stream model under heterogeneous traffic conditions. *Journal of the Institution of Engineers (India): Series A* 40(30): 15–134. doi:10.1007/s40030-015-0134-2015
- 4. Sivakumar Palaniappan and Anna George Nellickal. 2015. Built environment sustainability: Review of key concepts, NICMAR. *Journal of Construction Management* 30(1): 5–18.
- 5. Sengupta A.K., Mahajan M.A. and Rao G.A. 2015. Assessment of effective joint width for exterior eccentric reinforced concrete beam–column joints. *Journal of Structural Engineering* 42(2): 87–105.
- 6. Sengupta A.K., Biswal A. and Prasad A.M. 2015. Investigation of shear behaviour of vertical joints between precast concrete wall panels. *The Indian Concrete Journal* 89(1): 41–47.
- 7. Manu Santhanam, A. Bahurudeen and K.S. Vaisakh. 2015. Availability of sugarcane bagasse ash and potential for use as a supplementary cementitious material in concrete. *Indian Concrete Journal* 89(6).
- 8. Manu Santhanam, V.H.R. Siva and Hema Achyuthan. 2015. Pozzolanic characteristics of Young Toba Tuff. *Current Science* 109(10): 1869–1874.
- 9. Goswami R., Sunitha P. and Murty C.V.R. 2016. Idealised bilinear moment-curvature curves of RC sections for pushover analysis of RC frame buildings. *The Indian Concrete Journal* 90(4): 43–54.
- 10. Goswami R., Sunitha P and Murty C.V.R. 2016. Seismic behaviour of RC moment frame buildings designed and detailed as per first revision of IS 13920—draft provisions. *The Indian Concrete Journal* 90(4): 64–71.
- 11. Goswami R. Vijayanarayanan and Murty C.V.R. 2015. Identifying stiffness irregularity in multistorey buildings. *The Indian Concrete Institute Journal* 16(4): 19–22.
- 12. Goswami R., Balasubramanian S.R., Maheswari D., Cynthia A., Balaji Rao K., Meher Prasad A. and Sivakumar P. 2015. Experimental determination of statistical parameters associated with uniaxial compression behaviour of brick masonry. *Current Science* 109(11): 2094–2102.
- 13. Goswami R., Reshma C.V., Balasubramanian S.R., Balaji Rao K. and Sivakumar P. 2015. Effect of uncertainities in development of fragility curves for URBM building. *Indian Journal of Science and Technology* 8(8): 84014. doi:10.17485/ijst/2015/v8i8/84014
- 14. Goswami R., Aysha Z.M and Murty C.V.R. 2015. Mechanics-driven hand calculation approach for obtaining design P–M interaction curves of RC sections. *The Indian Concrete Journal* 89(9): 59–68.
- 15. Goswami R., Sunitha P. and Murty C.V.R. 2015. Importance of plinth beams in mitigating negative effects of flexible column bases in seismic behaviour of RC moment frame buildings. *The Indian Concrete Institute Journal* 16(1): 17–20.

- 16. Devdas Menon and M. Najeeb Shariff. 2016. Displacement-controlled nonlinear analysis of RC frames and grids. *Journal of Structural Engineering* 42(5): 393–404.
- 17. Indumathi M. Nambi, Berlin M. and Suresh Kumar G. 2015. Experimental and numerical investigation on nitrogen species transport in unsaturated soil during various irrigation patterns. *Sadhana* 40(8): 2429–2455.
- 18. Indumathi M. Nambi, Berlin M., Vasudevan M. and Suresh Kumar G. 2015. Numerical modeling on fate and transport of petroleum hydrocarbons in an unsaturated sub-surface system for varying source scenario. *Journal of Earth System Science* 124(3): 655–674.
- 19. Gowri Asaithambi and Sivanandan R. 2015. Evaluation of intersection traffic control measures through simulation. *Journal of the Institution of Engineers (India): Series A* (Springer) 96(4): 339–347. doi:10.1007/s40030-015-0133-z

Papers published in refereed international journals

- 1. Benny Raphael, Maria Papadopoulou, Ian F.C. Smith and Chandra Sekhar. 2015. Optimal sensor placement for time-dependent systems: Application to wind studies around building. *ASCE Journal of Computing in Civil Engineering*.
- 2. Benny Raphael, Yang J., S.C. Sekhar and K.W. Cheong. 2015. Performance evaluation of a novel personalised ventilation, personalised exhaust system for airborne infection control. *Indoor Air* 25(2): 176–178.
- 3. Benny Raphael, Yang J., S.C. Sekhar and K.W. Cheong. 2015. A time-based analysis of the personalized exhaust system for airborne infection control in healthcare settings. *Science and Technology for the Built Environment* 21(2): 172–178.
- 4. Benny Raphael, Didier G. Vernay and Ian F.C. Smith. 2015. A model-based data-interpretation framework for improving wind predictions around buildings. *Journal of Wind Engineering & Industrial Aerodynamics* 145: 219–228.
- 5. Benny Raphael, Didier G. Vernay and Ian F.C. Smith. 2015. Improving simulation predictions of wind around buildings using measurements through system identification techniques. *Building and Environment* 94: 620–631.
- 6. Benny Raphael and Krishna Sai Jadhav. 2015. Sensor placement for structural monitoring of transmission line towers. *Frontiers in Built Environment*.
- 7. Atul Narayan S.P., J. Murali Krishnan, K.R. Rajagopal and D.N. Little. 2016. Mechanical behaviour of asphalt binders at high temperatures and specification for rutting. *International Journal of Pavement Engineering* 1–12.
- 8. Veeraragavan, Rajib B. Mallick, Hui Li, John Harvey, Ray Myers and A. Nicholas Reck. 2015. Pavement life extension potential of geosynthetic reinforced chip seal with high reflectivity aggregates. *Transportation Research Record: Journal of the Transportation Research Board* 2474: 19–29.
- 9. Veeraragavan A., Neethu Roy and Murali Krishnan J. 2015. Influence of confinement pressure and air voids on the repeated creep and recovery of asphalt concrete mixtures. *International Journal of Pavement Engineering* 17(3): 133–147.
- 10. Veeraragavan Amirthalingam, Nithin Sudarsanan and Rajagopal Karpurapu. 2015. Critical review on bond strength of geo-synthetic inter-layer system in asphalt overlays. *Japanese Geotechnical Society Special Publication* 2(67): 2296–2301.
- 11. Veeraragavan A., Dhiraj Minoltra Rajib and Basu Mallick. 2015. Laboratory and field investigation of mechanical properties of foamed asphalt recycled base course materials for high volume pavements in India. *Journal of Performance of Constructed Facilities, ASCE* 29.
- 12. D.N. Arnepalli, S. Rajesh, B.H. Rao and S. Sreedeep. 2015. Environmental geotechnology: An Indian perspective. *Environmental Geotechnics*.
- 13. D.N. Arnepalli, K.M. Nithya and S.R. Gandhi. 2015. Study on factors affecting heavy metal sorption characteristics of two geomaterials. *Geotechnical Engineering Journal*.
- 14. D.N. Arnepalli, R.W.I. Brachman, R. Kerry Rowe and W. Andy Take. 2015. Thermal exposure conditions for a composite landfill liner with a black geomembrane exposed to solar radiation. *Geosynthetics International* 22(1): 93–109.
- 15. D.N. Arnepalli and C. Cherian. 2015. A critical appraisal of the role of clay mineralogy in lime stabilization. *International Journal of Geosynthetics and Ground Engineering* 1(1): 1–20.
- 16. Rajagopal K. and Anjana Bhasi. 2015. Numerical study of basal reinforced embankments supported on floating/end bearing piles considering pile-soil interaction. *Journal of Geotextiles and Geomembranes* 43 (special issue Soft Ground Improvement with Geosynthetics): 524–536.
- 17. Rajagopal K., Dodagoudar G. and Sajna S. 2015. Random field modeling of reinforced retaining walls. *International Journal of Geotechnical Engineering* 9(3): 229–238.
- 18. Lelitha Vanajakshi, Ajitha Thankappan and Shankar C. Subramanian. 2015. Real time traffic density estimation without reliable side road data. *ASCE Journal of Computing in Civil Engineering* 29(2).

- 19. Lelitha Vanajakshi, Vasantha Kumar, Krishna C. Dogiparthi, and Shankar C. Subramanian. 2015. Integration of exponential smoothing with state space formulation for bus travel time and arrival time prediction, transport. *Transport* (Taylor and Francis). doi:10.3846/16484142.2015.1100676
- 20. Lelitha Vanajakshi, Anil Kumar, Snigdha Mothukuri and Shankar C. Subramanian. 2015. An analytical approach to identify the optimum inputs for a bus travel time prediction method, transportation research record. *Transportation Research Record: Journal of the Transportation Research Board* 2535. http://dx.doi. org/10.3141/2535-03
- 21. Lelitha Vanajakshi, Ajitha Thankappan, Amritha Sunny and Shankar C. Subramanian. 2015. A non-continuum lumped parameter dynamic model applied to Indian traffic, systems science and control engineering. 3(1): 320–331.
- 22. Lelitha Vanajakshi and Vasantha Kumar. 2015. Short-term traffic flow prediction using seasonal ARIMA model with limited input data. *European Transport Research Review* 7: 21. doi:10.1007/s12544-015-0170-8
- 23. Lelitha Vanajakshi, Srinivas Kodali, Akhilesh Koppineni, Krishna Chaitanya and Siddharth. 2015. Development of a telematics based advanced public transportation system. *European Transport* 58.
- 24. S. Mohan, Saravanan R. and A.N.G. Krishnan. 2015. Scale effect on dispersion coefficient of conservative solute through break through curve (BTC): Experimental study. *International Journal of Earth Science and Engineering* 8(2): 793–801.
- S. Mohan, K.S.A. Dinesh Kumar and S.S. Rama Krishnan. 2015. Management strategies of a coastal basin through regional groundwater modeling. *International Journal of Applied Engineering Research* 10(7): 16637–16653.
- 26. U. Saravanan and H. Hariharaputhiran. 2016. A new set of biaxial and uniaxial experiments on vulcanized rubber and attempts at modeling it using classical hyperelastic models. *Mechanics of Materials* 92: 211–222. doi:10.1016/j.mechmat.2015.09.003
- 27. U. Saravanan, L.S. Shankar and S. Rajthilak. 2016. Numerical technique for solving truss and plane problems for a new class of elastic bodies. *Acta Mechanica* (online first) 1–30. doi:10.1007/s00707-015-1529-6
- 28. U. Saravanan and Chethan Gouder. 2016. Modeling diffusion of sulfate through concrete using mixture theory. *Acta Mechanica* (online first) 1–24. doi:10.1007/s00707-015-1539-4
- 29. Saravanan U. and Paranjothi K. 2015. Identifying hyperelastic and isotropic materials by examining the variation of principal direction of left Cauchy-Green deformation tensor in uniaxial loading. *International Journal of Solids and Structures* 63: 289–297.
- 30. Atul Narayan S.P., J. Murali Krishnan, D.N. Little and K.R. Rajagopal. 2016. Mechanical behaviour of asphalt binders at high temperatures and specification for rutting. *International Journal of Pavement Engineering*.
- 31. Manu Santhanam and A. Bahurudeen. 2015. Influence of different processing methods on the pozzolanic performance of sugarcane bagasse ash. *Cement and Concrete Composites* 56: 32–45.
- 32. M. Santhanam, N. Shajil and S.M. Srinivasan. 2015. An experimental study on self-centering and ductility of pseudo-elastic shape memory alloy (PESMA) fiber reinforced beam and beam-column joint specimens. *Materials and Structures*. doi:10.1617/s11527-015-0538-1
- 33. Manu Santhanam, Bahurudeen, Deepak Kanraj and V. Gokul Dev. 2015. Performance evaluation of sugarcane bagasse ash-blended cement in concrete. *Cement and Concrete Composites* 59: 77–88.
- 34. Santhanam M., Bahurudeen A., Wani K. and Basit M. 2015. Assessment of pozzolanic performance of sugarcane bagasse ash. *Journal of Materials in Civil Engineering* (ASCE). doi:10.1061/(ASCE) MT.1943-5533.0001361
- 35. Mathava Kumar and Raju C. Asha. 2015. Sulfamethoxazole in poultry wastewater: Identification, treatability and degradation pathway determination in a membrane: Photocatalytic slurry reactor. *Journal of Environmental Science and Health: Part A* 50(10): 1011–1019.
- 36. Mathava Kumar, Raju C. Asha, M.A. Vishnuganth, Remya Neelancherry and N. Selvaraju. 2015. Comparison of batch and continuous photocatalytic systems for livestock wastewater treatment. *Water, Air & Soil Pollution* 226(5): 132.
- 37. Mathava Kumar, M.A. Vishnuganth, S. Rangabhashiyam, Neelancherry Remya and N. Selvaraju. 2015. Optimization of GAC supported TiO₂ photocatalytic process for competent carbofuran removal from an aqueous system. *Journal of Scientific and Industrial Research* 74(4): 225–231.
- 38. Mathava Kumar and Raju C. Asha. 2015. Photo-catalytic degradation of poultry wastewater using activated carbon supported titanium dioxide. *Desalination Water Treatment* 54(12): 3279–3290.
- Shiva Nagendra S.M., Gulia S. and Mukesh Khare. 2015. Comparative evaluation of air quality dispersion models for PM_{2.5} at air quality control regions in Indian and UK cities. *Journal of Meteorological Society of India* (MAPAN) 30(4): 249–260.
- 40. Shiva Nagendra S.M. and Kishore Kumar M. 2015. Characteristics of ground level CO₂ concentrations over contrasting land uses in a tropical urban environment. *Atmospheric Environment* 115: 286–294.

- 41. Shiva Nagendra S.M., Gulia S and Mukesh Khare. 2015. Urban air quality management: A review. *International Journal of Atmospheric Pollution Research* 6(2): 286–304. (Open access)
- 42. Shiva Nagendra S.M. and Srimuruganandam B. 2015. ANN based PM prediction model for assessing the temporal variability of PM₁₀, PM_{2.5} and PM₁ concentrations at an urban roadway. *International Journal of Environmental Engineering* 7(1): 60–89.
- 43. Shiva Nagendra S.M., Adil Eshack, Leo Samuel D.G. and Maiya M.P. 2015. Monitoring and simulation of carbon monoxide concentrations in mechanically ventilated car parks. *Journal of Thermal Engineering* 1(5): 295–302.
- 44. Sengupta A.K., Firodiya P.K. and Pillai R.G. 2015. Evaluation of corrosion rates of reinforcing bars for probabilistic assessment of existing road bridge girders. *Journal of Performance of Constructed Facilities* 29(3): 1–9. doi:http://dx.doi.org/10.1061/(ASCE)CF.1943-5509.0000579
- 45. Boominathan A., Krishna Kumar S. and Subramanian R.M. 2015. Lateral dynamic response and effect of weakzone on the stiffness of full scale single piles. *Indian Geotechnical Journal* 45(1): 43–50.
- Nambi I.M., Vasudevan M. and Suresh Kumar G. 2015. Numerical modeling on rate limited dissolution mass transfer of entrapped petroleum hydrocarbons in a saturated sub-surface system. *ISH Journal of Hydraulic Engineering*. doi:10.1080/09715010.2015.1043596
- 47. Nambi I.M., Berlin M., Vasudevan M. and Suresh Kumar G. 2015. Numerical modelling on fate and transport of petroleum hydrocarbons in an unsaturated sub-surface system for varying source scenario. *Journal of Earth System Science* 124(3): 655–674.
- 48. Nambi I.M., Vasudevan M. and Suresh Kumar G. 2016. Scenario-based modeling of mass transfer mechanisms at a petroleum contaminated field site-numerical implications. *Journal of Environmental Management* 175: 9. doi:10.1016/j.jenvman.2016.03.009
- 49. Nambi I.M. and Mekala C. 2016. Transport of ammonium and nitrate in saturated porous media incorporating physio biotransformations and bioclogging. *Bioremediation Journal* 20(2): 117–132.
- 50. Nambi I.M. and Mekala C. 2016. Experimental and simulation studies on nitrogen dynamics in unsaturated and saturated soil using HYDRUS-2D. *Procedia Technology* 24: 20–28.
- 51. Nambi I.M., Gangadharan and Praveena. 2015. Hexavalent chromium reduction and energy recovery by using dual-chambered microbial fuel cell. *Water Science and Technology* 71(3): 353–358.
- 52. Nambi I.M., Gangadharan, Praveena and Jaganathan Senthilnathan. 2015. Liquid crystal polaroid glass electrode from e-waste for synchronized removal/recovery of Cr⁺⁶ from wastewater by microbial fuel cell. *Bioresource Technology* 195: 96–101.
- 53. Nambi I.M., Omkar Gaonkar and G. Suresh Kumar. 2016. Numerical modelling on fate and transport of coupled adsorption and biodegradation of pesticides in an unsaturated porous medium. *ISH Journal of Hydraulic Engineering*. doi:10.1080/09715010.2016.1166073
- 54. Nambi I.M., Selvaraj Ambika and Jaganathan Senthilnathan. 2016. Low temperature synthesis of highly stable and reusable CMC-Fe²⁺(-nZVI) catalyst for the elimination of organic pollutants. *Chemical Engineering Journal* 289: 544–553.
- 55. Devdas Menon, Pradip Sarkar and A. Meher Prasad. 2016. Seismic evaluation of RC stepped building frames using improved pushover analysis. *Earthquakes and Structures* 10(4): 913–938.
- 56. Ramamurthy K. and Muthu Kumar E. 2015. Effect of fineness and dosage of aluminium powder on the properties of moist-cured aerated concrete. *Construction and Building Materials* 95: 486–496. doi:10.1016/j. conbuildmat.2015.07.122
- 57. Ramamurthy K., Nair M.G., Ganesan A.R. and Ramamurthy K. 2015. Daylight enhancement using laser cut panels integrated with a profiled Fresnel collector. *Lighting Research and Technology* 47(8): 1017–1028. doi:10.1177/1477153514556524
- 58. Ramamurthy K., Siva M. and Dhamodharan R. 2015. Sodium salt admixtures for enhancing the foaming characteristics of sodium lauryl sulphate. *Cement and Concrete Composites* 57: 133–141. doi:10.1016/j. cemconcomp.2014.12.011
- 59. Ramamurthy K., Nair M.G. and Ganesan A.R. 2015. Conceptual design and assessment of a profiled Fresnel lens daylight collector. *Lighting Research and Technology* 47(5): 533–547. doi:10.1177/1477153514535421
- 60. Ligy Philip, Tarun Anumol, Arya Vijayanandan, Minkyu Park and Shane A. Snyder. 2016. Occurrence and fate of emerging trace organic chemicals in wastewater plants in Chennai, India. *Environment International* 92–93: 33–42. doi:10.1016/j.envint.2016.03.022
- 61 Ligy Philip, Raj Kamal Singh, Vigneshwar Babu and Sarathi Ramanujam. 2016. Applicability of pulsed power technique for the degradation of methylene blue. *Journal of Water Process Engineering*.
- 62. Ligy Philip, Oberoi and Akashdeep Singh. 2016. Biological degradation of heterocyclic aromatic hydrocarbons with naphthalene-enriched consortium: Substrate interaction studies and fate of metabolites. *Applied Biochemistry and Biotechnology*.

- 63. Ligy Philip and Naresh K. Sharma. 2016. Combined biological and photocatalytic treatment of real coke oven waste water. *Chemical Engineering Journal* 295: 20–28.
- 64. Ligy Philip and D. Krithika. 2016. Treatment of wastewater from water based paint industries using submerged attached growth reactor. *International Biodeterioration and Biodegradation* 107: 31–41.
- 65. Ligy Philip, Raj Kamal Singh and Sarathi Ramanujam. 2016. Disinfection of water by pulsed power technique: A mechanistic perspective. *RSC Advances* 6(15): 11980–11990.
- 66. Ligy Philip, Aswathy E. Valsan, Hema Priyamvada, R. Ravikrishna, Viviane R. Després, C.V. Biju, Lokesh K. Sahu, Ashwini Kumar, R.S. Verma and Sachin S. Gunthe. 2016. Morphological characteristics of bioaerosols from contrasting locations in southern tropical India::A case study. *Atmospheric Environment* 122: 321–331.
- 67. Ligy Philip, V. Arya and S. Murty Bhallamudi. 2016. Performance of suspended and attached growth bioreactors in cationic and anionic pharmaceutical removal. *Chemical Engineering Journal* 284: 1295–1307.
- 68. Ligy Philip, Raj Kamal Singh, Vigneshwar Babu and Sarathi Ramanujam. 2016. Disinfection of water using pulsed power technique: Effect of system parameters and kinetic study. *Chemical Engineering Journal* 284: 1184–1195.
- 69. Ligy Philip and C. Ramprasad. 2016. Surfactants and personal care products removal in pilot scale horizontal and vertical flow constructed wetlands while treating greywater. *Chemical Engineering Journal* 284: 458–468.
- 70. Ligy Philip, Suneethi S., Keerthiga G., Soundhar R., Kanmani M., Boobalan T. and Krithika D. 2015. Qualitative evaluation of small scale municipal wastewater treatment plants (WWTPs) in south India. *Water Practice and Technology* 10(4):711–719.
- 71. Ligy Philip, Oberoi, Akashdeep Singh and S. Murty Bhallamudi. 2015. Biodegradation of various aromatic compounds by enriched bacterial cultures: Part B. Nitrogen-, sulfur-, and oxygen-containing heterocyclic aromatic compounds. *Applied Biochemistry and Biotechnology* 176(6): 1746–1769.
- 72. Ligy Philip, Oberoi, Akashdeep Singh and S. Murty Bhallamudi. 2015. Biodegradation of various aromatic compounds by enriched bacterial cultures: Part A. Monocyclic and polycyclic aromatic hydrocarbons. *Applied Biochemistry and Biotechnology* 176(7): 1870–1888.
- 73. Ligy Philip, Ravi R., Philip and Swaminathan. 2015. Modified rotating biological contactor for removal of dichloromethane vapours. *Environmental Technology* 36(5): 566–572.
- 74. Ligy Philip and Priya V.S. 2015. Treatment of volatile organic compounds in pharmaceutical waste water using submerged aerated biological filter. *Chemical Engineering Journal* 266: 309–319.
- 75. Ligy Philip, Sambandam Balaji, Surenjan Anupama, Philip and Pradeep Thalappil. 2015. Rapid synthesis of C-TiO₂: Tuning the shape from spherical to rice grain morphology for visible light photocatalytic application. *ACS Sustainable Chemistry & Engineering* 3(7): 1321–1329.
- 76. Ligy Philip and Priya V.S. 2015. Membrane bioreactor for the treatment of VOC laden pharmaceutical wastewater: Effect of biological treatment systems on membrane performance. *Journal of Water Process Engineering* 6: 61–73.
- 77. Ligy Philip and Sharma N.K. 2015. Treatment of phenolics, aromatic hydrocarbons and cyanide bearing wastewater in individual and combined anaerobic, aerobic, anoxic bioreactors. *Applied Biochemistry and Biotechnology* 175: 300–322.
- 78. Gowri Asaithambi, Yogesh Kumar R.V. and Sivanandan R. 2015. Evaluation of exclusive stopping space for motorcycles at signalized intersections under mixed traffic conditions using simulation model. *European Transport* 57.
- 79. Gowri Asaithambi and Sivanandan R. 2015. Evaluation of right turn lane at signalized intersection in non-lane based heterogeneous traffic using microscopic simulation model. *Transportation Letters: The International Journal of Transportation Research* 7(2): 61–72. doi:10.1179/1942787514Y.0000000034

Papers presented at national conferences

- 1. Rajagopal K. and Arnepalli D.N. State-of-the-art on the applications of geosynthetics for dam repair and rehabilitation. *First National Dam Safety Conference*, organized by Central Water Commission, Tamil Nadu Water Resources Department and IIT Madras, Chennai, 24–25 March, 2015 (pp. 257–268).
- 2. Rajagopal K. Finite element methods for analysis of constructions in soft clay soils. Foundation Day function of National Institute of Rock Mechanics, Kolar Gold Mines, 2015.
- 3. Rajagopal K. Geosynthetics for construction of high embankments on soft clay soils. *Proceedings of Symposium on Ground Improvement and Geosynthetics*, organized by IGS Hyderabad Chapter and JNTU Hyderabad, 2015.
- 4. Rajagopal K. Finite element methods for analysis of constructions in soft clay soils, *TC-8 Workshop on Numerical and Physical Modeling*, Guru Nanak Dev Engineering College, Ludhiana, 2015.
- 5. Hima Shaji, Dhivya Bharathi and Lelitha Vanajakshi. Stream travel time prediction using particle filtering approach. *Recent Advances in Traffic Engineering-2015 (RATE-2015)*, SVNIT, Surat, 2015.

- 6. Dhivyabharathi B., Bachu Anilkumar, Lelitha Vanajakshi and Manoj Panda. Particle filter for reliable bus travel time prediction under Indian traffic conditions. *Third Conference of Transportation Research Group of India (CTRG)*, 2015.
- 7. Kranthi Kumar Reddy Jetty, Bachu Anilkumar and Lelitha Vanajakshi. Bus travel time prediction using support vector machines. *Third Conference of Transportation Research Group of India (CTRG)*, 2015.
- 8. Kuiry S.N. A two-dimensional dam-break flow simulation model for preparing emergency action plan. *First National Dam Safety Conference*, IIT Madras, 2015.
- 9. Mali V.K. and Kuiry S.N. A methodology to generate high-resolution digital elevation model (DEM) and surface water profile for a physical model using close range photogrammetric (CRP) technique. *AGU Fall Meeting*, San Francisco, 2015.
- 10. S. Mohan. A knowledge based system technology for dam safety analysis. *Proceedings of First National Dam Safety Conference*, pp. 57–62, 2015.
- 11. Tharun J.J. and Goswami R. Effect of contact interactions on behaviour of anchor-bolted base plate column base connections. *Proceedings of the Third International Conference on Modeling and Simulation in Civil Engineering (ICMSC 2015)*, Kollam, India, 2015.
- 12. Kulkarni K. and Goswami R. Comparative study on modelling of RC structural walls for nonlinear static analysis. *Proceedings of the National Conference on Technological Innovations for Sustainable Infrastructure (TISI-2015)*, Calicut, India, 2015. (Paper ID T0009)
- 13. Agarwal N. and Shiva Nagendra S.M. Characteristics of indoor air quality and thermal comfort in the laboratories of an academic institution. *Proceedings of the National Conference on Refrigeration and Air Conditioning (NCRAC)*, India, 2015.
- 14. Anagani A., Agarwal N. and Shiva Nagendra S.M. Ultrafine particulate matter and thermal comfort monitoring in office and student rooms of an institution. *Proceedings of the National Conference on Refrigeration and Air Conditioning (NCRAC)*, *India*, 2015.
- 15. Keertana T., Ashika S.L., Menon S.J., Agarwal N. and Shiva Nagendra S.M. Analysis of particulate matter concentration and health impact assessment at indoor and outdoor microenvironments. *Proceedings of National Civil Engineering Students Symposium*, IIT Bombay, India, 2015.
- 16. Gowri Asaithambi, Venkatesan Kanagaraj, Karthik K. Srinivasan and Sivanandan R. Study of traffic flow characteristics using different vehicle following models under mixed traffic conditions. *Recent Advances in Traffic Engineering (RATE 2015)*, June 2015.

Papers presented at international conferences

- 1. Ranjith K. Soman, Benny Raphael and Koshy Varghese. Sensor placement to monitor launching girder operations in segmental construction. *32nd International Symposium on Automation and Robotics in Construction and Mining*, Oulu, Finland, 15–18 June 2015.
- 2. Hemanta Doloi, Koshy Varghese and Benny Raphael. Drivers and impediments of building information modelling from a social network perspective. *32nd International Symposium on Automation and Robotics in Construction and Mining*, Oulu, Finland, 15-18 June 2015.
- 3. Anjana R.K. and Arnepalli D.N. A critical appraisal on developments in landfill engineering. *International Symposium: Geosynthetics—The Road Ahead*, New Delhi, 2015.
- 4. Rajagopal K. and Arnepalli D.N. Thirty years of teaching and research on geosynthetics at Indian Institute of Technology, Madras. *International Symposium: Geosynthetics—The Road Ahead*, New Delhi, 2015.
- 5. Rajagopal K. and Raju P.T. Experiences with construction of very high tiered reinforced soil retaining walls in India. *International Symposium: Geosynthetics—The Road Ahead*, pp. 132–142, New Delhi, 2015.
- 6. Rajagopal, K. and Veeraragavan A. Construction & performance of geosynthetic reinforced flexible pavements. *International Symposium: Geosynthetics—The Road Ahead*, pp. 151–159, New Delhi, 2015.
- 7. Anil Kumar, Snigdha Mothukuri, Lelitha Vanajakshi and Shankar C. Subramanian. An analytical approach to identify the optimum inputs for a bus travel time prediction method. *Transportation Research Board Annual Conference*, National Research Council, Washington, D.C., 2015.
- 8. S.P. Anusha, L. Vanajakshi, S.C. Subramanian, and A. Sharma. Performance comparison of two model based schemes for estimation of queue and delay at signalized intersections. *IEEE Intelligent Vehicles Symposium*, Seoul, South Korea, 2015.
- 9. S. Amritha, S.C. Subramanian and L. Vanajakshi. Traffic density estimation using dimensional analysis. *IEEE Intelligent Vehicles Symposium*, Seoul, South Korea, 2015.
- 10. B. Dhivyabharathi, Shrikant Fulari, Rushikesh Amrutsamanvar, Lelitha Vanajakshi, Shankar C. Subramanian and Manoj Panda. Performance comparison of filtering techniques for real time traffic density estimation under Indian urban traffic scenario. *IEEE Intelligent Transportation Systems Conference (ITSC 2015)*, September 2015, Gran Canaria, Spain, 2015.

- 11. Hima Elsa Shaji, Deepika Sridharan, Akhilesh Koppineni and Lelitha Vanajakshi. Pattern analysis of taxi GPS data, December 2015. 20th International Conference of Hong Kong Society for Transportation Studies, Hong Kong, 2015.
- 12. Chatterjee A., Ramadurai G. and Jagannathan K. Contagion processes on urban bus networks in Indian cities. *13th International Conference on Dynamical Systems Theory and Applications*, Poland, 2015.
- 13. Rajamanickam G. and Ramadurai G. Simulation of truck congestion in Chennai Port. *Winter Simulation Conference*, Huntington Beach, California, USA, 2015.
- 14. Ramadurai G. SUR model of urban freight trip generation by delivery vehicle type, urban freight and behavior change, *Urban Freight and Behavior Change 2015*, Rome, Italy, October 2015.
- 15. Radhakrishnan S. and Ramadurai G. Discharge headway model for heterogeneous traffic conditions. *Transportation Research Proceedia—18th Euro Working Group on Transportation (EWGT)*, TU Delft, the Netherlands, 2015.
- 16. Divya Priya C., Ramadurai G. and Devi G. Freight trip generation models for Chennai, India. *Proceedings of Transportation Research Board's 94th Annual Meeting (No. 15-1763)*, Washington, D.C., 2015.
- 17. Ramadurai G. Strategies for traffic signal control in Indian cities. First Workshop on Intelligent Transportation Systems, Seventh International Conference on Communication Systems and Networks (COMSNETS), 2015.
- 18. Sankaranarayanan M., Ramadurai, G. and Reddy B. Grid-based real-time image processing (GRIP). First Workshop on Intelligent Transportation Systems, Seventh International Conference on Communication Systems and Networks (COMSNETS), 2015.
- 19. Anna George Nellickal, A. Vijaya Rajendra and Sivakumar Palaniappan. A conceptual lean-based framework for improving the environmental performance of ready-mixed concrete production processes. *Proceedings of the Fourth World Construction Symposium*, Colombo, 2015.
- Anna George Nellickal, A. Vijaya Rajendra and Sivakumar Palaniappan. A simulation-based model for evaluating the performance of ready-mixed concrete (RMC) production processes. 49th International Conference of the Architectural Science Association (ANZAScA), University of Melbourne, Melbourne, Australia, 2015.
- 21. Ananth Wuppukondur and Venu Chandra. An experimental study to control scour at river confluences. *AGU Fall Meeting*, San Francisco, USA, 2015.
- 22. Ananth Wuppukondur and Venu Chandra. Mitigate reservoir sedimentation by reducing scour at river confluence: An experimental study. *Proceedings of Eighth International Perspective on Water Resources and the Environment*, ASCE, Colombo, Sri Lanka, 2016.
- 23. Sivakumar R. and Venu Chandra. Velocity distribution in a circular flume. *Proceedings of Eighth International Perspective on Water Resources and the Environment*, ASCE, Colombo, Sri Lanka, 2016.
- 24. Raju C. Asha and Mathava Kumar. Antibiotic removal in membrane-photocatalytic slurry reactor: Optimisation of hydraulic retention time. *Second International Conference on Sustainable Urbanization (ICSU2015)*, Hong Kong, China, 2015.
- 25. M.A. Vishnuganth, N. Selvaraju and Mathava Kumar. Granular activated carbon supported titanium dioxide photocatalytic process for carbofuran removal. *International Conference on Advances in Chemical Engineering (ICACE)*, NITK, Surathkal, India, 2015.
- 26. Rajasekharan S. and Goswami R. Seismic behavior of moment resisting frame (MRF) buildings. *Proceedings* of the 35th Earthquake Engineering Research Workshop of Japan Society of Civil Engineering, Tokyo, Japan, 2015.
- 27. Velmurugan M. and Goswami R. I-beam to square CFT column seismic connection using external diaphragm and rib plate for moment frames. *Proceedings of the Second Annual International Conference on Technology and Engineering*, Athens, Greece, 2015.
- 28. Sunitha P., Murty C.V.R. and Goswami R. Flexural strength and moment-curvature characteristics of slender rectangular RC wall sections. *Proceedings of the Seventh International Conference on Seismology and Earthquake Engineering (7SEE)*, Tehran, Iran, 2015. (Paper ID 0078-SD)
- 29. Zeneeb A.M., Goswami R. and Murty C.V.R. Pre-empting location and type of earthquake damage in single column flared RC bridge piers. *Proceedings of the International Conference on Earthquake Engineering and Seismology (IZIIS-50)*, Kiel, Germany, 2015. (Paper ID 232)
- 30. Shiva Nagendra. S.M. and Pavan R.Y. Air quality monitoring at an urban road using low cost sensors. *Proceedings of Asia Oceania Geosciences Society (AOGS)*, Singapore, 2015.
- 31. Rohit J., Shiva Nagendra S.M. and Sivanandan R. Application of soft computing techniques in modelling real time vehicular exhaust emissions in urban roads. *Proceedings of Seventh Workshop on Big Data Benchmarking*, India Habitat Centre, New Delhi, 2015.
- 32. Pavan R.Y. and Shiva Nagendra S.M. Low cost sensors for air quality management in smart cities. *Proceedings of Seventh Workshop on Big Data Benchmarking*, India Habitat Centre, New Delhi, 2015.

- 33. Pavan R.Y. and Shiva Nagendra S.M. Personal exposure monitoring using low cost sensors in Chennai city. *European Geosciences Union (EGU 2016) Conference*, Vienna, Austria, 2015.
- 34 Shiva Nagendra S.M. and Mukesh Khare. Big data analytics in urban air quality management. *Proceedings of Seventh Workshop on Big Data Benchmarking*, India Habitat Centre, New Delhi, 2015.
- 35. Kishore Kumar M. and Shiva Nagendra S.M. Influence of meteorological conditions on the ambient carbon dioxide (CO₂) concentrations in an Indian coastal city. *Proceedings of Asia Oceania Geosciences Society* (AOGS), Singapore, 2015.
- 36. Jyothi S. Menon and Shiva Nagendra S.M. Prediction of PM_{2.5} concentrations emitted from the major corridors in Chennai city. *Proceedings of the 12th Annual Meeting of the Asia Oceania Geosciences Society (AOGS)*, Singapore, 2015.
- 37. Neha Agarwal and Shiva Nagendra S.M. PM₁₀, PM_{2.5} and PM₁ mass concentrations in different work environment. *International Conference on New Frontiers in Chemical Energy and Environmental Engineering (INCEEE 2015)*, NIT Warangal, 2015. (Best Paper Award)
- 38. Anju Elizabeth, Shiva Nagendra S.M. and Indumathi Nambi. Characterization of ambient particulate matter near an open dumpsite. *International Conference on Green Technologies for Energy Management (ICGTEM'15)*, Mohamed Sathak Engineering College, Kilakarai, 2015.
- 39. Vatsalya Reddi K. and Shiva Nagendra S.M. Performance evaluation of control equipment with different fuels. *International Conference on Green Technologies for Energy Management (ICGTEM'15)*, Mohamed Sathak Engineering College, Kilakarai, 2015.
- 40. Srimuruganandam B., Rachitha R., Sujatha G, and Shiva Nagendra S.M. Health risks of particulate air pollution in urban centres. *Proceedings of International Conference on Sustainable Energy and Built Environment*, Vellore, 2015.
- 41. Biswal A., Prasad A.M. and Sengupta A.K. Experimental investigation and prediction of shear behaviour of vertical joints between precast concrete wall panels. *Proceedings of the Fourth Asian Conference on Ecstasy in Concrete*, 1: 91–102, Indian Concrete Institute, Kolkata, 2015.
- 42. Mohandoss P., Pillai R.G. and Sengupta A.K. Comparison of prediction models for transmission length, development length and shear capacity of pre-tensioned concrete systems. *Proceedings of the Fourth Asian Conference on Ecstasy in Concrete*, 2: 183–193, Indian Concrete Institute, Kolkata, 2015.
- 43. Murugan K. and Sengupta A.K. Investigation of shear strength and interface of columns strengthened by concrete jacketing. *Fifth Annual International Conference on Civil Engineering, Structural Engineering and Mechanics*, Athens Institute for Education and Research, Athens, Greece, 2015.
- 44. Raphael B. and Saravanan U. Smart buildings and structures: Case studies in research activities of a technical committee on innovative electromagnetic technologies and their applied development. *Activities on Smart Cities Workshops in Asia*, pp. 43–46, Institute of Electrical Engineers of Japan, 2015.
- 45. Gokulnath C. and Saravanan U. Constitutive modeling of rubber using a new class of elasticity models. *Ninth European Solid Mechanics Conference*, Madrid, Spain, 2015.
- 46. Saravanan U. On modeling the mechanical response of bodies having a fibrous microstructure. *Ninth European Solid Mechanics Conference*, Madrid, Spain, 2015.
- 47. Boominathan A., Banerjee S. and J.S. Dhanya. Performance of soil–rubber tyre scrap mixture as seismic base isolators. *Sixth International Conference on Earthquake Geotechnical Engineering*, 593: 1–8, 2015.
- 48. Rajib Basu Mallick, Dharamveer Singh and Veeraragavan A. Extension of asphalt pavement life by reduction of temperature. *Proceedings of the Third Conference of Transportation Research Group of India*, Kolkata, 2015.
- 49. Nithin S., K. Rajagopal and A. Veeraragavan. The use of natural geotextiles in reinforcing unpaved roads. Sixth International Geotechnical Symposium on Disaster Mitigation in Special Geoenvironmental Conditions, Chennai, 2015.
- 50. Singh Raj Kamal, Philip L. and Sarathi R. Application of pulsed streamer plasma in bacterial disinfection and dye degradation. *ISPC*—22nd International Symposium on Plasma Chemistry, Antwerp, Belgium, 2015.
- 51. Ramprasad C. and Philip L. Occurrence, fate and removal of emerging contaminates in a hybrid constructed wetland treating greywater. *International Conference on Geo-engineering and Climate Change Technologies for Sustainable Environmental Management*, MNNIT, Allahabad, India, 2015.
- 52. Ramprasad C. and Philip L. Greywater treatment and reuse using constructed wetland: A sustainable approach. *Indo-German Conference on Sustainability—Exploring Planetary Boundaries and Their Challenges and Opportunities*, 2015.
- 53. Ramprasad C., Mohammed A. and Philip L. Sustainable decentralized wastewater management in urban residential areas. *Indo–German Conference on Sustainability 2015—Exploring Planetary Boundaries and Their Challenges and Opportunities*, 2015.

- 54. Anu Rachel Thomas, Krithika D., Gomathy R. Iyer, Ligy Philip and Martin Kranert. Dewatering of septage for co-composting. *Indo–German Conference on Sustainability 2015—Exploring Planetary Boundaries and Their Challenges and Opportunities*, 2016.
- 55. Anu Rachel Thomas, Krithika D., Gomathy R. Iyer, Ligy Philip and Martin Kranert. Optimization of bulking materials for co-composting of septage. *Indo–German Conference on Sustainability 2015–Exploring Planetary Boundaries and Their Challenges and Opportunities*, 2016.
- 56. Krithika D., Sharon H., Philip Varghese, Ligy Philip and K.S. Reddy. Preliminary studies on treatment of black water by sustainable technology: A zero liquid discharge toilet. *Indo–German Conference on Sustainability 2015–Exploring Planetary Boundaries and Their Challenges and Opportunities*, 2016.

Distinguished visitors to the department

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Sl. No.	Name of the Visitor and Designation	Date	Purpose of Visit
1	Dr. Dohmen-Janssen, Programme Director, and Dr. Dierkes, Associate Professor, University of Twente, The Netherlands	17 June 2015	Visited the department for exploring the possibilities of student exchange, collaboration in courses, etc.
2	Prof. Paulo Monteiro, Department Of Civil Engineering, University of California, Berkeley, USA	7–13 November 2015	Visited the department to discuss collaboration in the area of concrete science and technology
3	Dr. Kevin Z. Truman, Vice Provost and Dean, University of Missouri—Kansas City, USA, and his team	1 December 2015	Visited the department to explore possibilities of collaboration
4	Prof. Antonia Pacios, Technical University of Madrid, Spain	31 March 2016	Visited the department and had discussions on research on structural glass

4.6.6. Other Activities of the Department

- The Teaching Learning Centre (TLC) organised a Faculty Development Programme (FDP) specially for the faculty members of the Civil Engineering Department between 30 July and 1 August 2015.
- The first edition of the National Concrete Canoe Competition was organised during 21–23 August 2015. Nineteen teams across India participated in the competition.
- 'Civil Engineering Research Expo' was organised on 3 and 4 March 2016. The programme was inaugurated by Prof. R. Nagarajan, Dean (IAR). A total of 38 students from 10 engineering colleges participated.
- CEA Fest'16 was organised by the department on 5 and 6 March 2016.

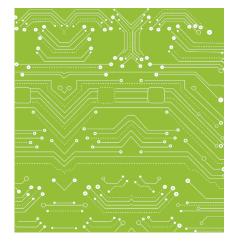
Interdisciplinary group achievements of the department

Sl. No.	Co-ordinators	Title	Period
Confer	ences		
1	K. Rajagopal	First National Dam Safety Conference, IIT Madras, Chennai	24-25 March 2015
2	Venu Chandra	Investigation, Remediation and Management of Soil and Groundwater Contaminated Sites	7–9 January 2016
3	Atul Narayanan	Rutting and Fatigue Cracking of Bituminous Pavement	1–6 February 2016
Worksl	hops		
1	S.M. Shiva Nagendra	Big Data Analytics for Air Quality Management in Smart Cities, co-located with the Seventh Workshop on Big Data Benchmarking	15 December 2015

International collaboration achievements

Prof. Ligy Philip and Prof. B.S. Murthy have been co-ordinating the activities of the Indo–German Centre for Sustainability (IGCS) in the areas of water and waste management. The centre has facilitated the exchange of faculty members and students and promoted collaborative research between IIT Madras and Germany.

Department of Computer Science and Engineering



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. It currently offers B.Tech., Dual Degree, M.Tech., M.S. and Ph.D. programmes. The department has the highest numbers of M.S./Ph.D. scholars among all the computer science departments of similar institutions in the country.

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.

New courses introduced

Sl. No.	Course No.	Title
1	CS6015	Linear Algebra and Random Processes
2	CS2700	Programming and Data Structures
3	CS2710	Programming and Data Structures Lab
4	CS1200	Discrete Mathematics for Computer Science

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	46	33	33	32	4	148
Dual Degree	15	29	27	29	27+3	130
M.Tech.	60	49	_	_	_	109
M.S.	8 + 13	17 + 6	23 + 9	13 + 10	4	103
Ph.D.	6 + 7	7 + 12	4 + 16	3 + 12	5 + 3 + 4	79
Total	155	153	112	99	50	569

Names of students/scholars who attended conferences/workshops/seminars/symposia

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SI. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroac	1				
1	Sakshi Chourasia	CS13S008	IEEE Conference on Network Softwarization (IEEE NetSoft)	13–17 April 2015, London, UK	IIT Madras
2	William K. Moses Jr.	CS12D020	ACM Symposium on Discrete Algorithms 2016	10–12 January 2016, Arlington, VA, USA	IIT Madras
3	Saket Gurukar	CS12S027	ACM SIGMOD 2015	31 May 2015, Melbourne, Australia	IIT Madras
4	Raghesh Aloor	CS12D015	ICS 2015	7–11 June 2015, Newport Beach, CA, USA	IIT Madras
5	P.R. Dhathri	CS13S026	IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (IEEE WoWMoM)	14–17 June 2015, Boston, MA, USA	IIT Madras

SI. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
6	Arkadeep Sen	CS13D207	IEEE International Symposium on Personal, Indoor and Mobile Radio Communications: Mobile and Wireless Networks (IEEE PIMRC) 31 August 2015, Hong Kong		IIT Madras
7	Ganesh C. Sankaran	CS12D008	Fourth IEEE International Conference on Cloud Networking (CLOUDNET)	5–7 October 2015, Niagara Falls, Canada	IIT Madras and HCL
8	Shiladitya Pande	CS14S035	IEEE ICDM	14–17 November 2015, Atlantic City, USA	IIT Madras
9	Saurabh Kalikar	CS14S021	Principles and Practice of Parallel Programming	12–16 March 2016, Barcelona, Spain	IIT Madras and ACM
10	C.S. Rahul	CS11D005	Computer Science: Theory and Applications — 10th International Computer Science Symposium in Russia CSR 2015	13–17 July 2015, Listvyanka, Russia	IIT Madras
11	Varun Gangal	CS11B038	Neural Information Processing Systems	7–12 December, Montreal, Canada	Partly supported by IBM
12	Manikantan Srinivasan	CS12D011	IEEE PIMRC	3 August to 2 September 2015, Hong Kong	Partly supported by DST project
13	Manikantan Srinivasan	CS12D011	IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC)	5–7 October 2015, Daejeon, South Korea	IIT Madras
14	Ditty Mathew	CS13D018	North American Chapter of the Association for Computational Linguistics—Human Language Technologies (NAACL HLT) Conference and BEA Workshop (collocated)	31 May to 5 June 2015, Denver, USA	TCS
15	Jyothi Krishna V.S.	CS13D022	European Network on High Performance and Embedded Architecture and Compilation (HiPEAC)	18–20 January 2016, Prague, Czech Republic	IIT Madras
16	Vinu E.V.	CS12D019	28th International FLAIRS Conference	18–21 May 2015, Florida, USA	IIT Madras
17	Siba Narayan Swain	CS13D026	IEEE PIMRC	30 August to 2 September 2015, Hong Kong	IIT Madras
18	Suvradip Chakraborty	CS14D012	The Ninth International Conference on Provable Security, ProvSec	24–26 November 2015, Kanazawa, Japan	Funding received from conference
19	Patanjali S.L.P.S.K.	CS12D024	52nd Design Automation Conference	7–11 June 2015, San Francisco	IIT Madras
20	Moumita Patra	CS12D001	Fifth ACM Symposium on Development and Analysis of Intelligent Vehicular Networks and Applications	2–6 November 2015, Cancun, Mexico	IIT Madras
21	G. Devi	CS14M011	30th AAAI Conference on Artificial Intelligence (AAAI-16) and EAAI-16 (collocated)	12–17 February, Phoenix Convention Center, Phoenix, Arizona, USA	Microsoft Research Travel Grant
India 1	Sarath Chandar A.P.		IKDD Conference on Data Sciences	18–21 March 2015, Bengaluru	IIT Madras

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance
	Scholar		Symposium, Workshop		from
2	Priyesh V.		IKDD Conference on Data Sciences	18–21 March 2015, Bengaluru	IIT Madras
3	Somesh S.	CS14D406	29th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2015)	25–29 May 2015, Hyderabad, India	IIT Madras
4	Saurabh Kalikar	CS14S021	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
5	Shashidhar G.	CS14S022	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
6	Manas Thakur	CS13D023	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
7	Jyothi Vedurada	CS13D201	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
8	Sumathi Sivasubramanian	CS12D018	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
9	William Kumar Moses Jr.	CS12D020	IPDPS 2015	25–29 May 2015, Hyderabad, India	IIT Madras
10	Abhijit Sahoo	CS13S020	Mining Intelligence and Knowledge Exploration (MIKE) 2015	9–11 December 2015, Hyderabad, India	IIT Madras
11	Neel Gala	CS21D021	Asian Test Symposium (ATS) 2015	IIT Bombay	Self
12	Vikas Chauhan,	CS13S041,	VLSI Design 2016	Kolkata	IIT Madras
	Neel Gala	CS12D021			
13	Neel Gala	CS12D021	IRISS 2016	Thiruvananthapuram	IRISS
14	Sowmya S. Sundaram	CS13D027	ICON 2015	11–14 December 2015, Thiruvananthapuram	Self
15	Savitha Sam Abraham	CS13D005	ICON 2015	11–14 December 2015, Thiruvananthapuram	Self

Names of students/scholars who won outside prizes and awards

il. No.	Name of the Student/ Scholar	Roll No.	Name of Prize	Prize Awarded by
1	Viswanadhuni Dinesh	CS15B040	Aditya Birla Scholarship for 2015	Aditya Birla
2	Vishal Mohanty	CS15B039		
3	Anurag Ingole	CS14M022	Best Paper Award at High Performance Computing Student Research Symposium, Bengaluru, 2015	HiPC
4	Saurabh Kalikar	CS14S021	ACM SIGPLAN Grant (up to \$1000) for attending PPoPP 2016 at Barcelona, Spain	ACM SIGPLAN
5	William K. Moses Jr.	CS12D020	Best Paper (Poster) Award at XRCI Open 2016	XRCI
6	William K. Moses Jr.	CS12D020	Promising Researcher Award (for Ph.D.	IBM
7	Raghesh Aloor	CS12D015	scholars)	
8	Saurabh Kalikar	CS14S021	Distinguished Paper Award	ACM SIGPLAN PPoPP 2016
9	Suvradip Chakraborty	CS14D012	ProvSec 2015 grant (up to JPY 90,000) for presenting the paper at Kanazawa, Japan	_

Name of students/scholars who won convocation/Institute Day prizes					
SI. No.	Name of the Student/ Scholar	Roll No.	Prize	Name of Donor	
1	Bhuvan Agrawal	CS14B060	Sri S. Subramanian Prize — I Prize	_	
2	Arjun K.	CS14B058	Sri K. Krishnamurthi Prize—II Prize	_	
3	Saurabh Gupta	CS10S029	Biswajit Sain Memorial Award for the best M.S. thesis for 2015	Biswajit Sain Memorial Trust	
4	Sharath Babu	CS13M045	Prof. H.N. Mahabala Endowment Prize	Prof. H.N. Mahabala	
5	Harini A.	CS13M021	2015 for best M.Tech. project		

4.7.3. Faculty and Their Activities

Name and Qualifications	Major Areas of Specialisation
Professors	
Chandra Sekhar C., Ph.D. (IIT Madras)	Speech recognition, artificial neural networks, kernel methods
Deepak Khemani, Ph.D. (IIT Bombay)	Artificial intelligence, knowledge-based systems, natural language processing and neural networks
Gonsalves T.A., Ph.D. (Stanford)	Computer networks, distributed systems, NMS, operating systems, performance evaluation, telecom software
Hema A. Murthy, Ph.D. (IIT Madras)	Speech technology, music analysis, pattern recognition, signal processing and machine learning, computational brain research
Janakiram D., Ph.D. (IIT Delhi)	Object-oriented systems, software engineering, parallel and distributed systems, database systems, mobile computing, computing education, computing for developing regions, mobile telemedicine
Kamakoti V., Ph.D. (IIT Madras)	Software for VLSI design, computational geometry, high performance computing
Krishna Moorthy Sivalingam, Ph.D. (SUNY Buffalo) [Head of the Department]	Wireless networks, optical networks, computer networks
Pandu Rangan C., Ph.D. (IISc, Bengaluru)	Algorithms, parallel and VLSI algorithms, graph theory, computational geometry, randomized algorithms, computational learning theory, crypto-analysis
Raghavan S.V., Ph.D. (IIT Madras)	Real-time systems, optical and wireless networks, e-banking, e-learning, intelligent search engines, multicasting, multimedia presentation systems, mobile agents, mobile wireless networks, next-generation Web browsers, secure WAN design in heterogeneous systems
Siva Ram Murthy C., Ph.D. (IISc, Bengaluru)	Parallel and distributed computing, real-time systems, lightwave networks and wireless networks
Sreenivasa Kumar P., Ph.D. (IISc, Bengaluru)	Graph theory, algorithms, parallel computations, data mining and databases
Sukhendu Das, Ph.D. (IIT Kharagpur)	Visual perception, image intelligence, graphics and visualisation
Madhu Mutyam, Ph.D. (IIT Madras)	Computer architecture
Narayanaswamy N.S., Ph.D. (IISc, Bengaluru)	Algorithms and complexity theory
Associate Professors	
Anurag Mittal, Ph.D. (University of Maryland)	Computer vision, pattern recognition and image understanding
Ravindran B., Ph.D. (University of Massachusetts, Amherst)	Machine learning, reinforcement learning, data/text mining
V. Krishna Nandivada, Ph.D. (University of California, Los Angeles)	Compilers, program analysis, programming languages, and multicore systems
Sutanu Chakraborti, Ph.D. (The Robert Gordon University, UK)	Information retrieval, memory-based reasoning and machine learning
Shankar Balachandran, Ph.D. (University of Texas at Dallas, USA)	Computer architecture, CAD algorithms, reconfigurable computing
Assistant Professors	
Jayalal Sarma M.N., Ph.D. (Institute of Mathematical Sciences, Chennai)	Computational complexity theory, structural and circuit complexity, lower bounds and derandomisation

Name and Qualifications	Major Areas of Specialisation
John Augustine, Ph.D. (University of California, Irvine)	Distributed algorithms especially for dynamic networks, randomized algorithms
Raghavendra Rao B.V., Ph.D. (Institute of Mathematical Sciences, Chennai)	Computational complexity theory, algebraic complexity, combinatorial commutative algebra, descriptional complexity theory
Rupesh Nasre, Ph.D., (IISc, Bengaluru)	Compilers, parallelisation, program analysis
Meghana Nasre, Ph.D. (IISc, Bengaluru)	Algorithms, graph theory, matching algorithms
Sayan Ranu, Ph.D., (University of California, Santa Barbara)	Graph indexing, graph mining, trajectory analytics, bioinformatics
Rajsekar Manokaran, Ph.D., (Princeton University, USA)	Complexity theory, algorithms, cryptography
Chester Rebeiro, Ph.D., (IIT Kharagpur)	Hardware and system security, side-channel analysis, cryptography, computer architecture, operating systems, VLSI
Aritra Hazra, Ph.D., (IIT Kharagpur)	Formal methods, VLSI CAD, design verification, reliability, fault-tolerant systems, embedded control scheduling, security verification

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinator	Title	Period
Confer	ences		
1	B. Ravindran	Winter School on Speech and Audio Processing	8–11 January 2016
2	B. Ravindran	PC-Co-chair, Conference on Management of Data (COMAD) 2016	11-13 March 2016
3	B. Ravindran	General Co-chair, Big Data Summit 2015, Sydney	9–10 August 2015
Sympo	sia		
1.	B. Ravindran	Panel on George Boole and Engineering, Boole Day, IIT Madras	20 November 2015
Worksl	hops		
1	V. Krishna Nandivada	IBM Research Day, IIT Madras	20 October 2015
2	V. Kamakoti		
3	P. Sreenivasa Kumar		
4	B. Ravindran	Data Science in India Forum, part of Big Data Summit 2016, co-located with KDD 2015, Sydney, Australia	10 August 2015
5	B. Ravindran	Social Networking Workshop, part of COMSNETS 2016, Bengaluru	9 January 2016
Short-t	erm courses		
1	Rupesh Nasre	Summer Projects and Workshop	10–26 June 2015, IIT Madras
2	Ravindran B.	Indo-German Spring School on Algorithms for Big	22–26 February 2016, IIT Madras
3	N.S. Narayanaswamy	Data	
4	Rupesh Nasre		
Confer	rences		
1	Hema A. Murthy	ISMIR, Malaga, Spain	26–31 October 2015
2	Hema A. Murthy	INTERSPEECH, Dresden, Germany	6–11 September 2015
3	B. Ravindran	IKDD, CoDS, Pune	13-16 March 2016

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Торіс	Institution	Date
1	B. Ravindran	Machine Learning in a Connected World	TCS Eminence Lecture Series, Chennai	17 April 2015
2	B. Ravindran	Social Network Analysis—A Big Data Challenge	YuMe, Chennai	24 April 2015

Sl. No.	Faculty Member	Topic	Institution	Date
3	Chester Rebeiro	Secure Systems Engineering	NIT Puducherry	17 April 2015
4	Sayan Ranu	Inferring Uncertain Trajectories from Partial Observations	YuMe, Chennai	24 April 2015
5	B. Ravindran	Introduction to Data Analytics	Research Science Institute, IIT Madras	19 May 2015
6	Rupesh Nasre	GPU Code Generation for Graph Algorithms	IndoSys 2015, IIIT Hyderabad	19 May 2015
7	Chester Rebeiro	Bitcoins—Under the Hood	Reserve Bank of India College, Chennai	28 May 2015
8	Madhu Mutyam	SFFMap: Set First Fill Mapping for an Energy Efficient Pipelined Data Cache	Fifth South Asia Workshop on Research Frontiers in Computing, National University of Singapore	29 May 2015
9	Hema A. Murthy	A Hybrid Approach to Segmentation of Speech	IDIAP, Switzerland	12 June 2015
10	Chester Rebeiro	Information Leaks Detecting in Systems	HP Workshop, Bengaluru	16 June 2015
11	Sutanu Chakraborti	Tutorial on Machine Learning for Natural Language Processing	Nirma University, Institute of Technology, Computer Science and Engineering Department	16 June 2015
12	Madhu Mutyam	An Enhanced Fine Granularity Refresh Feature for High Performance DDR4 DRAM Devices	HP Workshop, Bangalore	16 June 2015
13	B. Ravindran	An Introduction to Reinforcement Learning	Microsoft Research Summer School, IISc, Bengaluru	18 June 2015
14	Chester Rebeiro	Programming GUIs with Python	Summer Projects and Workshop, CSE, IIT Madras	18 June 2015
15	Rupesh Nasre	Essential Utilities	Summer Projects and Workshop, CSE, IIT Madras	19 June 2015
16	C. Chandra Sekhar	Pattern Recognition Models for Image Processing Tasks	Workshop on Machine Learning for Medical Image Analysis, IIT Mandi	24–26 June 2015
17	Sayan Ranu	Mining Communication Motifs from Dynamic Networks	IBM Research, Bengaluru	24 July 2015
18	Chester Rebeiro	Operating Systems Security and Side Channel Analysis	CAIR, DRDO, Bengaluru	14 August 2015
19	Meghana Nasre	The Stable Marriage Problem	CMI Outreach Programme, CMI	21 July 2015
20	Meghana Nasre	Introduction to Algorithmic Graph Theory	Conference on Graphs, Automata, Logic, Madras Christian College, Chennai	8 August 2015
21	Meghana Nasre	Decremental All Pairs ALL Shortest Paths	81st Annual Conference of the Indian Mathematical Society at VNIT Nagpur	29 December 2015
22	Sayan Ranu	Inferring Uncertain Trajectories from Partial Observations	IBM Chennai, Regional Technical Exchange	9 October 2015
23	Rupesh Nasre	Graph Algorithms on GPUs	IBM Research Day, IIT Madras	20 October 2015
24	Madhu Mutyam	Tackling Hotspot Congestion in NoC	Workshop on Network-on-Chip, MNIT Jaipur	December 2015
25	Madhu Mutyam	Prefetched Blocks Compaction	LNMIIT, Jaipur	December 2015
26	Chester Rebeiro	Bitcoins—Under the Hood	VNIT, Nagpur, as a part of Annual Conference of Indian Mathematical Society	29 December 2015
27	C. Chandra Sekhar	Faculty Development Programme	NIT, Warangal	3–4 January 2016

Sl. No.	Faculty Member	Торіс	Institution	Date
28	Chester Rebeiro	On Side Channel Cryptanalysis	CDAC, Noida	7–8 January 2016
29	Jayalal Sarma	Turing Machines, Computability & Complexity Faculty Development Programme	NIT Warangal	21 January 2016
30	Rupesh Nasre	Object-Oriented Programming (three topics)	IIT Madras (via QEEE Programme)	19–21 January 2016
31	Meghana Nasre	Maximum Matchings in Bipartite Graphs and the Stable Matching Problem	SSN College of Engineering, Chennai	27 January 2016
32	Madhu Mutyam	Networks on Chip	NIT Agartala	January 2016
33	Chester Rebeiro	Cryptography and Information Security	QEEE MOOC	2–3 February 2016
34	Madhu Mutyam	EFGR: An Enhanced Fine Granularity Refresh Feature for High-Performance DDR4 DRAM Devices	Department of CSA, IISc, Bengaluru	11 February 2016
35	Sayan Ranu	Mining Communication Motifs from Dynamic Networks	Indo-German workshop on Algorithms for Big Data, IIT Madras	25 February 2016
36	Rupesh Nasre	Parallel Graph Algorithms	NIT Surathkal	27 February 2016
37	Hema A. Murthy	Signal Processing and Machine Learning for Indian Classical Music	IISc Bengaluru IEEE Chapter lecture	21 January 2016
38	Hema A. Murthy	Building Speech Synthesis Systems for Indian languages	University of Madras	22 February 2016
39	B. Ravindran	Learning in a Connected World	IBM Day, IIT Madras	29 October 2015
40	B. Ravindran	Introduction to Reinforcement Learning	CCBR Workshop, IIT Madras	5 January 2016
41	B. Ravindran	Efficient Computation of Game Theoretic Centrality Measures	Indo-German Workshop on Algorithms for Big Data, IIT Madras	26 February 2016
42	B. Ravindran	Making Sense of a Connected World	South Indian Chamber of Commerce and Industry (SICCI)	2 September 2015
43	B. Ravindran	Data Science for Smart Cities	ADCOM 2015, IIT Madras	20 September 2015
44	B. Ravindran	Introduction to Reinforcement Learning	QEEE, IIT Madras	6, 7 and 9 October 2015
45	B. Ravindran	Deep Neural Networks and Reinforcement Learning	Intel Academic Forum, New Delhi	8 October 2015
46	B. Ravindran	Deep Neural Networks and Reinforcement Learning	Mindtree, Chennai	27 October 2015
47	B. Ravindran	Deep Neural Networks and Reinforcement Learning	I-CARE, IBM, Bengaluru	29 October 2015
48	B. Ravindran	Introduction to Machine Learning, Neural Networks, and Big Data	Saggezza	7,22 and 29 November 2015
49	B. Ravindran	Interdisciplinary Laboratory on Data Science	Alumni Reunion Day, IIT Madras	28 December 2015
50	B. Ravindran	Correlational Neural Networks	Amazon, Inc.	8 January 2016
51	B. Ravindran	Correlational Neural Networks	XRCI Open	21 January 2016
52	B. Ravindran	(Bridge) Correlational Neural Networks	TRDDC, Pune	10 March 2016
53	B. Ravindran	(Bridge) Correlational Neural Networks	Workshop on User Generated Content, IISc, Bengaluru	28 March 2016

Visits a	broad by faculty mem	bers			
Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Krishna M. Sivalingam	Sydney, Australia	18 May to 12 June 2015	Initiating research collaboration at University of New South Wales	IIT Madras
2	Sayan Ranu	Melbourne, Australia	30 May to 4 June 2015	Attending SIGMOD 2015	IIT Madras
3	B. Ravindran	Edmonton, Canada	7–10 June 2015	Attending RLDM 2015	IIT Madras projects
4	B. Ravindran	Tel Aviv, Israel	22–24 June 2015	Indo-Israel Roundtable on Cybersecurity Research and the Fifth International Conference on Cybersecurity	Tel Aviv University
5	Sukhendu Das	Redmond, Washington, USA	8–9 July 2015	Microsoft Research Global Faculty Summit 2015	IIT Madras
6	B. Ravindran	Buenos Aires, Argentina	25–31 July 2015	24th International Joint Conference on Artificial Intelligence (IJCAI-15)	Google
7	Hema A. Murthy	Germany	6–11 September 2015	Interspeech 2018 and Blezzed Challenge (organiser)	IIT Madras
8	Raghavendra Rao B.V.	Germany	27 September to 15 October 2015	Seminar at Schloss Dagstuhl and visiting Saarland University	IIT Madras
9	Raghavendra Rao B.V.	Germany	24–29 January 2016	Visiting Saarland University	Saarland University
10	V. Krishna Nandivada	Newport Beach, CA, USA	7–11 June 2015	ICS 2015	IIT Madras and IBM
11	V. Krishna Nandivada	Prague	7–10 July 2015	ECOOP 2015	IIT Madras and IBM
12	V. Krishna Nandivada	Barcelona, Spain	13–19 March 2016	CC 2016	IIT Madras and IBM
13	Hema A. Murthy	Malaga, Spain	26–31 October 2015	ISMIR 2016	Project funds
14	N.S. Narayanaswamy	Paris	18–23 May 2015	CIAC 2015	IIT Madras
15	N.S. Narayanaswamy	Germany	23 May to 19 June 2015	Visiting Max Planck Institute for Computer Science	Max Planck Institute
16	B. Ravindran	Sydney, Australia	10-13 August 2015	ACM SIGKDD	IKDD CoDS
17	B. Ravindran	Montreal, Canada	7–12 December 2015	NIPS	IIT Madras projects
18	B. Ravindran	Palo Alto, California, USA	1–6 December 2015	Visiting UCSC	Partly supported by UCSC and partly by IIT Madras projects
19	Sayan Ranu	Seoul, South Korea	13–17 April 2015	Attending ICDE 2015	Google
20	Sayan Ranu	Atlantic City, USA	14–17 November 2015	Attending ICDM 2015	IIT Madras

Honours and awards obtained by faculty members

SI. No.	Faculty Member	Award	Awarded by	Awarded for	Date
Honou	ırs				
1	Krishna Sivalingam	Elected Fellow of INAE (Indian National Academy of Engineering)	INAE	Fellowship	August 2015

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date
Awards	S				
1	Aritra Hazra	ACM India Best Doctoral Dissertation Award 2015	ACM (Association of Computing Machinery, sponsored by TCS)	Thesis titled 'Formal Methods for Architectural Power Intent Verification and Functional Reliability Analysis'	2015
2	Aritra Hazra	Technovation 2015— TechnoInventor (Ph.D.) Award	IESA	TechnoInventor (Ph.D.) Award	2015

Fellowships of academies and professional societies

Sl. No.	Faculty Member	Year of Admission
INAE		
1	C. Siva Ram Murthy	2002
2	C. Pandu Rangan	2006
3	Krishna Sivalingam	2015
INSA		
1	C. Siva Ram Murthy	2013
IEEE		
1	C. Siva Ram Murthy	2012
2	Krishna Sivalingam	2014

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	Krishna Sivalingam	Editor-in-Chief	Photonic Network Communications (Springer)
2	V. Krishna Nandivada	Associate Editor	Sadhana
3	Anurag Mittal	Associate Editor	Computer Vision and Image Understanding (Elsevier)
4	Krishna Sivalingam	Member of editorial board	Communications in Computer and Information Science (CCIS) proceedings series (Springer)
5	B. Ravindran	Associate Editor	Sadhana
6	Aritra Hazra	Associate Editor	IET Computers and Digital Techniques (IET-CDT)

Patents filed

Sl. No.	Faculty Member	Title of Patent
1	Anurag Mittal	An Efficient Transmission and Storage Mechanism for Images and Video
2	Anurag Mittal	Sketch-Based Image Retrieval from Plurality of Images Under Rotation, Translation and Scale Variations

4.7.4. Research and Consultancy

Sponsored research projects

SI. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Exploring Techniques to Optimize Main Memory of Multi-core Systems	February 2014 to January 2017	Department of Science & Technology	34.61	Madhu Mutyam
2	Robust Feature Detection and Matching for Computer Vision	14 July 2010 to 31 March 2016	Department of Science & Technology	25.30	Anurag Mittal

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
3	Development of Text to Speech System in Indian Languages Phase II	24 January 2012 to 30 September 2016	Department of Electronics & Information Technology	209.16	Hema Murthy, C. Chandra Sekhar, S. Umesh
4	Provision of Services in the Performance of the Tasks Described Within the Framework of the CompMusic European Project for the Analysis of the Traditional Carnatic Style of Music from India	April 2012 to February 2017	University of Pompeu Fabra, Spain	83.00	Hema Murthy
5	Development of an Intelligent Adaptive Video Monitoring and Recording System	23 December 2013 to 22 December 2016	Department of Information Technology	149.04	Anurag Mittal
6	Algebraic and Paramaterized Complexities	27 March 2013 to 26 March 2018	Department of Science & Technology	7.00	N.S. Narayanaswamy, John Augustine, Jayalal Sarma
7	Information Security and Awareness: Phase 2	August 2015 to August 2020	Department of Electronics & Information Technology	344.68	V. Kamakoti, C. Pandu Rangan
8	Indigenous 64-Bit Microprocessor Design	September 2013 to September 2018	Defence Research and Development Organisation	381.00	V. Kamakoti
9	India–UK Advanced Technology Centre (IU-ATC) of Excellence in Next Generation Networks Systems and Services: Phase 2	1 October 2012 to 30 September 2015	Department of Science & Technology	128.00	Krishna Sivalingam, Hema Murthy
10	Optimizing parallel Programs for Multicore Systems	14 May 2013 to 13 May 2016	Board of Research in Nuclear Sciences	23.28	Nandivada Venkata Krishna
11	Analyzing Parallel Programs for Performance	8 July 2013 to 7 July 2016	Department of Science & Technology	13.46	Nandivada Venkata Krishna
12	Algorithms for Big Data Analytics	30 December 2013 to 30 December 2016	IBM, USA	6.21	Shankar Balachandran
13	Investigating Capacity, Coverage, and Energy Efficiency in Heterogeneous Wireless Networks	15 January 2014 to 14 January 2017	Department of Science & Technology	27.14	C. Siva Ram Murthy
14	Irregular Parallel Programs and Performance Determinacy—An Oxymoron?	29 December 2014 to 29 December 2017	IBM, USA	6.92	Nandivada Venkata Krishna
Industr	ial consultancy projects				
Sl. No.	Faculty Members 1	itle	Ind	ustry	Amount (lakhs of ₹)
1	Hazra, V. Kamakoti	A Formally Verified Multi Arithmetic Library for Cr Applications		DO-CAIR	9.80
RBIC p	projects				
Sl. No.	Name of Faculty Member	Title	Inc	lustry	Amount (lakhs of ₹)
1	Khemani, Rupesh Nasre	Towards Prescriptive Ana Planning, Reasoning, Opt Decision-Making Algorit Accenture Cognitive Eng	imization and hms for the	centure	16.55

Sl. No.	Name of Faculty Member	Title	Industry	Amount (lakhs of ₹)
2	B. Ravindran	Queryable Knowledge Base for Medical Coding Taxonomy	Buddi Health	10.00
3	B. Ravindran	Consumer Behavior Analytics	Ericsson Global Research	76.00
4	B. Ravindran	Semi-Supervised Active Learning for Examining Wafers	KLA Tencor	23.25
5	B. Ravindran	Embodied Cognition	DRDO-CAIR	30.00
7	P. Sreenivasa Kumar	Semantic Modeling and Representation of BOM Information	Ford Inc., USA	\$0.30
8	D. Janaki Ram	Twitterplay–Distributed Framework for Analyzing live Tweets on the Cloud	Quantum Ventura	6.61

Exchange with other institutions under MoUs

Sl. No.	Faculty Member	Participation	University/Institution
1	D. Janakiram	Minimalistic Object Oriented Linux (MOOL)	_
		Integrated with the Bharat Operating System Solution (BOSS) of CDAC	Bharat Operating System Solution (BOSS) of CDAC
		MoU with Fujitsu preloading the BOSS- MOOL OS on its servers, laptops and desktops	MoU with Fujitsu

Research publications of faculty members and research scholars

Papers published in refereed national journals: 2

Papers published in refereed international journals: 40

Publications in proceedings of national conferences: 1

Publications in proceedings of international conferences: 58

Papers published in refereed national journals

- 1. V. Sankar and B. Ravindran. September 2015. Parallelization of game theoretic centrality algorithms. *Sadhana, The Engineering Proceedings of the Indian Academy of Sciences* 40(6): 1821–1843. (Springer [National])
- 2. Saad Y. Sait, Akshay Bhandari, Shreya Khare, Cyriac James and Hema A. Murthy. September 2015. Multi-level anomaly detection: Relevance of big data analytics in networks. *Sadhana, Indian Academy of Sciences* 40(6): 1737–1767. (Springer Verlag [National])

Papers published in refereed international journals

- 1. Sreyasee Bhattacharjee and Anurag Mittal. 2015. Part-based deformable object detection with a single sketch. *Computer Vision and Image Understanding Journal* 139: 73–87.
- 2. P.P. Balasubramani, V.S. Chakravarthy, B. Ravindran and A.A. Moustafa. June 2015. A network model of basal ganglia for understanding the roles of dopamine and serotonin in reward–punishment-risk based decision making. *Frontiers of Computational Neuroscience* 9: 76.
- 3. A.P. Sarath Chandar, M. Khapra, H. Larochelle and B. Ravindran. 2016. Correlational neural networks. *Neural Computation* 28(2): 257–285
- 4. K. Singh, C.P. Rangan and A.K. Banerjee. February 2016. Lattice-based identity-based resplittable threshold public key encryption scheme. *International Journal of Computer Mathematics* 93(2): 289–307.
- 5. Suvradip Chakraborty, Srinivasan Raghuraman and C. Pandu Rangan. March 2016. A pairing-free, one round identity based authenticated key exchange protocol secure against memory-scrapers. *Journal of Wireless Mobile Networks, Ubiquitous Computing and Dependable Applications (JoWUA)* 7(1): 23–38.
- 6. Sudeepta Mishra and C. Siva Ram Murthy. January 2016 (online). An efficient location aware distributed physical resource block assignment for dense closed access femtocell networks. *Computer Networks* 94: 164–175.
- 7. Sharath Babu, Moumita Patra and C. Siva Ram Murthy. July 2015. A novel context-aware variable interval MAC protocol to enhance event-driven message delivery in IEEE 802.11p/WAVE vehicular networks. *Vehicular Communications* 2(3): 172–183.

- 8. Narendran Krishnan, R.M. Karthik and Krishna M. Sivalingam. February 2016. Iterative power control based admission control for wireless networks. *Wireless Networks Journal* 22(2): 619–633.
- 9. Abhiram Ravi, Parmesh Ramanathan and Krishna M. Sivalingam. December 2015. Integrated network coding and caching in information-centric networks. *Photonic Network Communications* 30(3): 416–427.
- 10. C.S. Ganesh and Krishna M. Sivalingam. January 2016. Optical traffic grooming based data center networks: Node architecture and comparison. *IEEE Journal on Selected Areas in Communications* 34(5): 1618–1630.
- 11. Dhananjay Bhor, Kavinkadhirselvan Angappan and Krishna M. Sivalingam. January 2016. Network and power-grid co-simulation framework for smart grid wide-area monitoring networks. *Journal of Network and Computer Applications* 59: 274–284.
- 12. K. Raghavendra, Biswabandan Panda and Madhu Mutyam. October 2015 (online). PBC: Prefetched blocks compaction. *IEEE Transactions on Computers* PP(99): 1.
- 13. Tripti S. Warrier, K. Raghavendra and Madhu Mutyam. 2015. Skipcache: Application aware cache management for chip multi-processors. *IET Computers & Digital Techniques* 9(6): 293–299.
- 14. N.S. Narayanaswamy and G. Ramakrishna. April 2015. On minimum average stretch spanning trees in polygonal 2-trees. *Theoretical Computer Science* 575: 56–70.
- 15. N.S. Narayanaswamy and N. Sadagopan. November 2015. Connected (s, t)-vertex separator parameterized by chordality. *Journal of Graph Algorithms and Applications* 19(1): 549–565.
- 16. N.S. Narayanaswamy and G. Ramakrishna. November 2015. Tree t-spanners in outerplanar graphs via supply demand partition. *Discrete Applied Mathematics* 195: 104–109.
- 17. N.S. Narayanaswamy and G. Ramakrishna. September 2015. Characterization of minimum cycle basis in weighted partial 2-trees. *Discrete Applied Mathematics* 192: 77–81.
- 18. E.V. Vinu and P. Sreenivasa Kumar. October 2015. A novel approach to generate MCQs from domain ontology: Considering DL semantics and open-world assumption. *Web Semantics: Science, Services and Agents on the World Wide Web* 34: 40–54.
- 19. Karl Bringmann, Christian Engels, Bodo Manthey and B.V. Raghavendra Rao. 2015. Random shortest paths: Non-Euclidean instances for metric optimization problems. *Algorithmica* 73(1): 42–62.
- 20. Reena Singh and Timothy A. Gonsalves. December 2015. A pragmatic approach towards secure sharing of digital objects. *Wiley Security and Communication Networks* 8(18): 3914–3926.
- 21. Milan Patnaik, Chidhambaranathan Rajamanikkam, Chirag Garg, Arnab Roy, V.R. Devanathan, Shankar Balachandran and V. Kamakoti. September 2015. ProWATCh: A proactive cross-layer workload-aware temperature management framework for low-power chip multi-processors. *ACM Journal on Emerging Technologies in Computing Systems (JETC)* 12(3): Article 22.
- 22. Neel Gala, V.R. Devanathan, V. Visvanathan and V. Kamakoti. June 2015. Best is the enemy of good: Design techniques for low power tunable approximate application specific integrated chips targeting media-based applications. *Journal of Low Power Electronics* 11(2): 133–148.
- 23. Seetal Potluri, Satya Trinadh, Ch. Sobhan Babu, V. Kamakoti and Nitin Chandrachoodan. November 2015. DFT assisted techniques for peak launch-to-capture power reduction during launch-on-shift at-speed testing. *ACM Transactions on Design Automation of Electronics Systems* 21(1): Article 14
- 24. K. Gupta and V.K. Nandivada. April 2015 (online). Lexical state analyzer for JavaCC grammars. *Software: Practice and Experience (SPE)*.
- 25. Balagopal Komarath and Jayalal Sarma. May 2015. Pebbling, entropy and branching program size lower bounds. *ACM Transactions on Computation Theory (TOCT)* 7(2): Article 8.
- 26. John Augustine, Gopal Pandurangan, Peter Robinson and Eli Upfal. November 2015. Distributed agreement in dynamic peer-to-peer networks. *Elsevier Journal of Computer and System Sciences* 81(7): 1088–1109.
- 27. Yuya Higashikawa, John Augustine, Siu-Wing Cheng, Mordecai J. Golin, Naoki Katoh, Guanqun Ni, Bing Su and Yin-Feng Xu. July 2015. Minimax regret 1-sink location problem in dynamic path networks. *Elsevier Theoretical Computer Science* 588: 24–36.
- 28. C. Chattopadhyay and Sukhendu Das. February 2016. Use of trajectory and spatiotemporal features for retrieval of videos with a prominent moving foreground object. *Signal, Image and Video Processing* 10(2): 319–326.
- 29. C. Chattopadhyay and Sukhendu Das. November 2015. Prominent moving object segmentation from moving camera video shots using iterative energy minimization. *Signal, Image and Video Processing* 9(8): 1927–1934.
- 30. S. Samanta and Sukhendu Das. 2015. Unsupervised domain adaptation using eigenanalysis in kernel space for categorisation tasks. *IET Image Processing* 9(11): 925–930.
- 31. S. Samanta and Sukhendu Das. *March 2016 (Online)*. Minimising disparity in distribution for unsupervised domain adaptation by preserving the local spatial arrangement of data. *IET Computer Vision*.

- 32. Unnikrishnan C, Rupesh Nasre and Y.N. Srikant. January 2016. Falcon: A graph manipulation language for heterogeneous systems. *ACM Transactions on Architecture and Code Optimization (TACO)* 12(4): Article 54
- 33. F. Liu, B. Li and Rupesh Nasre. May 2015 (online). Efficient online cycle detection technique combining with Steensgaard points-to information. *Software: Practice and Experience* 46(5): 601–623.
- 34. B. Panda and Shankar Balachandran. October 2015. Caffeine: A utility-driven prefetcher aggressiveness engine for multicores. *ACM Transactions on Architecture and Code Optimization (TACO)* 12(3): Article 30.
- 35. B. Panda and Shankar Balachandran. May 2015 (online). Expert prefetch prediction: An expert predicting the usefulness of hardware prefetchers. *IEEE Computer Architecture Letters* PP(99): 1–4.
- 36. Soundhararajan Gopi, Nandakumar Rajasekaran, Animesh Singh, Sayan Ranu and Athi N. Naganathana. September 2015 (Online). Energetic and topological determinants of a phosphorylation-induced disorder-to-order protein conformational switch. *Physical Chemistry Chemical Physics* 17 (41): 27264–27269.
- 37. Harisankar Haridas and Janakiram Dharanipragada. 2016. CAPS: A cloud assisted approach to handle spikes in peer-to-peer web search. *Peer-to-Peer Networking and Applications* 9(1): 193–208.
- 38. John Augustine, Ioannis Caragiannis, Angelo Fanelli and Christos Kalaitzis. May 2015. Enforcing efficient equilibria in network design games via subsidies. *Algorithmica* 72(1): 44–82.
- 39. John Augustine, Gopal Pandurangan and Peter Robinson. March 2016. Distributed algorithmic foundations of dynamic networks. *SIGACT News* 47(1): 69–98.
- 40. S. Babu, M. Patra and C. Siva Ram Murthy. August 2015 (online). An efficient TDMA-based variable interval multichannel MAC protocol for vehicular networks. *Wireless Networks Journal* 22(4): 1365–1380.

Publications in proceedings of national conferences

1. Renu Sharma, Sukhendu Das and Padmaja Joshi. Rank level fusion in multibiometric systems. *Fifth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG '15)*, IIT Patna, India, 16–19 December 2015.

Publications in proceedings of international conferences

- 1. Anoop Katti and Anurag Mittal. Mixture of parts revisited: Expressive part interactions for pose estimation. *IEEE Workshop On Analysis and Modeling of Faces and Gestures (AMFG 2015)*, Boston, June 2015.
- 2. V. Sankar, S. Shivashankar and B. Ravindran. CEIL: A scalable resolution limit free approach for detecting communities in large networks. *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI 2015)*, pp. 2097–2103, AAAI Press, 2015.
- 3. S. Gurukar, S. Ranu and B. Ravindran. COMMIT: A scalable approach to mining communication motifs from dynamic networks. *Proceedings of ACM SIGMOD Conference on Management of Data*, pp. 475–489, ACM Press, 2015.
- 4. A. Saha, A. Acharya, B. Ravindran and J. Ghosh. Nonparametric Poisson factorization machine. *Proceedings of the 15th IEEE International Conference on Data Mining (ICDM 2015)*, pp. 967–972, IEEE Press, 2015.
- 5. S.N. Satchidanand, H. Ananthapadmanaban and B. Ravindran. Extended discriminative random walk: A hypergraph approach to multi-view multi-relational transductive learning. *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI 2015)*, pp. 3791–3797, 2015.
- 6. S. Patil and B. Ravindran. Active learning based weak supervision for textual survey response classification. *Proceedings of the 16th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2015)*, Vol. 2, pp. 309–320, Springer, 2015.
- 7. R.K. Pasumarthi, R. Narayanam and B. Ravindran. Near optimal strategies for targeted marketing on social networks. *Proceedings of the 14th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2015)*, pp. 1679–1680, ACM Press.
- 8. A. Sachdev, V. Thenkanidiyoor, A.D. Dileep and C. Chandra Sekhar. Example-specific density based matching kernels for scene classification using support vector machines. *14th IEEE International Conference on Machine Learning and Applications, ICMLA 2015*, Miami, FL, USA, December 2015.
- 9. A. Srinivasan and C.P. Rangan. Certificateless proxy re-encryption without pairing: Revisited. *Proceedings of the Third International Workshop on Security in Cloud Computing (SCC)*, ASIACCS '15, Singapore, April 2015.
- 10. S. Chakraborty, G. Paul and C.P. Rangan. Forward-secure authenticated symmetric key exchange protocol: New security model and secure construction. *Provable Security—Ninth International Conference, ProvSec 2015*, Kanazawa, Japan, November 2015.
- 11. S.S. Vivek, S.S.D. Selvi, A. Malhotra and C.P. Rangan. Practical IBE secure under CBDH—encrypting without pairing. SECRYPT 2015—Proceedings of the 12th International Conference on Security and Cryptography, Colmar, Alsace, France, July 2015.

- 12. M. Srinivasan and C.S.R. Murthy. Proximal spectrum access: A QoE-driven inter-operator spectrum sharing paradigm. *IEEE Annual International Symposium on Personal, Indoor, and Mobile Radio Communications, PIMRC 2015*, pp. 1764–1768, Hong Kong, China, August 2015.
- 13. M. Srinivasan, C.S.R. Murthy and A. Balasubramanian. Modular performance analysis of multicore SoC-based small cell LTE base station. 2015 IFIP/IEEE International Conference on Very Large Scale Integration, VLSI-SoC 2015, pp. 37–42, Daejeon, South Korea, 5–7 October 2015.
- 14. Siba Narayan Swain, Sudeepta Mishra and C.S.R. Murthy. A novel spectrum reuse scheme for interference mitigation in a dense overlay D2D network. *IEEE Annual International Symposium on Personal, Indoor, and Mobile Radio Communications, PIMRC 2015*, Hong Kong, China, August 2015.
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- 22. N.S. Narayanaswamy and S. Roy. Block sorting is APX-hard. *International Conference on Algorithms and Complexity, CIAC 2015*, pp. 377–389, Paris, France, May 2015.
- 23. N.S. Narayanaswamy and C.S. Rahul. Approximation and exact algorithms for special cases of connected f-factors. *Computer Science Theory and Applications—Proceedings of the 10th International Computer Science Symposium in Russia, CSR 2015*, pp. 350–363, Listvyanka, Russia, 13–17 July 2015.
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- 25. V. Gayathri and P. Sreenivasa Kumar. Horn-rule based compression technique for RDF data. *Proceedings of the 30th Annual ACM Symposium on Applied Computing*, pp. 396–401, Salamanca, Spain, 13–17 April 2015.
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- 29. Shubhranshu Shekhar, Sutanu Chakraborti and Deepak Khemani. Spreading activation way of knowledge integration. *Third International Conference on Mining Intelligence and Knowledge Exploration (MIKE)*, pp. 1–11, 2015.
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- 33. R. Aloor and V.K. Nandivada. Unique worker model for OpenMP. *Proceedings of the ACM International Conference on Supercomputing (ICS)*, June 2015.
- 34. A. Bhandari and V.K. Nandivada. Loop tiling in the presence of exceptions. *Proceedings of the European Conference on Object-Oriented Programming (ECOOP)*, 2015.
- 35. Aravind Sankar, Soham Chakraborty and V. Krishna Nandivada. Improved MHP analysis. *Proceedings of the 25th International Conference on Compiler Construction (CC 2016)*, 2016.
- 36. Sowmya S. Sundaram and Deepak Khemani. Natural language processing for solving simple word problems. *Proceedings of the 12th International Conference on Natural Language Processing (ICON)*, Thiruvananthapuram, 11–14 December 2015.
- 37. S. Shekhar and D. Khemani. Improving heuristics on-the-fly for effective search in plan space. *KI 2015: Advances in Artificial Intelligence 38th Annual German Conference on AI*, pp. 302–308, Dresden, Germany, November 2015.
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- 39. Srikant Padala, Dinesh Kumar, Arun Raj and Janakiram Dharanipragada. Octopus: A multi-job scheduler for GraphLab. *IEEE International Conference on Big Data*, pp. 293–298, Santa Clara, CA, USA, October 2015.
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- 42. Shreya Khare, Akshay Bhandari and Hema A. Murthy. Eigen and multimodal analysis for localizing moving sounding objects. *Proceedings of the International Conference on Acoustics, Speech and Signal Processing*, Shanghai, China, March 2016.
- 43. Rupak Vignesh Viswanathan, Aswin S. Shanmugham and Hema A. Murthy. Significance of pseudo-syllables in building better acoustic models for Indian English TTS. *Proceedings of the International Conference on Acoustics, Speech and Signal Processing*, Shanghai, China, March 2016.
- 44. Sridharan Sankaran, P.V. Krishnaraj and Hema A. Murthy. Automatic segmentation of composition in Carnatic music using time–frequency CFCC templates. *CMMR*, Plymouth, UK, June 2015.
- 45. Balagopal Komarath, Jayalal Sarma and Saurabh Sawlani. Reversible pebble game on trees. *International Conference on Computing and Combinatorics (COCOON)*, pp. 83–94, Beijing, China, August 2015.
- 46. B. Komarath, J. Sarma and K.S. Sunil. Comparator circuits over finite bounded posets. *International Colloquium on Automata, Languages, and Programming (ICALP)*, pp. 834–845, Kyoto, Japan, July 2015.
- 47. J. Augustine, W.K. Moses Jr., A. Redlich and E. Upfal. Balanced allocation: Patience is not a virtue. *Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2016*, pp. 655–671, Arlington, VA, USA, 10–12 January 2016.
- 48. Ashutosh Ingole, Biswaroop Maiti, John Augustine and Krishna V. Palem. Does customizing inexactness help over simplistic precision (bit-width) reduction? A case study. 2015 International Conference on Compilers, Architecture and Synthesis for Embedded Systems, CASES 2015, pp. 33–34, Amsterdam, The Netherlands, 4–9 October 2015.
- 49. John Augustine, Gopal Pandurangan, Peter Robinson, Scott T. Roche and Eli Upfal. Enabling robust and efficient distributed computation in dynamic peer-to-peer networks. *IEEE 56th Annual Symposium on Foundations of Computer Science, FOCS 2015*, pp. 350–369, Berkeley, CA, USA, 17–20 October 2015.
- 50. John Augustine, Tejas Kulkarni and Sumathi Sivasubramaniam. Leader election in sparse dynamic networks with churn. 2015 IEEE International Parallel and Distributed Processing Symposium, IPDPS 2015, pp. 347–356, Hyderabad, India, 25–29 May 2015.
- 51. John Augustine, Gopal Pandurangan and Peter Robinson. Fast Byzantine leader election in dynamic networks. *International Symposium on Distributed Computing (DISC)*, pp. 276–291, Tokyo, Japan, 7–9 October 2015.
- 52. S. Ranu, P. Deepak, A.D. Telang, P. Deshpande and S. Raghavan. Indexing and matching trajectories under inconsistent sampling rates. *International Conference on Data Engineering (ICDE)*, April 2015.
- 53. S. Srivastava, S. Pande and S. Ranu. Geo-social clustering of places from check-in data. *International Conference on Data Mining (ICDM)*, 2015.

- 54. P. Deepak, Sayan Ranu, Prithu Banerjee and Sameep Mehta. Entity linking for web search queries. *Advances in Information Retrieval*, pp. 394–399, 2015.
- 55. Shubhadip Mitra, Sayan Ranu, Vinay Kolar, Aditya Telang, Arnab Bhattacharya, Ravi Kokku and Sriram Raghavan. Trajectory aware macro-cell planning for mobile users. *Proceedings of IEEE INFOCOM*, April 2015.
- 56. S. Kalikar and R. Nasre. Domlock: A new multi-granularity locking technique for hierarchies. *Proceedings of the 21st ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, March 2016.
- 57. E. Vinu and P.S. Kumar. Improving large-scale assessment tests by ontology based approach. *FLAIRS Conference*, 2015.
- 58. Renu Sharma, Sukhendu Das and Padmaja Joshi. Score normalization in multimodal systems using generalized extreme value distribution. *26th British Machine Vision Conference (BMVC '15)*, Swansea, UK, September 2015.

4.7.4. Distinguished Visitors to the Department

4./.4.	Distinguished visitors to the Department				
Sl. No.	Name of the Visitor and Designation	Date	Purpose of Visit		
1	Dr. T. Ravindra Babu, Flipkart	13 March 2015	Seminar talk: Compression Schemes from Mining Large Datasets		
2	Dr. Manish Gupta, Microsoft	7 April 2015	Seminar talk: Sub-graph Outlier Mining and Entity Mining		
3	Prof. Hari Balakrishnan, MIT, USA	5 August 2015	Seminar and discussions with faculty and students		
4	Prof. Kyle Jamieson, Princeton University, USA	10 August 2015	Seminar and discussion with faculty and students		
5	Mr. Ravi Kandhadai, Ph.D. student, EPFL, Switzerland	28 August 2015	Seminar: Verification—Leon and Orb		
6	Dr. Mitesh Khapra, IBM Research	5 October 2015	Correlational Neural Networks		
7	Dr. Srikanth Sundaresan, ICSI, Berkeley, USA	7 October 2015	Understanding and Improving Last-Mile Performance Using Home Networking Infrastructure		
8	Dr. Medha Atre	13 October 2015	Bit-by-Bit: For Storage and Querying of RDF Data Using Bit-Vectors		
9	Dr. Vaibhav Rajan, XRCI	29 October 2015	Healthcare Analytics: Predicting Emerging Complications in ICUs		
10	Prof. P. Sadayappan, Ohio State University	16 December 2015	Talk, discussions with faculty and students		
11	Dr. Prashanth L.A., University of Maryland College Park	21–22 December 2015	Talk, meetings with faculty members		
12	Dr. Om Damani, Department of CS & IT, IIT Bombay	6 November 2015	Seminar		
13	Dr. Amitabh Trehan, Queens, University, Belfast, Ireland	8 January 2016	Compact Routing Messages in Compact Self-healing Trees		
14	Prof. Jie Wu, Temple University, USA	25 February 2016	Research seminar, faculty interaction, discussions regarding MoU		
15	Dr. Shweta Agrawal, INSPIRE, Assistant Professor, IIT Delhi, India	26 February 2016	Research seminar and faculty interactions (potential faculty candidate)		
16	R. Ravi, Carnegie Mellon University, USA	14–15 December 2015	Mini Course on Iterative Rounding		

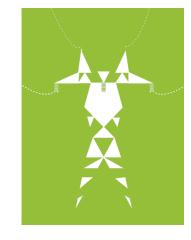
4.7.5. Other Activities of the Department/Centre

Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Venue and Date
1	Krishna M. Sivalingam	Ph.D. viva voce examination	Department of Electrical Engineering, IIT Delhi (attended via Skype), 11 May 2015
2	Rupesh Nasre	MTP viva voce	NIT Nagpur, 6 June 2015

Sl. No.	Faculty Member	Purpose of Visit	Venue and Date
3	Sukhendu Das	Ph.D. viva voce examination	MUI, ISI Kolkata, 17 June 2015
4	Krishna M. Sivalingam	Senate meeting	IIITD&M Kancheepuram, 30 June, 9 October and 23 December 2015 and 12 February 2016
5	Chester Rebeiro	IEEE VLSID 2016 Program Committee meeting	Center for Research in Nano-science and Nano-technology, Kolkata, 19 September 2015
6	Sayan Ranu	First Indo-Chinese Young Engineering Leaders' Conclave (ICON-1)	IIT Gandhinagar, 7–9 October 2015
7	C. Chandrasekhar	Faculty Selection Committee	Kasaragod, Kerala, 19 October 2015
8	D. Janakiram	Selection Committee meeting	IIT Gandhinagar, 2 November 2015
9	Deepak Khemani	PMRC meeting	Bengaluru, 5 November 2015
10	C. Chandra Sekhar	SERB brainstorming session	IIT Guwahati, 24 November 2015
11	Deepak Khemani	DRDO MARS meeting	Bengaluru, 30 November 2015
12	Krishna Sivalingam	Annual INAE Convention	DIAT, Pune, 10–11 December 2015
13	Krishna Sivalingam	IEEE ANTS Conference	ISI Kolkata, 16–18 December 2015
14	Krishna Sivalingam	DST (Japan Science and Technology Agency)–DST IoT Workshop: Roundtable on IoT, Big Data Analytics and Artificial Intelligence	Hyderabad, 19 January 2016
15	Madhu Mutyam	Ph.D. thesis defense	IIT Guwahati, January 2016
16	Madhu Mutyam	M.Sc. thesis defense	IISc, Bengaluru, 11 February 2016
17	Madhu Mutyam	PRSG meeting, DEITY	IISc, Bengaluru, 11 February 2016
18	Chester Rebeiro	Project reviews/interviews	CDAC Bengaluru, 22 February 2016
19	Sukhendu Das	PRSG review meeting of MCIT (DEIT-GOI) sponsored project	IISc, Bengaluru, 28 February 2016
20	Raghavendra Rao B.V.	Ph.D. thesis defense	Saarland University, Saarbruecken, Germany, 27 January 2016
21	N.S. Narayanaswamy	Ph.D. thesis defense	IIT Ropar (attended via Skype), March 2016
22	B. Ravindran	DST (Japan Science and Technology Agency)–DST IoT workshop: Roundtable on IoT, Big Data Analytics and Artificial Intelligence	Hyderabad, 19 January 2016
23	B. Ravindran	Ph.D., viva voce	IISc, Bengaluru, 23 April 2015
24	B. Ravindran	Board of Studies meeting	Thiagarajar College of Engineering, Madurai, 25 April 2015
25	B. Ravindran	Panel discussion on data science	ACM-COMPUTE, Ghaziabad, 31 October 2015
26	Rupesh Nasre	M.S. thesis defence	IISc, Bengaluru, 25 November 2015

Department of Electrical Engineering



4.8.1. Introduction

The department comprises several laboratories, grouped into five major areas:

- EE1—Communications, Signal Processing and Communication Networks
- EE2—Power Systems, Power Electronics and High Voltage
- EE3—Microelectronics, MEMS and Analogue and Digital VLSI
- EE4—Control Systems, Measurements and Instrumentation
- EE5-Photonics, Optical Communications and RF

All the faculty members in the department have Ph.D. degrees from reputed universities.

EE1—Communications, Signal Processing and Communication Networks Facilities

- Vector network analyser
- Circuit simulation and layout tools
- True RMS voltmeter
- RF frequency generator and spectrum analysers
- Wide-band noise generator
- Logic analysers
- DSP emulators
- FPGA facilities
- Digital communication trainer
- HP ADS system

EE2—Power Systems, Power Electronics and High Voltage Facilities

Machines and Drives Laboratory

- Motor generator sets
- Cradle-type DC dynamometer
- Regulating transformer
- Torque transducer
- Data acquisition systems
- · Vector visualizer
- Special-purpose AC supply generators
- Measurement storage oscilloscopes
- Microprocessor-based drive systems
- Simulation software for power electronic systems, PSIU
- Magnet—2D, 3D FEM software
- Motor control DSP kits
- FPGA kits—Altera, Xilinx
- Multilevel inverters

High Voltage and Power System Laboratory

- HV testing transformer (800 kV, 400 kVA)
- Lightening impulse generator (1.5 MV, 37.5 kJ)
- High-frequency voltage generator

- Digital bandwidth storage oscilloscopes
- Capacitance measurement unit
- PD detector unit
- Power system simulator
- Power system analysis and application software
- Power quality, monitoring and analysis unit
- Facts and custom power devices experimental units
- DSP-based power controllers

EE3—Microelectronics, MEMS and Analogue and Digital VLSI Facilities

Microelectronics and MEMS Lab

- Class 100/Class 1000 clean rooms
- Laser writer for mask making
- E-beam writer
- E-beam metallization unit
- Sputtering units
- Furnaces for oxidation and diffusion
- Rapid thermal processing
- Double-sided mask aligner and exposure systems
- PECVD systems
- LPCVD system
- Reactive ion etching systems
- DRIE
- Substrate bonder
- Wire bonder
- Dicing machine
- Glove box for organic electronics

Characterization

- Spectroscopic ellipsometer
- Interferometric 3D surface profiler
- Four-point probe
- Confocal microscope
- Tabletop SEM
- Wafer probe stations
- Semiconductor parametric analyser
- Multifrequency LCR meters
- Cantisens
- Doppler vibrometer
- Solar simulator
- Device and MEMS simulation tools

Analogue and Digital Circuits and VLSI Design Lab

- Workstations and EDA tools for complete IC design flow
- EPLD/FPGA design software and workstations
- DSP kits and workstations
- · IC test facilities

EE4—Control Systems, Measurements and Instrumentation Facilities

Control Laboratory

- Micro selection C development systems for VLSI-based control
- Simulation packages: MATLAB, PSPICE, MAXPLUS II
- Motor control systems
- Speed control systems (analogue and digital)

- Benchmark vision system
- High-precision measuring instruments
- Cobra RS-23-5 axis robot
- Eshed ERIII, Eshed E&V 5-axis robots
- Position control systems (AC and DC)

Measurements and Instrumentation Laboratory

- Precision indicating instruments
- Standard R, L and C components
- Virtual instrumentation laboratory with ELVIS
- Meter calibrator
- Pressure calibrator
- Energy meter testing desk
- Instrument transformer calibrator
- High-current AC and DC supply units
- Biomedical instrumentation (ultrasonic and optical)

EE5—Photonics, Optical Communications and RF

Facilities

- Fibre optic educational kit/laboratory
- Experimental optics laboratory with light wave measurement unit, BER tester, optical spectrum analyser
- Fibre grating fabrication
- Fibre laser laboratory
- Integrated optoelectronics laboratory
- Class 100,000 clean room for development of space applications
- Ground station for nano-satellite communication and control

4.8.2. Academic Programmes

New courses introduced/proposed

EE6261—Restructured Power Systems

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V	Others	Total
B.Tech.	73	73	70	69	_	_	285
Dual Degree	58	55	58	61	76	_	308
M.Tech.	65	46	_	_	_	_	111
M.S.	57	37	34	24	3	_	155
Ph.D.	50	45	48	38	21	17	219
Total	303	256	210	192	100	17	1078

Students/scholars who attended conferences/seminars/symposia/workshops

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Venue	Financial Assistance from		
Confer	Conferences						
1	Mandadi Kalyani, research scholar	EE11D007	Seventh APPEEC Conference	Brisbane, Australia	_		

Faculty members/students/scholars who won outside prizes and awards

Sl. No.	Faculty Member/Student/ Scholar	Roll No.	Award	Award from	Date
1	Kamalesh Hatua and Anshad Pari	_	Best Project Award	NaMPET	February 2016
2	Shanthi Pavan Y. and Boby George	_	IRDA 2015–2016	IIT Madras	2016

Sl. No.	Faculty Member/Student/ Scholar	Roll No.	Award	Award from	Date
3	Nitin Chandrachoodan and Anil Prabhakar (staff member: D. Jayavel)	_	Nina Saxena Excellence in Technology	IIT Kharagpur	2016
4	Mahesh Kumar and Srirama Srinivas (student: Narsa Reddy Tummuru—Ph.D.)	EE11D029	POSOCO Power System Award—2016	Power System Operation Corporation Limited (POSOCO) in association with Foundation for Innovation and Technology Transfer (FITT) at IIT Delhi	2016
	Mahesh Kumar (student: Chandan Kumar—Ph.D.)	EE11D026			
5	S. Krishna and Sarojkumar K. (M.S. student)	EE12S015	POSOCO Power System Award—2016	POSOCO in association with Foundation for Innovation and Technology Transfer at IIT Delhi	2016
6	Kamalesh Hatua and Anshad Pari (Dual Degree student, 2015 batch)	_	Best Master Degree Project Award	NaMPET (a DeitY-funded organization for development of power electronics in India)	2016

4.8.3. Faculty and Their Activities

Faculty Member	Event	Place	Date
R. Sarathi	Indo-Swedish Colloquium on Electrotechnology	IIT Madras	2–4 December 2015
R. Sarathi	National Conference on Recent Trends in Power Engineering (for research scholars)	IIT Madras	29–30 December 2015

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Date and Venue					
Semina	Seminar							
1	Nagendra Krishnapura	A Model-Agnostic Technique for Simulating Per-Element Distortion Contributions	27 July 2015, IIT Bombay					

Short-term courses/workshops/seminars/symposia/conferences/training programmes/teaching improvement courses attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Event	Venue	Date
Worksh	iops			
1	Ashok Jhujhunwala	Cyber Security and Resilience	BSE, Mumbai	8 April 2015
2	Ashok Jhujhunwala	Metering India 2015 (sixth edition of the seminar)	IEEMA, New Delhi	22 April 2015
3	Pradeep Sarvepalli	2015 JTG Workshop (presented a talk titled "Equivalence of 2D Color Codes to Surface Codes")	IISc, Bengaluru	24 July 2015
4	Venkatesh Ramaiyan	atesh Ramaiyan 2015 JTG Invited Workshop (presented a talk titled "Sequential Frame Synchronisation in Asynchronous Communication Channels")		24 July 2015
5	Ashok Jhunjhunwala	Solar-DC Micro-grid for Indian Homes	IIT Madras and ABB Chennai	26 February 2016
Meetin	gs			
1	Ashok Jhunjhunwala	Third Meeting of UGC Empowered Committee	UGC, New Delhi	6 April 2015
2	Ashok Jhunjhunwala	19th AICTE Review Committee Meeting	AICTE, New Delhi	6 April 2015
3	Ashok Jhunjhunwala	First Meeting of the Council of Indian Institute of Information Technology (IIIT)	MHRD, New Delhi	7 April 2015

Sl. No.	Faculty Member	Event	Venue	Date
4	Ashok Jhunjhunwala	ATOS AISAB Meeting	ATOS, Mumbai	9 April 2015
5	Ashok Jhunjhunwala	20th AICTE Review Committee Meeting	AICTE, New Delhi	14 April 2015
6	Ashok Jhunjhunwala	Third PRC meeting of TDDP project of S.K. Dynamics Private Limited—Switch Reluctant (SR) Motor and Control for Hybrid Car on Transmission Shaft	Department of Scientific and Industrial Research, New Delhi	24 April 2015
7	Ashok Jhunjhunwala	21st AICTE Review Committee Meeting	AICTE, New Delhi	24 April 2015
8	Ashok Jhunjhunwala	SEBI Technology Advisory Committee Meeting (TAC)	SEBI, Mumbai	28 April 2015
9	Ashok Jhunjhunwala	Fifth Meeting of Technology Advisory Group on Electric Mobility (TAG–EM)	DST, New Delhi	6 May 2015
10	Ashok Jhunjhunwala	Visit to DR site of BSE-Hyderabad	SEBI, Pune	20 May 2015
11	Ashok Jhunjhunwala	SERIIUS Meeting	IISc, Bengaluru	28 May 2015
12	Ashok Jhunjhunwala	Kick-off meeting of the project "Uninterrupted Direct Current (UDC)"	Rural Electrification Corporation Limited, New Delhi	1 June 2015
13	Ashok Jhunjhunwala	Presentation on BCP-DR and site visit	SEBI, New Delhi	18 June 2015
14	Ashok Jhunjhunwala	Sixth Meeting of Technology Advisory Group on Electric Mobility (TAG-EM)	DST, New Delhi	25 June 2015
15	Ashok Jhunjhunwala	Fifth BIRAC audit meeting	BIRAC, New Delhi	26 June 2015
16	Ashok Jhunjhunwala	15th Board Meeting of BIRAC	BIRAC, New Delhi	26 June 2015
17	Ashok Jhunjhunwala	12th Management Advisory Committee meeting	ISI, Kolkata	13 July 2015
18	Ashok Jhunjhunwala	Meeting of the committee for framing the first statutes of the centrally funded IIITs	MHRD, New Delhi	14 July 2015
19	Ashok Jhunjhunwala	GeoICT Programme Advisory and Monitoring Committee (PAMC) Meeting	DST, New Delhi	14 July 2015
20	Ashok Jhunjhunwala	First Steering Committee Meeting on implementation of full-sized pilots of uninterrupted direct current (UDC) supply to households conceptualized by IIT Madras	Ministry of Power, New Delhi	21 July 2015
21	Ashok Jhunjhunwala	First Meeting on Usage of TV White Space Technology	DeitY, New Delhi	31 July 2015
22	Ashok Jhunjhunwala	SEBI Technical Advisory Committee meeting	SEBI, Mumbai	10 August 2015
23	Ashok Jhunjhunwala	Third Meeting on Usage of TV White Space Technology	DeitY and BIRAC, New Delhi	18 August 2015
24	Ashok Jhunjhunwala	Sixth Audit Committee Meeting BIRAC	DeitY and BIRAC, New Delhi	18 August 2015
25	Ashok Jhunjhunwala	16th Board Meeting of BIRAC	DeitY and BIRAC, New Delhi	19 August 2015
26	Ashok Jhunjhunwala	Meeting with Hon'ble Prime Minister	New Delhi	19 August 2015
27	Ashok Jhunjhunwala	Securities and Exchange Board of India (SEBI) Risk Management Review Committee (RMRC)	SEBI, Mumbai	7 September 2015
28	Ashok Jhunjhunwala	IUKAN 2015	Hotel Le Meridien, New Delhi	8 September 2015
29	Ashok Jhunjhunwala	Second meeting of the Jhunjhunwala Committee for framing the first statutes of the centrally funded IIITs	MHRD, New Delhi	8 September 2015
30	Ashok Jhunjhunwala	ICT Advisory Committee Meeting—TIFAC	TIFAC, New Delhi	15 September 2015

Sl. No.	Faculty Member	Event	Venue	Date
31	Ashok Jhunjhunwala	Selection Committee meeting for selection to the post of Director, CSIR-NISTADS	CSIR Science Centre, New Delhi	15 September 2015
32	Ashok Jhunjhunwala	Moinabad–UDC site visit	Moinabad	17 September 2015
33	Ashok Jhunjhunwala	India Gadget Expo	IGE Ventures LLP, Hyderabad	18 September 2015
34	Ashok Jhunjhunwala	BCP-DR site of Central Depository Services (India) Limited (CDSL)	CDSL, Hyderabad	18 September 2015
35	Ashok Jhunjhunwala	Third meeting of LVDC panel	Bureau of Indian Standards, New Delhi	1 October 2015
36	Ashok Jhunjhunwala	Fourth meeting of the Executive Committee on TVWS Technology and Usage	Department of Electronics and Information Technology, New Delhi	1 October 2015
37	Ashok Jhunjhunwala	49th meeting of the Council of IITs	IIT Bombay	6 October 2015
38	Ashok Jhunjhunwala	ICT Plan Task Force meeting and meeting with Election Commissioner	Election Commission of India, New Delhi	6 October 2015
39	Ashok Jhunjhunwala	EDU's fifth annual VCs' retreat	IISER Pune	9 October 2015
40	Ashok Jhunjhunwala	Selection Committee meeting	CSIR Science Centre, New Delhi	10–11 October 2015
41	Ashok Jhunjhunwala	BIS-LVDC—conference with Japan (LVDC: Redefining Electricity)	New Delhi	26 October 2015
42	Ashok Jhunjhunwala	Parallel Session: Public Electrical Systems— Last Mile	New Delhi	26 October 2015
43	Ashok Jhunjhunwala	WhiteSpace Alliance Global Summit on Digital India	New Delhi	26 October 2015
44	Ashok Jhunjhunwala	242nd meeting of the Board of Directors	Tata Communication Limited, Mumbai	27 October 2015
45	David Koilpillai	Meeting with Tamil Nadu Police officials regarding upgrading of Tamil Nadu Police Communications Network	IIT Madras	11 September 2015
46	David Koilpillai	Board Meeting of Reliance	IIT Madras	15 September 2015
47	David Koilpillai	Board of Governors meeting	IIITD&M Kancheepuram	10 October 2015
48	David Koilpillai	Governing Council meeting	IIT Madras Centre for Excellence in Wireless Technology (CEWiT)	16 October 2015
49	Ramakrishna Pasumarthy	Task force/sub-committees of All India Board of Post Graduate Education and Research in Engineering & Technology (AIB-PGERT)	Mumbai	17 August 2015
50	Ashok Jhunjhunwala	Third Committee Meeting for framing the first statutes of the centrally funded IIITs	MHRD, New Delhi	2 November 2015
51	Ashok Jhunjhunwala	Meeting with B.N. Sharma	MHRD, New Delhi	2 November 2015
52	Ashok Jhunjhunwala	TAG-EM Meeting	New Delhi	3 November 2015
53	Ashok Jhunjhunwala	FICCI Higher Education Summit 2015	New Delhi	3 November 2015
54	Ashok Jhunjhunwala	MSEI—visit to SEBI	New Delhi	5 November 2015
55	Ashok Jhunjhunwala	International Summit on Energy Efficient Technologies in Railways	New Delhi	6 November 2015
56	Ashok Jhunjhunwala	IT Task Force meeting	New Delhi	16 November 2015
57	Ashok Jhunjhunwala	Fourth meeting of the committee for framing the statutes of the centrally funded IIITs	New Delhi	16 November 2015

Sl. No.	Faculty Member	Event	Venue	Date
58	Ashok Jhunjhunwala	Fifth meeting of the Expert Group on	New Delhi	17 November
		Usage of TV White Space		2015
59	Ashok Jhunjhunwala	Sixth Meeting of Expert Group on Usage of TV White Space	New Delhi	9 December 2015
60	Ashok Jhunjhunwala	Fourth PRC meeting of TDDP project of S.K. Dynamics	New Delhi	9 December 2015
61	Ashok Jhunjhunwala	Steering Committee meeting of the project Uninterrupted Direct Current (UDC)	New Delhi	9 December 2015
62	Ashok Jhunjhunwala	UGC Empowered Committee	New Delhi	22 December 2015
63	Ashok Jhunjhunwala	Ninth TCOE India General Body Meeting	New Delhi	22 December 2015
64	Ashok Jhunjhunwala	Advisory Committee—CIIE Initiatives	IIM Ahmedabad	7 January 2016
65	Ashok Jhunjhunwala	Meeting of the Technical Advisory Committee (TAC)—SEBI	SEBI, Mumbai	14 January 2016
66	Ashok Jhunjhunwala	National Science Day-INSA	INSA, New Delhi	29 February 2016
67	Ashok Jhunjhunwala	First meeting of Technology cum Administrative Advisory Group (TAAG) of TDB	TDB, New Delhi	29 February 2016
68	V. Jagadeesh Kumar	Plenary discussion at the 30th year celebrations—Global Biotechnology Meet	DBT, GoI, New Delhi	6 February 2016
69	V. Jagadeesh Kumar	BRNS project	IUAC, New Delhi	7 February 2016
70	V. Jagadeesh Kumar	Faculty selection (participated as expert)	Pondicherry Engineering College	19 February 2016
71		Meeting of Academic Council under Electronics and ICT Academy Scheme	DeitY, New Delhi	1 March 2016
72		Seventh Meeting of the Expert Group on Usage of TV White Space Technology	DeitY, New Delhi	1 March 2016
73		Biotechnology Industry Research Assistance Council (BIRAC) Audit and Board meeting	BIRAC, New Delhi	14 March 2016
74		SEBI Technical Advisory Committee (TAC)	SEBI, Mumbai	15 March 2016
75		Eighth meeting of Expert Group on Usage of TV White Space Technology	DeitY, New Delhi	19 March 2016
76		Fifth meeting of the Jhunjhunwala Committee for framing the first statutes of the centrally funded IIITs	MHRD, New Delhi	19 March 2016
77		Fourth Foundation Day of BIRAC	BIRAC, New Delhi	20 March 2016
78		SAC-C Delhi: Hi-Tech Manufacturing Start- up	Office of the Principal Scientific Adviser to the Government of India, New Delhi	29 March 2016
Confer	rences			
1	V. Jagadeesh Kumar and Boby George	2015 IEEE International Instrumentation and Measurement Technology Conference	Pisa, Italy	11–14 May 2015
2	Vinita Vasudevan	Design Automation conference 2015	San Francisco, USA	1–6 and 14–26 June 2015
3	A.N. Rajagopalan	IEEE Conference on Computer Vision and Pattern Recognition 2015 (CVPR 2015)	Boston, USA	7–12 June 2015
4	Srikrishna B.	IEEE International Symposium on Information Theory 2015	Hong Kong, China	14–19 June 2015
5	Ramakrishna Pasumarthy	American Control Conference	USA	29 June to 3 July 2015

Sl. No.	Faculty Member	Event	Venue	Date
6	David Koilpillai	Seventh International Conference on Wireless and Satellite Systems	UK	6–10 July 2015
7	S. Umesh	Interspeech 2015 Conference	Germany	6–10 September 2015
8	Shanthi Pavan	2015 European Solid-State Device Research and Circuits Conference	Austria	14–18 September 2015
9	Balaji Srinivasan	24th International Conference Optical Fiber Sensors (OFS-24)	Brazil	28 September to 2 October 2015
10	Krishna P. Jagannathan	53rd Annual Allerton Conference on Control, Communication and Commuting	University of Illinois, USA	29 September to 2 October 2015
11	Deepa Venkitesh	Asia Conference on Communication and Photonics 2015	Hong Kong	18–24 November 2015

Visits abroad by faculty members

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	Balaji Srinivasan	University of Southamption, England, UK	1–30 May 2015	To visit the research group on high-power fibre lasers at the Optoelectronics Research Centre	_
2	V. Jagadeesh Kumar	Rome, Italy	7–10 May 2015	To visit Sapienza University	_
3	Nagendra Krishnapura and Shanthi Pavan	Lisbon, Portugal	24–27 May 2015	To attend EHE 2015 IEEE International Symposium on Circuits and Systems (ISCAS) and give an oral presentation there	-
4	Andrew Thangaraj and Srikrishna B.	Hong Kong, China	14–19 June 2015	To attend the IEEE International Symposium on Information Theory 2015 and to give an oral presentation there	_
5	Ashok Jhunjhunwala	USA	4–5 June 2015	To visit ADI Boston, Harvard and MIT Boston (project meeting and university visit)	_
6	Ashok Jhunjhunwala	Denver, USA	11–12 June 2015	National Renewable Energy Laboratory (NREL)	_
7	Ashok Jhunjhunwala	USA	3–15 June 2015	IEEE First International Conference on DC Microgrids, Atlanta	_
8	Ashok Jhunjhunwala	USA	11–12 June 2015	Meeting at National Renewable Energy Laboratory (NREL), Denver	_
9	Vinita Vasudevan	San Francisco, USA	7–11 June 2015	To attend the Design Automation Conference 2015	CPDA
10	Ramakrishna Pasumarthy	Chicago, USA	1–3 July 2015	The American Control Conference	_
11	Ramakrishna Pasumarthy	University of Groningen, Netherlands	12–13 July 2015	Mathematical Systems Theory from Behaviors to Nonlinear Control (international workshop)	CPDA
12	Enakshi Bhattacharya	USA	6–10 July 2015	To visit Purdue University as an Engineering Visitor in the School of Electrical and Computer Engineering	_
13	Amitava Das Gupta	USA	6–10 July 2015	To visit the School of Electrical and Computer Engineering, Purdue University	_
14	Enakshi Bhattacharya, Amitava DasGupta, Nandita DasGupta	Purdue University, USA	13–17 July 2015	To visit the Birck Nanotechnology Centre	_

Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
15	R. Sarathi	Japan	28 July 2015	To attend seminar, an omnibus lecture: "Graduate Sub-program in Electrical Engineering and Energy for Improvement of Practical Abilities and Future Preparation"	_
16	Ashok Jhunjhunwala	Taiwan	26–27 August 2015	CPRsouth 2015, Taipei	_
17	Ashok Jhunjhunwala	Taiwan	27 August 2015	National Tsing Hua University, Taiwan	_
18	Ashok Jhunjhunwala	China	29 August 2015	To visit factory of Zhejiang Narada Power Source Co. Limited, Hangzhou	_
19	Ashok Jhunjhunwala	China	31 August 2015	To visit United Nations University, Macau	_
20	Anil Prabhakar	Nanyang Technological University, Singapore	1 October 2015	Magnetics Symposium 2015	_
21	V. Jagadeesh Kumar	RWTH Aachen University, Germany	17–30 November 2015	International Colloquium on Biomedical Engineering	CPDA
22	Ashok Jhunjhunwala	London	23–25 November 2015	Board meeting of Tata Communications Limited and strategy presentation there	_
23	S. Anirudhan and Nagendra Krishnapura	San Francisco, USA	31 January to 4 February 2016	2016 IEEE International Solid- State Circuits Conference (ISSCC)	_
24	Shanthi Pavan	San Francisco, USA	31 January to 4 February 2016	2016 ISSCC	_
25	R. David Koilpillai	Dubai	12 February 2016	IIT Madras Alumni Chapter Meet	_
26	Shanti Bhattacharya	Washington, USA	8–10 February 2016	OSA Winter Leadership Conference	_
27	Shanti Bhattacharya	San Francisco, USA	13–18 February 2016	SPIE Photonics West Conference	_
28	Balaji Srinivasan	New Mexico, USA	5–13 March 2016	Directed Energy Symposium	_
29	Shanthi Pavan	California, USA	21–25 March 2016	To deliver lectures	

Books and monographs authored/co-authored

SI. No.	Faculty Member	Title	Publisher
Books			
1	K. Sridharan and Vikramkumar Pudi	Design of Arithmetic Circuits in Quantum Dot Cellular Automata Nanotechnology	Springer, 2015 (Studies in Computational Intelligence Book Series, Volume 599)
2	R. Pasumarthy, M.K. Camlibel, A.A. Julius and J.M.A. Scherpen (editors)	Mathematical Control Theory—I. Nonlinear and Hybrid Control Systems: Lecture Notes in Control and Information Sciences	Springer, 2015, (ISBN: 3319209884)
3	L. Sujatha, C. Roy Chaudhuri and E. Bhattacharya	"Application of Porous Silicon in MEMS and Sensors Technology" in <i>Materials and Failures</i> in MEMS and NEMS	John Wiley & Sons, 2015 (Editors: Atul Tiwari and Baldev Raj)

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	R. Sarathi	Associate Editor	IET Generation, Transmission & Distribution, 11 August 2015

Paper p	oresentation/keynote tal	ks by faculty members		
Sl. No.	Faculty Member	Title of Presentation/Talk	Event	Date
1	Ashok Jhunjhunwala	Economic Analysis of Deployment of DC Power and Appliances Along with Solar in Urban Multi-storied Buildings	IEEE First International Conference on DC Microgrids, Atlanta	7–10 June 2015
2	Ashok Jhunjhunwala	Solar–DC Deployment Experience in Off- Grid and Near Off-Grid Homes	IEEE First International Conference on DC Microgrids, Atlanta	7–10 June 2015
3	Ashok Jhunjhunwala	chnological and Deployment nallenges and User-Response to ninterrupted DC (UDC) Deployment Indian Homes Property of two property of the prope		7–10 June 2015
4	Vinita Vasudevan	1. Presented two papers	Design Automation Conference, San Francisco	7 and 11 June 2015
		(1) S. Ramaprasath and V. Vasudevan. "An Efficient Algorithm for Statistical Timing Yield Optimization" (presented by Prof. Vasudevan's student)		
		(2) V. Vasudevan and M. Ramakrishna. "An Efficient Algorithm for "Frequency- Weighted Balanced Truncation of VLSI Interconnects in Descriptor Form"		
		2. Gave a talk	Electrical and Computer Engineering Department of NYU	22 June 2015
		3. Presented work (informally) and had discussions with several faculty members	EE Department, Princeton University	24 June 2015
5	Ashok Jhunjhunwala	Disruptive Innovation Towards Overcoming India's Power Problem: Making India One of the Most Green Nations—Looking at Smart-Grids in Indian Context	ACM e-Energy 2015, Bengaluru	16 July 2015
6	Ashok Jhunjhunwala	Research, Design, IPR and Manufacturing: What Can India Do with Engineering Science?	Meeting with Hon'ble Prime Minister, New Delhi	19 August 2015
7	Viveck Cadambe	An Information Theoretic Perspective of Consistent Distributed Storage	Department	6 August 2015
8	Krishna Jagannathan	Academic Opportunities in India (outreach talk at University of Illinois at Urbana-Champaign (UIUC) to the Indian community)	Department of ECE, UIUC	2 October 2015
9	Peruru Subrahmanya Swamy, Radha Krishna Ganti and Krishna Jagannathan	Adaptive CSMA Under the SINR Model: Fast Convergence Through Local Gibbs Optimization	Monticello, Illinois, USA	30 September 2015
10	Gopal Krishna Kamath, Krishna Jagannathan, Gaurav Raina	Car-Following Models with Delayed Feedback: Local Stability and Hopf Bifurcation	Monticello, Illinois, USA	30 September 2015
11	Ashok Jhunjhunwala	EDU's Fifth Annual VCs' Retreat at IISER	IISER Pune	_
12	V. Jagadeesh Kumar	An Analytical Model for PPG and Its Applications (at the MedIT Colloquium)	Helmholtz Institute, Aachen, Germany	27–28 November 2015
13	Shanthi Pavan	Demystifying Time-Varying Systems	International Conference on VLSI Design, USA	7 January 2016
14	Nagendra Krishnapura	Memoryless Analogue-to-Digital Conversion Using Delta Sigma Modulators	Maxlinear Inc., Irvine, USA	28 January 2016

Sl. No.	Faculty Member	Title of Presentation/Talk	Event	Date
15	Nagendra Krishnapura	A Model Agnostic Technique for Determining Per-Element Distortion Contributions	The University of California, Los Angeles, USA	29 January 2016
16	Nagendra Krishnapura	Memoryless Analogue-to-Digital Conversion Using Delta Sigma Modulators	Columbia University, New York, USA	4 February 2016
17	V. Jagadeesh Kumar	How to Prepare a Good Journal Paper	IEEE MINI POCO, Chennai	28 February 2016

Talks at the department

Sl. No.	Name	Title of Talk	Date
1	N.S. Sodha, Power Grid Corporation	Smart Grid, Synchrophasor Technology (PMU) for Indian Power Sector: Case Study of URTDSM (Unified Real Time Dynamic State Measurement) Project of Power Grid	12 January 2016
2	Witold Respondek, Normandie University, France	Linearization of Nonlinear Control Systems: State-Space, Feedback, Orbital and Dynamic	19 February 2016
3	Witold Respondek, Normandie University, France	Geometry, Invariants, and Linearization of Mechanical Control Systems	23 February 2016

4.8.4. Design and Development Activities

Patents

SI. No.	Faculty Member	Details	Place	Date
1	David Koilpillai	Served as Expert Member of Patent Committee Meeting for Evaluation of Patent Applications	Centre for Intellectual Property Right (CIPR), Anna University	9 September 2015

4.8.5. Research and Consultancy

Sponsored research projects (internal—new)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator
1	Vapor-Deposited Multiple Junction Organic Solar Cells and Novel Devices	15 July 2015 to 14 July 2018	New Faculty Scheme	30.00	Debdutta Ray
2	Development of Photosensitive Ambipolar Organic Thin Film Transistors as a Benchmark for Organic Solar Cells	28 August 2015 to 27 August 2017	New Faculty Scheme	25.90	Soumya Dutta
3	Institute Research and Development Junior Level Award	15 April 2015 to 14 April 2018	Institute Research and Development Award	20.00	Mohanasankar Sivaprakasam
4	Accelerometer Using Bond Wires as Sensors	7 September 2015 to 6 July 2016	Research Scholars Innovative Project	6.10	Shanthi Pavan
5	Computational Imaging and Computer Vision	12 May 2015 to 11 May 2017	New Faculty Initiation Grant	5.00	Kaushik Mitra
6	Grating Fabrications Facility	16 February 2016 to 15 February 2016	Maintenance of Capital Equipment	3.90	Balaji Srinivasan
7	Investigations on Use of Feature- Guided Acoustic Waves for Partial Discharge Detection	21 December 2015 to 20 October 2016	Research Scholars Innovative Project	3.00	Balaji Srinivasan

Sponsored research projects (external—new)					
SI. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Implementation of Full-Sized Pilots of Uninterrupted Direct Current (UDC) Supply to Households	8 June 2015 to 7 June 2016	Ministry of Power	8035.00	Ashok Jhunjhunwala
2	5G Research and Building Next Gen Solutions for Indian Market	19 November 2015 to 18 November 2018	DeitY	954.66	Aniruddhan S.
3	Quantum Key Distribution	10 February 2016 to 9 February 2017	Office of the Principal Scientific Adviser	351.00	Anil Prabhakar
4	Special Manpower Development Program for CHIPS to System Designs	_	DeitY	147.51	Nagendra Krishnapura
5	Modeling, Analysis and Implementation of 10 kW Step-up Converter	17 February 2016 to 16 February 2018	DRDO	95.48	Lakshminarasamma N.
6	Algorithms for Smart Grids—INSPIRE	_	DST	86.27	Naveen Kolar Purushothama
7	Statistical Estimation of Electromagnetic Radiation Using Large Data Analysis of Cellphone Signal Levels	8 July 2015 to 7 January 2017	DST	81.01	Bhaskar Ramamurthi
8	Experimental Investigation and Modeling of SOI-Based p-i-n/p-n Phase- Shifters and Variable Optical Attenuators with Submicron Waveguides	30 December 2015 to 29 December 2018	DST	60.70	Bijoy Krishna Das
9	Load-Commutated Inverter-Fed Active- Reactive Induction Motor (ARIM) Drive for Medium Voltage Drive Application	30 December 2015 to 29 December 2018	DST	59.68	Kamalesh Hatua
10	Demonstration of Phase Sensitive Amplification for Advanced Modulation Formats	25 January 2016 to 24 January 2019	DST	54.94	Deepa Venkitesh
11	Control and Coordination of Microgrid System with Multiple Renewable Resources and Storage Systems	14 May 2015 to 13 May 2017	DST	48.82	Mahesh Kumar
12	16 bit 5 MS/s Analogue to Digital Converter	12 October 2015 to 11 October 2018	ISRO	46.92	Nagendra Krishnapura
13	The Physics of Transverse Mode Instability Induces Nonlinear Phase Distortions in Large Area Optical Fiber Amplifiers and Their Mitigation for Scaling of Pulsed and CW High-Energy Lasers	15 October 2015 to 14 October 2016	AFOSR International Grant	46.56	Balaji Srinivasan
14	SITARA: Smart Grid that Harness Satellite-Based Virtual Power Plants for Energy Sustenance	31 March 2015 to 31 March 2017	Global Innovation Initiative	22.00	Shanthi Swarup K.
15	Design and Development of a Low-Cost, Portable Gait Motion Analysis System	28 August 2015 to 27 August 2018	DST	12.63	Ramkrishna Pasumarthy
16	SMS Compression Techniques in Indian Languages (Hindi, Tamil and Gujarati)	5 June 2015 to 4 June 2017	DeitY	9.50	Devendra Jalihal
17	Direct Patterning of Vortex-Generating Diffractive Optical Elements on Fibre Tip Using a Focused Ion Beam	15 April 2015 to 14 April 2019	Indo-German Science & Technology Centre	3.00	V. Pramitha

Consultancy and sponsored research projects (ongoing, sponsored—external)						
Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator	
1	JC Bose Fellowship	15 October 2010 to 14 October 2020	DST	136.00	Ashok Jhunjhunwala	
2	Centre for Nano-electromechanical Systems (NEMS) and Nanophotonics	27 April 2011 to 29 March 2017	Department of Information Technology	4946.50	Enakshi Bhattacharya	
3	Sustainable Communication Infrastructure (Information Network for Natural Disaster Mitigation and Recovery (DISANET))	1 July 2011 to 30 June 2016	Japan International Co-operation Agency	486.00	David Koilpillai	
4	Development of Aakash Platform	16 May 2012 to 31 May 2016	Telecom Centre of Excellence	10.00	Ashok Jhunjhunwala	
5	Development of Automated SPICE Parameter Extraction Tool for SiGe HBTs Using Scalable Approach	14 May 2012 to 13 May 2016	DST	31.82	Anjan Chakravorty	
6	Council of Science and Technology for Rural India Centre at Indian Institute of Technology (CSTRI)— Core Grant	1 October 2012 to 30 September 2016	DST	83.40	Ashok Jhunjhunwala	
7	Decentralized Solar PV Generation and DC Usage (under CSTRI Core Grant—Sub-project-I)	1 October 2012 to 30 November 2016	DST	142.41	Ashok Jhunjhunwala	
8	Investigations into Underwater Imaging	30 November 2012 to 31 October 2017	Board of Research in Nuclear Sciences	99.25	Rajagopalan A.N.	
9	Decentralized Solar PV Power for Commercial Buildings	23 January 2013 to 22 January 2018	Indo-US Science & Technology Forum	135.00	Ashok Jhunjhunwala	
10	Fabrication of Spiral-Phase Diffractive Optical Elements by Focused Ion Beam Milling— INSPIRE Faculty Award	25 April 2013 to 24 April 2018	DST	86.27	V. Pramitha	
11	Centre of Excellence for Decentralized Power Systems	8 July 2013 to 31 March 2018	Ministry of Human Resource and Development	2000.00	Ashok Jhunjhunwala	
12	De-congesting India's Transport Networks Using Mobile Devices	13 December 2013 to 12 December 2016	Information Technology Research Academy	150.41	Krishna Jagannathan	
13	Proof of Concept for Project UDC	20 September 2013 to 19 June 2016	Ministry of Human Resource and Development	400.00	Ashok Jhunjhunwala	
14	Simulation of Semiconductor Devices	7 November 2013 to 6 November 2016	DRDO	49.30	Karmalkar S.	
15	Development of Novel Organic Semiconductor-Based Solar Harvesting Devices to Probe Plasmonic Effects	17 September 2013 to 16 September 2016	DST	456.10	Soumya Dutta	
16	Obstacle Avoidance and Formation Control of Mobile Inverted Pendulum Robots	28 January 2014 to 27 January 2017	DST	32.67	Arun D. Mahindrakar	
17	Design, Fabrication and Testing of Programmable High-Voltage Power Supply for Space Applications	23 February 2015 to 22 February 2018	ISRO	41.08	Lakshminarasamma N.	

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator
18	Transforming Healthcare Delivery—Innovative Health Technologies for Health Promotion and Better Health Outcomes	24 March 2014 to 23 March 2017	Department of Biotechnology	56.00	Ashok Jhunjhunwala
19	Design and Development of Thulium-Doped Fiber Lasers for the Mid-IR	8 July 2014 to 7 July 2016	DRDO	50.56	Deepa Venkitesh
20	The Interaction of ICT Networks Structure and Downstream Trade Flows: Two Case Studies from India (Iruralnet)	1 March 2014 to 28 February 2017	University Grants Commission	9.28	Ashok Jhunjhunwala
21	Study and Analysis of the Electrical, Thermal and Mechanical Properties of Irradiated Epoxy Nanocomposites	18 June 2014 to 17 June 2016	Board of Research in Nuclear Sciences	24.01	Sarathi R.
22	Bluetooth Transceiver RFIC	22 July 2014 to 21 July 2017	Department of Information Technology	315.55	Aniruddhan
23	Speech-Based Access of Agricultural Commodity Prices and Weather Information in 12 Indian Languages/Dialects (Automatic Speech Recognition (ASR) Consortium—Phase II))	3 September 2014 to 2 September 2016	DeitY	147.91	Umesh S.
24	Electro-optic and Magneto-optic Interaction-Based High-Speed Quantum Key Distribution	26 August 2014 to 25 August 2017	DST	23.94	Anil Prabhakar
25	Development of Numerical Simulation Tool for Three-Dimensional Silicon Nanowire-MOSFETs	13 October 2014 to 12 October 2017	DST	30.58	Anjan Chakravorty
26	QEEE—Phase II	21 August 2014 to 30 August 2016	Ministry of Human Resource and Development	100.00	Ashok Jhunjhunwala
27	Understanding Accelerated Ageing Performance of Polymeric Nanocomposite Insulators	12 December 2014 to 11 December 2016	DST	54.60	Sarathi R.
28	Development of Multi-channel Dynamic Interrogator-Based on Fabry-Pérot Fiber Bragg Gratings for Elastic Wave Sensing	8 January 2015 to 7 January 2018	Board of Research in Nuclear Sciences	22.79	Balaji Srinivasan
29	Visvesvaraya Ph.D. Scheme for Electronics and IT—A Scheme from DEITY	21 January 2015 to 20 January 2020	Media Lab Asia	248.76	Bijoy Krishna Das
30	Integrated Fibre-Based Fourier Domain OCT with Spectrometer	19 March 2015 to 18 March 2018	Biotechnology Industry Research Assistance Council	47.20	Shanti Bhattacharya
31	Identification of Incipient Discharges in Transformer Insulation by Elastic Wave Sensing-Based on Fiber Bragg Gratings	23 March 2015 to 22 March 2017	CPRI	35.20	Balaji Srinivasan
32	A Simulation Framework for Modeling Real Wi-Fi Deployments	19 March 2015 to 18 March 2018	DST	21.71	Venkatesh Ramaiyan
33	Implementation of Dirty Paper Coding for the Gaussian MIMO Broadcast Channel	30 March 2015 to 29 March 2018	DST	52.62	Andrew Thangaraj

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator
34	Active Gate Driver Design for SiC MOSFET-Based Inverter for Induction Motor Drive Application	13 April 2015 to 12 October 2016	Centre for Development of Advance Computing	33.07	Kamalesh Hatua
35	Safe and Efficient Driving via Human Cyber Physical Systems and Cloud Computing	30 March 2015 to 29 March 2017	Nissan Research Support Program	7.80	Ramkrishna Pasumarthy
36	Growth of Organic Semiconductor Films by Chemical Vapor Deposition (CVD) for Photovoltaic Applications	30 March 2015 to 29 March 2017	Nissan Research Support Program	9.13	Debdutta Ray
37	16 bit 5MS/s Analogue to Digital Converter	12 October 2015 to 11 October 2018	ISRO	46.92	Nagendra Krishnapura
38	Direct Patterning of Vortex Generating Diffractive Optical Elements on Fibre Tip Using a Focused Ion Beam	15 April 2015 to 14 April 2019	Indo-German Science & Technology Centre	3.00	V. Pramitha
39	Control and Coordination of Microgrid System with Multiple Renewable Resources and Storage Systems	14 May 2015 to 13 May 2017	DST	48.82	Mahesh Kumar
40	SMS Compression Techniques in Indian Languages (Hindi, Tamil and Gujarati)	5 June 2015 to 4 June 2017	DeitY	9.50	Devendra Jalihal
41	Design and Development of a Low-Cost, Portable Gait Motion Analysis System	28 August 2015 to 27 August 2018	DST	12.63	Ramkrishna Pasumarthy
42	Implementation of Full-Sized Pilots of Uninterrupted Direct Current (UDC) Supply to Households	8 June 2015 to 7 June 2016	Ministry of Power	8035.00	Ashok Jhunjhunwala
43	SITARA: Smart Grid that Harness Satellite-Based Virtual Power Plants for Energy Sustenance	31 March 2015 to 31 March 2017	Global Innovation Initiative	22.00	Shanthi Swarup K.
44	Statistical Estimation of Electromagnetic Radiation Using Large Data Analysis of Cellphone Signal Levels	8 July 2015 to 7 January 2017	DST	81.01	Bhaskar Ramamurthi
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46	The Physics of Transverse Mode Instability Induces Nonlinear Phase Distortions in Large Area Optical Fiber Amplifiers and Their Mitigation for Scaling of Pulsed and CW High-Energy Lasers	15 October 2015 to 14 October 2016	AFOSR International Grant	46.56	Balaji Srinivasan
47	Load-Commutated Inverter-Fed Active-Reactive Induction Motor (ARIM) Drive for Medium Voltage Drive Application	30 December 2015 to 29 December 2018	DST	59.68	Kamalesh Hatua
48	Experimental Investigation and Modeling of SOI-Based p-i-n/p-n Phase-Shifters and Variable Optical Attenuators with Submicron Waveguides	30 December 2015 to 29 December 2018	DST	60.70	Bijoy Krishna Das

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator
49	Demonstration of Phase-Sensitive Amplification for Advanced Modulation Formats	25 January 2016 to 24 January 2019	DST	54.94	Deepa Venkitesh
50	Modeling, Analysis and Implementation of 10 kw Step-up Converter	17 February 2016 to 16 February 2018	DRDO	95.48	Lakshminarasamma N.
51	Quantum Key Distribution	10 February 2016 to 9 February 2017	Office of the Principal Scientific Adviser	351.00	Anil Prabhakar

Consultancy and sponsored research projects (ongoing, sponsored—internal)

SI. No.	Title	Period	Funding Agency	Amount	Co-ordinator
			,	(lakhs of ₹)	
1	National Mission for Virtual Laboratories—ELE	8 May 2010 to 2 August 2017	IIT Madras	26.00	Nagendra Krishnapura
2	National Mission for Virtual Laboratories—ELE 2	17 June 2010 to 2 August 2017	IIT Madras	53.00	Krishna Vasudevan
3	Mobile Eye Surgical Units	21 September 2011 to 20 September 2016	Socially Relevant Projects	10.00	Mohanasankar Sivaprakasam
4	Distributed Optimization and Control of Complex Networks	14 June 2012 to 13 June 2016	New Faculty Scheme	5.00	Krishna Jagannathan
5	Queue Management for the Internet	5 November 2012 to 4 November 2016	New Faculty Scheme	5.00	Gaurav Raina
6	Topological Quantum Codes: Constructions and Architectures for Fault Tolerance	17 January 2013 to 16 January 2017	New Faculty Scheme	5.00	Pradeep Kiran Sarvepalli
7	Receivers for Non-Gaussian Interference and Noise	22 October 2013 to 21 October 2016	New Faculty Scheme	5.00	Sheetal Kalyani
8	High Efficient Silicon Carbide MOSFET-Based Induction Motor Drive with Sinusoidal Motor Voltage and Grid-Friendly Input Current	22 October 2013 to 21 October 2016	New Faculty Scheme	25.00	Kamalesh Hatua
9	Characterization and Simulation of Gate-Induced Drain Leakage (GIDL) Current in High-k Metal Gate PMOSFETs	20 November 2013 to 19 November 2016	New Faculty Scheme	15.00	Deleep R. Nair
10	IIT Madras Student Satellite (IITMSAT)—Phase II	24 September 2014 to 30 June 2016	Alumni Association	40.00	David Koilpillai
11	CMOS Analogue and Wireless RF Front End for Biological Signal Acquisition	12 May 2014 to 11 May 2017	New Faculty Scheme	20.06	Aniruddhan
12	MyDrive: A Wheelchair-Accessible Electric Vehicle	11 February 2015 to 10 August 2016	Exploratory Research Project	10.00	Anil Prabhakar
13	Vapor Deposited Multiple Junction Organic Solar Cells and Novel Devices	15 July 2015 to 14 July 2018	New Faculty Scheme	30.00	Debdutta Ray
14	Development of Photosensitive Ambipolar Organic Thin Film Transistors as a Benchmark for Organic Solar Cells	28 August 2015 to 27 August 2017	New Faculty Scheme	25.90	Soumya Dutta
15	Institute Research and Development Junior Level Award	15 April 2015 to 14 April 2018	Institute Research and Development Award	20.00	Mohanasankar Sivaprakasam
16	Computational Imaging and Computer Vision	12 May 2015 to 11 May 2017	New Faculty Initiation Grant	5.00	Kaushik Mitra

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinator
17	Accelerometer Using Bond Wires as Sensors	7 September 2015 to 6 July 2016	Research Scholars Innovative Project	6.10	Shanthi Pavan
18	Investigations on Use of Feature Guided Acoustic Waves for Partial Discharge Detection	21 December 2015 to 20 October 2016	Research Scholars Innovative Project	3.00	Balaji Srinivasan
19	Grating Fabrications Facility	16 February 2016 to 15 February 2017	Maintenance of Capital Equipment	3.90	Balaji Srinivasan

Industrial consultancy projects (new)

Sl. No.	Title	Period	Industry	Amount (lakhs of ₹)	Faculty Member
1	Study of Tamilnadu Police Communication System	1 July 2015 to 30 June 2016	Tamilnadu Police Department	25.00	Devendra Jalihal (IC1516ELE006TNPDDEVE)
2	Proof Checking of Electrical Design Documents	1 July to 30 September 2015	Larsen and Toubro Limited	1.71	Krishna Vasudevan (IC1516ELE002L&TLKRIH)
3	Proof Checking of Electrical Design Documents	1 July to 30 September 2015	Larsen and Toubro Limited	1.71	Krishna Vasudevan (IC1516ELE003L&TLKRIH)
4	Loss Measurement of Power Transformers	8 September 2015 to 7 September 2018	Common Code	1.08	Boby George (IC1516ELE004AAAABOBY)
5	Loss Measurement of Power Transformers	6 April 2015 to 5 April 2018	Common Code	0.90	Boby George (IC1516ELE001AAAABOBY)
6	Impulse Voltage Test on Power Apparatus	31 August 2015 to 30 August 2018	Common Code	0.14	Sarathi R. (IC1516ELE005AAAARSAR)
7	Power-Loss Measurement of Power Transformers	18 March 2016 to 17 March 2019	Common Code	0.00	Boby George (IC1516ELE007AAAABOBY)

RBIC projects (new)

Sl. No.	Title	Period	Industry	Amount (lakhs of ₹)	Faculty Member
1	Investigations into Resolution Enhancement and No-Reference Assessment of SEM Images	1 November 2015 to 31 October 2017	KLA Tencor	48.00	Rajagopalan A.N. (RB1516ELE007KLATANRA)
2	Design and Development of Control, Protection and Monitoring System for Series Capacitors in EHV Transmission System	1 June 2015 to 1 September 2016	Asa Bhanu Technical Services Limited	46.74	Shanthi Swarup K. (RB1516ELE008ABTSKSHA)
3	CMOS RFIC Fabrication	16 July 2015 to 15 July 2016	QUALCOMM Technologies Inc.	38.40	Aniruddhan S. (RB1516ELE004QUATANIR)
4	Cell Sort	28 September 2015 to 27 September 2016	Jiva Sciences	25.00	Anil Prabhakar (RB1516ELE006JIVAANIL)
5	Block Modulated Strategic Communications System	9 February 2015 to 8 February 2018	Bharat Electronics Limited	22.25	Giridhar K. (RB1516ELE002BELXKGIR)
6	Design and Development of IGBT-Based Variable Frequency Drive for 350 kW Permanent Magnet Technology-Based Synchronous Motor (PMSM)	4 February 2016 to 3 February 2017	Bharat Heavy Electricals Limited	20.61	Kamalesh Hatua (RB1516ELE012BHELKAML)

Sl. No.	Title	Period	Industry	Amount (lakhs of ₹)	Faculty Member
7	Development of Piezo Patterning Technology Suitable for MEMS Devices	26 October 2015 to 25 October 2016	DRDO	20.46	Amitava Das Gupta (RB1516ELE009DRDOAMIT)
8	Design and Field-Trial of Rotating Polarization Wave- Based Wireless Modem	1 September 2015 to 30 November 2016	Hitachi India Private Limited	16.00	Devendra Jalihal (RB1516ELE005HITADEVE)
9	Enhancement and Restoration of Underwater Image	11 January 2016 to 11 July 2017	National Institute of Ocean Technology	15.64	Rajagopalan A.N. (RB1516ELE011NIOTANRA)
10	Performance Improvement for OFDM-Based Wideband Modem	19 March 2015 to 30 April 2016	Weapons & Electronics Systems Engineering Establishment	9.35	Giridhar K. (RB1516ELE003WESEKGIR)
11	Evanescent Wave Sensing of Trace Gas Species Using Tapered Optical Fibers	2 November 2015 to 31 December 2016	GE India Technology Centre Private Limited	8.96	Balaji Srinivasan (RB1516ELE010GEITBALA)
12	Simulation and Design of Multiphase Induction Machine	1 May 2015 to 31 January 2016	Caterpillar India Private Limited	4.65	Krishna Vasudevan (RB1516ELE001CATRKRIH)

Retainer consultancy (new)

Sl. No.	Title	Period	Industry	Amount (lakhs of ₹)	Faculty Member
1	Optofluidic Systems	1 July 2015 to 31 December 2016	JIVA Sciences	9.58	Anil Prabhakar (RC1516ELE686JIVAANIL)
2	Retainer Consultancy for Menara Networks	6 December 2015 to 5 December 2016	Menara Networks	7.00	Nagendra Krishnapura (RC1516ELE691MENANAGE)
3	Simulation and Modelling of Emitting Electrode for Fine Particle Collection	1 January 2016 to 31 December 2016	Bharat Heavy Electricals Limited	7.00	Sarathi R. (RC1516ELE695BHELRSAR)
4	Precision-ADC-Design	5 May to 5 November 2015	NXP Semiconductors India Private Limited	6.74	Shanthi Pavan (RC1516ELE680NXPSSHPA)

Research publications of the faculty members and research scholars

Papers published in refereed journals: 125
Papers presented at national conferences: 26
Papers presented at international conferences: 93

Papers published in refereed journals

- 1. P. Balakrishna, K. Rajgopal and K.S. Swarup. 2015. Application benefits of distribution automation and AMI systems convergence methodology for distribution power restoration analysis. *Sustainable Energy, Grids and Networks (SEGAN)* 2: 15–22.
- 2. Vishal A. Tiwari, Young Way Teh, D. Jaeger, R. Divakaruni and D.R. Nair. 2015. Effect of germanium preamorphization implant on performance and gate-induced drain leakage in SiGe channel pFET. *IEEE Electron Device Letters* 36(6): 531–533.
- 3. K. Ravindran, A. Thangaraj and S. Bhashyam. 2015. LDPC codes for network-coded bidirectional relaying with higher order modulation. *IEEE Transactions on Communications* 63(6): 1975–1987.
- 4. Supriya V.T., Boby George and Jagadeesh Kumar V. 2015. Digital converter for a contactless displacement sensor. *IEEE Transactions on Instrumentation and Measurement* 64(8): 2155–2164.
- 5. Tahiyah Nou-Shene, Vikramkumar Pudi, K. Sridharan, Vineetha Thomas and J. Arthi. 2015. Very large-scale integration architecture for video stabilization and implementation on a field programmable gate array-based autonomous vehicle. *IET Computer Vision* 9(4): 559–569.

- 6. V.K. Gurugubelli and S. Karmalkar. 2015. Analytical theory of the space-charge region of lateral p–n junctions in nanofilms. *Journal of Applied Physics* 118: 034503.
- 7. M.G. Jaikumar, R. Ramakrishna Rao and S. Karmalkar. 2015. On the simulation and analytical modeling of on-state DC characteristics of silicon carbide double-implanted MOSFETs. *Solid-State Electronics* 114: 49.
- 8. Vikramkumar Pudi and K. Sridharan. 2015. A bit-serial pipelined architecture for high-performance DHT computation in quantum dot cellular automata. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems* 23(10): 2352–2356.
- 9. Tahiyah Nou-Shene, Vikramkumar Pudi, K. Sridharan, Vineetha Thomas and J. Arthi. 2015. Very large-scale integration architecture for video stabilization and implementation on a field programmable gate array-based autonomous vehicle. *IET Computer Vision* 9(4): 559–569.
- 10. H. Ahmed, K. Jagannathan and S. Bhashyam. 2015. Queue-aware optimal resource allocation for the LTE downlink with best M sub-band feedback. *IEEE Transactions Wireless Communications* 14(9): 4923–4933.
- 11. P. Bhadra, M.S. Shajahan, E. Bhattacharya and A. Chadha. 2015. Studies on varying n-alkanethiol chain lengths on gold coated surface and their effect on antibody–antigen binding efficiency. *RSC Advances* 5: 80480–80487.
- 12. Swagato Mukherjee and Harishankar Ramachandran. 2015. Eikonal analysis of the boundaryless beam propagation method. *Journal of Lightwave Technology* 33(20).
- 13. Chandan Kumar and Mahesh K. Mishra. October 2015. Operation and control of an improved performance interactive DSTATCOM. *IEEE Transactions on Industrial Electronics* 62(10): 6024–6034.
- 14. Prashanth V. and Boby George. 2015. An improved capacitance-to-digital converter for leaky capacitive sensors. *IEEE Sensors Journal* 15(11): 6238–6247.
- 15. E. Bhattacharya and A. Das Gupta (guest editors). 2015. *International Journal of Advances in Engineering Sciences and Applied Mathematics* 7(4). (special issue on MEMS and sensors)
- 16. A.K. Pradhan, A. Thangaraj and A. Subramanian. 2016. Construction of near-capacity protograph LDPC code sequences with block-error thresholds. *IEEE Transactions on Communications* 64(1): 27–37.
- 17. K. Thekumparampil, A. Thangaraj and R. Vaze. 2016. Combinatorial resource allocation using sub-modularity of waterfilling. *IEEE Transactions on Wireless Communications* 15(1): 206–216.
- P. Bhadra, S. Sengupta, N.P. Ratchagar, B. Achar, A. Chadha and E. Bhattacharya. 2016. Selective transportation of charged ZnO nanoparticles and microorganism dialysis through silicon nanoporous membranes.
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- 19. S. Kallummil and S. Kalyani. 2016. Combining ML and compressive sensing: Detection schemes for generalized space shift keying. *IEEE Wireless Communications Letters* 5(1): 72–75.
- 20. S.K. Pulliyakode, S. Kalyani and K. Narendran. 2016. Rate prediction and selection in LTE systems using modified source encoding techniques. *IEEE Transactions on Wireless Communications* 15(1): 416–429.
- 21. S. Kumar and S. Kalyani. January 2016. Impact of correlated interferers on coverage and rate of FFR and SFR schemes. *IEEE Transactions on Vehicular Technology* 65(1): 434–440.
- 22. R. Prasad, S. Bhashyam and A. Chockalingam. January 2016. On the Gaussian many-to-one X channel. *IEEE Transactions on Information Theory* 62(1): 244–259.
- 23. Vijaya Kumar G. and S. Karmalkar. 2016. Effective medium theory of the space-charge region electrostatics of arrays of nanoscale junctions. *Journal of Applied Physics* 119: 024507.
- 24. R. Rajan and S. Pavan. 2016. Design techniques for continuous-time delta sigma ADCs with embedded active filtering. *IEEE Journal of Solid State Circuits* 59(10).
- 25. V.A. Tiwari, R. Divakaruni, T. Hook and D.R. Nair. 2016. Effects of trap-assisted tunneling on gate-induced drain leakage in SiGe channel pFET for scaled supply voltages. *Japanese Journal of Applied Physics* 55(4S): 04ED03.
- 26. Prashanth V. and George B. 2016. Capacitance-to-digital converter for leaky capacitive sensors. *Electronics Letters* 52(6): 456–458.
- 27. Madhup Shukla, Gourab Dutta, Ramanjaneyulu Mannam and Nandita Das Gupta. 2016. Electrical properties of reactive-ion-sputtered Al₂O₃ on 4H-SiC. *Thin Solid Films* 607. doi:10.1016/j.tsf.2016.03.060
- 28. Gourab Dutta, Nandita Das Gupta and Amitava Das Gupta. 2016. Effect of sputtered Al₂O₃ layer thickness on the threshold voltage of III-N MISHEMTs. *IEEE Trans on Electron Devices* 63(4): 1480–1488.
- V.A. Thomas, S. Kumar, S. Kalyani, M. El-Hajjar, K. Giridhar and L. Hanzo. 2016. Error vector magnitude analysis of fading SIMO channels relying on MRC reception. *IEEE Transactions on Communications* 64(4): 1786–1797.
- 30. Rana S., George B. and Kumar V.J. March 2016. Sigma-delta digital converter suitable for a resistive displacement sensor with a floating slide. *IEEE Transactions on Instrumentation and Measurement* 65(3): 502–509.

- 31. Rohit Budhiraja and Bhaskar Ramamurthi. 2015. Joint precoder and receiver design for AF non-simultaneous two-way MIMO relaying. *IEEE Transactions on Wireless Communication* 14(6).
- 32. Rohit Budhiraja and Bhaskar Ramamurthi. 2015. Multiuser two-way non-regenerative MIMO relaying with non- concurrent traffic. *IEEE Transactions on Vehicular Technology* 64(7).
- 33. Rohit Budhiraja and Bhaskar Ramamurthi. 2015. Joint transceiver design for non-concurrent MIMO two-way AF relaying. *IEEE Wireless Communications Letters* 4(5).
- 34. N. Rajamohan and A.P. Kannu. 2015. Downlink synchronization in heterogeneous cellular networks. *IEEE Transactions on Communications* 63(11): 4448–4460.
- 35. D. Ray. 2015. Density of states determination in organic donor–acceptor blend layers enabled by molecular doping. *Journal of Applied Physics* 117: 245501. doi:10.1063/1.4922587
- 36. D. Ray. 2015. Determining doping efficiency and mobility from conductivity and Seebeck data of n-doped C60 layers. *Physica Status Solidi B* 252(8): 1877–1883. doi:10.1002/pssb.201552088
- 37. Mukherjee B., Venkatakrishnan J.V., George B. and Sivaprakasam M. December 2015. Evaluation of an ophthalmic anesthesia simulation system for regional block training ophthalmology. *Ophthalmology* 122(12): 2578–2580.
- 38. Mithun S., George B. and Sivaprakasam M. April 2016. A novel GMR based eddy current sensing probe with extended sensing range. *IEEE Transactions on Magnetics* 52 (4): 400512.
- 39. Seán P. Ó Duill, Aravind P. Anthur, Tam N. Huynh, Sepideh T. Naimi, Lim Nguyen, Deepa Venkitesh and Liam P. Barry. 2015. Numerical generation of laser-resonance phase noise for optical communication simulators. *Applied Optics* 5 (11).
- 40. Aravind P. Anthur, Regan T. Watts, Sean P. O Duill, Rui Zhou, Deepa Venkitesh and Liam P. Barry. 2015. Comment on: Impact of nonlinear phase noise on all-optical wavelength conversion of 10.7 GBaud QPSK data using dual correlated pumps. *IEEE Journal of Quantum Electronics* 51 (7).
- 41. K.R.H. Bottrill, R. Kakarla, F. Parmigiani, D. Venkitesh and P. Petropoulos. 2016. Phase regeneration of QPSK signal in SOA using single-stage, wavelength converting PSA. *Photonic Technology Letters* 28 (2): 205–208.
- 42. R. Kakarla and D. Venkitesh. 2016. Demonstration of optical header recognition for BPSK data using novel design of logic gates. *Optics Communication* 363: 117–122.
- 43. Aneesh S., Saikrishna Reddy and Deepa Venkitesh. 2016. Polarization division multiplexed-duobinary modulation format for long-reach passive optical network. *Optical and Quantum Electronics* 48(5): 1–10.
- 44. Aravind P. Anthur, Rui Zhou, Sean O'Duill, Anthony J. Walsh, Eamonn Martin, Deepa Venkitesh and Liam P. Barry. 2016. Polarization insensitive all-optical wavelength conversion of polarization multiplexed signals using copolarized pumps. *Optics Express* 24(11): 11749–11761.
- 45. I. Singh and K. Giridhar. 2015. New results on perfect channel shortening schemes for MIMO OFDM systems. *Transactions on Emerging Telecommunications Technologies* 26(7): 1031–1038.
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- 47. S. Kumar, S. Kalyani, L. Hanzo and K. Giridhar. 2015. Coverage probability and achievable rate analysis of FFR-aided multi-user OFDM-based MIMO and SIMO systems. *IEEE Transactions on Communications* 63(10): 3869–3881.
- 48. I. Singh, S. Kalyani and K. Giridhar. 2015. A practical compressed sensing approach for channel estimation in OFDM systems. *IEEE Communications Letters* 19(12): 2146–2149.
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- 50. S.V. Ramanan and K. Giridhar. 2016. On the dependency between user detection and timing advancement in LTE ranging channels. *IEEE Communications Letters*.
- 51. A.V. Harish, B. Varghese, Babu Rao, K. Balasubramaniam and B. Srinivasan. 2015. Dynamic interrogator for elastic wave sensing using Fabry Perot filters based on fiber Bragg gratings. *Ultrasonics* 60: 103–108.
- 52. V.T. Gopakumar, K.N. Madhusoodhanan and B. Srinivasan. 2015. Simulation and experimental validation of fiber Fabry-Perot filters for optical clock recovery. *Journal of Optics* 44: 1–4.
- 53. S.P. Dash, A. Rinaldo, A. Pandiarajan and B. Srinivasan. 2015. Spectral tailoring of fiber Bragg gratings through scanning beam fabrication technique. *Journal of Optics* 44: 330–336.
- 54. A.V. Harish, P. Ray, P. Rajagopal, K. Balasubramaniam and B. Srinivasan. 2016. Detection of fundamental shear horizontal mode in plates using fibre Bragg gratings. *Journal of Intelligent Material Systems and Structures*.
- 55. Shantanu Pal, Bijoy Krishna Das and Wolfgang Sohler. August 2015. Photorefractive damage resistance in Ti:PPLN waveguides with ridge geometry. *Applied Physics B: Lasers and Optics* 120: 737–749.
- 56. S. Chandran and B.K. Das. 2015. Surface trimming of silicon photonics devices using controlled reactive ion etching chemistry. *Photonics and Nanostructures: Fundamentals and Applications* 15: 32–40.

- 57. Abraham P. Vinod, Arun D. Mahindrakar, Sandipan Bandyopadhyay and Vijay Muralidharan. 2015. A deterministic attitude estimation using a single vector information and rate gyros. *IEEE/ASME Transactions on Mechatronics* 20(5): 2630–2636.
- 58. Vijay Muralidharan and Arun D. Mahindrakar. 2015. Geometric controllability and stabilization of spherical robot dynamics. *IEEE Transactions on Automatic Control* 60(10): 2762–2767.
- 59. Ramanjaneyulu Mannam, Senthil Kumar Eswaran, Nandita Das Gupta and M.S. Ramachandra Rao. 2015. Zn-vacancy induced violet emission in p-type phosphorus and nitrogen codoped ZnO thin films grown by pulsed laser deposition. *Applied Surface Science* 347: 96–100.
- 60. Sreenidhi Turuvekere, Amitava Das Gupta and Nandita Das Gupta. 2015. Effect of barrier layer thickness on gate leakage current in AlGaN/GaN HEMTs. *IEEE Transactions on Electron Devices* 62(10): 3449–3452.
- 61. Lijin George, Aparna Gupta, P.R. Shaina, Nandita Das Gupta and Manu Jaiswal. 2015. Mechanical tearing of graphene on an oxidizing metal surface. *Nanotechnology* 26(49).
- 62. T.V. Sreejith, K. Kuchi and R.K. Ganti. 2015. Performance of PZF and MMSE receivers in cellular networks with multi-user spatial multiplexing. *IEEE Transactions on Wireless Communications* 14(9): 4867–4878.
- 63. R.K. Ganti and M. Haenggi. 2015. Assymptotics and approximations of the SIR distribution in general cellular network. *IEEE Transactions on Wireless Communications* 2130–2143.
- 64. Raj Kamal Singh, R. Sarathi and Ligy Phillip. 2016. Disinfection of water by pulsed power technique: A mechanistic perspective. *RSC Advances* 6: 11980–11990.
- 65. Raj Kamal Singh, R. Sarathi and Ligy Phillip. 2016. Disinfection of water using pulsed power technique: Effect of system parameters and kinetic study. *Chemical Engineering Journal* 284: 1184–1195.
- 66. Ribhu Gautam, R. Vinu, R. Sarathi, S. Acharya, Mukesh Kumar and Archana Sharma. Understanding electrical treeing activity in electron beam irradiated XLPE cable insulation. *IEEE Transactions on Dielectrics and Electrical Insulation*.
- 67. V. Sathieshkumar, N.J. Vasa and R. Sarathi. 2015. Remote surface pollutant measurement by adopting variable stand-off distance based laser induced breakdown spectroscopy technique. *Journal of Physics D: Applied Physics* 48(43): 435504.
- 68. R. Sarathi, Lakshya Mittal and K. Sethupathi. 2016. Influence of barrier on corona discharge activity in liquid nitrogen under AC voltages adopting UHF technique. *IEEE Transactions on Dielectrics and Electrical Insulation* 23(1): 230–236.
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- 71. R. Sarathi, Kushal H. Oza, C.L.G. Pavan Kumar and T. Tanaka. 2015. Electrical treeing in XLPE cable insulation under harmonic AC voltages. *IEEE Transactions on Dielectrics and Electrical Insulation* 22(6): 3177–3185
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- 3. Yashrajsinh Parmar, Sree Kalyan, M. Chandrasekhar and K. Sridharan. Hardware-directed feature detection for video stitching in intelligent transportation. *Proceedings of 21st International Conference on Advanced Computing and Communications (ADCOM 2015)*, Chennai, September 2015 (to appear in IEEE Xplore).
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- 13. Bhaskar Vundurthy, Aniketh More, S.V.V. Raju and K. Sridharan. Rendezvous of heterogeneous robots amidst obstacles with limited communication. *Proceedings of Second Indian Control Conference (ICC 2016)*, Hyderabad, January 2016 (to appear in IEEE Xplore).
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- 21. Anuj Rajpoot and S. Dutta. Realization of patterned contacts on PMMA using CMOS-compatible photo-lithography. *International Workshop on Physics of Semiconductor Devices (IWPSD)*, Bengaluru, December 2015.
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- 88. Sreelakshmi Manjunath and Gaurav Raina. A proportionally fair controller with small drop-tail buffers: Local bifurcation analysis with two delays. 27th Chinese Control and Decision Conference (CCDC), Qingdao, 2015.
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Staff

Staff Member
Deign diagn M
Daine dinan M
Rajendiran M.
Robin Kennady A.
S. Hemalatha
Jayasankaran V.
Sethuraman A.
Elangovan K.V.
Mallika M.
Sivakumar W.
Sridhar T
Malarvizhi M.
Sathyabama M.
Usha Rani N.
Anand P.
Devaki N.
Janaki M.
Jayachandran R.
Latha S.
Murugan P.
Selvam K.C.
Sobana S.
Umaithanupillai B.
Kothandaraman K.
Padmavathi T.

Designation	Staff Member
	Rajendran C.
	Udaya Kumar
	Jayavel D.
	Rekha V.
Senior Technician	Chandrasekaran D.S.
	Chandrasekaran R.
	Vedhachalam S.
Junior Technician	Prakash J.
	Saranath P.
	Vengateswaran G.

Distinguished visitors to the department

Sl. No.	Visitor	Purpose of Visit	Place Visited	Date
1	Dr. Yasho Arai, University of Tsukuba, Japan	Talk titled "Time-to Digital Connector and SOI Radiation Image Sensor"	Department	1 April 2015
2	Dr. Saurabh Saxena, Faculty Candidate, University of Illinois, Urbana-Champaign	NFEC Technical Seminar	Department	22 July 2015
3	Prof. Sebastian Lourdudoss, KTH, Sweden	Seminar talk titled "Heteroepitaxy of InP on Si and Buried Heterostructure Quantum Cascade Lasers"	Department	17 July 2015
4	Prof. S.A. Ramakrishna, IIT Kanpur	Seminar talk titled "Anisotropic Metamaterials for Unique Applications"	Department	18 August 2015
5	Dr. Ignatius Bezzam, alumnus, Power IC Space	Seminar talk titled "Power Electronics in VLSI: Design Challenges and Solutions"	Department	13 August 2015
6	Dr. Janakiraman, IBM, Bengaluru	Selected Problems in Statistical Compact Model Extraction and Embedded DRAM Design in 14 nm	Department	24 August 2015
7	Prof. H. Rajamani, University of Bradford, United Kingdom	Discussions with Prof. Swarup and his group on Sitara Project	Department	26 August 2015
8	Dr. Y. Kim and Mr. A. Chatterjee, scientists, Jet Propulsion Lab, USA	Presentation on NISAR (NASA-ISRO SAR Project) and IITMSAT Project discussions	Department	28 September 2015
9	J.K. Rath, Utrecht University, The Netherlands	First, Second and Third Generation Solar Cells (seminar)	Department	12 October 2015
10	Dr. Ashutosh Sabharwal, Rice University, USA	Seminar	Department	15 October 2015
11	Prof. T.J. Lim (NUS)	Talk titled "Two-Tier Cognitive Networks"	Department	9 November 2015
12	Shiva Theja, IBM T.J. Watson	Talk titled "Heavy Traffic Queues"	Department	14 December 2015
13	Pavan Kumar Hanumohn, VIUC	ICs for High-Speed Serial Links (GIAN course)	CCE Studio	25–29 December 2015
14	Prof. Kaushik Roy, Purdue University	Magnet-Based Non-volatile Embedded Memory for Future Processors: Design Approach from Devices to Systems	Department	5 January 2016
15	Dr. Carolina Osorio, Assistant Professor, MIT (Boston)	Talk titled "Towards Real-Time Simulation-Based Transportation Optimization"	Department	6 January 2016
16	Dr. Robert van Veldhoven, NXP Semiconductors	Talk titled "Design of High-Performance Analogue to Digital Converters for Digital Audio"	Department	8 January 2016

Sl. No.	Visitor	Purpose of Visit	Place Visited	Date
17	Mr. Amar Sagar Reddy, Ph.D. scholar, Iowa State University	Talk titled "Application of the Phasor Measurement Units (PMU) to Monitor the Voltage Stability of the Grid"	Department	19 January 2016
18	Dr. Sreejith, IIT Hyderabad (has been offered a post-doc position in the department)	Talk titled "Performance Analysis of Cloud Radio Systems"	Department	20 January 2016
19	Prof. Manjunath, IIT Bombay	Talk titled "Spectrum Sharing: How Much to Give?"	Department	4 February 2016
20	Dr. Bakshi, Chinese University of Hong Kong	Talk titled "Network Coding Against a Limited View Adversary"	Department	8 February 2016
21	Prof. Witold Respondek, Normandie University, France	Discussions on micro grid/energy storage	Department	17 February 2016
22	Prof. Paulraj	Talk titled "Two-Tier Cognitive Networks"	Department	22–24 February 2016
23	Rohith Chandrasekar, Ph.D. scholar, Purdue University	Talk titled "Enhancing Nonlinear Optical Phenomena Using Novel Metamaterial Geometries"	Department	25 February 2016
24	Prof. Vijay Subramanian, University of Michigan, Ann Arbor	Seminar	Department	3 March 2016

4.8.6. Other Activities of the Department

1. Student-organized events

Sl. No.	Organizers	Event	Date and Venue
1	Research scholars of the Photonics Group	Automation of Instruments (workshop)	January 2016, department

2. Student visits (programmes)

Sl. No.	Student	Title of Talk	Date and Venue
1	Manoj Kumar M.V., research scholar (EE12D016)	A Three-Leg Inverter-Based DSTATCOM Topology for Compensating Unbalanced and Nonlinear Loads	5 May 2015, department
2	Madhu Babu Sikha, research scholar (EE10D028)	Study of Departure Process of M/D/1/Bon Queue With and Without Vacations	6 May 2015, department
3	Raghava Krishnan K., research scholar (EE13S014)	Prosodic Analysis of Indian Languages and Their Applications to Text to Speech Synthesis	13 May 2015, department





4.9.1. Introduction

Established in 2006, the Department of Engineering Design at IIT Madras is the first of its kind in India and the 16th department to be set up at the institute. The department provides much-needed leadership in engineering design and offers two novel Dual Degree programmes in engineering design. While both programmes offer a B.Tech. in Engineering Design, the first of these programmes, which began in 2006, offers an M.Tech. in Automotive Engineering, and the second, which commenced in 2008, offers an M.Tech. in Biomedical Design. The department launched the novel Dual Degree programme in Engineering Design with a view to providing much-needed leadership in this area. The first of its kind in the country, the programme constitutes a B.Tech. specialization in engineering design and an M.Tech. specialization in automotive engineering, with a strong thrust on the modern practices of design. M.S. and Ph.D. programmes are being offered since 2007. Recently, an M.Tech. and Ph.D. Dual Degree programme was introduced.

"From concept to a component that meets a desired function" aptly describes engineering design. 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 introduced to the design process in the first year 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 modeling, finite elements, materials engineering, automotive engineering, mechatronics, robotics, biomedical imaging and diagnostic techniques are also offered.

4.9.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title			
1	ED1031	Creative Design			
2	ED1032	Form and Aesthetics in Design			
3	ED2011	Design of Mechanical Systems 1			
4	ED2012	Manufacturing Processes			
5	ED2130	Design of Electronics Systems 1			
6	ED2140	Physics of Measurements			
7	ED4010	Design of Electronic Systems 2			
8	ED4040	Design of Thermal and Fluid Systems			
9	ED4060	Design of Mechanical Systems 2			
10	ED5012	Advanced Applications of Human Factors			
11	ED5013	Analytical and Experimental Techniques in Vibration			
12	ED5014	Energy Storage Devices and Systems			
13	ED5015	Computational Methods in Design			
14	ED5321	Science of Musical Instruments			

New labs established

MoSDE-IIT Madras Incubation Centre for Industrial Automation, Instrumentation and Automobile

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016						
Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
Dual Degree	54	55	55	55	52 + 32	303
M.S.	4	4	11	11	6 + 1	37
Ph.D.	1	7	23	9	18 + 10	68
Total	59	66	89	75	119	408

Students/scholars who attended conferences/workshops/seminars/symposia

Students/scholars who attended conferences/workshops/seminars/symposia						
SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from	
Abroac	il					
1	Suthirth Vaidya	ED10B059	IEEE International Symposium on Biomedical Imaging	April 2015, New York, USA	Office of Alumni Affairs and IIT Madras	
2	Emmanuel P.	ED13D017	Seventh International Congress on Laser Advanced Materials Processing (LAMP 2015) and the 16th International Symposium on Laser Precision Microfabrication	26–29 May 2015, Kitakyushu International Conference Center, Kitakyushu, Japan	IIT Madras	
3	Ezhilmaran V.	ME13D062	LAMP 2015 and the 16th International Symposium on Laser Precision Microfabrication	26–29 May 2015, Kitakyushu International Conference Center, Kitakyushu, Japan	IIT Madras	
4	Pauline John	ED13D005	SPIE European Conference on Biomedical Optics	21–25 June 2015, Munich, Germany	IIT Madras	
5	Subhashree M.	ED12D018	Shape Modeling International	24–26 June 2015, University of Lille, France	IIT Madras	
6	Mahesh Raja P.	ED12S015	42nd Annual Review of Progress in Quantitative Nondestructive Evaluation	25–31 July 2015, Minneapolis, USA	IIT Madras	
7	Yugandhara Rao Yadam	ED12S019	42nd Annual Review of Progress in Quantitative Nondestructive Evaluation	25–31 July 2015, Minneapolis, USA	IIT Madras	
8	Edward Jero	ED12D003	37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society	25–29 August 2015, Milan, Italy	Partially funded by alumni	
9	Aparna N.	ED11D020	The 13th International Conference on Laser Ablation (COLA 2015)	31 August to 4 September 2015, Cairns, Australia	IIT Madras	
10	Kumar Mridul	ED11B050	Laval Virtual	23–27 March 2016, France	Partially funded by alumni	
11	Tharrini Rajendran	ED13S018	International Symposium on Antennas and Propagation (ISAP2015) (presented work titled "Comparison Study of Microwave Patch Antennas at 434 MHz for Intracavitary Hyperthermia Applicator Design")	9–12 November 2015, Hobart, Tasmania, Australia	IIT Madras	
India						
1	Chakravarthy Geetha	ED11D007	Quantitative Infrared Thermography Asian Conference (QIRT-ASIA 2015, presented "Specific Absorption Measurement of External Heating Antenna Using Infrared Thermography")	6–10 July 2015, Mahabalipuram, Chennai	IIT Madras	
2	C.S. Nanda Kumar	ED09D008	2015 International Transportation Electrification Conference (ITEC)	August 2015, Chennai, India	External (Bosch)	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
3	Vani Damodaran	ED11D013	IEEE Workshop on Recent Advances in Photonics 2015	16–17 December 2015, IISc, Bengaluru	IIT Madras
4	Priyanshu	ED12S023	IEEE Workshop on Recent Advances in Photonics 2015	16–17 December 2015, IISc, Bengaluru	IIT Madras
5	Esther Blesso Vidhya Y.	ED12D004	International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2015)	10–12 December 2015, Victor Menezes Convention Centre, IIT Bombay	IIT Madras
6	Srinagalakshmi Nammi	ED11D014	COPEN 2015	10–12 December 2015, Victor Menezes Convention Centre, IIT Bombay	IIT Madras
7	Vidyalakshmi M. Radharavi	ED12D022	Fifth IEEE Applied Electromagnetics Conference (AEMC 2015)	18–21 December 2015, IIT Guwahati	IIT Madras
8	Jayaprakash Poojali	ED12D013	International Workshop on Antenna Innovation and Modern Technologies	26–27 December 2015, Ahmedabad	IIT Madras
9	Sorna Sundaram C.	Project Associate	International Workshop on Antenna Innovation and Modern Technologies	26–27 December 2015, Ahmedabad	Project
10	Jiyo S. Athertya	ED12D014	International Conference on Biomedical Systems, Signals and Images	24–26 February 2016, IIT Madras, Chennai	IIT Madras
11	Thiyagarajan R.	ED12D020	International Conference on Biomedical Systems, Signals and Images	24–26 February 2016, IIT Madras, Chennai	IIT Madras
12	Vicky Varghese	BT11D024	International Conference on Biomedical Systems, Signals and Images	24–26 February 2016, IIT Madras	IIT Madras
13	Edward Jero	ED12D003	International Conference on Biomedical Systems, Signals and Images	24–26 February 2016, IIT Madras	IIT Madras

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	Suthirth Vaidya	ED10B059	ISBI 2015	IEEE International Symposium on Biomedical Imaging, New York
2	Abhijit Chunduru	ED10B047	ISBI 2015	IEEE International Symposium on Biomedical Imaging, New York
3	Aparna Neettiyath	ED11D020	Award for Outstanding Poster Presentation	Laser Ablation (COLA 2015)
4	Vani Damodaran	ED11D013	Best Poster Award	IEEE Workshop on Recent Advances in Photonics 2015

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize
1	Gagan	ED13B019	Ms Latha and Sampath Srinath Prize
2	Ashay Makim	ED12B009	Dr. Srikanth Sundararajan Prize (joint winner)
3	Joshi Sagar Suhas	ED12B024	
4	Athira Jane Jacob	ED11B043	Sarada Bhakara Reddy Award

4.9.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization
Professors	
T. Asokan	Robotics, mechatronics, control, electro-hydraulic servo systems
R. Krishna Kumar	Nonlinear finite elements, vehicle dynamics and tyre mechanics

Name	Major Areas of Specialization
Nilesh J. Vasa [Head]	Opto-mechatronics, laser-based sensing and micro-manufacturing
Srikanth Vedantam	Design with novel materials, mechanical behaviour of materials, wetting, microstructure evolution
Venkatesh Balasubramanian	Human factors and ergonomics, biomedical devices and implants, innovation in manufacturing
Associate Professors	
M. Ramanathan	Geometric and solid modelling, CAD, computer vision, computational geometry, computer graphics, computational biology, shape search
Sankara J. Subramanian	Digital image correlation, nano-indentation, mechanics of materials, finite element analysis
G. Saravana Kumar	CAD, computational geometry, reverse engineering, shape optimization, biomechanical modeling, biomedical imaging and reconstruction, biomimetic prosthetic and scaffold design, layered manufacturing and soft computing
C.S. Shankar Ram	Model-based control and diagnostics, automotive systems, vehicle dynamics, analysis of transportation systems
Assistant Professors	
Balkrishna C. Rao	Sustainable manufacturing, sustainable design, nano-manufacturing, manufacturing for bio-medical applications, simulation of manufacturing processes
Ganapathy Krishnamurthi	X-ray computed tomography physics, ultrasound image processing, biological imaging using optical microscopy
Kavitha Arunachalam	Biomedical instrumentation, radio frequency and microwave antenna design, hyperthermia physics, non-destructive material evaluation
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
Visiting Professors	
R. Jayaganthan (up to 30 June 2017)	Materials science and engineering, nanomaterials and design, biomaterials, energy storage devices

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinator	Title	Period
Worksl	nops		
1	Nilesh J. Vasa	Development of Eco-friendly LED Based on Nano- structured ZnO crystals (sponsored by the Department of Science and Technology, India (DST) and Japanese Society for the Promotion of Science (JSPS)), IIT Indore	24–27 January 2016
2	A. Palani	Development of Eco-friendly LED Based on Nano-structured ZnO crystals (sponsored by DST and JSPS), IIT Indore	24–27 January 2016
Short-t	erm courses		
1	C.S. Shankar Ram	CEP on System Dynamics and Control for WABCO, Chennai	April–May 2015
2	C.S. Shankar Ram	CEP on Fundamentals of Automotive Systems, Mahindra and Mahindra	June, August and November 2015
3	C.S. Shankar Ram	CEP on Vehicle Dynamics, Fiat Chrysler Automobiles Engineering India Private Limited, Chennai	October–November 2015
4	C.S. Shankar Ram	CEP on Fundamentals of Automotive Systems, Mahindra and Mahindra	February 2016
6	Kavitha Arunachalam	Short-Term Course on Mechatronics and Intelligent Systems (sponsored by AICTE)	1 July to 1 August 2015

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Co-ordinator	Title	Institution	Period				
Confer	Conferences							
1	Ganapathy Krishnamurthi	Deep Learning for Medical Image Analysis	Natural Sciences Faculty Colloquium, TIFR	22 July 2015				
Worksl	hops							
1	Kavitha Arunachalam	Workshop on Antenna Innovation and Modern Technologies	IEEE AP/MTP Joint Chapter Gujarath Section	26–27 December 2015				
2	G. Saravana Kumar	Rapid Product Development for Bio-medical Engineering: 3D Reconstruction and Printing (talk delivered at SERB-sponsored two-day national workshop, "Rapid Manufacturing and 3D Printing")	NIT Trichy	23 April 2016				

Special lectures delivered by faculty members at other institutions

Sl. No.		Title of Lecture	Institution	Date
1	R. Jayaganthan	Nanomaterials for Aerospace Applications (STP on Composites Analysis and Design)	Department of Aerospace Engineering, IIT Madras	12–16 October 2015
2	Kavitha Arunachalam	Electromagnetic Waves and Applications	Department of Electronics and Communication Engineering, Bannari Amma Institute of Technology, Sathyamangalam, Erode	12 September 2015
3	Nilesh J. Vasa	Laser Technology and Its Applications	Kurume National College of Technology, Kurume	17 June 2015
4	Nilesh J. Vasa	Laser Technology and Its Applications	Ariake National College of Technology, Omuta	24 June 2015
5	Nilesh J. Vasa	Laser Technology and Its Applications	Nagaoka University of Technology, Nagaoka	6 July 2015
6	Nilesh J. Vasa	Laser Technology and Its Applications	Amada Engineering Company Limited, Atsugi	25 July 2015
7	Nilesh J. Vasa	Advances in Optical Techniques for Environmental Monitoring	Kyushu University (Chikushi campus)	10 June 2015
8	Nilesh J. Vasa	Pulsed Laser Deposition Technique and Industrial Application	International Conference on Application of Lasers in Manufacturing (CALM 2015), New Delhi	9–11 September 2015
9	Nilesh J. Vasa	Recent Advances in Optical Techniques for Trace Gas Sensing and Pollutant Monitoring	Fifth International Conference on Advances in Computing and Communications (ICACC 2015): Light and Light-Based Technology for Computing and Communications, Rajagiri School of Engineering and Technology, Cochin	2–4 September 2015
10	Nilesh J. Vasa	Recent Advances in Pulsed Laser Desposition Technique and Its Industrial Applications	International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2015), IIT Bombay	10–12 December 2015
11	Saravana Kumar G.	Techniques of Reverse Engineering in Product Development and Manufacturing Reverse Engineering: An Enabler for Rapid Product Development	IIITD&M, Kancheepuram	11 July 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
12	Saravana Kumar G.	Application of 3D Printing in Bio-medical Engineering	National Productivity Council, Chennai	20–24 July 2015
13	Saravana Kumar G.	5		11–12 March 2016
14	Saravana Kumar G.	Rapid Product Development for Bio-medical Engineering: 3D Reconstruction and Printing	-medical Engineering: 3D "Rapid Manufacturing and 3D Printing"	
15	Saravana Kumar G.	Segmentation of Lumbar Vertebrae from MRI Using Expectation Maximization and Hidden Markov Random Fields	ARI Using Systems, Signals and Images, IIT Madras imization and	
16	Saravana Kumar G.	Simulation of Axial Pull Out of Pedicle Screw in Synthetic Bone Models	International Conference on Biomedical Systems, Signals and Images, IIT Madras	24–26 February 2016
17	C.S. Shankar Ram	Fluid Power in Automotive Braking and Fluid Power Society of India	IIT Madras	19 June 2015
18	C.S. Shankar Ram	Design and Analysis of a Parallel Hybrid Electric Vehicle for Indian Conditions	2015 International Transportation Electrification Conference (ITEC), Chennai	August 2015
19	C.S. Shankar Ram	Mechatronics in Automotive Systems	Vellore Institute of Technology, Chennai	15 September 2015
20	C.S. Shankar Ram	Dynamics Applied to Road Vehicles	PALS5 Theory to Practice Lecture, IIT Alumni Industry Interaction Centre	19 February 2016
21	C.S. Shankar Ram	Hybrid and Electric Vehicles	KCG College of Technology, Chennai	5 March 2016
22	C.S. Shankar Ram	Automotive Braking Systems	Quality Enhancement in Engineering Education (QEEE) Programme, IIT Madras	March 2016
23	Venkatesh Balasubramanian	Present and Future of Healthcare Instrumentation: Clinical and Technology Perspective	Anna University	23 May 2015

Visits abroad by faculty members

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Ganapathy Krishnamurthi	Germany	5–6 October 2015	Delivering a talk titled "Multi-modal Brain Tumor Segmentation Using Stacked Denoising Autoencoders"	CPDA
2	Nilesh Jayantilal Vasa	USA	18–24 October 2015	Delivering a talk titled "Superluminescent Diode Coupled with Etalon for Measuring CH ₄ and CO ₂ in Biogas" at Frontiers in Optics/Laser Science Conference (FiO/LS)	CPDA
3	Nilesh Jayantilal Vasa	Japan	26–29 May 2015	Delivering two talks at Seventh International Congress on Laser Advanced Materials Processing (LAMP 2015) and 16th International Symposium on Laser Precision Microfabrication:	CPDA/ Kyushu University, Japan
				(1) Influence of Laser Beam Profile on Nd ³⁺ :YAG Laser Assisted Formation of Polycrystalline-Si Films in Underwater Conditions	
				(2) Micro-scribing of Copper Thin Film in Air and Water Using Pulsed Nd ³⁺ :YAG Laser	
4	Palaniappan Ramu	Australia	5–14 June 2015	Delivering a talk titled "Estimating High Reliabilities with CVaR+" at 11th World Congress on Structural and Multidisciplinary Optimization	CPDA

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
5	Palaniappan Ramu	Italy	24–29 August 2015	Delivering a talk titled "Steganography in Arrhythmic Electrocardiogram Signal" at 37th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Milan, Italy	CPDA
6	Palaniappan Ramu	USA	19–25 March 2016	Delivering a talk titled "Robust ECG Steganography" at 10th International Symposium on Medical Information and Communication Technology (IEEE), Worcester, MA, USA	CPDA
7	Ramanathan Muthuganapathy	China	6–10 October 2015	Delivering a talk titled"A Voronoi-Based Labeling Approach to Curve Reconstruction and Medial Axis Approximation" at Pacific Graphics 2015, Beijing, China	CPDA/ project
8	Ramanathan Muthuganapathy	France	23–26 June 2015	Delivering two talks: (1) A Unified Approach Towards Reconstruction of a Planar Point Set and (2) Algorithm for Computing Positive Alpha-Hull for a Set of Planar Closed Curves	CPDA/ project
9	Sandipan Bandyopadhyay	India	14–16 March 2016	Invited lecture	Others
10	Sandipan Bandyopadhyay	India	31 March and 1 April 2016	Invited talk	Others
11	Sandipan Bandyopadhyay	Taiwan	24–31 October 2015	To attend the Conference on Optimal Design of Parallel Manipulators Based on Their Dynamic Performance, Optimal Synthesis of Six-Bar Function Generators	CPDA
12	Sandipan Bandyopadhyay	Turkey	8–26 June 2015	Attending a conference (Kinematic Analysis of MacPherson Strut Suspension System)	CPDA
13	Sankara J. Subramanian	USA	13–15 April 2016	Visiting Scientist with the Robotics Team at Google	Google
14	Saravana kumar G.	India	15–19 December 2015	Attending a conference (Design of a Static Balancing Mechanism for Coordinated Motion of an External Load)	CPDA
15	Venkatesh Balasubramanian	Australia	7–15 August 2015	To give oral presentation titled "Certification for Practicing Ergonomist: Quest for Global Standards"	CPDA
16	Venkatesh Balasubramanian	Japan	21 February to 4 March 2016	IIT Madras work	Others

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Honour/Award	Awarded by	Date
Honou	irs			
1	R. Krishnakumar	Perry L Blackshear Institute Chair	IIT Madras	1 April 2016
2	R. Krishnakumar	MoSDE Chair (sponsored by the Ministry of Skill Development and Entrepreneurship)	IIT Madras	1 April 2016

Books and monographs authored

SI. No.	Faculty Member	Title	Publisher
1	Jiju Peethambaran and Ramanathan Muthuganapathy	Automatic Reconstruction of Triangular Meshes from Point Sets	LAP, 2016
2	D. Vishaal, Meena R., Jadhav, Palaniappan Ramu and Prakash A.	Robust Design of Savonius Wind Turbine, in <i>Renewable Energy in the Service of Mankind</i> , Volume I (edited by Ali Sayigh), doi:10.1007/978-3-319-17777-9	Springer, 2015

Fellowships of academies and professional societies

Sl. No.	Faculty Member	Year of Admission
INAE		
1	R. Krishnakumar	2004

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	C.S. Shankar Ram	Associate Editor	ASME Journal of Dynamic Systems, Measurement and Control
2	C.S. Shankar Ram	Member of editorial board	International Journal of Vehicular Technology

4.9.4. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Equipment	Value (lakhs of ₹)
1	Automation and Instrumentation Facility	
	Modular mechatronics system	32.5
	Rotary arm robot system (SCARA)	23.4
	Mobile robot	16.6
	Multi-purpose laboratory station	13.1
	Electrical probe station	18.7
	Optical interferometry system	4.2
	Source measure unit	3.3
2	Automobile Facility	
	Stirling engine test bench	19.0
	Rapid control prototyping system (driving simulator)	40.0
	Automotive sensor system	5.2
	Automotive design laboratory facility with TruckSim software	7.1
3	Manufacturing	
	Computer systems + digital manufacturing simulation software	31.3

Patents filed

Sl. No.	Faculty Member	Title of Patent
1	Ramanathan Muthuganapathy	Method for Extracting Volumetric Features in a Mesh Representation of CAD Model Using Random Cutting Planes and Graph Traversals

4.9.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Cost-Effective High-Resolution X-Ray Imaging Detector with Raster Scanning Intensifier Augmentation	7 September 2015 to 6 July 2016	Research Scholars Innovative Project	5.0	Ganapathy Krishnamurthi and Sivarama Krishnan
2	Medical Microwave Radiometry for Noninvasive Tissue Thermometry	29 June 2015 to 28 June 2018	Department of Science & Technology	51.0	Kavitha Arunachalam and Krishnamurthy C.V.
3	Wide-Band Frequency-Selective Surfaces (FSS) for Quasi-optical Network	2014–2016	ISRO	25.9	Kavitha Arunachalam and Krishnamurthy C.V.

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
4	Condition Monitoring of Aerospace Structural Materials Adopting Multi- fusion Sensor System	2016–2018	ISRO	28.0	Velmurugan R. (AEE), Kavitha Arunachalam and Jayaganthan R.
5	Proposal for Development of Modeling and Experimental Techniques for Dielectric NDE of Composite Structures	2015–2017	DAE	75.0	C.V. Krishnamurthy (Physics) and Kavitha Arunachalam
6	Designing and Manufacturing Customizable Bionic Arm Using 3D Printing	December 2015 to 20 October 2016 (10 months)	Research Scholars Innovative Project	3.0	Saravana Kumar G.
7	Nondestructive Testing of Bituminous Pavements Using Electromagnetic Techniques	2014–2015	IIT Madras	5.0	Pragyan P. Patnaik (lead student), Rahul R. (Engineering Physics) and Nivitha M.R. (Civil) (research scholars)
8	Designing and Manufacturing Customizable Bionic Arm Using 3D Printing	21 December 2015 to 20 October 2016	Research Scholars Innovative Project	3.0	Saravana Kumar G.
9	A Collision Avoidance System for Heavy Commercial Road Vehicles	2015–2016	Exploratory Research Project, IIT Madras	7.0	C.S. Shankar Ram
10	Joint National Centre for Combustion Research and Development	December 2011 to December 2016	DST	41.5 Crore	N.J. Vasa (Co-PI)
11	Development of an Electro- optically Tunable Optical Coherence Tomography Technique for Detection of Tooth Decay	July 2014 to July 2016	SERB	54.9	N.J. Vasa and R. Sarathi
12	Study and Analysis of the Electrical, Thermal and Mechanical Properties of Irradiated Epoxy	June 2014 to June 2016	BRNS	19.6	R. Sarathi (PI) and N.J. Vasa (Co-PI)
13	Understanding the Formation of Copper Sulphide in Transformer Insulation Due to Ageing	March 2015 to March 2017	CPRI (Central Power Research Institute)	30.0	N.J. Vasa (PI) and R. Sarathi (Co-PI)
14	Development of a Laser-Assisted Scribing Technique to Generate Strips of a Parabolic Antenna	March 2014 to July 2016	ISRO	17.06	N.J. Vasa (PI) and G. Balaganesan (Co-PI)

Industrial consultancy projects

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Asokan T.	Development of Mathematical Model and Control System for the "Aqua Boat" Robotic Fish	National Institute of Ocean Technology	5.1
2	Kavitha Arunachalam and Krishnamurthy C.V.	Design and Development of Flexible, Miniature Array-Type Eddy Current Probes for Nondestructive Imaging of Defects in Thin-Walled Stainless Steel Tubes	Indira Gandhi Centre for Atomic Research	25.3
3	Palaniappan Ramu and Saravana Kumar G.	Innovative Coated Abrasive Designs	Saint-Gobain Research India Limited	3.7
4	Srikanth Vedantam	Use of IIT Madras Steering Robot	Automotive Test Systems	5.0

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
5	Srikanth Vedantam	Design of Ball Screw Mechanism for Valeo Automobile Component	Common Code	5.0
6	Saravana Kumar G.	Product Design and Prototyping	Common Code	5.0
7	Venkatesh Balasubramanian	Development of Instrumented Seat for Driver Performance Monitoring	Harita Seating Systems Limited	68.4
8	Saravana Kumar G.	Enhancing Water Proofing for Wrist Watches of Edge Watch	TILX	8.4
9	Saravana Kumar G.	HuMotor: A Humane Way to Utilize Human Efforts	ВМТР	12.0
10	Saravana Kumar G.	Ideate, Explore Different Strategies for Openable Tailgate Mechanisms from Vehicles	SAIO	3.6

RBIC projects

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Ramanathan Muthuganapathy and G. Saravanakumar (Co-PI)	Measuring Controller-Area Network Bus Length	Caterpillar India Private Limited	15.9
2	Ramanathan Muthuganapathy	Optimization of the Location of Cab Lamps for Illumination	Caterpillar India Private Limited	14.0
3	C.S. Shankar Ram (Principal Consultant)	Analysis of a Multipurpose Road Vehicle	M.K. Enterprises	11.7

Faculty members' participation with other institutions under MoUs

Sl. No.	Faculty Member	Details	University/Institution
1	Nilesh J. Vasa	Green Asia Program	Kyushu University, Fukuoka, Japan
2	Nilesh J. Vasa	Conducted a course titled "Optolelectronics", 15 March to 31 July 2015, as Short-Term Professor at the Graduate School of Information Science and Electrical Engineering	Kyushu University, Fukuoka, Japan

Research publications of the faculty members and research scholars

Papers published in refereed national journals: 1
Papers published in refereed international journals: 37

Papers presented at national conferences: 7
Papers presented at international conferences: 52

Papers published in refereed national journals

1. Nilesh J. Vasa and I.A. Palani. 2015. Current status of lasers technology and photonics in India. *The Review of Laser Engineering* [in Japanese] 43(9): 652–657.

Papers published in refereed international journals

- 1. A. Thankappan, A. Sunny, L. Vanajakshi and S.C. Subramanian. 2015. A non-continuum lumped-parameter dynamic model applied to Indian traffic. *Systems Science and Control Engineering: An Open Access Journal* 3(1): 320–331.
- 2. S. Manchukutty, N.J. Vasa, V. Agarwal and J. Chandapillai. 2015. Dual photoionization source-based differential mobility sensor for trace gas detection in human breath. *IEEE Sensors Journal* 15(9): 4899–4904.
- 3. S.E. Jero, P. Ramu and R. Swaminathan. Imperceptibility–robustness tradeoff studies for ECG steganography using continuous ant colony optimization. *Expert Systems with Applications* 49: 123–135.
- 4. A. Voinov, N. Kolagani, M.K. McCall, P.D. Glynn, M.E. Kragt, F.O. Ostermann, S.A. Pierce and P. Ramu. 2016. Modelling with stakeholders: Next generation. *Environmental Modelling & Software* 77: 196–220.
- 5. S. Guhathakurta, V. Balasubramanian, B.V.R. Tata and S. Ponraju. 2016. Is gamma irradiation as a secondary sterilization procedure required for decellularized xenogenic tissue material? *Current Science* 110(3): 337–344.

- 6. Y.E.B. Vidhya, Sriram R. and N.J. Vasa. 2015. Influence of laser beam profile on Nd³⁺:YAG laser-assisted formation of polycrystalline-Si films in underwater conditions. *Journal of Laser Micro/Nano Engineering* 10(3): 334–339.
- 7. C.S.N. Kumar and S.C. Subramanian. 2016. Cooperative control of regenerative and friction braking for a hybrid electric vehicle. *Journal of Automobile Engineering* 230(1): 103–116.
- 8. S.Nammi, A.K. Jain, N.J. Vasa, G. Balaganesan and A.C. Mathur. 2016. Micro-scribing of copper and aluminum thin films in air and water using pulsed Nd³⁺:YAG Laser. *Journal of Laser Micro/Nano Engineering* 11(1): 46–52.
- 9. E. Paneerselvam, N.J. Vasa and M.S.R. Rao. 2016. SiC thin film growth on different substrates using pulsed Nd³⁺:YAG laser deposition. *Journal of Laser Micro/Nano Engineering* 11(1): 71–75.
- 10. Y.E.B. Vidhya and N.J. Vasa. 2016. Underwater annealing and texturing for enhancing electrical characteristics of n-aSi/p-cSi using Nd³⁺:YAG laser beam-overlap technique with a wavelength of 532 nm. *Journal of Photonics for Energy* 6(1): 14001–14013.
- 11. J.S. Athertya and G.S. Kumar. 2016. Automatic segmentation of vertebral contours from CT images using fuzzy corners. *Computers in Biology and Medicine* 72: 75–89. http://dx.doi.org/10.1016/j.compbiomed. 2016.03.009
- 12. P.R. Nakkina, K.A. Prakash and G.S. Kumar. 2016. Numerical studies on fluid flow characteristics through different configurations of spiral casing. *Engineering Applications of Computational Fluid Mechanics* 10(1): 297–311. http://dx.doi.org/10.1080/19942060. 2016.1149103
- 13. V. Rajaram and S.C. Subramanian. 2015. A model-based rear-end collision avoidance algorithm for heavy commercial road vehicles. *Journal of Automobile Engineering* 229(5): 550–562.
- 14. S.E. Jero and P. Ramu. 2015. Curvelets-based ECG steganography for data security. *Electronics Letters* 52(4): 283–285.
- 15. R. Muthuganapathy and J. Peethambaran. 2015. A non-parametric approach to shape reconstruction from planar point sets through Delaunay filtering. *Computer-Aided Design* 62: 164–175. doi:10.1016/J. CAD.2014.12.002
- 16. R. Muthuganapathy and V.A. Venkataraman. 2015. Algorithm for computing positive alpha-hull for a set of planar closed curves. *Computers & Graphics* 51: 125–135. doi:10.1016/j.cag.2015.05.018
- 17. R. Muthuganapathy, S. Methirumangalath and A.D. Parakkat. 2015. A unified approach towards reconstruction of a planar point set. *Computers & Graphics* 51: 90–97. doi:10.1016/J.CAG.2015.05.025
- 18. R. Muthuganapathy and S. Kusmakar 2015. Skeletal approach to mandible reconstruction represented as an image. *Computer-Aided Design and Applications* 12(5): 651–661. doi:10.1080/16864360.2015.1014743
- 19. R. Muthuganapathy, A.D. Parakkat, J. Peethambaran and P. Joseph. 2015. A graph based geometric approach to contour extraction from noisy binary images. *Computer-Aided Design and Applications* 12(4): 403–413. doi:10.1080/16864360.2014.997636
- 20. S. Sahoo, S.C. Subramanian, N. Mahale and S. Srivastava. 2015. Design and development of a heading angle controller for an unmanned ground vehicle. *Journal of Automotive Technology* 16(1): 27–37.
- 21. T. Ajitha, L. Vanajakshi and S.C. Subramanian. 2015. Real-time traffic density estimation without reliable side road data. *ASCE Journal of Computing in Civil Engineering* 29(2).
- 22. S. Nammi, N.J. Vasa, G. Balaganesan, S. Gupta and A.C. Mathur. 2015. Influence of pulsed Nd³⁺:YAG laser beam profile and wavelength on microscribing of copper and aluminum thin films. *Journal of Micro/Nanolithography* 14(4): 44503–44510.
- 23. N. Kumar, P.N. Rao, R. Jayaganthan and H.-G. Brokmeier. 2015. Effect of cryorolling and annealing on recovery, recrystallisation, grain growth and their influence on mechanical and corrosion behaviour of 6082 Al alloy. *Materials Chemistry and Physics* 165(1): 177–187.
- 24. P. Ramu and S. Arul. Estimating probabilistic fatigue of nitinol with scarce samples. *International Journal of Fatigue* 85: 31–39.
- 25. D. Fuloria, P. Nageswararao, R. Jayaganthan, S. Jha and D. Srivastava. 2015. An investigation of deformed microstructure and mechanical properties of Zircaloy-4 processed through multiaxial forging. *Materials Chemistry and Physics* 173: 12–25.
- 26. B.A. Kumar, S. Mothukuri, L. Vanajakshi and S.C. Subramanian. 2015. An analytical approach to identify the optimum inputs for a bus travel time prediction method. *Journal of the Transportation Research Board* 2535: 25–34.
- 27. S. Bandyopadhyay, A. Agarwal and C. Nasa. 2016. Dynamic singularity avoidance for parallel manipulators using a task-priority based control scheme. *Mechanism and Machine Theory* 96(1): 107–126. doi:10.1016/j. mechmachtheory.2015.07.013
- 28. S. Bandyopadhyay, S. Agarwal and R.A. Srivatsan. 2016. Analytical determination of the proximity of two right-circular cylinders in space. *Journal of Mechanisms and Robotics* 8(4). doi:10.1115/1.4032211

- 29. A.D. Mahindrakar, A.P. Vinod, S. Bandyopadhyay and V. Muralidharan. 2015. A deterministic attitude estimation using a single vector information and rate gyros. *IEEE/ASME Transactions on Mechatronics* 20(5): 2630–2636. doi:10.1109/TMECH.2015.2404343
- 30. V.S. Kumar, N.J. Vasa and R. Sarathi. 2015. Remote surface pollutant measurement by adopting a variable stand-off distance-based laser-induced spectroscopy technique. *Journal of Physics D: Applied Physics* 48(43) (article no. 435504).
- 31. S. Chandra, M. Hayashibe and A. Thondiyath. 2015. Empirical mode analysis for characterization of hand tremor in the design of laparoscopic tools. *Journal of Medical Devices* 9(3): 030932–030934.
- 32. Sreeram T.R. and Asokan T. 2015. Combining Lean and Six Sigma in the context of systems engineering design. *International Journal of Lean and Six Sigma* 6(4): 290–312.
- 33. J.M. Selvakumar and T. Asokan. 2016. Station keeping control of underwater robots using disturbance force measurements. *Journal of Marine Science and Technology* 21(1): 70–85.
- 34. K. Kalyanasundaram and K. Arunachalam. 2016. Design fabrication and evaluation of miniaturized conformal screen printed electric field sensor for microwave nondestructive testing. *NDT&E International* 81: 28–38.
- 35. G. Chakaravarthi and K. Arunachalam. 2015. Design and characterization of miniaturized cavity backed patch antenna for microwave hyperthermia. *International Journal of Hyperthermia* 31(7): 737–748.
- 36. S. Palanivelu, K.V.N. Rao and K.K. Ramarathnam. 2015. Determination of rolling tyre modal parameters using finite element techniques and operational modal analysis. *Mechanical Systems and Signal Processing* 64–65: 385–402.
- 37. G.B.K. Sundaram, K.R. Balakrishnan and R.K. Kumar. 2015. Aortic valve dynamics using a fluid structure interaction model: The physiology of opening and closing. *Journal of Biomechanics* 48(10): 1737–1744.

Papers presented at national conferences

- 1. D. Fuloria, R. Jayaganthan, S. Jha and D. Srivastava. Mechanical behaviour and microstructural evolution of Zircalov-4 processed by rolling. *IIM-NMD-ATM 2015*, Coimbatore, 13–16 November 2015.
- 2. N. Kumar, S. Goel and R. Jayaganthan. Investigation of mechanical and corrosion behaviour of 6082 Al alloy processed through room temperature forging. *IIM-NMD-ATM 2015*, Coimbatore, 13–16 November 2015.
- 3. V. Agarwal, R. Jayaganthan, S. Jha and D. Srivastava. Tensile behaviour and residual stress analysis of Zircaloy 4 processed through cold swaging. *IIM-NMD-ATM 2015*, Coimbatore, 13–16 November 2015.
- 4. Senthilkumar, Dhakshinamoorthy, B. Natesan, A. Thondiyath and S.C. Subramanian. Tele-operation of unmanned tracked vehicles: Modeling and simulation of planar motion dynamics. *International Conference on Advances in Robotics*, Goa, 2–4 July 2015.
- 5. C.S.N. Kumar and S.C. Subramanian. Design and analysis of a parallel hybrid electric vehicle for Indian conditions. 2015 International Transportation Electrification Conference (ITEC), India, 2015.
- 6. J. Poojali, C.V. Krishnamurthy, R. Jyoti and K. Arunachalam. Design of a dual band frequency selective surface (FSS) for remote sensing. *International Workshop on Antenna Innovation and Modern Technologies*, Ahmedabad, 26–27 December 2015.
- 7. C.S. Sundaram, C.V. Krishnamurthy, R. Jyoti and K. Arunachalam. Implementation of method of moment (MoM) technique for analyzing EM wave scattering from periodic structures. *International Workshop on Antenna Innovation and Modern Technologies*, Ahmedabad, 26–27 December 2015.

Papers presented at international conferences

- 1. P.M. Raja, K. Arunachalam and K. Balasubramanian. Experimental validation of an eddy current probe for defect detection in thick conducting specimen. *42nd Review of Progress in Quantitative Nondestructive Evaluation*, Baltimore, Maryland, USA, 21–26 July 2013, 1706 (020025), 2015. doi:10.1063/1.4940471
- 2. Y.R. Yadam and K. Arunachalam. Microwave sensor design for noncontact process monitoring at elevated temperature. *42nd Review of Progress in Quantitative Nondestructive Evaluation*, Baltimore, Maryland, USA, 21–26 July 2013, 1706, 100003, 2015. doi:10.1063/1.4940563
- 3. S. Vaidya, A. Chunduru, R. Muthuganapathy and G. Krishnamurthi. Longitudinal multiple sclerosis lesion segmentation using 3D convolutional neural networks. *IEEE International Symposium on Biomedical Imaging*, New York, USA, 2015.
- 4. A. Raj and R. Muthuganapathy. Primitive detection from a single view image of an engineering model. *CAD'15: International CAD Conference and Exhibition*, London, 2015.
- 5. J. Peethambaran, A.D. Parakkat and R. Muthuganapathy. A Voronoi-based labeling approach to curve reconstruction and medial axis approximation. *Pacific Graphics*, Beijing, China, 2015.
- 6. K. Mridul and R. Muthuganapathy. Design and development of a portable virtual reality headset. *Laval Virtual, International Conferences and Exhibition on Virtual Technologies and Uses*, Laval, France, 2016.

- 7. S.P. Anusha, L. Vanajakshi, S.C. Subramanian and A. Sharma. Performance comparison of two model-based schemes for estimation of queue and delay at signalized intersections. *Proceedings of the 2015 IEEE Intelligent Vehicles Symposium*, Seoul, Korea, 2015.
- 8. B. Dhivyabharathi, S. Fulari, R. Amrutsamanvar, L. Vanajakshi, S.C. Subramanian and M. Panda. Performance comparison of filtering techniques for real time traffic density estimation under Indian urban traffic scenario. *18th International IEEE Conference on Intelligent Transportation Systems*, Canary Islands, Spain, September 2015.
- 9. S.G. Fulari, L. Vanajakshi and S.C. Subramanian Traffic state estimation under uncertain automated sensor data, *TRB Annual Meeting Online 2016*.
- 10. G.S. Kumar, S.K. Katiyar and A.K.B. Chand. Affine fractal interpolation functions for multi-valued data. *Third International Conference on Developments in Science, Management and Engineering*, Trichy, 2016.
- 11. J.S. Athertya and G.S. Kumar. Segmentation and labelling of human spine MR images using fuzzy clustering. Second International Conference on Artificial Intelligence and Fuzzy Logic Systems, Chennai, 2016.
- 12. J.S. Athertya, R. Thiyagarajan and G.S. Kumar. Segmentation of lumbar vertebrae from MRI using expectation maximization and hidden Markov random fields. *International Conference on Biomedical Systems, Signals and Images*, IIT Madras, Chennai, 2016.
- 13. V. Varghese, K. Venkatesh and G.S. Kumar. Simulation of axial pull-out of pedicle screw in synthetic bone models. *International Conference on Biomedical Systems, Signals and Images*, IIT Madras, Chennai, India, 2016.
- 14. A. Baskar, G.S. Kumar and S. Bandyopadhyay. Design of a static balancing mechanism for coordinated motion of an external load. *Second International and 17th National Conference on Machines and Mechanism*, IIT Kanpur, 2015.
- 15. R. Kalla, L. Nurhami, S. Bandyopadhyay, S. Caro and P. Wenger. A study of Σ² singularities in the 3-RPS parallel manipulator. *Second International and 17th National Conference on Machines and Mechanism*, IIT Kanpur, 2015.
- 16. J. Kilaru, M.K. Karnam, S. Agarwal and S. Bandyopadhyay. Optimal design of parallel manipulators based on their dynamic performance. *14th International Federation for the Promotion of Mechanism and Machine Science (IFToMM) World Congress*, Taipei, 2015.
- 17. S. Agarwal, J. Badduri and S. Bandyopadhyay. Optimal synthesis of six-bar function generators. *14th IFToMM World Congress*, Taipei, 2015.
- 18. M. Kodati, K.V. Reddy and S. Bandyopadhyay. Kinematic analysis of MacPherson strut suspension system. *TrC-IFToMM Symposium on Theory of Machines and Mechanisms*, Izmir Institute of Technology, Turkey, 2015.
- A. Nag, V. Reddy, S. Agarwal and S. Bandyopadhyay. Identifying singular-free spheres in the workspace of semi-regular Stewart platform manipulators. *Advances in Robot Kinematics (ARK 2016)*, Grasse, France, 2016
- 20. H. Tetik, R. Kalla, G. Kiper and S. Bandyopadhyay. Position kinematics of a 3-RRS parallel manipulator. *CISM-IFToMM Symposium on Theory and Practice of Robots and Manipulators*, Udine, Italy, 2016.
- 21. D. Patel, R. Kalla, H. Tetik and S. Bandyopadhyay. Computing the safe working zone of a 3-RRS parallel manipulator. *Sixth European Conference on Mechanism Science*, Nantes, France, 2016.
- 22. A. Nag, S. Mohan and S. Bandyopadhyay. Forward kinematic analysis of the 3-RPRS parallel manipulator. *Seventh European Conference on Mechanism Science*, Nantes, France, 2016.
- 23. E. Paneerselvam, N.J. Vasa and M.S.R. Rao. SiC thin film growth on different substrates using pulsed Nd³+:YAG laser deposition technique. Seventh International Congress on Laser Advanced Materials Processing (LAMP 2015) and the 16th International Symposium on Laser Precision Microfabrication, Kitakyushu International Conference Center, Kitakyushu, Japan, 26–29 May 2015.
- 24. Y.E.B. Vidya, R. Sriram and N.J. Vasa. Influence of laser beam profile on Nd³⁺:YAG laser assisted formation of polycrystalline-Si films in underwater conditions. *LAMP 2015 and the 16th International Symposium on Laser Precision Microfabrication*, Kitakyushu International Conference Center, Kitakyushu, Japan, 26–29 May 2015.
- 25. V.E. Maran, L. Vijayaraghavan, N.J. Vasa, S. Ganesan and N.K. Cherian (India Piston Limited). Pulsed Nd3+:YAG laser-assisted micro-dimple formation in chromium films under different ambient conditions. LAMP 2015 and the 16th International Symposium on Laser Precision Microfabrication, Kitakyushu International Conference Center, Kitakyushu, Japan, 26–29 May 2015.
- 26. S. Nammi, N.J. Vasa, G. Balaganesan and A.C. Mathur. Micro scribing of copper thin film in air and water using pulsed Nd³⁺:YAG laser. *LAMP 2015 and the 16th International Symposium on Laser Precision Microfabrication*, Kitakyushu International Conference Center, Kitakyushu, Japan, 26–29 May 2015.

- 27. N. Aparna, N.J. Vasa, R. Sarathi, P.B. Bisht, J.S. Rajan and J.T. Costello. Analysis of copper sulfide contaminant in solid transformer insulation using vacuum ultraviolet laser induced breakdown spectroscopy. *The 13th International Conference on Laser Ablation (COLA 2015)*, Cairns, Australia, 31 August to 4 September 2015.
- 28. S. Balakrishnan, V.M. Reddy, A.P. Mehta, N.J. Vasa and R. Nagarajan. Suitability of laser-induced breakdown spectroscopy in screening potential additives to mitigate fouling deposits. *COLA 2015*, Cairns, Australia, 31 August to 4 September 2015.
- 29. N.J. Vasa. Recent advances in optical techniques for trace gas sensing and pollutant monitoring. *Fifth International Conference on Advances in Computing and Communications (ICACC 2015)*, *Light and Light Based Technology for Computing and Communications*, Rajagiri School of Engineering and Technology, Cochin, 2–4 September 2015.
- 30. N.J. Vasa. Pulsed laser deposition technique and industrial application. *International Conference on Application of Lasers in Manufacturing (CALM 2015)* (organized by ARCI, co-located with Laser World of Photonics India Exhibition), New Delhi, 9–11 September 2015.
- 31. R. Selvaraj, K. Sulochana, N.J. Vasa, S.M.S. Nagendra. Superluminescent diode coupled with etalon for measuring CH₄ and CO₂ in biogas. *Frontiers in Optics/Laser Science Conference (FiO/LS)*, 2015, San Jose, California, USA, 19–22 October 2015.
- 32. S. Nammi, N.J. Vasa, G. Balaganesan and A.C. Mathur. Study on the influence of plasma formation during Nd³⁺:YAG laser-assisted micro-scribing of Cu thin films using a pump-probe technique. *International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2015)*, IIT Bombay, 10–12 December 2015.
- 33. Y.E.B. Vidhya, R. Sriram and N.J. Vasa. Influence of ambience on simultaneous Nd³⁺:YAG laser-assisted annealing and texturing of amorphous silicon thin films for photovoltaic application. *COPEN 2015*, IIT Bombay, 10–12 December 2015.
- 34. V. Ezhilmaran, L. Vijayaraghavan, N.J. Vasa, S. Ganesan and N.K. Cherian. Micro-dimple formation on chromium films using different wavelengths of nanosecond pulsed Nd³⁺:YAG laser. *COPEN 2015*, IIT Bombay, 10–12 December 2015.
- 35. Priyanshu, P. Khandelwal, N.J. Vasa, G.M. Kumar (BHEL). Development of a flyash concentration measurement method based on light scattering techniques. *The IEEE Workshop on Recent Advances in Photonics*, IISc, Bengaluru, 16–17 December 2015.
- 36. V. Damodaran and N.J. Vasa. Imaging artificially induced dental caries using optical coherence tomography near 800 and 1300 nm region. *The IEEE Workshop on Recent Advances in Photonics*, IISc, Bengaluru, 16–17 December 2015.
- 37. K. Vaidhya, S. Thirunavukkarasu, V. Alex and G. Krishnamurthi. Multimodal brain tumor segmentation using stacked denoising autoencoders. *MICCAI 2015*.
- 38. R. Khandelwal and T. Asokan. Stability analysis of haptic virtual environment systems for active interactions in surgical robot simulators. *International Conference on CAD/CAM, Robotics and Factories of the Future*, 2015.
- 39. J. Roshin and T. Asokan. A formation control algorithm by modified next-state approximation to reduce communication requirements in multirobot systems. *12th International Conference on Informatics in Control, Automation and Robotics (ICINCO 2015)*, 2015.
- 40. D. Senthilkumar, N. Babu. T. Asokan and C.S. Sankarram. Tele-operation of unmanned tracked vehicles: Modelling and simulation of planar motion dynamics. *AIR* 2015, Goa, 2–4 July 2015.
- 41. V. Rakesh, U. Sharma, B.P.C. Rao, S. Venugopal and T. Asokan. Improving grasp quality for 3D objects using particle swarm optimization. *AIR* 2015, Goa, 2–4 July 2015.
- 42. C. Karthik, S. Sakthivel and T. Asokan. Static balancing and inertia compensation of a master manipulator for tele-operated surgical operation. *AIR* 2015, Goa, 2–4 July 2015.
- 43. K. Nivedhitha, S. Chandra and T. Asokan. Development of virtual reality-based robotic surgical trainer for patient-specific deformable autonomy. *AIR* 2015, Goa, 2–4 July 2015.
- 44. G. Nandakumar, T. Ranganathan, B.J. Arjun and A. Thondiyath. Design and analysis of a novel quadrotor system. *VOOPS ICRA 2015*.
- 45. T. Ranganathan, S.S. Pavan and T. Asokan. Design and analysis of an underwater quadrotor—AQUAD. *IEEE International Symposium on Underwater Technology (UT15)*, Chennai, 23–25 February 2015.
- 46. T. Ranganathan, J. Pattery and T. Asokan. Design and analysis of a cable-connected metallic bellows as variable buoyancy modules. *IEEE International Symposium on Underwater Technology (UT15)*, Chennai, 23–25 February 2015.
- 47. V. Rakesh, U. Sharma, B.P.C. Rao, S. Venugopal and T. Asokan. Application of a modified genetic algorithm for enhancing grasp quality on 3D objects. *RACE 2015*, Chennai, 18–20 February 2015.
- 48. R. Khandelwal and T. Asokan. Stability analysis of haptic virtual environment systems for active interactions in surgical robot simulators. *International Conference on CAD/CAM, Robotics and Factories of the Future*, Kolaghat, West Bengal, 2015.

- 49. T. Rajendran and K. Arunachalam. Comparison study of microwave patch antennas at 434 MHz for intra cavitary hyperthermia applicator design. *International Symposium on Antennas and Propagation (ISAP2015)*, Hobart, Tasmania, Australia, 9–12 November 2015.
- 50. V.M. Radharavi and K. Arunachalam. Design of an active warm noise source for calibration of medical microwave radiometer. *The Fifth IEEE Applied Electromagnetics Conference (AEMC 2015)*, IIT Guwahati, 18–21 December 2015.
- 51. P. John, M. Manoj, N. Sujatha, N.J. Vasa and S.R. Rao. Aqueous glucose measurement using differential absorption-based frequency domain optical coherence tomography at wavelengths of 1310 nm and 1625 nm. SPIE European Conference on Biomedical Optics (Clinical and Biomedical Spectroscopy and Imaging IV), Munich, Germany, 21–25 June 2015.
- P. Sakthivel and R.K. Kumar. Synthesis of structure-borne vehicle interior noise due to tire/road interaction. Proceedings of the ASME 2015 International Design Engineering Conference, Boston, 2015.

Distinguished Visitors to the Department

Sl. No.	Name and Designation of the Visitor	Date of Visit	Purpose of Visit
1	Dr. Gopinath Mani, University of South Dakota	26 August 2015	To deliver a talk titled "Engineering Biomaterials and Drug Delivery Systems for Next Generation Cardiovascular Medical Devices"
2	Dr. Latha Christie, DRDO, Ministry of Defence, Bengaluru	29 October 2015	To deliver a talk titled "Latest Advances in mm-Wave and Sub-mm-Wave Technologies"
3	Prof. Akshay Pottathil, Co-Director, Center for Information Convergence & Strategy (CICS), San Diego State University, USA	18 November 2015	Beyond GIS—A Workshop on Spatial and Geospatial Analysis: Leveraging Information Systems and Sensor Platforms
4	Dr. Sruthi Vasudev Boda, Adjunct Assistant Professor in the Engineering Design Initiative of Pontificia Universidad Católica de Chile, PUC (Santiago, Chile)	17 December 2015	To deliver a talk titled "Role of Job Physical Exposures in the Development of First Lifetime Episode of Low Back Pain"
5	Dr. A.K. Vasudevan, TDA Inc., Virginia, USA (retired Program Officer, ONR)	9 February 2016	To deliver a talk titled "Design of Materials/ Components"
6	Dr. Balaji Raman, Research & Development Software Engineer, Mentor Graphics in the Grenoble Area, France	21 March 2016	To deliver a talk titled "Stochastic Models for System-Level Performance Analysis of Multimedia Embedded Systems"

4.9.7. Other Activities of the Department

- A fire drill lecture cum demonstration was conducted by N. Elumalai (Security Cum Fire Officer), Security Section of IIT, in the department on 1 October 2015 for the benefit of the research scholars and Year I Dual Degree students.
- An out-bound training (OBT) programme was conducted on 4 January 2016 for faculty members, staff members and research scholars of the Department of Engineering Design.
- A visit (for the faculty and staff) was arranged to Pondicherry and Auroville on 13 February 2016 to discuss department activities.

Results from research work of scholars/faculty members

Sl. No.	Scholar/Faculty Member	Title	Results			
M.S. th	M.S. theses					
1	Ragothaman R.	A Feasibility Study on Design of Microwave Absorber Using Polymer Metal Composites at Dilute Concentrations (22 May 2015)	Polymer–metal composites were studied to design a microwave absorber.			
2	Vadivel S.M.	Implementing Lean Ergonomics in Service Industry: A Case Study in Indian Postal Service (1 June 2015)	The RBG Innovation Paradigm (RIP) tool was implemented in an Indian Post manual sorting centre for implementing lean ergonomics.			
3	Arjun Raj	Primitive Detection from a Single-View Image of an Engineering Model (2 June 2015)	Two new approaches have been developed for detecting 3D primitives from an engineering model.			

Sl. No.	Scholar/Faculty Member	Title	Results
4	Jayakala Mathew	Sensitivity Analysis Study and Parameter Estimation of Biological Parameters for the Non-invasive Generation of Cardiac Pressure–Volume Loops (23 June 2015)	A model was developed to predict the pressure–volume relationship for right and left ventricles using clinically available data.
5	K. Kumar	Surface Roughness Investigation and Prediction Model for Poly-jet Rapid Prototyping System (9 July 2015)	The surface roughness on parts printed using the poly-jet rapid prototyping system was investigated and modeled.
6	Shubham Chandra	A Study of Process Parameters on Workpiece Anisotropy in Laser-Engineered Net Shaping (LENSTM) Process (10 July 2015)	The study involved the development of a numerical model for the laser-engineered net shaping (LENSTM) process.
Ph.D. t	heses		, ,
1	Suresh M.	Study on Photo-ionization-Based Differential Ion Mobility Sensor for Acetone and Hexane Measurements (14 April 2015)	A compact differential ion mobility sensor based on multi-UV photoionization for trace gas detection
2	Jiju P.	Non-parametric Shape Reconstruction and Volume Constrained Polyhedronizations of Point Sets (21 May 2015)	The thesis comprises two geometric problems related to point sets: (1) shape reconstruction and (2) polygonization with optimal area. Both the problems were extended to three dimensions.
3	Prasenjit Ghosh	Wear And Fracture of Tyre Tread Rubber (26 May 2015)	The study provides insights on the fatigue crack growth (FCG) characteristics and wear process of truck bus radial tyre tread components
4	Bharath Ram S.	Precise Algorithms for Freeform Planar Curves: Shortest Path and Voronoi Diagrams (2 July 2015)	Novel algorithms were developed to find the shortest path and Voronoi diagram for freeform curves as input, using the geometry and the topology of the curves and not by approximating them into points or lines.
5	Srinivas G.N.	Estimation of Anand Visco-plastic Model Parameters from Full-Field Data Using the Virtual Fields Method: Application to SNCU Solder (7 July 2015)	In this work, full-field deformation measurements as well as inverse computation of constitutive parameters using such data were investigated.
6	Paranjothi K.	Mechanical Properties of Fibrous Biomaterials (13 October 2015)	A methodology was developed to identify whether a body is made up of isotropic material through mechanical experiments.
7	Shubashihsa Sahoo	Design and Implementatoin of a Heading Angle Controller for an Autonomous Ground Vehicle (10 February 2016)	This thesis focuses on model-based development and implementation of a heading angle controller for an autonomous ground vehicle considering actuator dynamics. The controller parameters were estimated and the controller performance was evaluated for various test runs to establish its efficacy.

Student visits

SI. No.	Student	Purpose of Visit	Venue and Date
1	Schoolchildren of Class XI, Vanavani Matriculation Higher Secondary School, IIT Madras	To learn about academic activities in engineering design	Department of Engineering Design
2	Schoolchildren from the north-eastern states visited the department under the Ishan Vikas Programme	To open up young minds and bring them in close contact with the IITs and IISERs during their vacation	Department of Engineering Design, 21 December 2015

Sl. No.	Student	Purpose of Visit	Venue and Date
3	Shota Miyazaki, undergraduate student from Nagaoka Technological University, Japan	Project in biomedical optics	Department of Engineering Design (Optomechatronics Laboratory), 8 September 2015 to 28 January 2016
4	Abdul Nasir K.T. (ED14S005)	Research exchange	Nagaoka University of Technology, 15 February to 31 March 2016

Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
1	Tatsuo Okada, Daisuke Nakamura, Tetsuya Shimogaki and Mitsuhiro Higashihata, Kyushu University, Fukuoka, Japan	To participate in the Workshop on Development of Eco-friendly LED Based on Nano-structured ZnO Crystals (sponsored by DST and JSPS)	24–27 January 2016

Major infrastructure development made in the department

No. Description and Location Photograph

Automation Equipment

I Modular Mechatronics System Supplier: Festo Controls, Bengaluru Date of installation: 2 January 2015

Location: ED406

Other details: There are five stations. Each can work stand-alone, and all five stations can be integrated. Each station consists of various actuators, sensors and a PLC



2 Rotary Arm Robot System (SCARA) Supplier: MTAB Engineers, Chennai Date of installation: 25 February 2015

Location: ED406

Other details: SCARA works as a stand-alone system, and it can be integrated with the Modular Mechatronics System. SCARA consists of a PLC.



Mobile Robot (YOUBOT)
Supplier: KUKA Robotics, Pune
Date: 24 September 2014

Location: ED301

Other details: Mobile robotic system with a vision system and

programming module



No. Description and Location

Digital Manufacturing Simulation Software

Supplier: Delfoi Tanoti Technologies (Delmia Software), Bengaluru

Date: 8 January 2015 Location: ED406

Other details: Design and simulation of manufacturing process and

plant for automation

Ten computer systems essential for this purpose have also been

installed.



Instrumentation

5 Multipurpose Laboratory Station

Supplier: Elmack Engineering (Keysight Technologies), Chennai

Date: 9 September 2014 Location: ED406

Other details: It consists of

(1) 350 MHz mixed signal scope

- (2) two-channel function generator
- (3) 6½ digit digital multimeter
- (4) programmable DC power supply
- (5) soldering stations (three units)

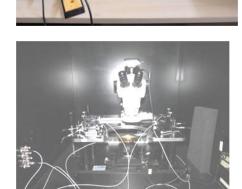


Supplier: Precise Measurement Technologies, Bengaluru

Date: 20 October 2014 Location: ED201

Other details: It consists of electrical probing stages and a stereo

microscope.



7 Precision Source Measure Unit

Supplier: Elmack Engineering (Keysight Technologies), Chennai

Date: 23 February 2015 Location: ED201

Other details: Useful for four-probe measurements and

semiconductor devices

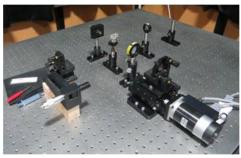


8 Interferometer System

Supplier: Holmarc Opto-Mechatronics, Cochin

Date: 19 August 2015 Location: ED201

Other details: Useful in optical measurements



No. Description and Location

Photograph

Automobile Sector

9 Stirling Engine Test Bench System Supplier: Gap Technologies, Chennai

Date: 25 February 2015 Location: ED119

Other details: This system, along with other engine systems already in use in the department, should be useful for learning about various types of engine systems.



10 Rapid Control Prototyping System

Supplier: Automotive Test System, Chennai

Date: 16 January 2015 Location: ED119

Other details: It consists of a driving simulator and related

simulation software.



11 Automotive Sensor System

Supplier: Edutech India Private Limited

Date: 2 July 2015 Location: ED201

Other details: The equipment should provide basic understanding

about using various automotive sensors.





Ishan Vikas Programme: Learning graphics at the CAD Lab



Ishan Vikas Programme:
Participants in the Department of Engineering Design quadrangle







Outbound programme





Workshop on ZnO and eco-friendly LEDs





Pondicherry-Auroville tour

Department of Humanities and Social Sciences



4.10.1. Introduction

The Department of Humanities and Social Sciences (HSS) is one of the earliest departments of IIT Madras, having been established in 1959. The department is multi-disciplinary in nature and has a reputed faculty from diverse disciplines such as development studies, economics, English, linguistics, environmental studies, history, international relations, sociology, gender studies, German studies, philosophy and urban studies.

4.10.2. Academic Programmes

Integrated M.A. (5-year programme)

New courses introduced

SI. No.	Course No.	Title
1	HS4006	Science and Technology in the 20th Century
2	HS5613	Modern Indian Drama
3	HS3270	Ethnography
4	HS3280	Introduction to Cultural Anthropology
5	HS5612	Contexts, Politics, and Ideas: An Introduction to Ideologies
6	HS5613	Modern Indian Drama
7	HS7008	State and Development in Modern China
8	HS7009	Political Economy of Modern China
9	HS7011	Global Politics: Theories and Critiques
10	HS5014	Contemporary Media Studies
11	HS5015	Films: Industrial and Economic Practices

Students on roll as of September 2015 + M.S. and Ph. D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
M.A.	42	42	42	42	40	208
Ph.D.	29	20	10	5	4	68
Total	71	62	52	47	44	276

Students/scholars who attended conferences/workshops/seminars/symposia abroad/India

Sl. No.	Student/ Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
1	Samik Malla	HS13D020	International Deleze Workshop	29 May to 2 June 2015, Manipal University	Institute Fund
2	Samik Malla	HS13D020	Continental Philosophy Workshop	18–21 April 2015, Department of HSS, IIT Madras	Institute Fund
3	Sreejith Varma R.	HS13D021	USIEF Fullbright Mentoring Workshop	8 May 2015, Hotel Savera, Mylapore, Chennai	Institute Fund

SI. No.	Student/ Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
4	Muhammadali P.K.	HS13D019	First National Social Science Researchers Colloquium 2015 on Researching the Contemporary India (presented paper titled 'Islamic Concept of Hearing (al- sam'a) and the Dilemma of Secular Modernity')	16–17 April 2015, University of Delhi	Institute Fund
5	Muhammadali P.K.	HS13D019	Interrogating Masculinities, international conference held under the aegis of the Centre for Gender, Culture and Social Processes (presented paper titled 'Between Modernity and Community Contextualizing Mappila Muslim Masculinities')	6–8 April 2015, University of Delhi	Institute Fund
6	Unnimaya Kurup	HS14D009	Interrogating Masculinities, international conference organized by Centre for Gender, Culture and Social Processes (presented paper titled 'Discourses on Masculinity and Men's Social Role in Pregnancy and Childbirth')	6–8 April 2015, University of Delhi	Institute Fund
7	Unnimaya Kurup	HS14D009	First National Social Science Researchers Colloquium 2015 on Researching the Contemporary India (presented paper titled 'Knowledge, Women and Power—A Critical Analysis of Discourses and Women's Experiences of Pregnancy and Childbirth')	16–17 April 2015, University of Delhi	Institute Fund
8	Deepa K.	HS13D003	Forum of Contemporary Theory Workshop	15 June to 12 July 2015, English & Foreign Language University, Shillong	Institute Fund
9	Supriya Subramani	HS13D023	Talk by Prof. David Hunter titled 'Domination as a Threat to Autonomy and Informed Consent'	26 June 2015, Ludwig Maximilians University, Munich	Institute Fund
10	Supriya Subramani	HS13D023	Talk by Prof. Maartje Schermer titled 'Biomedical Enhancement for the Public Good?—Centre for Advanced Study of Bioethics'	29 June 2015, University of Munster, Germany	Institute Fund
11	Veena Mani	HS13D008	Workshop at the Centre for the Study of Developing Societies	30 June to 29 August 2015, New Delhi	Institute Fund
12	Unnimaya S. Kurup	HS14D009	New Trends in Humanities, Gender and Cultural Studies (international conference)	9–10 October 2015, SNDT University, Mumbai	Institute Fund
13	Deepa K.	HS13D003	Young Scholar Conference on Gender & Security	15–16 October 2015, South Asian University, New Delhi	Institute Fund
14	Anu Abraham	HS11D001	Second Written Conference on Institutional Change—Migration, Institutions and Institutional Change	6–7 November 2015, Witten/Herdecke University, Germany	Institute Fund
15	Devleena Chakravarthy	HS14D001	Asia Pacific Conference on Business and Social Sciences (APCBSS) (presented a paper estimating the relationship between economic growth and environmental quality for the "BRICS Economies: A Dynamic Panel Data Approach" (coauthor Dr Sabuj Kuma Mandal)—Won the Best Paper Award)	22–26 November 2015, APCBSS, Kuala Lumpur, Malaysia	Institute Fund

Sl. No.	Student/ Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
16	Ashwathy	HS13D002	International Conference on Gender Equality (ICGE) (presented a paper titled 'Constituting Gender and Work: A Case Study of "Theeramythri Programme for Fisherwomen in Kerala")	12–14 November 2015, Kerala	Institute Fund
17	Ashwathy	HS13D002	Qualitative Research Methodology (workshop)	27–29 November 2015, Kerala	Institute Fund
18	Anil Kumar	HS14D011	Third International Conference on Inclusive Innovation and Innovative Management (ICHM 2015) (presented a paper titled 'The Reliability of Multiple Choice Tests: A Case Study' (co-author: Prof. Devaki Reddy)—selected as one of the best papers)	25–26 November 2015, Valaya Rajabhat University, Thailand	Institute Fund
19	Padmaja	HS12D009	10th Annual Conference of the Forum for Global Knowledge Sharing (GKS) (presented a paper titled 'Does Financing Constraints Matter for Outward Foreign Direct Investment Decision? Evidence from India' (co-author Dr. Subash))	27–28 November 2015, National Institute of Advanced Studies, Bengaluru	Institute Fund
20	Sivaja K. Nair	HS12D006	International conference (presented a paper titled 'Gender Matters: The Differential Morbidity, Response and Resilience Mechanisms Among Women in the Context of Emerging and Re-emerging Communicable Diseases in Kerala')	12–14 November 2015, Thiruvananthapuram, Kerala	Institute Fund
21	Radeef Chundakkadan	HS15D022	Winter School in Economics and Finance (workshop)	12–16 December 2015, IGIDR, Mumbai	Institute Fund
22	Mayuri Dilip	HS14D013	Noun Modifying Expressions (NMEs) in South Asian Languages (presented paper titled 'Relative Clauses in Munda Languages with Special Reference to the Comitative PP as Head')	21–22 December 2015, Deccan College Post-graduate Research Institute, Pune	Institute Fund
23	Mayuri Dilip	HS14D013	Syntactic Typology: Language Contact and Convergence (presented a paper titled 'Syntax of Negation in Dravidian Languages')	23–28 December 2015, North Eastern Hill University, Shillong	Institute Fund
24	Sruthi Vinayan	HS14D020	English Language Teachers' Interaction Forum (presented a paper titled 'Asurayana: Reading Asura as a Subaltern Narrative')	28–30 December 2015, Vidyamandir College, Payyanur	Institute Fund
25	Sreejith Varma R.	HS13D021	XVIII International Conference on The Wider Significance of Nature, jointly organised with the Forum on Contemporary Theory (presented a paper titled 'Mangrove Man: The Eco-activism of Kallen Pokkudan')	20–23 December 2015, Ravenshaw University, Cuttack, Odisha	Institute Fund
26	Manoranjan	HS13D004	Presented a paper titled 'Exports, Imports and Sustainability of the Current Account: An Analysis of China and India'	21–22 December 2015, IIM Kolkata	Institute Fund
27	Vipin V.	HS14D024	TIES Annual Conference (presented a paper titled 'Technical Efficiency and Technology Closeness Ratio (TCR) in the Indian Food Processing Industry: A Nonparametric Analysis')	4–6 January 2016, IIM Kozhikode	Institute Fund

Sl. No.	Student/ Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
28	Padmaja	HS12D009	10th Winter School 2015 (presented a paper titled 'Sunk Costs, Firm Heterogeneity, Export Market Entry and Exit: Evidence from India')	14–16 December 2015, Delhi School of Economics	Institute Fund
29	Padmaja	HS12D009	TIES Annual Conference (presented a paper titled 'Financial Constraints and Firm Export Behaviour: Evidence from India')	4–6 January 2016, IIM Kozhikode	Institute Fund
30	Vipin V.	HS14D024	National conference (presented a paper titled 'A Framework for Measuring Performance of Higher Education Institutions in Kerala')	7–9 January 2016, PSMO College Tirurangadi, Kerala	Institute Fund
31	Vipin V.	HS14D024	DOHSS Academic Conference 2016 (presented a poster titled 'Efficiency and Related Technology Aspects of Food Processing Industry in India: A Non- parametric Analysis')	21–24 January, 2016, IIT Madras	Institute Fund
32	Nishant Kumar	HS15D036	Philosophy of Mind Matter and Morals in Buddhist Perspective (seminar—presented a paper titled 'Towards Way for Global Peace Through Mind-Matter Concept of Buddhism')	12–14 February 2016, Center for Mahayana Buddhist Studies, ANU, Guntur, Andhra Pradesh	Institute Fund
33	Justin Joseph	HS15D018	International seminar conducted by Association of Political Scientists (presented a paper titled 'Greening of the State Under Global Climate Change Challenges: People's Republic of China and Climate Governance')	10–11 March 2016, St. Jones College, Anchal, Kerala	Institute Fund
34	Aswathy	HS13D002	X1 International Conference on Labour History (presented paper titled 'Mapping the Social Mediations in Women's Labour Under Capitalism: A Comparative Study of Female Fish Workers in Two Coastal Villages in Kerala')	21–23 March 2016, V.V. Giri National Labour Institute, Noida	Institute Fund
35	Unnimaya S. Kurup	HS14D009	CME Workshop on Maternal Health and Naturopathy	4–6 March 2016, National Institute of Naturopathy, Pune	Institute Fund
36	Unnimaya S. Kurup	HS14D009	MISP Workshop on Maternal Health in Disaster Situations	7–9 March 2016, UNFPA and Sphere India at IPH, Chennai	Institute Fund
37	Unnimaya S. Kurup	HS14D009	Annual meeting of the Southwestern Social Science Association (SSSA) (presented paper titled 'Women's Experiences of C-Sections in South India: Meditating Risks, Manifesting Modernity' at the session 'Sociology of Pregnancy, Reproduction and Birth')	23–26 March 2016, Las Vegas, Nevada, USA	Institute Fund

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Prize Awarded by
1	Veena Mani	HS13D008	Fulbright Scholarship 2016–2017	USA
2	Muhammadali P.K.	HS13D019	Fulbright Scholarship 2016–2017	USA
3	Visakh M.S.	HS14D005	Fulbright Scholarship 2016–2017	USA

Students/scholars who won convocation/Institute Day prizes Roll No. Sl. No. Name of the Student/Scholar Isabel Alex HS14H020 Institute Merit Prize 2 Madura Niveditha Baasubramaniam Institute Merit Prize HS13H017 Isha Ravi Bhallamudi 3 HS12H018 Institute Merit Prize (Development Studies) 4 Aditi Aggarwal HS11H003 Institute Merit Prize (Development Studies) 5 Sreenidhi Krishnan HS11H041 Institute Merit Prize (English Studies) 6 Aditi Aggarwal HS11H003 Swati/Jayalakshmi Memorial Award

4.10.3. Faculty and Their Activities

Faculty

Faculty	
Name and Qualifications	Area of Specialization
Professors	
Malathy Duraisamy, Ph.D. (Madras University) [Head]	Applied economics, labour economics, economics of social sector, science and technology
Evangeline Manickam, Ph.D. (Madras University)	American literature, English/French
Muraleedharan, V.R., Ph.D. (IIT Madras)	Health care economics, public policy, history of health care in south India
Sudhir Chella Rajan, Ph.D. (University of California)	Environment, energy and climate policy, political theory, development
Devaki Reddy, Ph.D. (JNU, New Delhi)	English, sociolinguistics, ELT
Srilata, K., Ph.D. (University of Hyderabad)	African literature, cultural studies, creative writing
Umakant Dash, Ph.D. (IIT Kanpur)	Energy economics, health care economics
Aysha Iqbal Viswamohan, Ph.D. (Vikram University)	Economics: microeconomics; efficiency and productivity analysis; industrial economics; statistics and (applied) econometrics
Sreekumar, N., Ph.D. (University of Hyderabad)	Phenomenology, hermeneutics, bioethics
Dhanavel, S.P., Ph.D. (Tripura University)	American literature, British literature, Indian literature, English language teaching, communication and soft skills
Jyotirmaya Tripathy, Ph.D. (IIT, Kharagpur)	Literary theory, American studies, cultural studies
Swarnalatha, R., Ph.D. (Madras University)	Ecocriticism
Associate Professors	
Rajesh Kumar, Ph.D. (University of Illinois)	Language in education, sociolinguistics, linguistic theory, language and cognition
Satya Sundar Sethy, Ph.D.(University of Hyderabad)	Analytical philosophy, applied ethics (engineering and higher education), philosophy of language, ICTs in higher education, philosophy of mind, Indian philosophy, logic
Sonika Gupta, Ph.D. (JNU New Delhi)	Chinese politics and international relations
Subash, S., Ph.D. (IIT Bombay)	Economics
Roland Wittje, Ph.D. (NTNU Trinetim)	History of modern science and technology, academic heritage, history of science education and technical training
John Bosco Lourdusamy, D.Phil. (Oxford University)	History of science; science, technology and society
Milind Brahme, Ph.D. (JNU, New Delhi)	German studies, comparative literature, modern Marathi literature
Prema Rajagopalan, Ph.D. (IIT Kanpur)	Sociology of science and technology, development, women in science and technology
Solomon J. Benjamin, Ph.D. (Massachusetts Institute of Technology)	Verbal studies: verbal land properties and small town development, India–China small firm trade and urbanization
Sudarsan Padmanabhan, Ph.D. (University of South Florida and Pondicherry University)	Social and political philosophy, Indian philosophy and culture
Suresh Babu, M., Ph.D. (JNU, New Delhi)	Industrial economics, applied macroeconomics

Name and Qualifications	Area of Specialization
Assistant Professors	
Anup Kumar Bhandari, Ph.D. (Indian Statistical Institute)	Economics: microeconomics; efficiency and productivity analysis; industrial economics; statistics and (applied) econometrics
Binitha V. Thampi, Ph.D. (ISEC, Bengaluru)	Gender and development, decentralized planning and governance, ICTs for development
Joe Thomas Karackattu, Ph.D. (Jawaharlal Nehru University)	Economic interdependence and conflict, Sino-Indian relations, China's foreign and economic policy, cross-strait ties, democratization and economic development in Taiwan
Kalpana, K., Ph.D. (MIDS)	Gender development/women development
Mathangi Krishnamurthy, Ph.D. (University of Texas, Austin)	Anthropology of work, globalization, virtuality, affective labour, gender and work, media studies, South Asia
Merin Simi Raj, Ph.D. (IIT Bombay)	Indian fiction in English, literary historiography studies, institutionalization of literature, postcolonial studies, Dalit writing in translation, caste in popular culture
Sabuj Kumar Mandal, Ph.D. (ISEC, University of Mysore)	Econometrics, energy and environmental economics
Santhosh Abraham, Ph.D. (University of Hyderabad)	History, law and society, colonial labour legislations, history of medicine and psychiatry
Santhosh, R., Ph.D. (ISEC, University of Mysore)	Sociology
Tabraz, S.S., Ph.D. (JNU New Delhi)	International relations, political science
Hemachandran Karah, Ph.D. (Cambridge University)	Disability studies, medical humanities, comparative musicology
Visiting Faculty	
Lin Ru Yu	Chinese language
Christoph Woiwode, Ph.D. (University of London)	Urban and planning studies
Arvind Sivaramakrishnan, Ph.D. (University of Southampton)	Ideologies

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

		V 1					
Sl. No.	Co-ordinators	Title	Period and Venue				
Confer	Conferences						
1	Satya Sundar Sethy and Santhosh Abraham	Higher Education and Professional Ethics: Roles and Responsibilities of Teacher	29–30 August 2015, Department of HSS, IIT Madras, Chennai				
Sympo	sia						
1	Joe Thomas Karackattu	Students symposium involving students from IIT Madras and Shanghai International Studies University	27 April 2015, CSC, Department of HSS, IIT Madras				
Worksl	hops						
1	Sreekumar N.	Workshop on Continental Philosophy	18–21 April 2015, Department of HSS, IIT Madras				
Short-t	term courses						
1	Sudhir Chella Rajan	Stakeholder workshop, 'Peri-urban Dynamics and Sustainability: The Case of Sriperumbudur' (organized through IGCS)	21 April 2015, IC&SR, IIT Madras				

Papers presented by faculty members at conferences/workshops/seminars

Sl. No.	Faculty Member	Conference/Workshop/Seminar	Date and Venue
1	V.R. Muraleedharan and Malathy D.	Workshop, 'Econometric Modelling of Human Development and Capabilities'	4–6 February 2016, IIT Madras
2	V.R. Muraleedharan and Malathy D.	Presented the paper 'ABL Pedagogy in School and Classrooms in Two Districts in Tamil Nadu, at the World Conference on Multi-grade Multi-level Methodologies and Their Global Significance	18 February 2016, IIT Madras

SI. No.	Faculty Member	Conference/Workshop/Seminar	Date and Venue
3	Malathy D.	International Seminar on Teaching–Learning and New Technologies in Higher Education	25–26 February 2016, (NUEPA) New Delhi
4	Milind Brahme	World Conference on Multi-grade Multi-level Methodologies and Their Global Significance	15–19 February 2016, IIT Madras
5	Kalpana	'Documenting Contributions of Women's Movements, Women's Organizations and Women' at Southern Regional Workshop (IAWS)	18–19 February 2016, University of Madras
6	Sonika Gupta	Citizenship and Tibetan Exile Community (invited lecture)	26 February 2016, Tibet Policy Institute, Central Tibet Administration, Dharamsala
7	Binitha V. Thampi	Interrogating Female Foeticide: Issues in Gender Development and Sex Selection (invited lecture)	5 March 2016, Kantijyoti Savitribhai Phule Women's Studies Centre, Pune University
8	Subash	'India's Post–1991 Inward FDI Experience. Looking beyond the Aggregates' at an international conference	11–12 March 2016, Institute for Studies in Industrial Development, Delhi
9	Sreekumar	'Indian Epistemology' (special talk) at a national seminar	16 March 2016, Sree Sankaracharya University of Sanskrit, Kerala
10	Sreekumar	'Managerial Skills and Negotiating Value Systems' at the plenary session	29 March 2016, UGC- Inter-university Centre for Humanities and Social Sciences, IIA, Shimla
11	Sreekumar	'Managerial Skill Development for Self-help Groups' at a national seminar	29 March 2016, Department of Business Administration, Annamalai University
12	Sreekumar	'Research Methodology in Philosophy' at Research Methodology Workshop	29 March 2016, Department of Philosophy, Annamalai University
13	Dhanavel S.P.	'What Can the Subaltern Speak?' (plenary lecture) at an international conference	30 March 2016, Bharathiar University, Coimbatore
14	Dhanavel S.P.	Five-day FDP, 'Self-awareness and Higher Goals in Education' (coordinated along with Vijayalakshmi)	2–6 June 2015, Department of HSS, IIT Madras
15	Dhanavel S.P.	'Reflections of a Teacher' at the five Day FDP 'Self- awareness and Higher Goals in Education'	4 June 2015, IIT Madras
16	Dhanavel S.P.	'Assessment of Listening' at the One-Day Workshop on Assessment of Communication Skills in English: Realities and Remedies, organised by the Department of English	12 June 2015, GVP College of Engineering, Vishakhapatnam
17	Dhanavel S.P.	'Teaching of Listening' at a two-day bridge course on English from faculty members of colleges affiliated to Anna University	27 June 2015, Department of English, Anna University
18	Dhanavel S.P.	Four-day training programme, 'Proficiency of English Language for Communicators at the Air Traffic Services Complex' (co-ordinated along with Manjula Rajan)	30 June to 3 July 2015, Airports Authority of India. Chennai
19	V.R. Muraleedharan, Umakant Dash and research scholars	'Health Care Seeking Behavior Among Primitive Tribes: A Case Study of Nilgiris District, Tamil Nadu', presented at the 10th International Health Economics Association World Congress (Veenapani Rajiv Verma, Sumirtha Gandhi and Umakant Dash)	12–15 July 2015, Milan, Italy
20	V.R. Muraleedharan, Umakant Dash and research scholar Thirumaal A.	'Is Strategic Purchasing Feasible in Publicly Funded Health Systems with Integrated Purchasing and Provision Functions? A Case Study of Tamil Nadu, India', presented at the 10th International Health Economics Association World Congress	12–15 July 2015, Milan, Italy

Sl. No.	Faculty Member	Conference/Workshop/Seminar	Date and Venue
21	V.R. Muraleedharan, Umakant Dash and research scholars Elsa Mary and Sathish Kumar J.	'Job Choices of Nurses Trained in Private and Government Institutions in Tamil Nadu', presented at the 10th International Health Economics Association World Congress	12–15 July 2015, Milan, Italy
22	V.R. Muraleedharan, Umakant Dash and research scholars S. Rajasulochana and Sridhar Telidevara	'Measuring Technical Efficiency of CEmONC Centers of Tamil Nadu Using Stochastic Frontier Analysis', presented at the First IIMA International Conference on Advances in Healthcare Management Services	6–7 June 2015
23	Roland Wittje	The Age of Electroacoustics: Transforming Science and Sound 1863–1939	23–27 May 2016, University of Strasbourg, France
24	Roland Wittje	Universeum training workshop 'Revealing University Objects: From the Attics to the Public' (co-organized and taught at the workshop)	23–27 May 2016, University of Strasbourg, France

Special lectures delivered and others

1			
Sl. No.	Faculty Member	Title of Lecture	Date and Venue
1	Rajesh Kumar	Taught short-term course 'Language Mind and Society'	18 May to 8 June 2015, School of Education, Tata Institute of Social Sciences, Mumbai
2	Devaki Reddy	Invited to the Conclave on Academic Reforms	28-29 April 2015, NIT Trichy
3	Aysha Iqbal	Invited for peer assessment—assessment of faculty work at the Department of Humanities	IIST, Thiruvananthapuram
4	Aysha Iqbal	Invited talk, 'Career and Training in Film Studies', at Hindu Education Plus Career Counselling 2015	19 April 2015, The Hindu group of publications, Chennai
5	Sreekumar N.	Attended meeting of the Syndicate	16 May 2015, Sree Sankaracharya University of Sanskrit, Kalady, Kerala
6	D. Malathy	Faculty Selection Committee meetings	19 June 2015, IIT Hyderabad
7	D. Malathy	Faculty Selection Committee meetings	1 July 2015, NIT Trichy
8	D. Malathy	Board of Studies meeting	6 July 2015, RGNIYD, Sriperumbudur
9	Dhanavel S.P.	Faculty Selection Committee meeting for the Department of English	10 July 2015, Bharathiyar University, Coimbatore
10	Dhanavel S.P.	Department Promotion Meeting	16 July 2015, IIST, Thiruvananthapuram
11	Dhanavel S.P.	Faculty Selection Committee meeting for the Department of Humanities	18 July 2015, NIT Warangal

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Programme	Date
1	Malathy D.	UK	Participated in the writer's workshop at the University of Cambridge as part of an ongoing collaborative project	21–22 May 2015
2	Joe Thomas Karackattu	USA	Delivered a public lecture, 'Making of the Boundary (and the Dispute) Between India and China in the late 19th– early 20th Century, at the Yale MacMillan Center, Yale University, USA	15 April 2015
3	Joe Thomas Karackattu	USA	Paper titled 'India-China Border Dispute: Assessing Boundary-Making from 1895–1914 and Its Impact on Shaping of Material realities"; at 'Emerging Scholars on India-China Studies' presented at the India-China Institute, The New School, New York, USA	16 April 2015
4	Joe Thomas Karackattu	USA	Resource person at the conference 'New Urban Forms, New Fields of Inquiry: China and India', India–China Institute, The New School, New York, USA	17–18 April 2015

Sl. No.	Name of Faculty Member	Country Visited	Programme	Date
5	Devaki Reddy	Indonesia	'English Proverbs as Mnemonic Devices' at the 62nd TEFLIN International Conference on Language Teaching (pp. 179–184 in proceedings)	14–16 September 2015
6	Malathy D.	UK	Presented the paper 'Learning What: The ABL Story in Tamil Nadu' at UKFIET, Education and Development International Conference on Learning for Sustainable Futures—University of Oxford	15–17 September 2015
7	Roland Wittje	Germany	Wie sammelt man aktuelle Zeitgeschichte, welche Objekte sind die Quellen der Zukunft (How to Collect from Recent History, Which Objects Are the Sources for the Future), at the conference 'ZwischenKellerdepot und Forschungsolymp–7 Sammlungstagung', Universities of Freiberg and Dresden	17–19 September 2015
8	Aysha Iqbal	UK	'Textile Production and Sustainable Fashion' at Fashion 7 Interdisciplinary Conference, Mansfield College, Oxford University	25 September 2015
9	Sudhir Chella Rajan	Berlin	Member of Track-2 Climate Diplomacy Team visiting key stakeholders in Brussels	22–26 November 2015
10	Sonika Gupta	Australia	'Voters not Citizens: Tibetan Refugees in India' at La Trobe Asia, La Trobe University	29 November 2015
11	Joe Thomas Karackattu	Beijing	Invited to lecture at Tsinghua University, Political Science Institute	1 December 2015
12	Sonika Gupta	New Zealand	'Negotiating Liminality: Tibetan Refugees in India' at New Zealand Biennial Asian Studies Conference, University of Canterbury, Christchurch	1 December 2015
13	Roland Wittje	Germany	'Re-locating Material Heritage of Education in the History of Science and Technology' at the seminar series of the Department of Science Education at the Europa University at Flensburg	1 December 2015
14	Roland Wittje	Germany	Participated in the conference 'Testing Hearing: Science, Art, Industry' as invited session chair at the Max Planck Institute for the History of Science, Berlin	4–5 December 2015
15	Roland Wittje	Portugal	Board meeting of Universeum, Association for European University Heritage, as Vice President of Universeum, Museum for the History of Science, University of Lisbon	7–8 December 2015
16	Santhosh Abraham and Visakh M.S.	The Netherlands	Paper titled 'Recasting and Reimagining the Islamic Law and Jurisprudence: Colonial and Post-colonial Discourses on Muslim Law in Malabar, Kerala' presented at the International Conference on Ocean of Law: Intermixed Legal Systems Across the Indian Ocean World, Institute of History, Leiden University	7–9 December 2015
17	Binitha V. Thampi	USA (University of Pittsburgh)	'Aesthetic Labour in the Services Sector in India: Racialised Feminised Bodies' at International Conference on Doing the Body in the 21st Century	31 March 2016
18	Hemachandran	UK (Royal Holloway University of London)	Attended conference 'Blind Creations: An International Conference on Blindness and the Arts'	28–30 June 2015
19	Satya Sundar Sethy	Singapore (Nanyang Technological University)	Asian American Conference for Social Sciences and Humanities	12–15 January 2016
20	Roland Wittje	Germany (Berlin)	Visiting researcher at the Max Planck Institute for the History of Science	15 May to 15 July 2016

Honou	Honours and awards obtained by faculty members				
Sl. No.	Faculty Member	Name of Award	Awarded by	Awarded for	
Awards	\$				
1	Sabuj Kumar Mandal	M.J. Manohar Rao Award	The Indian Econometric Society	Young Scholar Award 2015	

Books authored

DOOMS .				
Sl. No.	Faculty Member	Title of Book	Year of Publication	Publisher
1	Joe Thomas Karackattu	'The US Pivot and Rebalancing in Asia: An Economic Assessment' in <i>The US Rebalance</i> and the Asia-Pacific Region	2015	Centre for Public Policy Research (ISBN: 978-81- 930004-2-7)
2	Subash S. (with Rajesh Raj S.N.)	Positive Traits for College Students	2015	Mainspring Publishers, Chennai (ISBN: 978-81- 930001-9-9)
3	Satya Sundar Sethy	Contemporary Ethical Issues in Engineering	2015	IGI Global Publication, Pennsylvania, USA (ISBN: 978-14-666-8130-9)
4	Satya Sundar Sethy	Meaning and Language	2016	DK Printworld Publication, New Delhi, India (ISBN: 978- 81-246-0854-8)
5	Arvind Sivaramakrishnan	UK Electoral Reform Society: Elections, Electoral Processes, and Democracy in India	_	Proposal sent to OUP, New Delhi, India
6	Srilata K.	Bookmarking the Oasis (collection of poetry)	2015	HSS Department, IIT Madras

Book chapters

Sl. No.	Faculty Member	Title of Chapter	Title of Book	Page Nos.	Year of Publication	Place of Publication
1	Devaki Reddy	The Role of Facts and Opinions in Communication Genres	Perspectives on Applied and General Linguistics	6–10	2016	New Delhi
2	Rajesh Kumar	Hindi–Hindustani– Urdu: A Language Continuum	Literary and Linguistic Hybridity in Contemporary Cultures	258–271	2015	New Delhi
3	Swarnalatha R.	The Possibilities of a River and a Dance	An Ecoethnographic Analysis of Kuttan Vayali's Bhagavathyaattu	_	2015	UK and USA
4	Dhanavel S.P.	The Practices of English Language Teaching in Postcolonial India	English Language Education in a Global World: Practices, Issues and Challenges	173–182	2015	New York

Editorial boards of journals

SI. N	o. Faculty Member	Position (Editor/Member)	Journal
1	Roland Wittje	Editorial Board Member	The International Journal for the History of Engineering and
			Technology (formerly The Transactions of the Newcomen Society)

Editors/reviewers of journals

Sl. No.	Faculty Member	Details
1	Rajesh Kumar	Language and Language Teaching, July 2015 (ISSN No. 2277-307X), Vidya Bhawan Society and Azim Premji University
2	Joe Thomas K.	Editor with H-Asia for two years. Based at Michigan State University, Humanities and Social Sciences Online (H-Net) is the world's largest scholarly organization devoted to networking and research in the humanities and social sciences. <i>Asian Studies</i> (H-Asia) is managed by a small team of editors worldwide (based at University of Vienna, NUS, University of Texas at Austin and Osaka University, to name a few), and now IIT Madras.

4.10.4. Research and Consultancy

Sponsored research projects

SI. No.	Title	Period	Funding Agency	Amount (F)	Co-ordinators
				Amount (₹)	
1	China Studies Centre	10 March 2011 to 30 June 2016	CSSH	11,00,000	Solomon J. Benjamin
2	Impact of Environmental Regulation on the Performance of Indian Cement Firms	16 January 2012 to 31 December 2016	NFSC	5,00,000	Sabuj Kumar Mandal
3	Interdisciplinary Bridges in Indo- European Studies	16 January 2013 to 31 July 2016	EURU	28,12,982	Sudarsan P.
4	Building an International Research Network on Sustainability to Enhance Strategic Knowledge	28 March 2013 to 30 September 2016	DST	5,33,74,400	Sudhir Chella Rajan
5	Capital Asset Pricing Model: An Investigation Into the Indian Stock Market	31 January 2013 to 30 January 2017	NFSC	5,00,000	Anup Kumar Bhandari
6	Centre for Technology and Policy (CTAP)	28 November 2013 to 27 November 2018	MHRD	5,00,00,000	Muraleedharan V.R.
7	Professional Ethics for Higher Education Faculty Members in India: An Investigation Into Its Development, Impacts, and Relevance	13 November 2013 to 30 June 2016	ICSSR	15,00,000	Satya Sundar Sethy
8	Changing Contours of State Welfarism and Emerging Citizenship: A Comparative Study of Tamilnadu and Kerala	13 November 2013 to 5 December 2016	ICSS	50,00,000	Binitha V. Thampi
9	Transforming Economy and Space Making: An Exploration in Chennai and Other Indian Cities and Towns	31 July 2013 to 30 July 2016	NFSC	5,00,000	Solomon J. Benjamin
10	Are Capital Inflows Into India Interest Rate Sensitive?	10 September 2013 to 10 September 2016	NFSC	5,00,000	Harendra Kumar Behera
11	Economic Interdependence and Vulnerability in Cross-strait Relations	31 October 2013 to 30 October 2016	NFSC	5,00,000	Joe Thomas Karackattu
12	China's Foreign and Economic Policy	11 January 2013 to 31 October 2016	NFIG	5,00,000	Joe Thomas Karackattu
13	Literary Historiography Studies in India	19 March 2014 to 18 September 2016	NFIG	5,00,000	Merin Simi Raj
14	Access to Credit by Small Firms: How Important Is the Role of Gender and Caste?	15 May 2014 to 31 May 2016	ICSSR	14,00,000	Subash S.
15	An Assessment of Performance of Indian Textile Industry	1 January 2015 to 31 December 2017	ICSSR	9,00,000	Anup Kumar Bhandari
16	Climate Change Adaptation and Resilience in Peri-urban Chennai in the Study Area of Sriperumbudur	24 February 2015 to 30 September 2016	IIT Madras	80,04,000	Sudhir Chella Rajan
17	A Social History of Publishing in Kerala	16 June 2014 to 15 June 2017	NFSC	5,00,000	Merin Simi Raj
18	The Paradox of Language and Literature	28 November 2014 to 28 November 2016	NFSC	5,00,000	Dhanavel S.P.
19	The Making of Psychiatric Institutions in British Colonial South India	2 November 2015 to 8 October 2016	RFER	7,00,000	Santhosh Abraham
20	Suburbin (Subaltern Urbanization in India)	16 June 2015 to 31 May 2016	CSSH	3,38,983	Solomon J. Benjamin
21	Scientific Practices And Material Cultures of Science And Technology	13 July 2015 to 7 December 2018	NFSC	5,00,000	Roland Wittje

SI. No.	Title	Period	Funding Agency	Amount (₹)	Co-ordinators
22	Comparative Musicology, Literary Disability Studies and Medical Humanities	15 May 2015 to 14 June 2017	NFIG	5,00,000	Hemachandran Karah
23	Scientific Practices Material Cultures of Science and Technology	9 January 2015 to 30 August 2017	NFIG	5,00,000	Roland Wittje

Industrial consultancy projects (ongoing)

Sl. No.	Faculty Member	Title	Industry	Amount (₹)
1	Rajesh Kumar	Bringing Proficiency in English Into Slum and Rural School Children	_	45,00,000
2	Muraleedharan V.R.	Resilient and Responsive Health Systems	_	55,97,267
3	Sudhir Chella Rajan	Value For Sustainable Aviation	_	85,89,895
4	Muraleedharan V.R.	Universal Health Coverage (UHC)	_	10,00,000
5	Umakant Dash	Strengthening Eco-system for Sustainable and Inclusive Health Financing in India	_	81,32,473

Exchange programmes with other universities including institutions/universities under MoUs

Sl. No.	Student	Roll No.	Programme/University	Scholarship
1	Urvi N. Shah	HS11H044	University of Groningen	Svaagata (EMA2)
2	Yashasvini Rajeswar	HS11H046	University of Windsor, Canada	MITACS
3	Vishali Sairam	HS12H051	Ghent University, Belgium	ASEM-DUO
4	N. Chandrasekhar Ramanujam	HS12H014	DAAD-Bremen Exchange	DAAD
5	Ankitha Aravindan	HS12H007	Sciences Po, Paris	_
6	Urmika Sinha	HS13H039	Sciences Po, Reims	Charpak
7	Aishwarya Pillai	HS13H001	Sciences Po, Reims	Charpak
8	Blessy Sharon	HS12H013	Concordia University, Canada	Students Exchange Programme
9	Gayathri Devi S.	HS11H019	University of Pardubice, Czech Republic	Svaagata
10	Sona Prabhakaran	HS11H038	Aarhus University	Erasmus-Mundus IBIES
11	Apoorva Gupta	HS11H009	University of Saskatchewan	MITACS
12	Prashant Shekhar	HS13H023	University of Warsaw, Poland	Erasmus-Mundus IBIES
13	KavinAadithiyan C.	HS10H017	Ghent University, Belgium	ASEM-DUO
14	Varun Murthy	HS12H044	DAAD-Bremen Exchange	DAAD
15	Akshyah K.	HS12H002	DAAD-Bremen Exchange	DAAD
16	Anand Sreekumar	HS12H004	DAAD-Bremen Exchange	DAAD
17	Srihari H.M.	HS11H042	Aarhus University, Denmark	Erasmus-Mundus IBIES
18	Rimil Hembrom	HS13H030	University of Warsaw, Poland	Erasmus-Mundus IBIES

M.A. student exchange programme

Sl. No.	Name of the Students	Roll No.	Description
1	Gayathri Devi S.	HS11H019	Svaagata student exchange programme for one semester from September to February 2016
2	Aparna	HS13H029	Students of sixth semester of M.A. Development Studies selected for the
3	Gowri	HS13H012	exchange programme with Hochschule Bremen, Germany
4	Dilip	HS13H021	
5	Rahulnath	HS13H029	
6	Gayathri Devi	HS11H019	Awarded the Svaagata scholarship (under Erasmus Mundus) for an exchange programme with the University of Pardubice, Czech Republic for the semester from August 2015 to November 2015

Sl. No.	Name of the Students	Roll No.	Description
7	Urvi N. Shah	HS11H044	Selected for an exchange programme with the University of Groningen, The Netherlands
8	Sona Prabhakaran	HS11H038	1
9	Srihari	HS11H042	Denmark, for one year from September 2015

Research publications of the faculty members and research scholars in refereed national journals

Number of papers published: 6

- 1. Milind Brahme. Exploration of life skills through researcher generated cartoons. *Indian Educational Review* 51(2): 7–26.
- 2. Merin Simi Raj. 2015. Caste in Indian English fiction: Footnotes to a post Mandal debate. *Economic & Political Weekly* 50(21).
- 3. Satya Sundar Sethy. 2015. Reinterpreting Gandhi's notion of dharma: An entanglement of duty, religion, and ethics. *Gandhi Marg* 37(2): 293–312.
- 4. Satya Sundar Sethy. 2016. Communicating *Artha*: A journey through oriental philosophy. *Humanities and Social Science Review* 5(1): 245–250.
- 5. Subash S. and Rajesh Raj S.N. Impact of foreign trade on employment and wages in Indian manufacturing. *South Asia Economic Journal* 16(2): 209–232.
- 6. Malathy D. and P. Duraisamy. 2016. Gender wage gap across the wage distribution indifferent segments of the Indian labour market, 1983–2012: Exploring the glass ceiling or sticky floor phenomenon. *Applied Economics* (in press; published online)

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Nalin Surie, Ambassador (retired distinguished senior diplomat with postings to the UK, UN, EU and China)	28 January 2016	Interaction with the faculty at the China Studies Centre
2	Cheng-Wen Wu, Vice President for Academic Affairs and TEC	24 April 2015	Discussions with Dr. Sonika Gupta, Dr. Solomon Benjamin and Mandarin instructor Ms Lin on the future development of the Taiwan Education Centre
3	Delegation of National Intelligence Council, Washington, DC and American Consulate General Officer	20 August 2015	Visiting China Studies Centre and interviewing Dr. Sonika Gupta for the 2016 Annual State Department Trends Report
4	Mr. Fuh, Gen-Gang, the Ambassador, Mr. Chirg, Ting Hswan, Assistant Ministry of Foreign Affairs, Mr. Charles Li, Director General, Taipei Economic and Cultural Center (TECC), Mr. Stephen Chung, Assistant Director General, TECC	7 September 2015	Visiting China Studies Centre along with 20 youth from Taiwan representing different universities

4.10.5. Other Activities of the Department

Results obtained through research work (M.S. and Ph.D. theses) of the faculty and scholars

Ms Martha Thindle worked on the thesis titled "The Shifting Landscape of Fantasy in Children's Literature: A Reading of Enid Blyton, J.K. Rowling and Eoin Colfer, which examines how the manipulation of time—space contributes to the creation and sustenance of fantasy worlds in the texts of Enid Blyton, J.K. Rowling and Eoin Colfer. The focus is on how the elements of time and space are combined, particularly in the construction of secondary spaces within the Bakhtinian tradition and within Turner's organization and function of liminal spaces.

Ms Anjana Raghavan worked on the thesis titled 'Towards a Corporeal Cosmopolitanism', which highlights the elision of body and affect within liberal conceptions of cosmopolitanism. She explores various cultural experiences like those of *aravanis* and Indo-Caribbean women's writing and seeks to corporatize cosmopolitanism itself by mainstreaming body (gendered, racial, cultural) as the site of rights and justice.

Ms Brintha Lakshmi worked on the thesis titled 'The Adoption of the "Sustainable Humane Habitat" Principle for Realizing a Holistic "Culture of Urban Housing": An Analysis of Developers' Perspectives in Vadodara City,

India: This thesis conceptualizes urban housing from a whole sector perspective. It puts forth three concepts, the 'Culture of Urban Housing' (CoUH), an overarching idea that brings together the various aspects of the making of urban houses; the 'Urban Housing Development Cycle' (UHDC), a practitioner's representation of the CoUH; and the 'Sustainable Humane Habitat' (SHH) principle, to address peoples' affordability and minimize environmental damage in the making of urban houses. It advocates the adoption of the SHH principle for realizing a holistic CoUH.

Ms Teena Augustine Joseph worked on the thesis titled 'Copying in Preadolescence: An Ethnographic Study from Southern India'. Her work is an ethnographic study in an urban setting in Chennai of the coping skills of preadolescent children from disadvantaged sections of society. Using researcher-generated cartoons as a visual method and a grounded theory approach, it elicits and classifies responses of young children to complex crisis situations, showing their agency in understanding and responding to multiple crises in their lives. The study looks at coping from a salutogenic perspective and documents peer group, teachers and closeness to nature as important factors that help a child build resilience and cope with crises.

Mr. Benny Kuriakose worked on the thesis titled 'Housing the Rural Poor in Kerala: A Revisit to Understand Success'. This study highlights the benefits of the provider approach for housing the poor in spite of a policy shift to the facilitator approach. The study has reconstructed two housing colonies for the poor in Kerala and arrives at the above observation.

Ms A.S. Sasikala worked on the thesis titled 'Influence of Gandhi on Silent Valley Movement', in which she argues that the Silent Valley movement in Kerala was not an ecological Marxist movement as conventionally understood but a Gandhian movement. By using archival material and interviews with Silent Valley movement leaders like Sugatha Kumari and M.P. Parameswaran, she successfully identifies a clear Gandhian strain in the movement.

Mr. Raphael Joseph worked on the thesis titled 'Spacing the Text', in which he traces the marginalization of space in theorizing and interpreting literature and other cultural forms. He identifies a spatial turn within humanities as a characteristic feature of the contemporary postmodern life and brings space as a category of cultural analysis across various scales like home, city, national and global.

Ms Anu T. Asokan worked on the thesis 'Environmentalism of the Poor: An Ecocritical Reading of Selected Fictional Works of Mahasweta Devi'. The thesis attempts to undertake an ecocritical appreciation of the selected works of Mahasweta Devi. It seeks to study the tribal scapes of Devi's forest fictions and the complex narratives of struggle in which they are embedded.

Academic Conference 2016

Grappling with the Scared, IIT Madras, 21–24 January 2016

A team of 34 students (Ph.D. and M.A.) were involved in organizing the conference.

Student visits

SI. No.	Students	Purpose of Visit	Date and Venue
1	IIT Madras students	Field trip to Greentech Industries	18 April 2015, Dwarakapuram village, Naidupet Mandal,
		_	SPSR Nellore, Andhra Pradesh

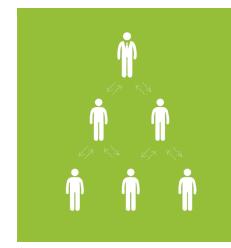
Activities initiated

Department outreach activity for Ph.D. programme conducted in various colleges, namely Loyola College and Ethiraj Women's College

Activities of the China Study Centre, DoHSS-IIT Madras

- As a part of the course 'Chinese Culture and Society', the course instructor, Ms Iris Ru Yu Lin, took her students for a one-day field trip to Greentech Industries (India)'s factory in the APIIC Multi Products SEZ, Dwarakapuram village, Naidupet Mandal, SPSR Nellore District, Andhra Pradesh.
- Students gained a comparative perspective on the labour law, SEZ policy and different culture-oriented work ethics.
- Visiting faculty Ms Iris Ru Yu Lin organized moon festival celebrations in the China Study Centre for the IIT Madras students who are learning the Chinese language.
- Dr. Indira Ravindran, Professor in the School of IR and Public Affairs, Shanghai International Studies University (SISU), PRC, 19 February 2016.
- Students of SISU visited IIT Madras and the China Studies Centre.
- Prof. Shuyong Guo, Dean of School of International Relations and Public Affairs (SIRPA) at SISU headed the delegation of nine students.
- The visit concluded with a students symposium, where students from both sides made formal presentations on topics related to India–China relations on 27 April 2015.

Department of Management Studies



4.11.1. Introduction

The Department of Management Studies (DoMS) was formed in April 2004. The department offers a 2-year full-time M.B.A. programme (started in July 2001) and research programmes leading to M.S. and Ph.D. degrees. DoMS also offers an M.S. (Entrepreneurship) programme. Besides, the department offers the Visionary Leadership in Manufacturing (VLM) programme and the Postgraduate Diploma for Executives (PGPEX-VLM), jointly with IIM Calcutta and IIT Kanpur.

The contributions of the faculty and research scholars have been highly acclaimed in academic circles and peer groups. The growing number of well-qualified applicants for the M.B.A. programme, with many having significant professional experience, both from the industry and academia, is a good indication of the academic reputation of the department.

The summer and 555 placement offered to the students by globally and nationally reputed companies provide strong evidence of the growing stature of the M.B.A. programme and the attention it is receiving.

The department presently has the largest number of management research scholars in India. Its research programmes attract a very large number of applicants, including a high proportion of working professionals. Research scholars' work is regularly published in reputed international and national journals and is presented at prestigious international and national conferences. In the recent past, research scholars have received international awards for their doctoral theses. The research papers of several research scholars have consistently received 'best paper' awards, and are cited frequently in the literature.

The alumni of the department have had scholastic achievements in different disciplines and continue to make significant contributions to the organizations and institutions they work for. Some of the qualities that characterize our graduating students include high levels of initiative and energy, capacity for hard work, strong task orientation, willingness to learn and a temperament suitable for teamwork. Many M.B.A. alumni have won prizes, awards, honours and promotions in their organizations even in their first year of work. They have also played a central role in making their organizations earn laurels.

The full-time and visiting faculty members have excellent academic and professional backgrounds, and they collectively work towards realizing the department's vision 'to be a globally unique and most valuable source of knowledge, insight, creativity and expertise in management thought and practice'.

Over the years of its existence, the department has thoroughly revised its M.B.A. programme curriculum, expanded its research activities, re-launched the M.S. (Entrepreneurship) programme with a new structure and worked towards establishing long-term relationships with globally reputed institutions and organizations. The following sections present an outline of the department's work.

Some major areas of research at the department are listed here:

- · Applied statistics
- Combinatorial optimization
- Finance
- Human resource management
- Information systems
- Knowledge management
- Marketing

- Models in supply chain management
- Production and operations management
- Project management
- Quality management
- Quantitative strategy
- Services management
- Technology management

4.11.2. Academic Programmes

M.B.A., M.S., Ph.D., PGPEX (VLM)

New co	New courses introduced				
Sl. No.	Course No.	Title			
1	6031	Data Analysis for Research			
2	6032	Predictive and Prescriptive Data Analytics			
3	6600	Global Corporate Governance			
4	7080	Research Methodology in Business and Management			
5	7081	General Management			
6	7470	Research in HRM and OB			
7	7721	Theory Construction in Marketing			
8	8041	Empirical Research in Family Business Performance			
9	8040	Dynamics of Family Business and Financial Performance			

Students on roll

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
M.B.A.	59	61	_	_	_	120
M.S. (Research/Entrepreneurship)	51	_	_	_	_	51
Ph.D.	104	_	_	_	_	104
Total	214	61	_	_	_	275

Students/scholars who attended conferences/workshops/seminars/symposia

Sl. No.	Student/Scholar	Roll No. and Name of Guide	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroac	1				
1	D. Sabitha	Ph.D. scholar (MS12D207), Dr. C. Rajendran	POMS 26th Conference (presented paper titled 'An Optimization Approach to Collections Risk Management')	8–11 May 2015, Washington DC, USA	IIT Madras
2	Vignesh Raja	M.S. scholar (MS13S032), Dr. C. Rajendran	POMS 26th Conference (presented paper titled 'Multi-objective Routing with Real Life Constraints')	8–11 May 2015, Washington DC, USA	IIT Madras
3	Nivethitha Santhanam	Ph.D. scholar (MS11D002), Dr. T.J. Kamalanaban and Dr. Lata Dyaram	Second Global Conference of International Human Resource Management (presented paper titled 'The Impact of Psychological Contract and Human Resource Management Practices on Frontline Employees' Turnover Intentions in Hospitality Industry')	14–15 May 2015, Pennsylvania, USA	IIT Madras
4	Shyaam Prasadh R.	Ph.D. scholar (MS14D004), Dr. M. Thenmozhi	International Conference on Brunel Studies in Economics and Finance Conference (presented paper titled 'Does Economic Freedom Impact Post Acquisition Performance of Cross-Border Deals?')	1–2 June 2015, London	IIT Madras
5	Geeta Ramanathan	Ph.D. scholar (MS12D009), Dr. P. Krishna Prasanna	Impact of Family Ownership on Idiosyncratic Risk	4–5 June 2015, Vietnam	IIT Madras
6	N. Priyadarshini,	Ph.D. scholar (MS11D008), Dr. V. Vijayalakshmi	Fourth World Congress in Positive Psychology (Psychological Capital and Its Impact on Sustainable Individual Performance: Empirical Evidence from Indian NGOs)	25–28 June 2015, Lake Beune Vista, Florida, USA	IIT Madras

Sl. No.	Student/Scholar	Roll No. and Name of Guide	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
7	Ramkishore K.R.	Ph.D. scholar (MS11D014), Dr. R.K. Amit	Manufacturing and Service Operations Management 2015 (MSOM 2015) Conference (presented paper titled 'Optimal Inventory-Dependent Bargaining Mechanisms')	28–30 June 2015, Toronto, Canada	IIT Madras
8	Sumeet Roy	M.S. scholar (MS13S031), Dr. P. Krishna Prasanna	Information Content of the Term Structure During Global Financial Crisis	,	
9	Shalinee Uniyal	M.S. scholar (MS13S030), Dr. P. Krishna Prasanna	Factors Determining the Changes in the Credit Spreads	10–11 August 2015, Imperial College, London, UK	IIT Madras
10	Varuna Newatiya	MS13S030, Dr. Richa Agrawal	Annual London Business Research Conference (presented paper titled 'Beyond Status! Why New Luxury Customers in India Are Buying Luxury')	10–11 August 2015, Imperial College, London, UK	IIT Madras
11	Meeta Gulati	MS13S023, Dr. Arun Kumar	IAABR Conference on Ownership Structure Investment & Firm Performance	23 October 2015, Las Vegas, USA	IIT Madras
12	Ambika Tiwari	MS13S001, Dr. C. Rajendran	2015 Informs Annual Meeting (presented paper titled 'An Algorithm for Solving Military Convoy Problem')	1–4 November 2015, Pennsylvania, USA	IIT Madras
13	Sudhanshu Gupta	MS12S017, Dr. Richa Agrawal	Poster presentation titled 'Environmentally Responsible Consumption: Identifying Underlying Themes Scale Dev. and Validation'	28 November to 2 December 2015, Sydney, New South Wales, Australia	IIT Madras
14	Ramya	MS11D015, Dr. C. Rajendran	Oral presentation titled 'Capacity Planning Over a Finite Time Horizon with Dual Contracts: An Optimization Approach'	1–4 November 2015, Philadelphia, Pennsylvania, USA	IIT Madras
15	Amruta Gholba	MS13S016, Dr. Lata Dyaram	Global Leadership Development Approaches: Escapades from MNCs in India	16–18 November 2015, St. Anne's College, University of Oxford, Oxford, UK	IIT Madras
16	Ambika Tiwari	MS13S001, Dr. C. Rajendran	2015 Informs Annual Meeting (presented paper titled 'An Algorithm for Solving Military Convoy Problem')	1–4 November 2015, Pennsylvania, USA	IIT Madras
17	Ramya	MS11D015, Dr. C. Rajendran	Oral presentation titled 'Capacity Planning Over a Finite Time Horizon with Dual Contracts: An Optimization Approach')	1–4 November 2015, Philadelphia, Pennsylvania, USA	IIT Madras
18	Geetha	MS12D009, Dr. Krishna Prasanna	Oral presentation titled 'Governance and Risk Interdependencies Among Family Owned Firms—Corporate Governance, Accounting and Audit: Crisis Challenges'	26 November 2015, Luneburg, Germany	IIT Madras
19	Sudhanshu Gupta	MS12S017, Dr. Richa Agrawal	Australian and New Zealand Marketing Academy Conference (presented paper titled 'Environmentally Responsible Consumption (ERC): Identifying Underlying Themes')	28 November to 2 December 2015, New South Wales, Sydney, Australia	IIT Madras

Sl. No.	Student/Scholar	Roll No. and Name of Guide	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
20	Sudhanshu Gupta	MS12S017, Dr. Richa Agrawal	Australian and New Zealand Marketing Academy Doctoral Colloquium (presented a paper titled 'Environmentally Responsible Consumption: Scale Development and Validation')	28–29 November 2015, Sydney, Australia	IIT Madras
21	K. Suryanarayanan	MS13D017, Dr. Saji Mathew	International Conference on Information Systems 2015 (made an oral presentation titled 'Business Analytics and Business Value: A Case Study')	13–16 December 2015, Fort Worth, Texas, USA	IIT Madras
22	Pavithra Sampath	MS13S026, Dr. Rupashree Baral	International Conference on Human Resource Management & Professional Development (presented paper titled 'Cross Over of Work Family Experiences from Supervisor to Subordinate Dyads')	14–15 December 2015, Singapore	IIT Madras
23	S. Narend, P.N. Kayalvizhi and P. Lakshmi	MS12D018, MS13S003, MS15PF01, Dr. M. Thenmozhi	The International Academic of Business and Public Administration Disciplines (IABPAD) (presented paper titled 'Gold Exchange Traded Funds and Price Discovery Empirical Evidence from Global Gold ETFs')	2–5 January 2016, Orlando, Florida, USA	IIT Madras
India					
1	Lalita Mohan Mohapatra	Ph.D. scholar, Dr. G. Arun Kumar	Economics and Sixth IGC-ISI India Development Policy Conference	14–24 July 2015, IGC-ISI Summer School in Development, Delhi	IIT Madras
2	Shahshank Bansal	MS14D010, Dr. M. Thenmozhi	COSMAR 2015 (presented paper titled 'Does Board Structure Matter to Institutional Investors?')	24–25 November 2015, IISc, Bengaluru	IIT Madras
3	S. Yamini	MS13D018, Dr. Rahul R. Marathe	SOM 2015 (presented paper titled 'Mathematical Models to Mitigate Planning Fallacy and to Avoid Unrealistic Estimates of Completion Time')	11–13 December 2015, IIM Calcutta	IIT Madras
4	Varuna Newatiya and Richa Agrawal	_	IMR Doctoral Conference (presented paper titled 'Exploring Motivations to Purchase Luxury in the Emerging Indian Market: Results of a Qualitative Study')	22–23 December 2015, IIM Bangalore	IIT Madras
5	Sumeet Roy	M.S. scholar, Dr. P. Krishna Prasanna	Expectation Hypothesis, Term Structure and Global Financial Crisis	17–20 December 2015, IIM Calcutta	IIT Madras
6	Shalinee Uniyal	M.S. scholar, Dr. P. Krishna Prasanna	Determinants of Credit Spread Changes: Evidence from India	17–20 December 2015, IIM Calcutta	IIT Madras
7	Varuna Newatiya and Richa Agrawal	_	Great Lakes NASMEI Marketing Conference (presented paper titled 'Exploring Reasons for Purchase of Luxury Products Among Indian Customers: A Leximancer Analysis')	26–27 December 2015, Chennai	_
8	Nitu, Liji, Kelitha, Priyadarshini and Suchitravalli	_	UGC-sponsored national HR seminar	19 January 2015, Chennai	_

Sl. No.	Student/Scholar	Roll No. and Name of Guide	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
9	Liji George	MS13S022, Dr. T.J. Kamalnabhan	Seventh International Conference on Information Technology and Business Intelligence	20–22 January 2016, Goa	IIT Madras
10	Manimegalai Santhosh	MS11D006, Dr. Rupashree Baral	Seventh International Conference on IT and Business Intelligence (ITBI-16) (presented paper titled 'CSR Communication: A Study on Scale Development')	21–23 January 2016, Goa	IIT Madras

Students/scholars who won outside prizes and awards

Studeni	is/scholars who won	outside prizes and awa	arus		
Sl. No.	Student/Scholar	Award	Awarded by	Awarded for	Date
Honou	rs				
1	Sowmya S.	Best Paper Award (and cash prize of \$1000)	51st Eastern Finance Association meeting at New Orleans, USA	Paper titled 'Linkages in Term Structure of Interest Rates Across Sovereign Bond Markets'	12 April 2015
Awards	S				
1	Giridhar Ramachandran	Best presentation (with cash prize of \$750)	Academy of Marketing Science (AMS) Doctoral Consortium 2015, Denver, Colorado	Best of a total of 48 doctoral works	July 2015
2	Shyaam Prasadh R.	Prestigious Endeavour Research Fellowship	Australian Government	Deakin University, Melbourne, Australia	12 August to 10 February 2016
3	Yamini	Emerald Publishers (cash prize of \$200)	International Conference on SOM 2015	Highly commended paper ('Mathematical Models to Mitigate Planning Fallacy and to Avoid Unrealistic Estimates of Completion Time')	March 2016
4	Kotte Venkata Sandeep	Campus Reporter	Business Standard	Certificate	Since September 2015
5	Kotte Venkata Sandeep	Campus Ambassador	IdeasMakeMarket	Certificate	Since January 2016
6	Balaji Venkatesh	First Prize (₹1 lakh)— Top 5 Category	Business Standard B School Project Contest	Top Ten Summer Projects	January 2016
7	Narend S. and Thenmozhi M.	Research Award	IABPAD Conference	Paper titled 'Gold Exchange Traded Funds and Price Discovery: Empirical Evidence from Global Gold ETFs'	2–5 January 2016, Orlando, Florida, USA
8	Manimegalai Santhosh	First Prize—Student Paper Presentation Category	Seventh International Conference on IT and Business Intelligence (ITBI-16)	Paper titled 'CSR Communication: A Study on Scale Development'	21–23 January 2016, Goa

4.11.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
Arun Kumar G., M.Com., Ph.D.	Market microstructure, IPOs, mergers and acquisitions, joint ventures, multinational business
Ganesh L.S., B.E.(Hons.), M.Tech., Ph.D.	Systems thinking and applications, project management, technology management, data and decision analysis, forecasting

Name and Qualifications	Major Areas of Specialization
Kamalanabhan T.J., M.A., M.Phil., Ph.D. [Head]	Organizational behaviour, human resource management, training and development
Madhumathi R., M.Com., Ph.D.	Financial management and accounting, forex research, bank management, capital market studies
Narendran T.T., B.E., M.S., Ph.D.	Operations management, supply chain management, vehicle routing problems
Prakash Sai L., B.Tech, M.Tech, Ph.D.	Strategic management, IT outsourcing and IT strategic planning business models, technology management, entrepreneurship
Rajendran C., B.E.(Hons.), M.E., Ph.D.	Operations management, production and materials management, supply chain management, scheduling
Srinivasan G., B.E. (Hons.), M.S., Ph.D.	Fundamentals of operations research, advanced operations research, operations management, supply chain management, manufacturing systems management, operations research applications, services operations management
R.P. Sundarraj, B.E. (Hons.), M.S. (USA), Ph.D. (USA)	Information systems, supply chain management, e-business, computational optimization, decision support system
Thenmozhi M., M.Com., M.Phil., Ph.D.	Financial management, strategic management, computational finance
Thillai Rajan A., B.E., M.Sc., Fellow, IIM Bangalore	Venture capital and private equity projects, infrastructure finance, public- private participation, corporate finance
Associate Professors	
Arshinder Kaur, M.Tech., Ph.D.	Operations research, supply chain management, total quality management, services operations management
Krishna Prasanna P., B.Com., M.Com., M.Phil., Ph.D.	Corporate governance, fixed income securities, financial risk management, market micro structure
Rahul R. Marathe, B.E., M.S. (USA), Ph.D. (USA)	Simulation, industrial engineering, TQM, operations research, operations management
Saji K. Mathew, B.Tech., Ph.D.	Management information systems, IT strategy, data mining and business intelligence, IT services and outsourcing, information systems development
Usha Mohan, M.Sc., M.Phil., Ph.D.	Quantitative models in operations management, probability and statistics, combinatorial optimization
Assistant Professors	
Amit R.K., M.Tech., Ph.D.	Game theory, operations research, decision theory, natural resources management.
Ganesh M.P., M.A., M.Phil., Ph.D.	Organizational behaviour, human resources management, industrial psychology
Geetha M., B.Sc., M.B.A., Ph.D.	Marketing management, consumer behaviour, brand management
Lata Dyaram, M.A, Ph.D.	Leadership development, corporate sustainability, cognition in organizations, organizational behaviour, organizational development, industrial and organization psychology
Nandan Sudarsanam, M.S. (Indl. Engg., USA), Ph.D. (Engg. Sys., MIT, USA)	Experimentation, data mining, applied statistics, algorithmic and heuristic approaches to problem solving
Richa Agrawal, B.A. (Econ.), M.B.A., Ph.D.	Customer relationship marketing, consumer behaviour and insight advantage
Rupashree Baral, B.Sc., M.A. (IR & PM), Ph.D.	Strategic human resources management, organizational behaviour, work-life balance, employee engagement, diversity and inclusiveness, career exit and re-entry of women
V. Vijayalakshmi, M.Sc., Ph.D.	Positive organizational behaviour, social media and social design, neuro- linguistic programming
Varisha Rehman, B.Com. (Hons.), M.B.A., Ph.D.	Marketing management and research, advertising and publicity, experiential marketing
Upendra Kumar Maurya, B.Tech., Fellow, Xavier Institute of Management, Xavier University, Bhubaneswar	Brand management, entrepreneurship and marketing interface, identity issues in organizations
Vaibhav Chawla	Mindfulness and sales call reluctance, spirituality in sales organizations, salesperson performance
MHRD IPR Chair Professors	
Feroz Ali Khader, B.A., L.L.M., S.J.D., Ph.D.	Patent law and policy, intellectual property law, international trade law, law and technology

Short-to	Short-term courses/workshops/seminars/symposia/conferences organized by faculty members						
Sl. No.	Faculty Member		Title		Period and	Venue	
1	R.P. Sundarraj		Business Solution with R (for severizon Ltd.)	enior executives of	27–28 May	2015	
2	V. Vijayalakshmi an Dhanavel (HSS)	nd S.P.		Self Awareness and Higher Goals in Education (for faculty members of other Institutions, with the support of CCE)		15, Teaching entre	
3	L.S. Ganesh		Orientation Programme in Man program to M/S. EDAC Engg. L		4–24 June 2	015	
4	M. Thenmozhi and Narend	S.	Workshop on "Practical Approa Stock Market"	aches to Investing in	8–9 August	2015	
5	Rupashree Baral ar Kamalanabhan	nd T.J.	Development Programme on To Management—IOCL	otal Dealership	10–11 Augu	st 2015	
6	Arshinder Kaur, R. Sundarraj and R.K.		AICTE sponsored programme of Excellence in Emerging Econom		12–16 Septe DOMS	ember 2015,	
7	Rupashree Baral ar Kamalanabhan	nd T.J.	Development Programme on To Management –IOCL	otal Dealership		8–29 September 8–9 October	
8	Vijayalakshmi and Kamalanabhan	T.J.	Building Future Leaders Progra India–44 participants	mme for Caterpillar	25–26 Septe	ember 2015	
9	M. Thenmozhi and 'Kamalanabhan	T.J.	35th Supervisory Development PT&D IC	Programme—L&T-	12–17 Octo	ber 2015	
10	Nandan Sudharsan, Marathe (co-cordin		Training program for the staff of 'Saggezza' on Capacity Building in Data Science and Analysis		October–December 2015 (weekends)		
11	R.P. Sundarraj		Training program for the staff of 'VERIZON' on Business Solutions using R-based Analytics		20–21 October2015		
12	Latha Dyaram		Supervisory Development Programme for L&T		14-19 March 2016		
13	Arun Kumar		Programme titled "Doing Business with India: An India Immersion Program". There were 14 participants from MCI Austria. All the participants are executive graduate students—Half a day of classroom lectures and half day of field visits		28 March to	9 11 April 2016	
14	M. Thenmozhi and Khader	Feroz A.	Workshop on Intellectual Property Rights: Strategy for Growth		7–8 August	2015	
15	M. Thenmozhi and 'Kamalanabhan	T.J.	Supervisory Development Programme—L&T-PT&D IC		14-19 March 2016		
16	M. Thenmozhi and 'Kamalanabhan	T.J.	Executive Programme in Business Administration—GMMCO Group of Companies and others		Batch 1, 2014–16; Batch 2, 2015–17		
Special	lectures delivered	by faculty	members at other institution	S			
Sl. No.	Faculty Member	Title of L	ecture	Institution		Date	
1	Rupashree Baral	sponsore for Publi	ng in Academic Journals (UGC-d 1-day workshop, "Writing shing and avoiding the Risk of m and Copyright Violation")	Madras School of Socia	l Work	5 March 2015	
2	Rahul R. Marathe		Wages to an Optimistic or who has Time Inconsistent ces	Industrial Engineering and 12 March 20 Operations Research programme, IIT Bombay		12 March 2015	
3	V. Vijayalakshmi	Transacti	onal Analysis	Confederation of Indian Industries 13 March 2 (CII)		13 March 2015	
4	V. Vijayalakshmi	_	n the Classroom Faculty and Motivation	Teaching Learning Center, IIT 19 March 2 Madras for TEQUIP Colleges		19 March 2015	
5	Feroz Ali		nal Property Strategy for Frugal on: How to Navigate the IP	Fourth IPR Researchers on IP Challenges in Fru Innovation, Sailesh J. Mo of Management, IIT Bo	gal ehta School	27 March 2015	

Visits a	Visits abroad by faculty members					
Sl. No.	Faculty Member	Country Visited	Dates	Purpose of Visit	Funding from	
1	G. Arun Kumar	Thailand	6–7 April 2015	Examining the final project presentation of the Professional Masters in Banking & Finance programme, AIT Thailand	Thailand	
2	Saji K. Mathew	Germany	23 May to 9 June 2015	Invited as a faculty member of the Business Administration and Economics Department	Germany	
3	C. Rajendran	Germany	25 May to 22 July 2015	Invited as Visiting Faculty	Germany	
4	L. Prakash Sai	Germany	30 May to 30 June 2015	Invited as a Visiting Professor	Germany	
5	M. Geetha	Germany	7–13 June 2015	Invited teaching assignment at Hof University, as part of 'International Teaching Week'	Germany	
6	R.K. Amit	Sri Lanka	29 June to 3 July 2015	30th Biannual Research and Training Workshop	Institute	
7	R.P. Sundarraj	Australia	14–19 September 2015	University of Sydney	Sydney	
8	R.P. Sundarraj	Singapore	20–21 September 2015	Research Meeting at Singapore Management University and Nanyang Technological University	Singapore	
9	C. Rajendran	Germany	29 November to 26 December 2015	Visiting Professor, University of Passau	Germany	
10	R.P. Sundararaj	USA	22 February to 18 March 2016	Visiting Professor, University of Wisconsin, Whitewater, USA	USA	

Honours and awards obtained

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award
Honou	rs				
1	G. Arun Kumar	Erasmus Mundus Fellowship	University of L'Acquila, Italy	Faculty exchange	May 2015
Awards	s				
2	C. Rajendran	Named RAGS Family Foundation Institute Chair	IIT Madras	Publications	March 2016
3	R.P. Sundarraj	Invited to serve as an Associate Editor of <i>Group Decision and</i> Negotiation (GDN) Journal	Springer		March 2016
4	Richa Agrawal	Top 50 research proposals worldwide	First Doctoral Consortium, Denver, USA	Work on perceived value of consumption community participation	12–14 May 2015

Fellowships of academic and professional societies

Sl. No.	Faculty Member	Name of Academy/ Professional Society	Level	Year of Admission
1	C. Rajendran	University of Passau	Alexander von Humboldt Fellowship	May–July 2015

4.11.4. Research and Consultancy

Sponsored research projects (internal—ongoing)

Sl. No.	Title	Period	Funding Agency	Amount (₹ in lakhs)	Co-ordinator
1	Exploratory Research Project- Social Return on Investments (SROI) for SHG- Linked Microfinance Initiatives	February 2015 to February 2016	IIT Madras	10	Arun Kumar G.

Sl. No.	Title	Period	Funding Agency	Amount (₹ in lakhs)	Co-ordinator
2	Exploratory Research Project— Integral Education: Towards a Holistic Perspective of Teaching, Learning and Education at IIT Madras	February 2015 to February 2016	IIT Madras	3.5	Vijayalakshmi V.
New Fa	aculty Grant				
1	New Faculty Initiation Grant—Research on Consumer Behaviour, Retailing and Social Marketing	February 2015 to February 2017	IIT Madras	5	Geetha M.
2	New Faculty Initiation Grant—Role of CSR in Influencing Food Choice in India	February 2015 to February 2017	IIT Madras	5	Varisha Rehman
3	Branding in New Ventures: Exploring Start-up's Brand Practices	October 2015 to October 2017	IIT Madras	5	Upendra Kumar Maurya

Exchange programmes with other universities including institutions/universities under MoUs

Number of students who visited universities abroad:

MBA students

UoM, Germany	7
UoP, Passau, Germany	17
EBS, Germany	4
MCI, Austria	11
UBC, Canada	4
M.S./Ph.D. research scholars	7
Total number of students	51

Research publications

Papers published in refereed national journals: 11 Papers published in refereed international journals: 14

Number of casual/foreign students who visited DoMS, IIT Madras

Papers presented at national conferences: 4 Papers presented at international conferences: 14

Papers published in refereed national journals

- M. Thenmozhi. Forecasting stock returns based on information transmission across global markets using support vector. Neural Computing and Applications.
- Saji K. Mathew, V. Krishnaraju, V. and V. Sugumaran. Web personalization for user acceptance of technology: An empirical investigation of E-government services. Information Systems Frontiers. doi:10.1007/ s10796-015-9550-9
- 3. L. Harold and M. Thenmozhi. 2015. IS/IT success factors in financial services sector in India: A process model perspective. Prajnan: Journal of Social and Management Science 44(3): 225–250.
- 4. S. Narend and M. Thenmozhi. 2016. What drives fund flows to index ETFs and mutual funds? A panel analysis of funds in India. *Decision* 43(1): 17–30.
- Abhijeet Chandra and M. Thenmozhi. 2015. On asymmetric relationship of India volatility index (India VIX) with stock market return and risk management. Decision 42(1): 33-55. http://link://link.springer.com/ article/10.1007%2Fss2Fs40622-014-0070-0
- M. Thenmozhi and Chand Sarath. Forecasting stock returns based on information transmission across global markets using support vector machines. Neural Computing and Applications (impact factor 1.763). http://link.springer.com/article/10.1007/ S00521-015-1897-9
- Abhijeet Chandra and M. Thenmozhi. On asymmetric relationship of India volatility index (India VIX) with stock market return and risk management. Decision 42(1): 33-55. http://link.j/link.springer.com/article /10.1007%2Fss2Fs40622-014-0070-0
- Saji K. Mathew, Vinodh and V. Sukumaran. 2016. Web personalization for user acceptance of technology: An empirical investigation of e-government services. Information Systems Frontiers 18(3): 579-595 (impact factor 1.077). doi:10.1007/s10796-015-9550-9 (2015)

- 9. Manimegalai S. and R. Baral. 2015. A conceptual framework for exploring the impacts of corporate social responsibility on employee attitudes and behaviour. *Journal of Human Values* 21: 127–136.
- 10. Rabindranath Bhattacharya and Arshinder Kaur. 2015. Allocation of external returns of different quality grades to multiple stages of a closed loop supply chain. *Journal of Manufacturing Systems* 37: 692–702 (impact factor, 1.682; 5-year impact factor, 2.078). doi:10.1016/j.jmsy.2015.01.004
- 11. C.G. Navaneedhan and T.J. Kamalanabhan. 2015. Self-analysis an innovative strategy in teaching-learning psychology. *Creative Education* 6: 2397–2402.

Papers published in refereed international journals

- 1. Shalini V. and Krishna Prasanna. Impact of the financial crisis on Indian commodity markets: Structural breaks and volatility dynamics. *Journal Energy Economics*. http://dx.doi.org.10.1016/ (reference: ENEECO3004)
- 2. Geeta R. and P. Krishna Prasanna. Governance and risk interdependencies among family owned firms. *Corporate Ownership and Control* 13(2): 390–407.
- 3. R. Leisten and C. Rajendran. 2015. Variability of completion time differences in permutation flowshop scheduling. *Computers & Operations Research* 54: 155–167.
- 4. Padma P., Prakash Sai L. and C. Rajendran. 2015. Customer satisfaction in Indian hospitals: Moderators and mediators. *Quality Management Journal* 22: 10–29.
- 5. Vaijayanthee and T.J. Kamalanabhan. Sources of stress among police officials: A qualitative investigation. *Indore Management Journal* 6(1).
- 6. S. Nivethitha, Lata Dyaram and T.J. Kamalanabhan. Human resource practices and employee turnover intentions in hospitality industry. *Global Journal of Management and Business Research* 15(1).
- 7. V. Rehman and A. Vaish. 2015. Exploring the impact of need to evaluate on advertisements: A study of small city Indian consumers. *International Journal of Indian Culture and Business Management* 10(1): 110–121.
- 8. Rabindranath Bhattacharya and Arshinder Kaur. 2015. Allocation of external returns of different quality grades to multiple stages of a closed loop supply chain. *Creative Education* 6: 2397–2402.
- 9. Navaneedhan and T.J. Kamalanabhan. 2015. Self-analysis an innovative strategy in teaching–learning psychology. *Journal of Manufacturing Systems* 37: 692–702 (impact factor, 1.682; 5-year impact factor, 2.078). doi:10.1016/j.jmsy.2015.01.004
- 10. Rajeev R. Tripathi and R.K. Amit. 2016. Equivalence nucleolus for coalitional games with externalities. *Operations Research Letters* 44(2): 219–224.
- 11. Thillai Rajan Annamalai and Josephine Gemson. 2015. A new perspective on private equity stage financing: Evidence from investments in infrastructure. *Venture Capital: An International Journal of Entrepreneurial Finance*.
- 12. M. Thenmozhi and P.C. Narayanan. 2016. Rule of law or country level corporate governance: What matters more in emerging market acquisitions? *Research in International Business and Finance*. doi:10.1016/j. ribaf.2016.01.008
- 13. M. Thenmozhi and Chand Sarath. Forecasting stock returns based on information transmission across global markets using support vector machines. *Neural Computing and Applications* (impact factor 1.763). http://link.springer.com/article/10.1007/ S00521-015-1897-9
- 14. V. Rehman. 2016. Do we exactly know entertainment? Demystifying the lines of entertainment marketing. Developments in Marketing Science: Proceedings of Annual Conference of Academy of Marketing Science 194–204.

Papers presented at national conferences

- 1. Sujatha M. and V. Rehman. Role of CSR in affecting food choices in India. Global Summit on Corporate Social Responsibility (GSCSR; organized by Indian Institute of Management Raipur; Indian Institute of Corporate Affairs, Gurgaon; National Law School of India University, Bengaluru), New Delhi, 15–16 May 2015.
- 2. Upendra Kumar Maurya. Attended workshop on 2015 Junior Faculty Consortium, IIM Lucknow, 11 December 2015.
- 3. Upendra Kumar Maurya. Attended Faculty Development Programme (FDP) organized by Teaching Learning Centre, IIT Madras, 4–6 January 2016.
- 4. Vaibhav Chawla. Attended Faculty Development Programme (FDP) organized by Teaching Learning Centre, IIT Madras, 4–6 January 2016.

Papers presented at international conferences

1. Varisha Rehman. Media-mix: A dilemmatic decision between traditional and new media channels. *4th European Business Research Conference* (ISBN-978-1-922069-72-6), Imperial College, London, 9–10 April 2015.

- 2. Navodita Mishra and T.J. Kamalanabhan. Antecedents of sport commitment: Investigation of psychological and demographic factors. *International Conference on Innovation in Business, Economics, Marketing and E-Technology*, New York, 11–12 April 2015.
- 3. Rupashree Baral. Emerging trends in HR and IR. *One-Day HR Conference*, Federation of Indian Chambers of Commerce and Industry (FICCI), 28 April 2015.
- 4. Rahul R. Marathe. Hidden Markov model to estimate the time preference of individuals. *POMS 26th Conference*, Washington DC, USA, 8–11 May 2015.
- 5. Rahul R. Marathe. Economic view of planning fallacy to determine realistic delivery time. *POMS 26th Conference*, Washington DC, USA, 8–11 May 2015.
- 6. T.J. Kamalanabhan. Role of human resource management practices, organizational identification and employees' turnover in hospitality industry. *32nd Pan-Pacific Conference*, Hanoi, Vietnam, 1–4 June 2015.
- 7. Geetha Ramanathan. Impact of family ownership on idiosyncratic risk. *Second Vietnam International Conference in Finance (VICIF-2015)*, Ho Chi Minh City, Vietnam, 4–5 June 2015.
- 8. R.P. Sundarraj and Sathyanarayanan Venkataraman. On integrating an IS success model and multi-criteria preference analysis into a system for cloud-computing investment decisions. *International Conference on Group Decision and Negotiation 2015*, Poland, 22–26 June 2015.
- 9. R.P. Sundarraj and Danielle Morais. Cross-cultural analysis of time-preference behavior and its impact on e-negotiation. *International Conference on Group Decision and Negotiation 2015*, Poland, 22–26 June 2015.
- 10. R.P. Sundarraj. Attended *Pacific Asia Conference on Information Systems (PACIS 2015)*, Singapore, 5–9 July 2015.
- 11. V. Vijayalakshmi. Psychological capital and its impact on sustainable individual performance: Empirical evidence from Indian NGOs. *Fourth World Congress in Positive Psychology*, Lake Beune Vista, Florida, USA, 25–28 June 2015.
- 12. Richa Agrawal. Attended YALE China-India Insights Conference, New York, USA, 17–19 September 2015.
- 13. A. Thillairajan. Attended *International Initiative Impact Evaluation (3IE) Systematic Review Grantee Induction Workshop*, London, UK, 22–23 October 2015.
- 14. T.J. Kamalanabhan. Attended *International Conference on Emotion and Sensibility (ICES 2015)*, Jeju, Korea, 18–21 November 2015.

Distinguished visitors to the department

Sl. No.	Name of Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. Ravi Ravindran, Penn State University, USA	8–9 April 2015	Handled a session on operations management for our MBA students and research scholars
2	Mr. Vikram Kapur, IAS, Commissioner, Corporation of Chennai	15 April 2015	Gave a talk titled 'Towards Safer Streets' as part of the MBA Invitation Lecture Series (MILS)
3	Dr. J.S.N. Murthy, Vice Chancellor, and Prof. S.P. Thyagarajan, Dean (Research), Sri Ramachandra University	2 April 2015	Discussed 'Health Care Management Programme' with the faculty members
4	Prof. John Davies, Associate Dean, and Dr. Arun Elias, Director, MBA & Post Experience Programme, Victoria University of Wellington, New Zealand	17 April 2015	A delegation of 30 Executive MBA Programme students visited the department as part of their International Study Tour
5	Prof. Kumara and Prof. Trathaway, Penn State University, USA	21 April 2015	Had discussion with faculty members for collaboration and research on health care analytics
6	Prof. Venkatasubramanian, Columbia University, New York and programme anchor and correspondent who worked with the NDTV Hindu	3 November 2015	Interactive session
7	Prof. P.B. Anand, University of Bradford	13 November 2015	Delivered a talk titled 'Sustainable Development Goals: Seventeen Steps to a World We Want or Chasing the Chimera?'
8	Mr. Ajit Kumar Mishra, Additional General Manager, Dedicated Freight Corridor Corporation of India Ltd., Indian Railways (IIT Kanpur alumnus)	27 November 2015	Formal lecture and interaction with MBA students and research scholars—Happenings in Indian Railways from First-Hand Experience

Sl. No.	Name of Visitor and Designation	Date of Visit	Purpose of Visit
9	Dr. Carsten Sørensen, The London School of Economics and Political Science, London, UK	18 December 2015	Delivered a talk to our faculty and research students titled 'Managing Digital Innovation'
10	Dr. Ramayya Krishnan, Dean of Heinz School at Carnegie Mellon University—Nayudamma awardee	21 December 2015	Interaction with faculty and discussion, 'Joint Collaboration'
11	Dr. Ashok Srinivasan, Associate Professor, Marshall School of Business University of Southern California	28 December 2015	Interactive session with students and lecture titled 'Insights on Demand Planning in Supply Chain'
12	Dr. Pradeep Chintagunta, University of Chicago	29 December 2015	Interactive session with research students
13	Prof. Nikhil Varaiya, Dean (Graduate Programmes), College of Business Administration, San Diego	5 January 2016	Workshop on academic writing on 5 and 6 January 2016—'How to Position Papers in Top Tier Journals?'
14	Prof. T. Ravichandran, Lally School of Management, RPI	12 January 2016	Interaction with the research scholars
15	Dr. Harminder Singh, Associate Professor, Finance, and Director-International, Department of Finance, Deakin University, Australia	21 January 2016	Seminar talk titled 'Information Content of Directors' Trading Around Acquisition'
16	Vande Mataram team and Mr. Rajiv Malhotra, Indian–American Scholar and Public Intellectual on Current Affairs	22 January 2016	Talk titled 'Critiquing Contemporary Indology Studies'
17	Dr. Sandeep Srivathsan, Research Fellow, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore	3 February 2016	Talk titled 'Effective Management of Inventory and Storage Capacity in Supply Chains'
18	Mr. R. Dinesh, Joint MD, TV Sundram Iyengar & Sons	8 February 2016	Talk titled 'Managing Growth in the Changing World'
19	Dr. Jose, Head, Talent Development and Management, at Verizon India	15 February 2016	Talk titled 'Human Resources Management Interventions with Special Reference to Performance Management Systems'
20	V. Swaminathan, Facilitator, Behavioural & Execution Coach	17 February 2016	Talk titled 'Competency Building Initiatives among Managers and Talent Development'
21	Dr. P. Srikant, Fellow, IIMC	_	Presenting his thesis work, titled 'Corporate Governance Implications of Share Pledging by Promoters'
22	Dr. Sridhar Tayur (BTME-86), Ford Distinguished Research Chair Professor of Operations Management, Carnegie Mellon University	15 February 2016	Talk titled 'Academic Capitalism in the 21st Century'
23	K. Gopalakrishnan (M.S. and Ph.D. alumnus, DoMS, IIT Madras)	19 February 2016	Talk titled 'Morphological Analysis'
24	Prof. Lakshman Krishnamurthi, A. Montgomery Ward Distinguished Professor, Marketing, Kellogg School, Northwestern University	1 March 2016	Talk on pricing
25	Mr. Aval Sethi, Head, Supply Chain Management & Procurement, Integrated Facility Management, Jones Lang LaSalle Property Consultants India Pvt. Ltd.	4 March 2016	Interaction with students
26	Mr. Tarun Jain Heisa, Ph.D. student, IIM Bangalore	4 March 2016	Talk titled 'Supplier Selection Under Production Learning and Process Improvements'
27	Dr. Abdul Quadir, Institute of Social and Economic Research, Osaka University, Japan	14 March 2016	Talk titled 'Single Object Auctions with Externalities: A Tractable Model'
28	Top-level management team from Flipkart	31 March 2016	Interacting with the research scholars working in SCM and data analytics

4.11.5. Other Activities

- Dr. Saji Mathew gave a lecture titled 'Offshoring of IT' and Dr. G. Arun Kumar gave a lecture titled 'Banking Sector in India' for the visiting delegates from Victoria University, Wellington, New Zealand, 17 April 2015.
- 2. Prof. R.P. Sundarraj was an external examiner for a Ph.D. thesis in computer science and engineering at Vishveshvaraya Technological Institute, May 2015.
- 3. Shipra Maurya, Ph.D. research scholar, was selected to attend the Policy Bootcamp, a three-week residential programme organized by the Vision India Foundation in collaboration with Indian Institute of Business (Bharti Institute of Public Policy) at New Delhi. Bootcamp focuses on the comprehensive learning in public policy and public leadership. Bootcamp will give a chance to the participants to work on live projects. The Government of Andhra Pradesh is one of its engagement partners. The duration of the programme was from 21 June to 11 July 2015.
- 4. Mr. Shashank Bansal, Ph.D. research scholar was selected by the Government of Andhra Pradesh for an internship programme at their Economic Development Board for a position of 'Financial Resource Mobilization' on 18 May 2015 for eight weeks.
- 5. The department organized a seminar, 'Remembering Prof. John Nash', on 1 June 2015. Prof. J.F. Nash, who passed away on 23 May in a car accident in the US, was one of the great mathematicians of the 20th century and one of the major contributors to game theory. He shared the 1994 Nobel Prize in Economics with John Harsanyi and Reinhard Selten.
 - The seminar discussed major contributions of Prof. Nash to game theory (he has made other seminal contributions—he shared the 2015 Abel Prize in Mathematics for the Nash Embedding Theorem), especially how game theory has evolved since Nash's seminal papers. Prof. T. Parthasarathy, a leading game theorist in India, from Indian Statistical Institute, also participated in the seminar.
- 6. Prof T.J. Kamalanabhan visited Pondicherry University as an External Member to conduct a Ph.D. viva voce on 28 June 2015.
- 7. Dr. L.S. Ganesh has been appointed as Professor and Advisor at Sree Saraswathi Thyagaraja College, Pollachi, 16 August 2015 to 20 May 2016.
- 8. Classes were held for the participants of the Executive Programme in Business Administration as follows:
 - 14–30 August 2015 (for 2015–2017 new batch)
 - 22–30 August 2015 (for seniors)
- 9. MBA Invitational Lecture Series (MILS), An Interactive Session, 'Meet the Editor—*Business Standard*', with Mr. A.K. Bhattacharya, Editor, *Business Standard*, on 27 August 2015 at Central Lecture Theatre (CLT), IIT Madras.
- MBA Invitational Lecture Series (MILS), An Interactive Session, 'Leadership Development', with Mr. Mukesh Malik, Managing Director/Site Head, Citi Service Centre (CSC), 13 August 2015 at DoMS, IIT Madras.
- 11. Dr.T.J. Kamalanabhan, Professor and HoD, DoMS, delivered a talk at the Institute for Financial Management and Research.
- 12. Dr. T.J. Kamalanabhan, Professor, visited IFMR campus, Kothari Hall, Sri City, for R Conclave-2015, 11 September 2015.
- 13. Dr. Christina Augustine, Global SBU Head, HR, from Virtusa Corporation, delivered a talk titled 'Talent Management', 16 September 2015.
- 14. Dr. Arvind Rangaswamy, Professor of Marketing from Penn State University, delivered a talk titled 'Understanding the Structure and Evolution of Perceived Service Quality from Online User Ratings and Sentiments' on 22 September 2015. He is an alumnus of IIT Madras (B.Tech., 1975 batch).
- 15. MBA Invitational Lecture Series (MILS)—a talk titled 'The Unexplored Potential of Inland Water Transport and Multi Modal Integration in India' by Mr. Arnab Bandyopadhyay, Lead Transport Analyst, The World Bank, on 8 October 2015 at CLT
- 16. Dr. M. Thenmozhi was invited to deliver the valedictory address at the 'Workshop on Research Methodology' at NIET, Coimbatore, on 10 October 2015.
- 17. Dr. M. Thenmozhi attended an MBA audit meeting at PSG Tech, Coimbatore, on 14 October 2015.
- 18. Dr. T.J. Kamalanabhan attended a peer review meeting at IIM Trichy between 19 and 23 October 2015.
- 19. Dr. Nandan Sudharsanam delivered an expert talk titled 'Leveraging Artificial Intelligence and Machine Learning' at Infosys, Mahindra Industrial Park, Chennai-DC, on 19 October 2015.
- 20. Dr. M. Thenmozhi attended a DC meeting at the Department of Management Studies, Madras University, on 20 October 2015.

- 21. Vaibhav Chawla completed an online certification on 22 November 2015 for the course 'Marketing in Digital World' organized and conducted by the University of Illinois Urbana-Champaign Faculty on the Coursera platform.
- 22. Dr. Richa Agrawal was elected a Faculty Fellow for the Fourth AIM-AMA Sheth Foundation Doctoral Consortium, 7–9 January 2016, IMT Ghaziabad, Delhi (NCR), India.
- 23. Dr. Richa Agrawal was invited as a speaker for the session 'Bridging Research Perspectives: Advances in Customer Relationship Management' at the Fourth AIM-AMA Sheth Foundation Doctoral Consortium, 7–9 January 2016, IMT Ghaziabad, Delhi (NCR), India.
- 24. Dr. Richa Agrawal was nominated to chair a technical session, 'Service Sector and the Consumer', at the National Seminar on Consumer Justice, Market and Globalization, organized by the Department of Public Administration, Utkal University, and the Centre for Consumer Studies, Indian Institute of Public Administration, and sponsored by the Department of Consumer Affairs, Government of India, 13–14 February 2016, Bhubaneswar.
- 25. Dr. Richa Agrawal was nominated a Facilitator for the session 'Customer Insight Advantage for Formulating Marketing Strategies', organized by C-Tides–IIT Madras, 27 February 2016, Chennai.

Samanway Activities

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1.	PinkIITon—a 5 km run for breast cancer awareness	Dr. Rajkumar, Lifeline Hospitals, and Dr. Vidhubala, Adyar Cancer Institute	11 October 2015
2.	Prof. A. Thillai Rajan, Venture Capital and Private Equity Report Release	Sanjay Nayar, Former Head, Citigroup, Head of KKR India	19 October 2015
3.	Lecture series—Samanvay 2015— Arise and Awake	Rashmi Bansal, author of Stay Hungry Stay Foolish	19 October 2015
4.	Lecture series—Samanvay 2015— Applications of IOT in Medicine	Dr. Rajkumar, Chairman, Lifeline Hospitals	20 October 2015
5.	Lecture series—Samanvay 2015— Secret Weapon of the Indian Startups Are the Puranas	Ravi Narayan, MD, Microsoft Ventures	21 October 2015
6.	Inauguration Ceremony—Samanvay 2015	Raju Goteti, VP, TCS Co-innovation Network, Canada	22 October 2015
		Ananthnarayanan Subramanian, CEO, Hitachi, India	
7.	Panel discussion—Student Startup Ecosystem	Prof. L.S. Ganesh, IIT Madras	24 October 2015
		Srinivasan K.A., Venture East, CFO	
		Badri Seshadri, Cricinfo, New Horizon Media, MD/CEO	
		Vijay Anand, The Startup Center	
		Subramaniam Iyer, ED, Smart Kapital	
8.	Valedictory function, Samanvay 2015	Prof. Bhaskar Ramamurthy, Director, IIT Madras	25 October 2015
		Ravi Venkatraman, President, IITMAA	
		Mohan, Treasurer, IITMAA	
9.	Lecture series — Samanvay 2015 — video lecture—Valuing a Startup	Aswath Damodaran, Professor, NYU Stern	27 October 2015
10.	Lecture series—Samanvay 2014— Digital India	K. Kathiravan, CEO, Reliance JIO	29 October 2015
11.	Lecture series—Samanvay 2015— Failures in Startups	Ronnie Screwvala	31 October 2015

- 12. Dr. M. Madhumathi attended a selection committee meeting for faculty recruitment at IIT Roorkee, 17–18 November 2015.
- 13. Dr. M. Thenmozhi attended a selection committee meeting at Loyola College on 18 November 2015.

Activities of MBA students

14. Mr. Sandeep, Mr. Saranraj and Mr. Pratap, first year MBA students—The Hindu dated 6 January 2016–Business plan for setting up a cold storage and supplying vegetables and fruits–Smart projects for smart city–A solar technology driven cold storage with 5 tonnes of capacity–project at IIT Madras and the operating cost comes to ₹9–10 per kg per month

Department of Mathematics



4.12.1. Introduction

The Department of Mathematics was established in 1959 along with the institute. It offers an 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 up the responsibility of teaching mathematics courses to B.Tech., M.Tech. (other than IMSC), Dual Degree in ED, M.Sc. and Ph.D. students of the institute.

The major research areas of the department are the following:

- 1. Commutative algebra
- 2. Algebraic geometry
- 3. Applied probability
- 4. Approximation theory
- 5. Automata and its applications
- 6. Coding theory
- 7. Combinatorics on words
- 8. Complex analysis
- 9. Computational fluid dynamics
- 10. Continuum mechanics
- 11. Cryptology
- 12. Differential equations
- 13. Differential geometry
- 14. Fluid dynamics
- 15. Functional analysis

- 16. Fractal geometry
- 17. Graph theory and combinatorics
- 18. Harmonic analysis
- 19. Inverse and ill-posed problems
- 20. Mathematical logic
- 21. Mathematical modeling
- 22. Nonlinear analysis
- 23. Numerical analysis
- 24. Operator theory
- 25. Probability theory
- 26. Stochastic processes
- 27. Theory of codes
- 28. Theoretical computer science
- 29. Wavelets and their applications

4.12.2. Academic Programmes

New courses introduced

SI. No.	Course No.	Title
1	MA2031	Linear Algebra for Engineers
2	MA7015	Introduction to Cryptology
3	MA7870	Game Dynamics
4	MA1101	Functions of Several Variables
5	MA1102	Series and Matrices

Students on roll as of September 2015 + Ph.D. scholars admitted in January 2016

Programme	Number of Students
M.Sc.	101
M.Tech.	30
Ph.D.	76
Total	207

Studen	Students/scholars who attended conferences/workshops/seminars/symposia					
Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/Workshop and Venue	Date	Financial Assistance from	
Abroac	d					
1	Sanjeev Singh	MA12D004	13th International Symposium on Orthogonal Polynamials, Special Functions & Applications (presented a paper titled 'Turan Type Inequalities for Struve Functions'), Gaithersburg, Maryland, USA	31 May to 7 June 2015	IIT Madras	
2	Sanjeev Singh	MA12D004	Fifth International Conference on Mathematics and Informatics (presented a paper titled 'Monotonicily and Functional Inequalities for Certain Class of Special Functions'), Targu Mures, Romania	27 August to 13 September 2015	IIT Madras	
3	Sharad Dwivedi	MA11D018	SIAM Conference on Control and Its Applications, Paris, France	8–10 July 2015	IIT Madras	
India						
1	Bivas Khan	MA14D010	Advanced Instructional School (AIS)– Algebraic Surfaces (workshop), MCNS, Manipal	20 July to 1 August 2015	_	
2	Bivas Khan	MA14D010	ATMW the Grothedieck Reimann-Roch Theorem, University of Hyderabad, Hyderabad	7–18 December 2015	_	
3	Geetanjali Chattopadhyay	MA13D017	International Conference on Mathematical Modeling, Differential Equations, Scientific Computing and Applications (presented a paper titled 'Instabilities Due to Asymmetric reverse Flow in a Viscosity Stratified Plane Poiseuille Flow'), IIT Kanpur	25–30 March 2016	_	
4	Hingu Dharini Ramesh	MA13D002	International Condaveo Foundations of Decisions and Game Theory (workshop), IGTDR, Mumbai	12 March 2013 to 20 March 2016	_	
5	Jyoti Dasgupta	MA14D012	Advanced Instructional School (AIS)– Algebraic Surfaces, MCNS, Manipal	20 July to 1 August 2015	_	
6	Jyoti Dasgupta	MA14D012	ATMW the Grothedieck Reimann-Roch Theorem (workshop), University of Hyderabad, Hyderabad	7–18 December 2015	_	
7	Komandla Mahipal Reddy	MA13D003	81st Annual Conference of Indian Mathematical Society (presented a paper titled 'Constrained Fractal Interpolations with Variable Scales'), VNIT, Nagpur	27–30 December 2015	_	
8	Kurma Rao Tyada	MA12D003	81st Annual Conference of Indian Mathematical Society (presented a paper titled 'A Novel Appearance to Preserve Positivity of Surface Data Through Trigonometric Fractal Functions'), VNIT, Nagpur	27–30 December 2015	_	
9	Lavanya	MA14D014	Technion Summer Program (workshop), Israel Institute of Technology	28 July to 29 August 2015	_	
10	Mohan Kumar Mallick	MA13D021	Research collaboration work at NISER, Bhubaneshwar	10–21 August 2015	_	
11	Poornapushkala	MA13D008	Advanced Instructional School (AIS)— Algebraic Surfaces" at MCNS, Manipal	20 July to 1 August 2015	_	
12	Sampa Dey	MA15D005	AFS Part III-2015 (workshop), HRI, Allahabad	29 June to 25 July 2015	_	
13	Sampa Dey	MA15D005	AIS Analytic Number Theory-2015 (workshop), KIIT, Bhubaneswar	1–20 June 2015	_	

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/Workshop and Venue	Date	Financial Assistance from
14	Samprita Das Roy	MA14D016	CIMPA Summer School on Current Research in Finite Element Method, IIT Bombay	24 June to 4 July 2015	_
15	Sarvesh Kumar	MA13D023	14th Discussion Meeting on Harmonic Analysis, University of Delhi, Delhi	5–13 December 2016	_
16	Saswata Adhikari	MA11D016	14th Discussion Meeting on Harmonic Analysis (presented a paper titled 'Frames and Riesz Bases of Twisted Shift-Invariant Spaces in $L^2(\mathbb{R}^{2n})$ '), University of Delhi, Delhi	5–13 December 2015	_
17	A. Selvakumar	MA15D010	Instructional Schools for Teachers (workshop), Goa University, Goa	7–19 December 2015	_
18	Sharad Dwivedi	MA11D018	Heat & Mass Transfer (international conference, presented a paper titled 'Field-Driven Motion of Ferrofluids in Ferromagnetic Nonowire Under the Influence of Inertial Effects'), NIT Warangal	30 November to 2 December 2015	_
19	Sharad Dwivedi	MA11D018	Recent Trends in Engineering and Material Sciences' (international conference, presented a paper titled 'On the Evolution of Transverse Domain Walls in Biaxial Magnetic Nonowins') at Jaipur National University, Jaipur	16–22 March 2016	_
20	Soumitra Dey	MA15D020	The Indian Science Congress, Mysore University, Karnataka	1–9 January 2016	_
21	Sourabh Kumar Katiyar	MA11D017	Recent Trends in Engineering and Material Sciences (international conference, presented a paper titled 'Positivity Preserving Coalescence Hidden Variable Fractal Interpolation Functions'), Jaipur National University, Jaipur	16–22 March 2016	_
22	Suchismita Mishra	MA15D008	Annual Foundations School-II (workshop), IISER Thiruvananthapuram/Shiv Nagar University, Uttar Pradesh	10 May to 7 June 2015	-
23	Sharad Dwivedi	MA11D018	Algorithms and Disc Applied Mathematics (conference), University of Kerala, Thiruvananthapuram	15–17 February 2016	-
24	Suhas B.N.	MA11D020	Fifty Years of the Narasimhan–Seshadri Theorem (workshop), Chennai Mathematical Institute, Chennai	5–16 October 2015	_
25	Suhas B.N.	MA11D020	"Algebraic Geometry (conference), ISI, Bengaluru	9–16 December 2015	-
26	Surendra Kumar Sharma	MA11D023	Current Trends in PDES: Theory & Computations (international conference, presented a paper titled 'Stability of Some Fourth Order Nonlinear Diffusion Filters for Image Denoising'), South Asian University, Delhi	24 December 2015 to 4 January 2016	_
27	Susmita Agarwal	MA12D017	Computational Heat and Mass Transfer (international conference, presented a paper titled 'Radial Basis Function Based Gride-free Scheme for Interface Computing Preliminary Results'), NIT Warangal	30 November to 2 December 2015	_
28	Susobhan Mazumdar	MA10D010	Fifty Years of the Narasimhan–Seshadri Theorem, Chennai Mathematical Institute, Chennai	5–16 October 2015	_

Students/scholars who won convocation/Institute Day prizes						
Sl. No.	Sl. No. Student/Scholar Roll No. Prize Name of Donor					
1	Kumar Saurabh	MA14M004	Institute Merit Prize	IIT Madras		
2	Santi Ranjan Das	MA14C044	Geetha Raghupathy Prize	IIT Madras		
3	Subhankar Mondal	MA14C047	L.V.K.V. Sarma Prize	IIT Madras		
4	Harish Lingam	MA14M016	L.V.K.V. Sarma Prize	IIT Madras		

4.12.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
Arindama Singh, Ph.D. (IIT Kanpur)	Logic, numerical analysis
S.H. Kulkarni, Ph.D. (IIT Bombay)	Functional analysis and numerical analysis
S. Ponnusamy, Ph.D. (IIT Kanpur)	Complex analysis, function spaces, special functions and conformal geometry
R. Radha, Ph.D. (IMSC Chennai)	Harmonic analysis, wavelets, time-frequency analysis
R. Rama, Ph.D. (Anna University)	Formal language and automata theory/molecular computing
Y.V.S.S. Sanyasiraju, Ph.D. (IIT Madras)	Computational fluid dynamics
Satyajit Roy, Ph.D. (IISc, Bengaluru)	Convective heat and mass transfer, computational fluid dynamics
K.C. Sivakumar, Ph.D. (IIT Madras)	Functional analysis, mathematical programming
Subrahmanyam P.V., Ph.D. (IIT Madras)	Non-linear analysis: fixed point theory and functional equations, fuzzy sets, summability theory
S. Sundar, Ph.D. (IIT Madras)	Computational fluid dynamics, numerical analysis for partial differential equations, mathematical modeling
M. Thamban Nair, Ph.D. (IIT Bombay)	Applicable functional analysis: spectral approximation, operator equations, inverse and ill-posed problems
R. Usha, Ph.D. (IIT Madras)	Fluid dynamics
P. Veeramani, Ph.D. (IIT Bombay)	Fixed point theorems and their applications to problems in optimization and best approximation, fuzzy set theory
V. Vetrivel, Ph.D. (IIT Madras)	Non-smooth optimization, fixed point theory, complementarity problems
Associate Professors	
A.K.B. Chand, Ph.D. (IIT Kanpur)	Fractals, approximation theory and wavelets
Ch. Srinivasa Rao, Ph.D. (IISc, Bengaluru)	Non-linear differential equations
A.V. Jayanthan, Ph.D. (IIT Bombay)	Commutative algebra and algebraic combinatorics
S.R. Manam. S.R., Ph.D. (IISc, Bengaluru)	Applied mathematics
A.J. Shaiju, Ph.D. (IISc, Bengaluru)	Game theory, systems and control theory
Sounaka Mishra, Ph.D. (ISI, Kolkata)	Discrete mathematics, approximation algorithms, combinatorial optimization
Assistant Professors	
T.V. Anoop, Ph.D. (IMSC, Chennai)	Linear and non-linear partial differential equations, non-linear functional analysis
Arijit Dey, Ph.D.	Algebraic geometry
R. Balaji, Ph.D. (IIT Madras)	Linear algebra and optimization
Kalpana Mahalingam, Ph.D. (University of South Florida, Tampa)	Theory of codes, DNA computing, combinatorics of words
Kunal Krishna Mukherjee, Ph.D. (Texas, A&M)	Operator algebras
N. Narayanan, Ph.D. (IMSC, Chennai)	Graph theory: graph colouring, structural and extremal graph theory, probabilistic combinatorics, discrete mathematics

N. Louis d	
Name and Qualifications	Major Areas of Specialization
Neelesh S. Upadhye, Ph.D. (IIT Bombay)	Probability theory and applications
Priyanka Shukla, Ph.D. (JNCASR, Bengaluru)	Fluid mechanics: hydrodynamic instability, non-linear dynamics, numerical PDEs, granular flows, pattern formation
Santanu Sarkar, Ph.D. (ISI, Kolkata)	Cryptology, computational number theory
Sarang S. Sane, Ph.D. (TIFR, Mumbai)	Commutative algebra, homological algebra, algebraic K-theory, algebraic geometry
Shruti Dubey, Ph.D. (IIT Kanpur)	Non-linear analysis of functional differential equations, mathematical study of ferromagnetic systems
Sriram Balasubramanian, Ph.D. (University of Pittsburgh)	Functional analysis
Suhas Jaykumar Pandit, Ph.D. (ISI, Bengaluru)	Geometric group theory, low-dimensional topology
V. Uma, Ph.D. (IMSC, Chennai)	Topology and geometry of toric varieties and related spaces
W.B. Vasantha, Ph.D. (RIASM, Chennai)	Group theory, applications of algebra, fuzzy algebra and linear algebra
T.E. Venkata Balaji, Ph.D. (Chennai Mathematical Institute, Chennai)	Algebraic geometry, commutative algebra
INSPIRE Faculty	
J. Jaikrishnan, Ph.D. (IISc, Bengaluru)	Complex variables
Srilakshmi Krishnamoorthy, Ph.D. (Sheffield University, UK)	Number theory, arithmetic algebraic geometry, elliptic curves, modular forms, Galois representations
Visiting Faculty	
Arun Kumar (IIT Bombay, 1 January to 31 December 2015)	Subordinated stochastic processes
Pierra Fima (CAEN University, France, 12 January to 11 July 2015)	Operator algebra
S. Kesavan (1 February 2016 to 31 January 2017)	PDEs: homogenization, isoperimetric inequality
Institute PDFs	
Pabitra Barik (16 November 2014 to date)	Algebraic geometry
Manasi Kulkarni (1 February 2016 to date)	

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

SI. No.	Co-ordinators	Title	Period		
Confer	rences				
1	V. Uma	Forays	12-13 March 2016		
Sympo	sia				
1	T.E. Venkata Balaji	National Symposium on Mathematical Methods and Applications	22 December 2015		
Worksl	hops				
1	A.V. Jayanthan	Advanced Training in Mathematics: School on Commutative Algebra, Chennai Mathematical Institute, Siruseri	14 December 2015 to 1 January 2016		
2	A.K.B. Chand	Mathematical Modelling, Differential Equations, Scientific Computing & Applications (international conference, member of organizing committee), IIT Kanpur	27–29 March 2016		
Short-t	term courses				
1	Neelesh S. Upadhye and K. Arun Kumar (VF)	Bayesian and Classical Statistics	22 September 2015 to 26 September 2016		
Video	Video courses				
1	T.E. Venkata Balaji	NPTEL Video Course on Advanced Complex Analysis Part-1 (42 lectures)	On the NPTEL website in December 2015		

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Title	Institution	Period	
Worksl	nops				
1	Sarang Sane	HIM School on Derived Categories	Hausdorff Institute of Mathematics	28 March to 3 April 2016	
Confer	ences				
1	Sarang Sane	International Colloquium on K-Theory	TIFR, Mumbai	6–14 January 2016	
Training programmes					
1	A.V. Jayanthan	Mathematics Training and Talent Search Programme	SSN College, Chennai	18–30 May 2015	

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	Arindama Singh	Implications of Berry's and Richard's Paradoxes	Ramanujan Institute, University of Madras	31 March 2016
2	R. Balaji	Convex Optimization	LBS Women Engineering College, Thiruvananthapuram	21–22 July 2015
3	A.K.B. Chand	Introduction to Fractal Functions and Surfaces	Sambalpur University, Odisha	16 September 2015
4	A.K.B. Chand	Introduction to Fractal Functions and Surfaces	Sambalpur University, Odisha	16 October 2015
5	A.V. Jayanthan	Euler's Polyhedral Formula and Beyond	Sacred Heart College, Thevara, Kochi	19 February 2016
6	S.H. Kulkarni	The Nullity Theorem, Its Generalizations and Applications	IIT Bombay	20 January 2016
7	S.H. Kulkarni	Pseudospectrum of an Element of a Banach Algebra	IIT Bombay	21 January 2016
8	R. Radha	Frames in Natrix Fock Spaces	IIT Hyderabad	30 September 2015
9	Y.V.S.S. Sanyasiraju	Some Issues of Numerical Simulation of Incompressible Fluid Flows (two lectures)	NIT, Warangal	17 April 2015
10	Y.V.S.S. Sanyasiraju	Finite Difference Solutions of Elliptic Partial Differential Equations (four lectures)	IIT Kanpur	27 May to 4 June 2015
11	Y.V.S.S. Sanyasiraju	Numerical Solutions of the Ordinary Differential Equations (eight lectures)	JLN IIT, Jaipur	1–6 June 2015
12	Y.V.S.S. Sanyasiraju	Finite Difference Type Computations Using Radial Basis Functions (RBF)	TIFR, Bengaluru	22 December 2015
13	Satyajit Roy	Non-uniform Mass Transfer and Non- uniform Heating	Karnatak University, Karnataka	29 March 2016
14	K.C. Sivakumar	Inverse Positive Interval Matrices	University of Manitoba, Canada	16 October 2015
15	K.C. Sivakumar	Nonpositive Group Inverses of Noncopositive Matrices	Atlanta, USA	29 October 2015
16	K.C. Sivakumar	Inverse Positivity of Interval Matrices	Auburn University, Alabama, USA	10 November 2015
17	K.C. Sivakumar	On Some Generalizations of M-Matrices	Howard University, Washington DC, USA	13 November 2015
18	K.C. Sivakumar	Moore–Penrose Inverse Positivity of Interval Matrices	New Mexico State University, New Mexico, USA	19 November 2015

SI. No.	Faculty Member	Title of Lecture	Institution	Date
19	K.C. Sivakumar	Moore–Penrose Inverse Positivity of Interval Matrices	University of Texas, El Paso, Texas, USA	20 November 2015
20	K.C. Sivakumar	Tucker's Theorem for Almost Skew- symmetric Matrices	University of Maryland, Baltimore County, USA	14 December 2015
21	K.C. Sivakumar	Splitting of Matrices and Nonnegative Moore–Penrose Inverses	University of Washington, Pullman, USA	3 December 2015
22	S. Sundar	A Mathematical Introduction to Fluid Dynamics	KSR Engineering College, Tiruchengode	2 April 2015
23	S. Sundar	Big Data Analysis Through PDE Approach	IIM Ahmedabad	12 April 2015
24	S. Sundar	Mathematical Modeling Through Differential Equations(eight lectures)	IIT Kanpur	1–4 June 2015
25	S. Sundar	PDE Image Filters" (two lectures) and Industrial Mathematics	Kalinga Institute of Industrial Technology, Bhubaneshwar	28–29 June 2015
26	S. Sundar	Nonlinear Conservation Law Model for Production Systems Incorporating Yield Loss	IIT Roorkee	31 July 2015
27	S. Sundar	Mathematical Modeling	PSBB School, KK Nagar, Chennai	20 August 2015
28	S. Sundar	Understanding Porosity Effects of Glass Fibre Insulation	TIFR-CAM, Bengaluru	6 October 2015
29	S. Sundar	Non-linear Diffusion Filters: Models and Numerics (four lectures)	Satya Sai University, Puttapurthi	28–29 October 2015
30	S. Sundar	Image Filters Based on Topological Optimization	NIT Trichy	27 November 2015
31	S. Sundar	Numerics for PDEs	Bannari Institute of Engineering, Erode	7 December 2015
32	S. Sundar	PDE Image Filters: Models	IISER, Thiruvananthapuram	17 December 2015
33	S. Sundar	Traffic Flow Through Scalar Conservation Law	Mohammad Sathak College of Arts and Science, Chennai	22 December 2015
34	S. Sundar	Shape Optimization in Imaging	IIST, Thiruvananthapuram	23 December 2015
35	S. Sundar	Pitching Right Intelligent Questions on Engineering Mathematics	VIT, Vellore	9 January 2016
36	S. Sundar	PDE Based Image Technology	SSN College, Chennai	1 February 2016
37	S. Sundar	Mathematical Modeling	Anand Institute of Technology, Chennai	17 February 2016
38	S. Sundar	Mathematical Challenges Through Industrial Problems	NIT Raipur	14 March 2016
39	M. Thamban Nair	Some Topics in Set Theory (two lectures) and Some Interesting Consequences of Elementary Geometry	Association of Mathematics Teachers of India, Chennai	2 May 2015
40	M. Thamban Nair	Hilbert Space Theory (two lectures)	Birla Institute of Technology and Science, Pilani—Goa	29 May 2015
41	M. Thamban Nair	On Solving Matrix Equations	Indian Naval Academy, Ezhumala, Kerala	12 September 2015
42	M. Thamban Nair	Convergence	IIT Palakkad	15 October 2015
43	M. Thamban Nair	Stability of Operator Equations	Central University of Kerala	16 December 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
44	P. Veeramani	Fixed Point Theorems, Best Proximity Point Theorems and Their Applications	SRM University, Chennai	5 January 2016
45	P. Veeramani	On Some Results in Best Approximation Theory	Sree Saraswathi Thyagaraja College, Pollachi	11 February 2016
46	P. Veeramani	Normal Structure and Invariance of Chebyshev Center	Periyar University, Salem	12 February 2016
47	P. Veeramani	On the Completeness Axiom, Zorn's Lemma and Their Applications	Shanmuga Industries Arts and Science College, Tiruvannamalai	26 February 2016
48	P. Veeramani	Role of Mathematics in Various Fields	Valivalam Desikar Polytechnic College, Nagapattinam	27 February 2016
49	P. Veeramani	On Existence and Convergence of Best Proximity Points	VIT, Vellore	12 March 2016
50	V. Vetrivel	Borsuk-Ulam Theorem	Tamilnadu Open University	16 October 2015

Invited talks and papers presented at conferences/symposia/workshops

Sl. No.	Faculty Member	Programme	Paper/Talk	Date
1	Arindama Singh	TPM held at NISER, Bhubaneswar	Invited talks (12)— Ordinary Differential Equations	23 May to 6 June 2015
2	Arindama Singh	MTTS at Dibrugarh University	Invited talks (10)—Linear Algebra	17–23 December 2015
3	Arindama Singh	INSPIRE programme at Laxmi Ammal Engineering College, Chennai	How to Count the Elements in a Set?	28 December 2015
4	A.K.B. Chand	Mathematical Modelling, Differential Equations, Scientific Computing and Applications (international conference), IIT Kanpur	Invited talks—(1) Fractal Interpolation and Approximation and (2) A-Fractal Rational Functions and Their Positivity Aspects	26–29 March 2016
5	Ch. Srinivasa Rao	19th Ramanujan Symposium on Recent Trends in Nonlinear Partial and Fractional Differential Equations, University of Madras	Solutions of Some Nonlinear Parabolic Equations	2 March 2016
6	A.V. Jayanthan	ATM School on Commutative Algebra, Chennai Mathematical Institute	Invited talks (six)— Commutative Algebra	14–19 December 2015
7	A.V. Jayanthan	INSPIRE Camp for Higher Secondary School Students, Sacred Heart College, Thevara, Kochi	Euler's Polyhedral Formula and Beyond	19 February 2016
8	Priyanka Shukla	Mathematical Modelling, Differential Equations, Scientific Computing and Applications (international conference), IIT Kanpur	Nonlinear Fingering Instability Driven by a Simple Chemical Reaction	28 March 2016
9	Satyajit Roy	Computational Mathematics and Non-linear Dynamics (national conference), Visva Bharati University, West Bengal	Mixed Convection Within Square Equities for Nozsing Wall(s)	19–21 February 2016
10	Sarang S. Sane	NCM Instructional School for Teachers, SGGS Institute of Technology, Nanded	Invited talks (six)—Linear Algebra	23–28 November 2015
11	Sarang S. Sane	National Workshop on Algebra, Shivaji University, Kolhapur	Invited talks—(1) Factoring and UFDs, (2) Gauss's Lemma and (3) Factoring Integer Polynomials	23–24 December 2015

Sl. No.	Faculty Member	Programme	Paper/Talk	Date
12	Shruti Dubey	Current Trends in PDEs: Theory and Computation (international conference), South Asian University, New Delhi	Control of 2D Ferromagnetic System Governed by Landau- Lifschitz Equation	28–29 December 2015
13	K.C. Sivakumar	International Conference on Matrix Analysis and Applications, Nova Southeastern University, Florida, USA	P-operators on Banach Spaces	17–20 December 2015
14	K.C. Sivakumar	Analysis and Its Applications (national conference), BHU	Moore–Penrose Inverse Nonnegativity of Interval Matrices	5–7 February 2016
15	S. Sundar	National Conference on PDEs and Applications, DS University, Bengaluru	Image Filters Through Topological Gradients	14 December 2015
16	S. Sundar	International Conference on PDE Applications, South Asian University, New Delhi	Solutions of Gas Kinetic Equations Using Sectional Quadrature Method of Moments for PBE	29 December 2015
17	S. Sundar	National Science Day, IIT Madras	Mathematics: A Key Technology	28 February 2016
18	S. Sundar	PDEs (national conference), Ramanujan Insitute, Chennai	Solution of Gas Kinetic Equations using SQMOM	2 March 2016
19	S. Sundar	Physics of Fluids and Fluid Dynamics (national conference), Jadavpur University	Heat Transfer Modeling of Glass Fiber Insulation	3 March 2016
20	S. Sundar	National Science Day, IIT Madras	Mathematics: A Key Technology	28 February 2016
21	M. Thamban Nair	Functional Analysis (national symposium), Victoria College, Palakkad	On Equivalence of CGT and UBP	30 October 2015
22	M. Thamban Nair	IMS Conference, VNIT, Nagpur	12th Ganesh Prasad Memorial Award Lecture: Compact Operators and Hilbert Scales in Ill-Posed Problems	28–30 December 2015
23	M. Thamban Nair	Nonlinear Dynamical Systems (international conference), Bharathiar University, Coimbatore	Dynamical System Method for Ill-Posed Problems	24 March 2016
24	P. Veeramani	Analysis and Its Applications (international conference), Aligarh Muslim University, Aligarh	On Applications of Best Proximity Point Theorems	19–21 December 2015
25	P. Veeramani	Second National conference on Algebra, Analysis and Fuzzy Mathematics, North Maharashtra University, Jalgaon	Zeron's Lemma Normal Structure and Some Open Problems Involving Fixed Point Theorems of Non- expansive Mappings	29–30 January 2016
26	T.E. Venkata Balaji	Ramanujan Day celebrations, Ramanujan Institute for Advanced Study in Mathematics, University of Madras	Quaternions and Quadratic Forms	17 February 2016
27	T.E. Venkata Balaji	Math Appreciation Forum, Padma Seshadri Bala Bhavan Senior Secondary School, K.K. Nagar	What Is Geometry?	4 March 2016
Visits to	o other institutions			
Sl. No.	Faculty Member	Programme	Venue	Date
1	Y.V.S.S. Sanyasiraju	Attended Doctoral Committee (DC) meeting as a member	VIT, Vellore	9 April 2015

SI. No.	Faculty Member	Programme	Venue	Date
2	Y.V.S.S. Sanyasiraju	Attended Ph.D. viva-voce as an examiner	Kerala University,	13 April 2015
	*****		Thiruvananthapuram	
3	Y.V.S.S. Sanyasiraju	Visited to evaluate M.Sc. thesis and conduct viva-voce examination for five students	IIT Bhubaneswar	4–6 May 2015
4	Y.V.S.S. Sanyasiraju	Attended Board of Studies meeting	Madanapalli Institute of Technology, Madanapalli	14 May 2015
5	Y.V.S.S. Sanyasiraju	Attended Board of Studies meeting of the Mathematics Board	PSG College of Engineering, Coimbatore	13 June 2015
6	Y.V.S.S. Sanyasiraju	Attended Ph.D. viva-voce as an examiner	University of Delhi, Delhi	21 July 2015
7	Y.V.S.S. Sanyasiraju	Attended comprehensive viva as a member	VIT, Vellore	5 February 2016
8	Y.V.S.S. Sanyasiraju	Attended Board of Studies meeting as a member	Audisankara College and Engineering and Technology, Guduru	13 February 2016
9	Y.V.S.S. Sanyasiraju	Attended Faculty Recruitment Committee meeting as a member	VIT, Vellore	26 March 2016
10	Satyajit Roy	Attended Ph.D. viva-voce as an examiner	IIT Ropar	28–29 May 2015
11	Satyajit Roy	Attended Ph.D. viva-voce meeting as a member	JNTA, Ananthapuram	28 November 2015
12	Satyajit Roy	Attended Departmental Promotion Committee meeting as an expert member	Indian Institute of Space Science and Technology, Thiruvananthapuram	27 January 2016
13	Satyajit Roy	Attended comprehensive viva/DC meeting as a member	VIT, Vellore	9 February 2016
14	K.C. Sivakumar	Attended Advisory Committee meeting as a member	Easwari Engineering College, Ramapuram	17 February 2016
15	K.C. Sivakumar	Attended mathematical modeling competition for B.Tech. students as a judge	SRM University, Ramapuram	15 March 2016
16	K.C. Sivakumar	Attended DC meeting as a member	SRM University, Kattankulathur	22 March 2016
17	Sounaka Mishra	Attended DC meeting as a member	VIT, Vellore	3 August 2015
18	Sounaka Mishra	Attended DC meeting as a member	IIITDM, Kanchipuram	13 October 2015
19	Sounaka Mishra	Attended Ph.D. viva-voce as a member	IIT Guwahati	17–18 December 2015
20	Sounaka Mishra	Attended synopsis meeting as a member	IIITDM, Kanchipuram	14 January 2016
21	S. Sundar	Attended Ph.D. viva-voce as an Examiner	NIT, Trichy	5 May 2015
22	S. Sundar	Attended DST-PAC meeting	IISc, Bengaluru	22–23 June 2015
23	S. Sundar	Attended Ph.D. viva-voce as an examiner	IIT Roorkee	31 July 2015
24	S. Sundar	Attended Ph.D. review meeting	SASTRA University	8 August 2015
25	S. Sundar	Attended as chief guest for valedictory function of modeling workshop	PSBB School, K.K. Nagar, Chennai	4 September 2015
26	S. Sundar	Attended selection committee meeting	IISER Thiruvananthapuram	9 September 2015
27	S. Sundar	Attended Ph.D. review meeting	SASTRA University	26 September 2015
28	S. Sundar	Attended Ph.D. viva-voce meeting as a member	Anna University, Chennai	6 November 2015
29	S. Sundar	Attended faculty selection committee meeting	SRM Institute, Chennai	23 November 2015

Sl. No.	Faculty Member	Programme	Venue	Date
30	S. Sundar	Attended faculty selection committee meeting	PSG Tech., Coimbatore	28 November 2015
31	S. Sundar	Attended faculty selection interview as a member	IISER Thiruvananthapuram	23 December 2015
32	S. Sundar	Attended project review committee member as a member	Vel-Tech University, Chennai	20 December 2015
33	S. Sundar	Attended faculty selection interview as a member	IIST, Thiruvananthapuram	27 January 2016
34	S. Sundar	Attended Ph.D. viva-voce meeting as a member	SASTRA University	26–27 February 2016
35	S. Sundar	Attended selection committee meeting as a member	NIT, Surathkal	9 March 2016
36	S. Sundar	Attended DAAD meeting as a panelist	M.S. Swaminathan Academy, Chennai	19 March 2016
37	S. Sundar	Attended Ph.D. viva-voce as an external examiner	IISc, Bengaluru	29 March 2016
38	M. Thamban Nair	Attended selection committee meeting	Cochin University of Science and Technology, Kochi	25–26 May 2015
39	M. Thamban Nair	Faculty recruitment-related work	IIT Hyderabad	6 July 2015
40	M. Thamban Nair	Attended interaction meeting with faculty members and students	Indian Naval Academy, Ezhimala, Kerala	11 September 2015
41	M. Thamban Nair	Interactive session with students	IIT Palakkad	15–16 October 2015
42	P. Veeramani	Attended curriculum development meeting	Bharathidasan University, Trichy	19 November 2015
43	T.E. Venkata Balaji	Attended KVPY interviews as a panel member	Department of Biotechnology, Anna University, Chennai	15–17 January 2016
44	T.E. Venkata Balaji	Attended interview committee meeting of IIT Madras–Sastra-PSBB RSIC 2016	Padma Seshadri Bala Bhavan Senior Secondary School, Nungambakkam	20 February 2016
45	T.E. Venkata Balaji	Attended Math Appreciation Forum function as chief guest	Padma Seshadri Bala Bhavan Senior Secondary School, K.K. Nagar	4 March 2016
46	V. Vetrivel	Attended peer review committee meeting as member	NIT, Trichy	19–20 October 2015

Visits abroad by faculty members

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Neelesh S. Upadhye	Singapore	18–29 May 2015	Attended New Directions in Stein's Method (international workshop)	IIT Madras (CPDA)
2	Kunal Krishna Mukherjee	Poland	28 June to 11 July 2015	Attended Topological Quantum Groups—Graduate School (international conference)	IIT Madras (CPDA)
3	P. Veeramani	Turkey	20–24 July 2015	Attended 11th International Conference on Fixed Point Theory and Its Application (ICFPTA 2015)	IIT Madras (CPDA)
4	K.C. Sivakumar	USA and Canada	14 September 2015 to 3 January 2016	Attended Applied Linear Algebra (SIAM conference), USA	IIT Madras (CPDA)

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
5	K.C. Sivakumar	USA and Canada	14 September 2015 to 3 January 2016	Attended Fifth International Conference on "Matrix Analysis and Applications, USA, and carried out collaborative work on a research monograph work at the University of Manitoba, Canada	_
6	K.C. Sivakumar	USA and Canada	14 September 2015 to 3 January 2016	Collaborative work on a research monograph at the University of Manitoba, Canada	_
7	M. Thamban Nair	Germany	16–18 September 2015	Participated in Recent Advances in Inverse Problems (international workshop), delivered invited talk titled 'A Linear Regularization Method for a Nonlinear Parameter Identification Problem' and chaired a session	IIT Madras (CPDA)
8	R. Rama	China	12–15 November 2015	Presented a paper at the Asian Conference on Membrane Computing 2015, Anhui University, China	IIT Madras (CPDA)
9	R. Rama	Japan	16–18 November 2015	Attended the Ninth International Collaboration Symposium on Information, Production and Systems at Kitakyushu, Fukuoka, Japan	IIT Madras (CPDA)
10	S. Sundar	Germany	9–19 October 2015	Presented invited talk titled 'Industrial Mathematics in India Through Industrial Case Studies'	IIT Madras (CPDA)
11	Sarang S. Sane	Germany	29 March 2016 to 2 April 2016	Attended the Hausdorff School on Derived Categories, Hausdorff Institute of Mathematics, Bonn, Germany	_

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Date of Award
Honou	rs			
1	S. Sundar	Member—Programme Advisory Committee 2015	Department of Science and Technology	2015–2018
Award	s			
1	M. Thamban Nair	12th Ganesh Prasad Memorial Lecture Award	Indian Mathematical Society	29 December 2015

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	S. Ponnusamy	Editor-in-Chief	Mathematics Newsletter
2	S. Ponnusamy	Managing Editor	Journal of Analysis
3	S. Ponnusamy	Associate Editor	Bulletin of Malaysian Mathematical Sciences Society
4	S. Ponnusamy	Member of editorial board	Journal of Classical Analysis
5	S. Ponnusamy	Vice-President and member of editorial board	Indian Academy of Mathematics
6	S. Ponnusamy	Member of editorial board	Mathematical Analysis (The Scientific World Journal, Hindawi)
7	S. Ponnusamy	Member of editorial board	Conference Papers in Mathematics (Hindawi)
8	S. Ponnusamy	Member of editorial board	Issues of Analysis (Russian)
9	S. Ponnusamy	Member of editorial board	Ilorin Journal of Science (Nigeria)
10	Satyajit Roy	Member of Advisory Committee	The Journal of the Indian Academy of Mathematics
11	S. Sundar	Member of editorial board	The Journal of the Indian Academy of Mathematics
12	S. Sundar	Associate Editor	Advances in Engineering Sciences and Applied Mathematics
13	M. Thamban Nair	Member of editorial board	Journal of Analysis & Number Theory

4.12.4. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Analysis and Computation of Optimal Strategies in N-Person Differential Games	3 years (from 8 July 2013)	DST	3.132	A.J. Shaiju (PI), Ch. Srinivasa Rao
2	Evolutionary Games with Continuous Strategy Space	3 years (from 22 July 2013)	NBHM	3.295	K.S. Mallikarjuna Rao, A.J. Shaiju (Co-PI)
3	Intersection Edge Colourings and Axiom Characteristics of Geodesics	3 years (from 10 September 2013)	NFSC	5.00	N. Narayanan
4	Finite Element Methods for Parameter Identification Problems in Elliptic Partial Differential Equations	_	DST	12.13	M. Thamban Nair
5	Exploring Graph Products Via Commutative Algebra	11 February 2015 to 10 February 2016	IC&SR, IIT Madras	9.00	A.V. Jayanthan (PI), N. Narayanan, B.V. Raghavendra Rao
6	Projective Modules, Euler Classes, Chow-Witt Groups and A¹-Homotopy Theory	2014–2019	DST-INSPIRE	32.44388	Sarang S. Sane
7	Some Aspects of Derived Categories	2015–2017	ICSR-NFIG	5.00	Sarang S. Sane

Research publications of the faculty members and research scholars

Papers published in refereed international journals: 52 Papers presented at international conferences: 1

Papers published in refereed international journals

- 1. Ayineedi Venkateswarlu and Santanu Sarkar. 2016. On a cyclic edge-coloring of the complete bipartite graphs for odd prime. *Discrete Mathematics* 339(1): 127–133. doi:10.1016/j.disc.2015.07.010
- 2. Balaji R. 2015. Linear complementarity results for Z matrices on Lorentz cone. *Linear Algebra Application* 480: 107–114.
- 3. Balaji R. 2015. A uniqueness result for linear complementarity problems over the Jordan spin algebra. *Linear Algebra Application* 479: 1–11.
- 4. A.K.B. Chand, S.K. Katiyar and P. Viswanathan. 2015. Approximation using hidden variable fractal interpolation functions. *Journal of Fractal Geometry* 2: 81–114.
- 5. A.K.B. Chand, M.A. Navascues, P. Viswanathan, M. Sebastian and S.K. Katiyar. 2015. Fractal bases for smooth functions. *Bulletin of Australian Mathematical Society* http://dx.doi.org/10.1017/S0004972 715000738
- 6. A.K.B. Chand, P. Viswanathan and K.M. Reddy. 2015. Towards a more general type of univariate constrained interpolation with fractal splines. *Fractals* doi:10.1142/S0218348 X15500401
- 7. P. Viswanathan, M.A. Navascues and A.K.B. Chand. 2015. Associate fractal functions in Lp-spaces and in one-sided uniform approximation. *Journal of Mathematical Analysis and Applications* 433(2): 862–876.
- 8. A.K.B. Chand, P. Viswanathan and M.A. Navascues. 2016. Fractal polynomials and maps in approximation of continuous functions. *Numerical Functional Analysis and Optimization* 37(1): 106–127.
- 9. A.K.B. Chand, P. Viswanathan and N. Vijender. 2015. Bivariate shape preserving interpolation: A fractal-classical hybrid approach. *Chaos Solitons Fractals* 81: 330–344.
- 10. A.K.B. Chand and N. Vijender. 2016. Monotonicity/symmetricity preserving rational quadratic fractal interpolation surfaces. *International Journal of Numerical Analysis and Modeling* 13(1): 145–165.
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1. S. Ghosh and R. Usha. 2015. Stability analysis of a gravity driven miscible two-fluid flow: Role of wall slip. *IUTAM Symposium on Multiphase Flows with Phase Change: Challenges and Opportunities*, Vol. 15, pp. 264–269. doi:10.1016/j.piutam.2015.04.036

Distinguished visitors to the department

Disting	uisited visitors to the department		
Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. Gerald Beer, California State University, Los Angeles, USA	14–17 April 2015	Gave special seminar talk
2	Dr. Swagata Sarkar, Postdoctoral Fellow, IISc, Bengaluru	30 April to 3 May 2015	Research collaboration with Dr. Arijit Dey
3	Prof. Manoj Changat, University of Kerala	27 April to 1 May 2015	Research collaboration with Dr. N. Narayanan; gave special seminar talk at the department
4	Dr. Panchugopal Bikram, ISI, Kolkata	15 July to 1 August 2015	Research collaboration with Dr. Kunal Krishna Mukherjee
5	Dr. Ignazio Longhi, Xi'an Jiaotong–Liverpool University, China	15–21 August 2015	Research collaboration with Dr. N. Narayanan
6	Prof. Jan Cameron, Professor of Mathematics, Vassar College, New York	6–16 August 2015	Research collaboration with Dr. Kunal Krishna Mukherjee
7	Dr. Mainak Poddar, Los Alamos University, Bogota	9–12 September 2015	Research collaboration with Dr. Arjit Dey
8	Dr. Brian Powers, The University of Illinois, Chicago, USA	24–27 January 2016	Research interaction with Prof. K.C. Sivakumar, Prof. V. Vetrivel and Dr. A.J. Shaiju

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
9	Prof. Biswanath Datta, Duistinguished Research Professor, North Illinois University	26–27 January 2016	Research interaction with Prof. Arindama Singh
10	Prof. B. Rajiv, ISI, Bengaluru	27–30 January 2016	Research interaction with Prof. M. Thamban Nair
11	Prof. Harihar Khanal, Department of Mathematics, Emberry-Riddle Aeronautical University, Florida, USA	19-26 March 2016	Research collaboration with Prof. S. Sundar; delivered lectures for M.Tech. students and colloquium talk
12	Prof. V. Raghavendra, formerly with Department of Mathematics and Statistics, IIT Kanpur	5–12 February 2016	Research collaboration with Prof. S. Sundar; delivered special seminar at the department
13	Prof. hab. inz. Agnieszka Wylomanska, Wrocław University of Technology, Poland	28 March to 8 April 2016	Research collaboration with Prof. S. Sundar; delivered special seminars at the department

4.12.5. Other Activities of the Department

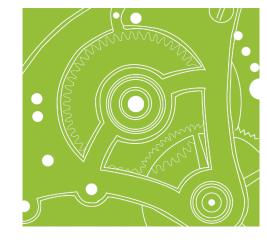
Seminar talks

Seminai	r taiks		
Sl. No.	Faculty Member	Title	Date
1	Dr. Surya Prasath, University of Missouri, Columbia, USA	Globally Convex Variational Methods in Computer Vision	9 April 2015
2	Prof. Gerald Beer, California State University, Los Angeles, USA	On Locally Lipschitz functions and Uniform Continuity of the Product of Real Functions	15–16 April 2015
3	Dr. Sarang S. Sane, Department of Mathematics, IIT Madras	An Exposition of Results Related to Cancellation Problems	23 April 2015
4	Dr. Swagata Sarkar, Postdoctoral Fellow, IISc, Bengaluru	Equivariant Cobordism Classes of Milnor Manifolds	1 May 2015
5	Dr. Chetan Balwe, Tata Institute of Fundamental Research, Mumbai	A¹-Connectedness of Schemes	19 May 2015
6	Dr. Puneet Sharma, IIT Jodhpur	Dynamics Induced on the Hyperspaces	22 May 2015
7	Dr. Nitu Kumari, School of Basic Sciences, IIT Mandi, Himachal Pradesh	Turing Patterns and Long-Time Behavior in a Three-Species Food-Chain Model	27 May 2015
8	Dr. Vikas Gupta, Department of Mathematics, LNMIIT, Jaipur	A Parameter Robust Finite Difference Scheme for Singularly Perturbed Problem with Two Small Parameters	1 June 2015
9	Dr. Pallavi Mahali, Department of Mathematics, VNIT, Nagpur	Regularization of Ill-posed Operator Equations	1 June 2015
10	Prof. Shobha Madan, Department of Mathematics and Statistics, IIT Kanpur	Convergence of Multiple Fourier Series	1 June 2015
11	Dr. Sriram Balasubramanian, IISER, Kolkata	The Douglas Property for Free Functions	3 June 2015
12	Dr. R. Venkatesh, Max Planck Institute of Mathematics, Germany	Unique Factorization of Tensor Products for Finite Dimensional Simple Lie Algebras	3 June 2015
13	Dr. Ananya Lahiri, Chennai Mathematical Institute, Chennai	On Estimation of Model Parameter of Multicomponent Chirp Signal	4 June 2015
14	Dr. T.V. Anoop	On Eigenvalue Problems for the P-Laplacian	4 June 2015
15	Dr. Pratyusha Chattopadhyay, ISI, Bengaluru	Equality of Linear and Symplectic Orbits, and Improved K_1 Stability	5 June 2015
16	Dr. Raisam Gorai, ISI, Bengaluru	Local Polynominal Convexity of Certain Classes of Surfaces in C2	5 June 2015
17	Dr. Rasmita Kar, LNMIIT, Jaipur	Existence of Solutions for a Class of Nonlinear BVPS in Unbounded Domain	8 June 2015
18	Dr. V.B. Kiran Kumar, PSMO College, Kerala	Eigenvalue Clustering and Its Applications	8 June 2015
19	Dr. Arun Kumar, IIT Madras	First-Exit times of Inverse Gaussian L'evy Process	9 June 2015

Sl. No.	Faculty Member	Title	Date
20	Dr. Anupam Priyadarshi, Tokyo University, Japan	Basic Ecological Food Chain/Web Modeling to Micro–scale Plankton Modeling	10 June 2015
21	Dr. R. Sundara Rajan, VIT University, Chennai	On Network Embeddings	11 June 2015
22	Dr. Souman Sarkar, University of Regina, Canada	Some Aspects of Topological Complexity and Equivariant LS-Category	12 June 2015
23	Dr. Upendra Prasad, Harvard University, USA	Analysis of Metabolic Pathways Using Nonnegative Matrix Factorization	17 June 2015
24	Prof Ratnasingham Shivaji, University of North Carolina at Greensboro, USA	Bifurcation and Multiplicity Results for Classes of Reaction Diffusion Equations	26 June 2015
25	Prof. Ratnasingham Shivaji, University of North Carolina at Greensboro, USA	Proving Uniqueness Results for Reaction Diffusion Equations: An Introduction	30 June 2015
26	Dr. Shankar Venkataramani, Department of Mathematics, University of Arizona	Numerical Conformal Mappings and Free Boundary Problems	14 July 2015
27	Prof. Jan Cameron, Professor of Mathematics, Vassar College, New York	Bimodules Over Regular Subalgebras of Von Neumann Algebras	13 August 2015
28	Dr. Sanjay Kumar Singh, IISER, Bhopal	Vector Bundles Satisfying the Point Property	13 August 2015
29	Dr. Ignazio Longhi, Xi'an Jiaotong— Liverpool University	Aspects of Zeta Functions Over Function Fields	20 August 2015
30	Dr. Debargha Banerjee, IISER, Pune	p -adic L -Functions for Automorphic Forms on GL_n	21 August 2015
31	Prof. Loic Merel, Université Paris Diderot— Paris VII	The Diophantine Equation $y^2 = x^8 + x^4 + x^2$ and Modern Arithmetic Geometry	27 August 2015
32	Dr. N. Narayanan, Department of Mathematics, IIT Madras	Erdös Magic	10 September 2015
33	Dr. Umesh Dubey, IISc, Bengaluru	Tensor Action and Classification of Thick Subcategories	15 September 2015
34	Dr. Sarath Sasi, Visiting Faculty, NISER, Bhubaneshwar	Modeling of Alternate Stable States in Ecological Systems	1 October 2015
35	Dr. J. Jaikrishnan, INSPIRE Faculty, IIT Madras	The Scaling Method of Pinchuk	8 October 2015
36	Dr. Ritwik Mukherjee, TIFR, Mumbai	Enumerative Geometry of Rational Cuspidal Curves on Del-Pezzo Surfaces	14 October 2015
37	Dr. Arun Kumar, Visiting Faculty, IIT Madras	Python for Finance	15 October 2016
38	Dr. Anisha P., Department of Biostatistics and Epidemiology, Georgia Regents University, Augusta, GA, USA	Shared Frailty Model for Recurrent Event data with Multiple Causes	10 December 2015
39	Dr. Buddhananda Banerjee, Department of Mathematics and Statistics, IISER Kolkata	Linear Increment in Efficiency with the Inclusion of Surrogate Endpoint	11 December 2015
40	Dr. Deemat C. Mathew, National Remote Sensing Centre, Nagpur	Analysis of Time Series With Heavy Tails	17 December 2015
41	Dr. Sanjukta Das	Existence of Solution and Controllability of Delay Differential Equations	21 December 2015
41	Dr. Harsha Hutridurga, Department of Pure Mathematics and Mathematical Statistics (DPMMS), The University of Cambridge, UK	Hypocoercivity and Geometric Control Conditions in Kinetic Theory	12 January 2016
42	Dr. Sivaguru Ravisankar, TIFR, Mumbai	Several Complex Variables and the Bergman Projection	14 January 2016
43	Prof. K.C. Sivakumar, Department of Mathematics, IIT Madras	Inverse Positivity of Interval Matrices	21 January 2016
44	Dr. Brian Powers, The University of Illinois, Chicago, USA	An Analysis of Dual-Issue Final-Offer Arbitration	25 January 2016

Sl. No.	Faculty Member	Title	Date
45	Prof. Biswanath Datta, Distinguished Research Professor, North Illinois University	Computational and Optimization Methods for Quadratic Inverse Eigenvalue Problems Arising in Mechanical Vibration and Structural Dynamics: Linking Mathematics to Industry	27 January 2016
46	Prof. B. Rajeev, Theoretical Statistics and Mathematics Unit, ISI, Bengaluru	Brownian Random times: Regeneration and Reversal	28 January 2016
47	Prof. Michel Waldschmidt, Pierre et Marie Curie University, Paris	Srinivasa Ramanujan—His Life and His Work	4 February 2016
48	Prof. V. Raghavendra, formerly with Department of Mathematics and Statistics, IIT Kanpur	Natural Numbers Using Peano's Axioms	11 February 2016
49	Prof. S. Kesavan, Department of Mathematics, IIT Madras	Korovkin's Theorem: Revisited	18 February 2016
50	Prof. M.T. Nair, Head, Department of Mathematics, IIT Madras	Compact Operators and Hilbert Scale in Ill-Posed Problems	25 February 2016
51	Dr. Sumesh K., Postdoc, IMSc, Chennai	GNS-Pair: Construction and Applications	3 March 2016
52	Prof. Ratnasingham Shivaji, Chairman, Department of Mathematics and Statistics, The University of North Carolina at Greensboro, USA	A Positivity Challenge in Steady State Reaction Diffusion Problems	7 March 2016
53	Dr. Jaikrishnan J., INSPIRE Faculty, IIT Madras	Continuous Computation and Applications	10 March 2016
54	Dr. Rajesh Kannan, Postdoc, University of Manitoba, Canada	Nonnegative Tensors and Their Applications	17 March 2016
55	Dr. Harihar Khanal, Department of Mathematics, Embry-Riddle Aeronautical University, Florida, USA	Computational Models of Spatio-temporal Signalling in Rod Phototransduction	22 March 216
56	Dr. Harihar Khanal, Department of Mathematics, Embry-Riddle Aeronautical University, Florida, USA	Computational Models for Nanosecond Laser Ablation	24 March 2016
57	Prof hab. inz. Agnieszka Wylomanska (Wrocław University of Technology, Poland)	Stochastic Processes Based on Heavy-Tailed Distributions: Theory and Applications	28 and 30 March 2016
58	Prof. hab. inz. Agnieszka Wylomanska (Wrocław University of Technology, Poland)	Anomalous Diffusion Models as Tools to Real Data Description	31 March 2016

Department of Mechanical Engineering



4.13.1. Introduction

The Department of Mechanical Engineering was established in 1959. The department currently offers Ph.D., M.S., M.Tech., B.Tech. and Dual Degree programmes. It has excellent facilities to carry out state-of-the art research in three major streams of mechanical engineering, namely, thermal engineering, mechanical design and manufacturing engineering. There are well-equipped laboratories in each stream: Machine Design Section, Manufacturing Engineering Section, Heat Transfer and Thermal Power Laboratory, Internal Combustion Engines Laboratory, Refrigeration and Air Conditioning Laboratory, Thermodynamics and Combustion Laboratory and Turbo-machines Laboratory.

The faculty members of the department focus their research in six major groups: (1) advanced materials and design, (2) advanced manufacturing science and engineering, (3) advanced computational engineering, (4) dynamics acoustics and control, (5) energy sciences and engineering and (6) micro, nano and bio engineering.

4.13.2. Academic Programmes

New courses introduced

SI. No.	Course No.	Title
1	ME4003	Applied Mechanics of Materials 3: Theory (undergraduate elective)
2	ME7023	Foundations of Computational Materials Modelling
3	Two GIAN courses	(1) Partition of Unity Methods, by Dr. Sundararajan Natarajan with Prof. Sukumar, University of California, Davis, USA
		(2) Multiscale Methods for Mechanics (3M), by Dr. Sundararajan Natarajan with Prof. Stephane P.A. Bordas, University of Luxembourg

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and	Others Total
B.Tech.	84	82	78	75	_	319
Dual Degree	79	69	71	81	69	369
M.Tech.	106	83	_	_	_	189
M.S.	41	61	57	30	7	196
Ph.D.	50	87	79	48	38	302
Total	360	382	285	234	114	1375

Students/scholars who attended conferences/seminars/symposia

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abro	ad				
1	Deepak Saini	ME13S003	ICHMT International Symposium on Advances in Computational Heat Transfer	25–29 May 2015, Rutgers University, USA	IIT Madras
2	Bajwa Roodra Pratap Singh	ME13S052	The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2015)	7–11 July 2015, Busan, Korea	IIT Madras

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
3	Shijin P.K.	ME12D057	The 10th Asia Pacific Conference on Combustion (ASPACC 2015)	19–22 July 2015, Beijing, China	IIT Madras
4	Sumit Sharma	ME13S028	ASPACC 2015	19–22 July 2015, Beijing, China	IIT Madras
5	S.S. Harish Kruthiventi	ME12D006	The 24th IIR International Congress of Refrigeration (ICR2015)	16–22 August 2015, Yokohama, Japan	IIT Madras
6	Sunil Jerome	ME12D019	ICR2015	16–22 August 2015, Yokohama, Japan	IIT Madras
7	Sri Hari Vikram T.	ME10D002	14th International Conference on Sustainable Energy Technologies—SET 2015	25–27 August 2015, Nottingham, UK	IIT Madras
8	Sharon H.	ME12D055	SET 2015	25–27 August 2015, Nottingham, UK	IIT Madras
9	Ajas Abdulla	ME13S038	SET 2015	25–27 August 2015, Nottingham, UK	IIT Madras
10	Sagi Rathna Prasad	ME14S031	22nd International Congress on Sound and Vibration (ICSV22)	12–17 July 2015, Florence, Italy	IIT Madras
11	Sivakumar S.	ME11D014	ICSV22	12–17 July 2015, Florence, Italy	Boeing Grant
12	Lokeswaran Sivasamy	ME11D029	Biomass and Concentrating Photovoltaics project meeting (UK-India collaborative project and research exchange)	23 August to 3 September 2015, University of Exeter, Cornwall Campus, Penryn, UK	Project fund
13	Ningthoujam Premjit Singh	ME14D033	Biomass and Concentrating Photovoltaics project meeting (UK–India collaborative project and research exchange)	23 August to 3 September 2015, University of Exeter, Cornwall Campus, Penryn, UK	Project fund
14	Arjun Sampathkumar	ME13S048	Biomass and Concentrating Photovoltaics project meeting (UK–India collaborative project and research exchange)	23 August to 3 September 2015, University of Exeter, Cornwall Campus, Penryn, UK	Project fund
15	Abdul Rahman K.	ME13D001	12th International Conference on Engines and Vehicles (ICE 2015)	13–17 September 2015, Capri, Napoli, Italy	IIT Madras
16	Lakshmi Kanth Bejawada	ME13S063	Numerical Heat Transfer 2015	27–30 September 2015, Warsaw, Poland	IIT Madras
17	Swaroop Raj V.R.	ME12S059	170th Meeting of the Acoustical Society of America (made oral presentation)	2–6 November 2015, Jacksonville, Florida, USA	IIT Madras
18	H. Sharon	ME12D055	ISES Solar World Congress 2015 (presented poster)	8–12 November 2015, Daegu, South Korea	IIT Madras
19	N. Balasubramanian	ME12D031	Small Engine Technology Conference	16–19 November 2015, Japan	Alumni fund
20	Gurdev Singh	ME13S088	Sixth International Conference on Mechanics of Biomaterials	6–10 December, 2015, Waikoloa, Hawaii USA	IIT Madras
21	Rambabu S.	ME12D015	Advances in Materials and Processing Technologies Conference (AMPT 2015)	14–17 December 2015, Madrid, Spain	IIT Madras and Alumni fund
22	R. Srikanth	ME12D067	Asian Symposium on Computational Heat Transfer and Fluid Flow (ASCHT 15)	22–26 November 2015, Busan, South Korea	IIT Madras

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
23	Rohit S. Nair	ME13S078	ASME-ATI-UIT 2015 Conference on Thermal Energy Systems: Production, Storage, Utilization and the Environment (Heat Transfer Enhancement of a Finned Wickless Heat Pipe- Based heat Sink)	17–20 May 2015, Napoli, Italy	IIT Madras
24	Arpita Srivastava	ME13S050	25th CANCAM 2015 (Numerical Investigation of Jet Pump with Twisted Tapes)	Western University, London, Ontario, Canada	IIT Madras
25	Vishal D.	ME14S093	21st International Symposium on Artificial Life and Robotics (AROB 2016)	20–22 January 2016, B-Con Plaza, Beppu, Oita, Japan	IIT Madras
26	Bapat Ganesh Madhav	ME12D074	ISPO World Congress 2015	22–25 June 2015, Lyon, France	IIT Madras
27	Solomon Seid	ME13D060	12th IEEE AFRICON International Conference	14–17 September 2015, Addis Ababa, Ethiopia	Alumni and project
28	U.M. Kurup	ME13S010	Ninth International Conference on Boiling and Condensation Heat Transfer	26–30 April 2015, Boulder, Colorado, USA	IIT Madras
29	S. Pandey	ME14S038	First Pacific Rim Thermal Engineering Conference, (PRTEC)	13–17 March 2016, Big Island, Hawaii, USA	IIT Madras
30	Jagadesh T.	ME12D007	Advances in Materials and Processing Technologies Conference (AMPT 2015)	14–17 December 2015, Madrid, Spain	IIT Madras
31	Yadvendra Kaushik	ME13S018	20th International Conference on Wear of Materials	12–16 April, 2015, Toronto, Canada	IIT Madras
32	Nitesh Sadanand Anerao	ME13S044	Inter-Noise and Noise-Con Congress and Conference	August 2015, San Francisco, California	IIT Madras
33	Vikas N. Bhargav	ME13S085	INTER-NOISE and NOISE- CON Congress and Conference	August 2015, San Francisco, California	IIT Madras
34	Mithun Jyothi	ME13D210	The 22nd International Congress on Sound and Vibration, Florence	12–16 July 2015, Italy	IIT Madras
35	Ashokraj	ME12S020	Proceedings of the 2nd International Conference on Fluid Flow, Heat and Mass Transfer Ottawa	30 April and 1 May 2015, Ontario, Canada	IIT Madras
36	Joe Jacob	ME13S062	AICFM13	7–10 September 2015, Tokyo, Japan	IIT Madras
37	Pankaj Kumar	ME11D035	Ninth International Conference on Thermal Engineering: Theory & Applications	24–26 March 2016, Abu Dhabi, UAE	IIT Madras
India					
1	Neeraj Paul M.	ME14D031	National Conference on Systems Energy and Environment NCSEE 2015	9–11 September 2015, GEC, Kannur, Kerala	IIT Madras
2	D.G. Leo Samuel.	ME10D029	National Conference of Refrigeration and Air Conditioning (NCRAC) 2015 (gave oral presentation)	30 October 2015, Rajalakshmi Engineering College, Chennai	IIT Madas
3	Dharmasastha K.	ME15S007	NCRAC 2015 (gave oral presentation)	30 October 2015, Rajalakshmi Engineering College, Chennai	IIT Madras

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
4	Abhijit Dhamanekar	ME10D018	Proficiency Improvement Workshop on NVH (Noise, Vibration and Harness)	26–30 October 2015, Automotive Research Association of India (ARAI), Pune	IIT Madras
5	Prasanna J.	ME13D010	23rd National and First International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2015)	17–20 December, 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
6	Lakshmi Sirisha Maganti	ME13D033	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram Kerala	IIT Madras
7	N. Kumar	ME14S024	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
8	Aneesh Prabhakar	ME11D001	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
9	Pradeep S.J.	ME13D009	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
10	Shankar Durgam	ME12D054	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
11	Pullarao Muvvala	ME13D043	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
12	G. Krishnamoorthi	ME14D022	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
13	Sangamesh C. Godi	ME14D042	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
14	Renju Kurian	ME13D047	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
15	Pravin D. Sawarkar	ME13D042	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
16	Rambabu S.	ME12D015	Ninth International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2015)	10–12 December 2015, IIT Bombay	IIT Madras
17	R. Vairamuthu	ME11D050	COPEN 2015	10–12 December 2015, IIT Bombay	IIT Madras
18	P. Marimuthu	ME11D032	Computer Aided Engineering CAE 2015 Conference (presented paper)	10–12 December, 2015, GITAM University, Hyderabad	IIT Madras
19	N. Rino Nelson	ME12D065	CAE 2015 (presented paper)	10-12 December, 2015, GITAM University, Hyderabad	IIT Madras
20	P. Marimuthu	ME11D032	CAE 2015 (presented paper)	10–12 December 2015, GITAM University, Hyderabad	IIT Madras
21	N. Rino Nelson	ME12D065	CAE 2015 (presented paper)	10–12 December 2015, GITAM University, Hyderabad	IIT Madras
22	K. Sreeraj	ME15D018	Seventh Summer School in Tribology	8–12 June 2015, Indian Oil Institute of Petroleum Management, Gurgaon	No Fee
23	S. Pandey	ME14S038	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
24	Niketh S.	ME13D038	COPEN 2015	10–12 December 2015, IIT Bombay	IIT Madras
25	Kanka Goswami	ME14D211	COPEN 2015	10–12 December 2015, IIT Bombay	IIT Madras
26	R. Srinath	ME13D013	National Symposium on Rotor Dynamics (NSRD–2016)	7–9 January 2016, NIT Rourkela	Project

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
27	K. Sreeraj	ME15D018	19th National Training Course on Wind Energy Technology	14–18 March 2016, National Institute of Wind Energy, Chennai	Project
28	N.K. Chaurasia	ME14S027	IHMTC 2015	17–20 December 2015, VSSC, Thiruvananthapuram, Kerala	IIT Madras
29	Neeraj Paul M.	ME14D031	XXVII IUPAP Conference on Computational Physics	2–5 December 2015, IIT Guwahati	IIT Madras
30	Hemant Naik	ME14D014	International Conference on Computational Heat and Mass Transfer (ICCHMT)	30 November to 2 December 2015, NIT Warangal	IIT Madras
31	Aniraj C.R.	ME13D207	ICCHMT	30 November to 2 December 2015, NIT Warangal	IIT Madras
32	Sahar Ahsaas	ME14S032	42nd National Conference on Fluid Mechanics and Fluid Power (FMFP 2015)	14–16 December 2015, NIT Surathkal	IIT Madras
33	Umesh V.	ME13D056	International Conference in Engineering and Technological Sciences	November 2015, Kuala Lumpur, Malaysia	IIT Madras
34	Arpan Das	ME14S050	XXVII IUPAP Conference on Computational Physics	2–5 December 2015, IIT Guwahati	IIT Madras
35	Ananth Pai S.	ME13D022	FMFP 2015	14–16 December 2015, NIT Surathkal	IIT Madras
36	Amit Soni	ME14S046	FMFP 2015	14–16 December 2015, NIT Surathkal	IIT Madras
37	Amit Soni	ME14S046	XXVII IUPAP Conference on Computational Physics	2–5 December 2015, IIT Guwahati	IIT Madras
38	Aniraj C.R.	ME13D207	IHMTC 2015	17–20 December 2015, ISRO, Thiruvananthapuram	IIT Madras
39	Royapati Subbarao	ME09D004	CAE 2015	10–12 December 2015, GITAM University, Hyderabad	IIT Madras

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	Abhishek Raj	ME13D020	Second Prize (for bilingual oral presentation titled 'A Study of Pressure Driven Flow Through Flexble PDMS Micro Channels')	The Rajbhasha Technical Conference 2015, IIT Madras, 29 September 2015
2	Swostik Sourav Dash	ME08B088	Second Place at the Enable Makeathon	International Committee of the Red Cross (ICRC)
3	Vivek Sarda	ME09B102	Second Place at the Enable Makeathon	ICRC
4	Ashish Sharma	ME11B148	Second Place at the Enable Makeathon	ICRC
5	S. Madhavan, L Vijayaraghavan and M. Kamaraj	ME12D039	Best Paper Award (for their paper titled 'Investigation on the Mechanical and Microstructural Properties of Dissimilar A1/ Magnesium Welds Produced by Cold Metal Transfer')	The 2nd International Conference on Advances in Cutting, Welding and Surfacing (CWS-2015), 5–7 August 2015, Coimbatore, India, jointly organised by WRI- BHEL University of Bergen, Norway, Lulea University of Technology, Sweden, and Mexican Materials Research Institute, Mexico

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
6	P. Priyadarshan and Abhijit Sarkar	ME13M031	Best Paper Award (for their paper titled 'Vibration Control of Frame Structures')	International Conference on Vibration problems (ICOVP 2015), IIT Guwahati, 14–17 December 2015
7	Atul Shankara Kulkarni and Manoj Pandey	ME13S009	Best Paper Award (for their paper titled 'Nonlinear Dynamic Analysis of Cracked Cantilever Beam Using Reduced Order Model')	ICOVP 2015, IIT Guwahati, 14–17 December 2015
8	A.S. Srikrishna	AT14M009	First Prize under the Manufacturing Domain (for essay titled 'I.N.D.I.A.: A Focus on Making India an Advanced Manufacturing Power House, IMPRINT India Conference)	The Honourable President of India, Mr. Pranab Mukherjee, Darbar Hall, Rashtrapati Bhavan, New Delhi, 5 November 2015
9	R. Vairamuthu	ME11D050	Best Oral Presentation Award (for paper titled 'Prediction of Volumetric Accuracy of a Cylindrical Grinding Machine Tool Using Kinematic Error Modeling Approach')	Ninth International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2015), IIT Bombay, 10–12 December 2015
10	Kumar Abhishek	ME14S023	Machining of Micro-holes on Sodalime Glass Using the Developed Micro-Abrasive Jet Machine (Micro- AJM)	COPEN 2015, IIT Bombay, Mumbai, 10–12 December 2015
11	Kulkarni Atul Shankar and Manoj Pandey	ME13S009	Best Paper Award (for their paper titled 'Nonlinear Dynamics Based Study of Cracked Cantilever')	ICOVP, IIT Guwahati, 14–18 December 2015
12	Swostik Dash, Vivek Sarda (former Dual Degree students) and Ashish Sharma of Team from R2D2 guided by Sujatha Srinivasan	ME11B148	Second Place (US\$15,000) (for 'A Quick and Easy Add-on to Convert Any Manual Wheelchair into an Outdoor Mobility Device')	The Enable Makeathon, a 60-day global competition organized by the ICRC, 23 January 2016
13	Members of the IIT Madras team guided by A. Ramesh	IIT Madras team	Third Place at the Formula Student India Car Racing Championship (for the youngest team amongst the top three), second overall in the Endurance section and first in the Fuel Economy section—and their design was appreciated by the judges	Raftar Formula Racing, at Greater Noida, 23–28 January 2016
14	P. Balakrishnan	ME13D003	International Institute of Noise Control Engineering Young Professionals Grant for INTER- NOISE 2016	August 2016, Hamburg Germany

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize	
1	Anoop R.	ME11B152	Banco Foundation Prize	
			Sivasailam Merit Prize	
2	Manjunath C. Rajagopal	ME10B088	Prof. G.V.N. Rayudu Memorial Prize	
3	Vishnu Nath S.	ME13M130	Prof. B. Sengupto Prize	
			Dr. S. Vaidyanathan Memorial Prize	
4	Dileep Rajendran	ME13M071	S. Anantharamakrishnan Merit Prize	
			Prof. Ramamohana Rao Memorial Prize	
5	Madhav Dubey	ME13M132	Giri Brothers Prize	
6	Addarsh C.	ME11B154	S.R.I. Prize	

4.13.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization
Professors	
Prasad B.V.S.S.S. [Head]	Turbine blade cooling, thermal hydraulics, CFD
Sundararajan T.	Droplet combustion, supersonic reacting jet flows, CFD
Babu Viswanathan	CFD, high-speed reacting flows, high-performance computing
Chakravarthy Balaji	Fundamental heat transfer, optimization of thermal systems, inverse problems in heat transfer, satellite meteorology, numerical weather prediction
Chandramouli P.	Nonlinear dynamics, acoustics and noise control
Sarit Kumar Das (on deputation)	Heat exchangers, two-phase flow, nano fluids, jet oscillations, nuclear heat transfer
Govardhan M.	Contra-rotating turbomachinery, secondary flow loss reduction techniques, rotating vaneless diffusers, CFD
Krishnan Balasubramaniam	Nondestructive evaluation, materials characterization, online measurements
Maiya M.P.	Sorption technology, metal hydride systems, hybrid air conditioning
Mani A.	Refrigeration, desalination, solar energy
Pramod S. Mehta	Combustion modeling, fluid dynamics in IC engines, engine emission control
Raju Sethuraman	Computational solid mechanics, fatigue and fracture of materials
Ramesh A.	IC engine combustion and emissions, electronic engine management, alternative fuels
Ramesh Babu N.	Manufacturing engineering: advanced machining processes, process modeling, precision machine tool development
Raghu Prakash V.	Fatigue and fracture mechanics, random load life prediction, product design
Seshadri Sekhar A.	Rotor dynamics, condition monitoring, tribology
Shankar Krishnapillai	Structural vibrations, design optimization, system identification
Sujatha C.	Vehicle dynamics, machinery diagnostics, signal analysis
Srinivasa Reddy K.	Renewable energies, solar energy, energy conservation, energy environment, heat transfer in two-phase systems
Srinivasan K.	Jet flow and noise, active and passive flow control, measurement and instrumentation
Venkatrathnam G.	Refrigerant mixtures, new processes that work with refrigerant mixtures, improvement of performance of vapour compression refrigerators
Vijayaraghavan L.	Machining, CAD, surface engineering, grinding
Arunn Narasimhan	Heat transfer and fluid flow in biological systems, heat transfer and fluid flow in porous media, phase change materials, convection heat transfer, fluid mechanics
Shaligram Tiwari	Thermocapillary convection, heat and mass transfer
Associate Professors	
Dhiman Chatterjee	Fluid mechanics, turbomachines, cavitation
Krishna Kannan	Continuum mechanics, thermodynamics, constitutive modelling of polymeric materials
Mallikarjuna J.M.	In-cylinder flow studies in engines, HCCI and GDI engines, alternate fuels
Raghavan V.	Combustion modeling, droplet combustion, laminar flames
Samuel G.L.	Machining, metrology and computer-aided inspection, micromachining
Shamit Bakshi	CFD in IC engines, liquid atomization and spray systems, fuel nozzle modeling
Sujatha Srinivasan	Assistive devices, biomechanics, mechanisms
Somashekhar S. Hiremath	Micromachining, mechatronic system design, oil hydraulics, system simulation and modeling, finite element method (FEM)
Sathyan Subbiah	Novel applications of machining, diamond turning, layered material exfoliation, surface texturing
Prabhu Rajagopal	Ultrasonic waves for nondestructive evaluation, health monitoring and process control, computational methods for modelling elastic wave phenomena

Name	Major Areas of Specialization
Assistant Professors	
Abhijit Sarkar	Vibration, acoustics, computational methods
Amitava Ghosh	Machining and grinding of advanced materials, development of abrasives
Anand T.N.C.	CFD simulations of IC engine processes, laser-based diagnostics of sprays and combustion
Anand K.	Low-temperature combustion engines, surrogate modelling of automotive fuels, engine emission reduction through fuel modifications
Anil Kumar Meena	Casting processes, cast iron and steel manufacturing, microstructure and properties of ADI, dry and near-dry machining process
Arvind Pattamatta	Micro/nano scale energy transport, computational heat transfer, mesoscopic modeling, phase change heat transfer, turbulence modeling
Arunachalam N.	Sustainable manufacturing, diagnostics, prognsotics and health management of machine tools, smart machine tools
Ashis Kumar Sen	Microfluidics, microsystems, thermo-fluids
Manivannan P.V.	Instrumentation and controls, mechatronic system design, microprocessors
Manoj Pandey	Finite element analysis, dynamics and MEMS
Mayank Mittal	IC engines, optical diagnostics, fluid mechanics
Narasimhan Swaminathan	Computational materials science and mechanics, radiation damage in materials, multiscale modeling of complex phenomena in nuclear and fuel cell materials, finite element method, continuum mechanics, multiscale modeling, radiation damage in materials, computational materials science
Parag Ravindran	Viscoelastic fluids, constitutive modeling
Ramkumar Penchaliah	Tribology, engine tribology, condition monitoring, nanolubrication, DLC coatings, wind turbine bearing failures, gearbox design, FEM-based wear modellings
Ratna Kumar Annabattula	Finite element analysis, granular mechanics, buckle-driven de-lamination, fusion materials, mechanics of micro-systems
Ravikiran Sangras	Experimental fluid mechanics, combustion, turbulent flows
Sateesh Gedupudi	Flow boiling heat transfer and instabilities in mini/microchannels, heat exchangers
Sushanta Kumar Panigrahi	Friction stir processing and welding, superplasticity, advanced metal forming techniques for producing bulk nanostructured/UFG metals and alloys, thermomechanical processing of lightweight structural metallic materials
Soundarapandian S.	Additive manufacturing, computational modeling and simulation
Sourav Ratshit	Laser processing
Srikrishna Sahu	Spray dynamics, two-phase flows, optical diagnostics
Shyama Prasad Das	Unsteady hydro- and aerodynamics, turbomachines, interfacial hydrodynamics and transport
Sundararajan Natarajan	Computational mechanics, moving boundary problems, composite mechanics
S. Varun Kumar	Biomass and coal gasification, solid propellant rockets
Vishwanath K.	Turbomachinery noise
Sivasrinivasu Devadula	Machining of 3D surfaces on advanced engineering materials, abrasive water-jet machining, process modelling and simulation
Krithika Narayanaswamy	Thermodynamics, combustion concepts and applications, numerical methods for thermal engineering, chemical kinetics, mechanical reduction
Kameswararao Anupidi	Fluid mechanics, computational fluid dynamics, bio-fluid dynamics, turbulence modelling
Professors Emeriti	
S.P. Venkateshan	Heat transfer, instrumentation
M.S. Shunmugam	Metrology, manufacturing: gears, BTA machining, reaming, centreless grinding, EDM, friction welding; manufacturing automation and robotics; computer applications in manufacturing: process planning, inspection planning, quality control

Short-t	Short-term courses/workshops/seminars/symposia/conferences organized by faculty members				
Sl. No.	Co-ordinators	Title	Period		
Confe	rences				
1	B.V.S.S. Prasad	ASME Gas Turbine India Conference (Conference Chair; also organized a session and presented a paper)	1–2 December 2015, Hyderabad		
2	P. Chandramouli	ASME Gas Turbine India Conference (organized a track (four sessions), 'Dynamics & Structures')	1–2 December 2015, Hyderabad		
3	M.P. Maiya	23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTFE Heat and Mass Transfer Conference	17–20 December 2015, Thiruvananthapuram		
Semina	ars				
1	M.S. Shunmugam and G.L. Samuel	Catch them Young	11 January 2016, MES, IIT Madras		
2	K. Anand	IGCS Winter School 2016: Sustainable Application of Liquid Biofuels	22 February to 5 March 2016, IIT Madras		
3	Sateesh Gedupudi, B.R. Vijayarangan (USA) and M. Venkatesan (SASTRA)	Seminar on Heat Transfer and Fluid Flow	12 February 2016, IIT Madras		
Works	hops				
1	K. Anand and J.M. Mallikarjuna	Advanced IC Engine Technologies	31 August to 4 September 2015		
2	T. Sundararajan	Turbulence and Hotwire Anemometry	25–26 September 2015		
Short-	term courses				
1	Shaligram Tiwari	Theoretical and Computational Fluid Dynamics (AICTE-sponsored STTP-CEP course)	19–25 November 2015		
2	Abhijit Sarkar	Continuing Education Activity (conducted the QEEE courses (each 6 hours) Engineering Mechanics (February 2016), Kinematics of Mechanisms (March 2016) and Dynamics of Machines (February 2016))	February and March 2016		

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

Sl. No.	Faculty Member	Programme	Institution	Period		
Workshops						
1	P. Ramkumar	Advanced Technologies in Engineering Design (ATED 2015) (delivered a lecture titled 'Engine Tribology')	Saintgits College of Engineering, Kottukulam, Kottayam, Kerala	22–28 April 2015		
2	N. Arunachalam	Workshop organized by CUMI (delivered an invited talk titled 'Smart Grinding Technology')	Agenda—Technical Forum, Rajkot, Gujarat	22–23 June 2015		
3	Sujatha Srinivasan	Tufts-CMC Framework Programme for Global Health Innovation: Workshop on Examples of Indian Innovations	CMC Vellore	18 January 2016		
4	S. Varun Kumar	Prof. P.J. Paul Memorial Combustion Researchers Meet	ISRO	February 2016		
Seminars						
1	S. Varunkumar	International Autumn Seminar on Propellants, Explosives and Pyrotechnics (delivered oral presentation)	Qingdao, China	12–20 September 2015		
2	G. Venkataratnam	International Cryoginic Engineering Conference	Manekshaw Centre, New Delhi	7–11 March 2016		
3	Sujatha Srinivasan	Tufts-CMC Framework Programme for Global Health Innovation: Workshop on Examples of Indian Innovations	CMC Vellore	18 January 2016		

Sl. No.	Faculty Member	Programme	Institution	Period
Sympo	sia			
1	L. Vijayaraghavan and M. Kamaraj	International Welding Symposium (IWS2K14), organized by the Welding Research Institute—Indian Welding Society in association with Asian Welding Federation (AWF), German Welding Society (DVS) and Messe Dusseldorf	Bombay Convention and Exhibition Centre, Mumbai, India	28–30 October 2015
2	Sundararajan Natarajan	Advances and Applications of the Scaled Boundary Finite Element Method (mini symposium) at the Sixth International Conference on Computational Methods	Auckland, New Zealand	4 September 2015
3	C. Balaji	Fifth Asian Symposium on Computational Heat Transfer and Fluid Flow 2015	Busan, South Korea	22–25 November 2015
4	C. Balaji	IEEE Geoscience and Remote Sensing Symposium–2015	Milan, Italy	26–31 July 2015
5	C. Balaji	International Symposium on Advances in Computational Heat Transfer (ICHMT) (Heat Transfer and Optimization Studies on PCM Based Hybrid Heat Sinks with Discrete Protruding Heat Sources)	Rutgers University, USA	25–29 May 2015
6	S.P. Venkateshan	ICHMT (Heat Transfer and Optimization Studies on PCM Based Hybrid Heat Sinks with Discrete Protruding Heat Sources)	Rutgers University, USA	25–29 May 2015
7	A. Seshadri Sekhar	Fourth National Symposium on Rotor Dynamics (NSRD) (presented an invited talk)	NIT Rourkela	6–10 January 2016
8	P.V. Manivannan	21st International Symposium on Artificial Life and Robotics (AROB 2016) (delivered oral presentation)	B-Con Plaza, Beppu, Oita, Japan	19–22 January 2016
9	Dhiman Chatterjee	Offshore Energy: Present Scenario (1-day seminar) (Overview of Tidal and Current Turbine)	VIT Chennai Campus	21 January 2016
10	K. Anand	IGCS Winter School 2016: Sustainable Application of Liquid Biofuels	IIT Madras	22 February to 5 March 2016
Confer	ences			
1	P. Chandramouli	Noise and Vibration Emerging Methods (NOVEM) Conference 2015 (participated)	Dubrovnik, Croatia	13–15 April 2015
2	P. Ramkumar	20th International Conference on Wear of Materials 2015 (participated)	The Sheraton Centre, Toronto, Canada	12–16 April 2015
3	K. Srinivas Reddy	11th International Conference on Concentrator Photovoltaics (attended)	Aix-les-Bains, France	13–17 April 2015
4	A. Mani	25th Canadian Congress of Applied Mechanics (attended)	Western University, London, Ontario, Canada	31 May to 4 June 2015
5	C. Balaji and Rohit S. Nair	ASME-ATI-UIT 2015 Conference on Thermal Energy Systems: Production, Storage, Utilization and the Environment (Heat Transfer Enhancement of a Finned Wickless Heat Pipe-Based Heat Sink)	Napoli, Italy	17–20 May 2015
6	A. Mani	25th CANCAM 2015 (Numerical Investigation of Jet Pump with Twisted Tapes)	Western University, London, Ontario, Canada	31 May to 4 June 2015
7	Shaligram Tiwari	25th CANCAM 2015 (Numerical Investigation of Jet Pump with Twisted Tapes)	Western University, London, Ontario, Canada	31 May to 4 June 2015
8	Sathyan Subbiah	43rd NAMRC-MSEC International Conference (gave oral presentation)	University of North Carolina at Charlotte, USA	8–12 June 2015

Sl. No.	Faculty Member	Programme	Institution	Period
9	B.V.S.S.S. Prasad	ASME Gas Turbine Conference and Turbo Expo 2015 (attended)	Montreal, Canada	15–19 June 2015
10	C. Sujatha	ECCOMAS Thematic Conference on Multi-Body Dynamics 2015 (presented paper)	Barcelona, Spain	29 June to 2 July 2015
11	Krishnan Balasubramanian	QIRT-ASIA Conference on Quantitative Infrared Thermography (attended)	Mamallapuram	7–8 July 2015
12	C. Sujatha	22nd International Congress on Sound and Vibration (ICSV22) (presented paper)	Florence, Italy	12–16 July 2015
13	T. Sundararajan	10th Asia–Pacific Conference on Combustion (ASPACC 2015) (attended)	Beijing, China	19–22 July 2015
14	V. Raghu Prakash	ASME 2015 Pressure Vessels & Piping Conference (attended)	Boston, MA, USA	19–23 July 2015
15	V. Raghu Prakash	International Conference on Computational and Experimental Engineering and Sciences (ICCES 2015) (presented keynote lecture)	Reno, NV, USA	20–24 July 2015
16	T. Sundararajan	15th International Heat Transfer Conference (IHTC-2015) (attended)	Kyoto, Japan	10–15 August 2015
17	G. Venkataratnam	International Congress of Refrigeration ICR2015 (Themodynamics Modeling and Optimization of Refrigerant Mixture for Single-Stage Very-Low-Temperature System Using PC SAFT Equation of State)	Yokohama, Japan	16–22 August 2015
18	S.S. Harish Kruthiventi and G. Venkataratnam	International Congress of Refrigeration ICR2015 (Studies on Design Methods of Coiled Wire Finned Heat Exchangers Used in J\T Refrigerators Operating with Mixture)	Yokohama, Japan	16–22 August 2015
19	K. Srinivas Reddy	Indo-UK collaborative BioCPV project meeting (attended)	University of Exeter, UK	23 August to 3 September 2015
20	Srikrishna Sahu	13th International Conference on Liquid Atomization and Spray Systems ICLASS 2015 (attended)	National Cheng Kung University, Tainan, Taiwan	23–27 August 2015
21	T.N.C. Anand	13th International Conference on Liquid Atomization and Spray Systems (attended)	National Cheng Kung University	23–27 August 2015
22	N. Ramesh Babu	Asia Pacific Conference on Engineering and Applied Science (APCEAS2015) (presented paper) and AMADA Co., Kyushu Institute of Technology and Kobayashi Manufacturing Company (visited)	Osaka, Japan	24 August to 2 September 2015
23	K. Srinivas Reddy	14th International Conference on Sustainable Energy Technologies (SET2015) (presented paper)	Nottingham, UK	25–27 August 2015
24	V. Raghu Prakash	Fourth International Conference on Fracture Fatigue and Wear FFW 2015 (attended)	Ghent University, Belgium	27–28 August 2015
25	A. Mani	Engineers Conclave 2015 (invited talk titled 'Solar Thermal Energy Refrigeration Technologies: About Issues and Feature Trends')	BARC, Mumbai	7–9 September 2015
26	S. Soundarapandian	Conference on Application of Lasers in Manufacturing (CALM 2015) (An Overview of Laser Dentistry State of the Art)	ARCI, Hyderabad	9–10 September 2015
27	B.V.S.S.S. Prasad	13th Asian International Conference on Fluid Machinery 2015 (AICFM 13) (attended)	University of Tokyo, Japan	7–10 September 2015
28	Pramod S. Mehta	12th International Conference on Engines and Vehicles (ICE 2015) (made oral presentation)	Capri, Napoli, Italy	13–17 September 2015

Sl. No.	Faculty Member	Programme	Institution	Period
29	S. Varun Kumar	2015 International Autumn Seminar on Propellants, Explosives and Pyrotechnics (made oral presentation)	Qingdao, China	12–20 September 2015
30	V. Raghu Prakash	National Conference on Emerging Technologies (chaired the Mechanical Engineering Session)	Technologies (chaired the Mechanical Engineering College,	
31	Pramod S. Mehta	ICE 2015 (made oral presentation titled 'Reducing NO in Biodiesel Fueled Compression Ignition Engine')	CE 2015 (made oral presentation titled Capri, Napoli, Italy Reducing NO in Biodiesel Fueled	
32	M.P. Maiya	ASHRAE Region at Large—Chapters Regional Conference (RAL CRC)	ASHRAE Turkish Chapter, Istanbul, Turkey	2–5 October 2015
33	L. Vijayaraghavan	International conference (chief guest at inauguration)	Karpagam College of Engineering, Coimbatore	15 October 2015
34	M.S. Shunmugam	Fourth Edition of the Biennial National Conference on Refrigeration and Air Conditioning (NCRAC 2015) (hosted in association with IIT Madras)	Rajalakshmi Engineering College, Thandalam, Chennai	28–30 October 2015
35	M.P. Maiya	National Conference of Refrigeration and Air Conditioning (NCRAC) 2015 (made oral presentation)	Rajalakshmi Engineering College, Chennai	30 October 2015
36	P. Chandramouli	International Multi–Conference on Engineering and Technology Innovation (IMETI 2015) (attended)	Kaohsiung, Taiwan	30 October to 3 November 2015
37	K. Srinivas Reddy	International Solar Energy Society (ISES)— Solar World Congress 2015 (attended)	Daegu, Korea	5–13 November 2015
38	V. Raghu Prakash	ASME IMECE 2015—International Mechanical Engineering Congress and Exposition 2015 (attended)	Houston, Texas, USA	16–19 November 2015
39	K. Srinivas Reddy	International Conference on Climate Change Paradigms (delivered a talk)	Centre for Public Policy Research (CPPR), Cochin, Kerala	20–21 November 2015
40	Dhiman Chatterjee	Ninth International Symposium on Cavitation (poster presentation)	EPFL, Lausanne, Switzerland	6–11 December 2015
41	G.L. Samuel and Karthikeyan K.	COPEN 2015 (poster presentation titled 'Automation of Car Door Assembly Inspection and Surface Measurement Using Laser Displacement Sensor')	IIT Bombay, Mumbai	10 December 2015
42	G.L. Samuel and Rajesh Babu Kadirikota	Oral Presentation "Undamped Forced Vibration Analysis of a Micro End Mill cutter by Mode superposition Method" at IIT Bombay Mumbai	COPEN-2015, IIT Bombay, India	10–12 December2015
43	G.L. Samuel and Niketh	COPEN 2015 (oral presentation titled 'Generation of Micro-scale Pattern on Drill Bit and Its Effect on the Machining of Titanium Alloys')	IIT Bombay, Mumbai	10–12 December 2015
44	Ranjeet Kumar Sahu and Somashekhar S. Hiremath	International Conference on Precision, Meso, Micro and Nano Engineering (Synthesis of Aluminium Nanoparticles Using a Novel Micro-EDM Technique)	IIT Bombay, Mumbai	10–12 December 2015
45	Navatha A., Somashekhar S. Hiremath and Karunanidhi S.	International Conference on Precision, Meso, Micro and Nano Engineering (System Modeling and Simulation of Precision Electro Hydrostatic Actuator System)	IIT Bombay, Mumbai	10–12 December 2015

Sl. No.	Faculty Member	Programme	Institution	Period
46	Bindu Madhavi J. and Somashekhar S. Hiremath	,,,,,		10–12 December 2015
47	Manoj Pandey	nternational Conference on Advanced Nano- Material and Nanotechnology 2015 (Modeling Mode Mixing and Chaos in a Resonant NEMS)		11–18 December 2015
48	K. Srinivasan	12th International Conference on Vibration Problems (ICOVP-2015)	2th International Conference on Vibration IIT Guwahati	
49	Manoj Pandey and Atul Shankara Kulkarni (ME13S009)	ICOVP-2015 (Nonlinear Dynamic Analysis of Cracked Cantilever Beam Using Reduced Order Model)	IIT Guwahati	14–17 December 2015
50	K. Srinivasan	60th Congress of the Indian Society of Theoretical and Applied Mechanics	MNIT, Jaipur	16–19 December 2015
51	C. Balaji	23rd National and First International ISHMT- ASTFE Heat and Mass Transfer Conference (IHMTC 2015)	VSSC, Thiruvananthapuram, Kerala	17–20 December 2015
52	Arvind Pattamatta	IHMTC 2015	VSSC, Thiruvananthapuram, Kerala	17–20 December 2015
53	G. Venkataratnam	International Cryogenic Engineering Conference (made presentation titled "Thermodynamics of Nitrogen–Hydrocarbon Mixture Used in J–T Refrigerators")	New Delhi	7–11 March 2016
54	M. Govardhan	ASME Gas Turbine Conference	New Delhi	1–3 December 2015
55	Shyama Prasad Das	IHMTC 2015	VSSC, Thiruvananthapuram, Kerala	17–20 December 2015
56	Arvind Pattamatta	IHMTC 2015	VSSC, Thiruvananthapuram, Kerala	17–20 December 2015
57	Manoj Pandey	National Conference on Mechanical, Electrical, Electronics, Civil, Computer Science and Information Technology	IIT Guwahati	8–11 December 2015
58	Manoj Pandey	ICOVP-2015 (Nonlinear Dynamic Analysis of Cracked Cantilever Beam Using Reduced Order Model)	IIT Guwahati	11–18 December 2015
59	A. Seshadri Sekhar	22nd International Congress on Sound and Vibration (ICSV22) (presented a paper)	Florence, Italy	12–16 July 2015
60	Krithika Narayanaswamy	PJ Paul Memorial Meeting	VSSC, Kerala	27–29 February 2016

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	B.V.S.S.S. Prasad	Seminar talk	KREC College, Thiruchengodu	_
2	B.V.S.S.S. Prasad	Seminar talk	SRKC Engineering College, Bhimavaram	31 August 2015
3	C. Balaji	'The Joy of Teaching' and 'The Joy of Research'	G. Pulla Reddy Engineering College, Kurnool	10 October 2015
4	G.L. Samuel	Intelligent Measurement and Metrology Systems	NIT Trichy	31 October 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
5	C. Balaji	Assessment of High Heat Flux Thermal Management Techniques in Electronics Using Solid–Liquid Phase Change Material (PCM)-Based Heat Sinks	IIT Ropar	8 November 2015
6	Narasimhan Swaminathan	Role of Pre-existing Point Defects on Defect Production and Crystal Stability in 3C-SiC (invited talk at the Indo–UK Workshop on Modeling and Simulation of Safety and Materials for Nuclear Applications)	IGCAR, Kalpakkam	17 December 2015
7	G.L. Samuel	Challenges in Manufacturing of Biomedical Devices: A Perspective from Materials and Processes	Deakin India Research Initiative (DIRI) Symposium Event	6–9 December 2015
8	M.P. Maiya	Ventilation and Human Comfort	IIT Madras	9–14 December 2015
9	M.S. Shunmugam	Nano-filler-Based Polymers: Functional and Manufacturing Characteristics	Central Institute of Plastic Engineering, Ahmedabad	12–14 February 2016
10	M.P. Maiya	Cooling Tower-Based Thermally Activated Building System for Thermal Comfort	IIT Guwahati	13 February 2016
11	Dhiman Chatterjee	Overview of Tidal and Current Turbine (at 'Offshore Energy: Present Scenario', seminar)	VIT, Chennai	21 January 2016
12	N. Ramesh Babu	Water Jet Technology	AP Akademi of Science, Andhra Pradesh	19–20 March 2016
13	Somashekhar S. Hiremath	Keynote speech	Krishna Nagar, Kolkata	18 March 2016
14	Somashekhar S. Hiremath	Key Note Speech	Karur, Tamil Nadu	24 March 2016
15	Arunachalam	Creativity and Innovations in Teaching (invited talk)	SRMEEC, Chennai	-
16	K. Srinivas Reddy	Expert lectures at Summer School on Recent Trends in Heat and Mass Transfer	Adhiparasakthi Engineering College, Melmaruvathur, Kancheepuram District	11 May 2015
17	C. Balaji	The Joy of Learning	Women's Christian College, Chennai	19 June 2015
18	C. Balaji	Analysis of Cyclone Structure from TRMM Data	National Climate Conference, IISc, Bengaluru	2–3 July 2015
19	Sujatha Srinivasan	Rehabilitation Research and Device Development at IIT Madras	CMC, Vellore	18 January 2016
20	Abhijit Sarkar	Vibration and Acoustic Research at IIT Madras	School of Mechanical and Manufacturing Engineering, University of New South Wales, Sydney	12 June 2015
21	P. Ramkumar	Lecture at Faculty Development Programme (FDP)–Teacher Orientation 2015–2016	T.S. Srinivasan Centre for Polytechnic College and Advanced Training	28 May 2015
22	Raghu Prakash	Traditional and Novel Experimental Methods for Fatigue Properties Determination (keynote lecture)	IISc, Bengaluru	29 May 2015
23	Krishnan Balasubramanian	Distinguished Speaker at the One- Day Summit on Emerging Trends in Electromagnetism for Industrial Medical and Research	GE, Bengaluru	10 June 2015
24	Krishnan Balasubramanian	Nano-Mission Committee Meeting	ARCI, Delhi	11 June 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
25	Sujatha Srinivasan	Invited to the Humanitarian Innovation Advisory Group Meet, to discuss the India Innovation Hackathon	International Committee of the Red Cross (ICRC), Bengaluru	8 June 2015
26	Somashekhar S. Hiremath	Foretaste of Micromachining: Technology for Miniaturization	International Conference on Mechanical Engineering Research and Intelligence Technologies (IConMERIT'2K16) (keynote speaker), Nehru Institute of Engineering and Technology, T.M. Palayam, Coimbatore	30 March 2016
27	Somashekhar S. Hiremath	Robotic World of the Future	National Conference on Automation, Robotics and Mechatronics Systems (NCARMS-2016) (keynote speaker), Department of Production Technology, Anna University, MIT Campus, Chromepet, Chennai	26 March 2016
28	Somashekhar S. Hiremath	Recent Trends in Renewable Energy	Recent Trends in Renewable Energy: Energy of the Future (national seminar, keynote speaker), organized by Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Manalmedu, Karur	24 March 2016
29	Somashekhar S. Hiremath	'Robot and Robot Applications' and 'Current Challenges in Robotic Vehicles'	Alagappa Chettiar College of Engineering and Technology, Karaikudi	15 March 2016
30	Somashekhar S. Hiremath	Micromachining: Breakthrough Technology for Miniaturization	Emerging Trends in Science, Technology and Management for National Development (i-CON 2016) (national conference, keynote speaker), Global Institute of Management and Technology, Krishna Nagar, Nadia, West Bengal	18 March 2016
31	Somashekhar S. Hiremath	Mechatronics: Integrated Approach for Design of Electro-mechanical Systems	QIS College of Engineering and Technology, Vengamukkapalem, Ongole, Andhra Pradesh	26 February 2016
32	Somashekhar S. Hiremath	Current Trends in Robotics	Alagappa Chettiar College of Engineering and Technology, Karaikudi	7 January 2016
33	Sushanta Kumar Panigrahi	Potential of Bulk Ultrafine Grained Materials (keynote address at International Conference on Sustainable Materials Design and Applications (ICSMDA))	Kongu Engineering College, Tamil Nadu	19 March 2016
34	Sushanta Kumar Panigrahi	Recent Advances in Friction-Based Joining (keynote address at National Seminar on "Recent Trends in Welding Technology)	Hindustan University, Chennai	21 March 2016
35	K. Srinivasan	Passive Strategies for Control of Aero- acoustic Noise	12th International Conference on Vibration Problems (ICOVP 2015), IIT Guwahati	14–17 December 2015
36	K. Srinivasan	Challenges in Jet Noise Mitigation	The 60th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM 2015), Malviya National Institute of Technology (MNIT), Jaipur	16–19 December 2015

Visits abroad by faculty members					
Sl. No.	Faculty Member	Place Visited	Date	Purpose of Visit	Funding from
1	P. Ramkumar	UK	10 June to 31 July 2015	To visit University of Southampton, UK as an Academic Visitor	University of Southampton
2	A. Mani	USA	5 June to 21 July 2015	University of Minnesota, North Dakota State University, University of Wisconsin, Purdue University, Mouli Engineering Inc. and Palanisamy Associates	Personal funds
3	Chakravarthy Balaji	Busan, South Korea	21–26 June 2015	To attend Fifth ASCHT Symposium on Computational Heat Transfer and Fluid Flow, Korea (oral presentation)	Partial financial assistance from IIT Madras
4	C. Sujatha	Spain and Italy	29 June to 2 July 2015	To attend ECCOMAS Thematic Conference on Multibody Dynamics 2015, Barcelona School of Industrial Engineering Universitat Politecnica de Catalunya	IIT Madras
5	V. Raghu Prakash	Italy	29 August to 1 September 2015	To visit University of Politechnico Di Milano	Personal funds
6	M.P. Maiya	Istanbul, Turkey	1–5 October 2015	Professional development	Personal funds
7	Ashis Kumar Sen	Gyeongju, Korea	25–29 October 2015	To present posters titled 'Focusing, Spacing Control and Resistance- Based Sorting of Deformable Objects' and 'Elasto Capillary Flow in Deformable PDMS Microchannels'	Partial finance assistance from IIT Madras
8	V. Raghu Prakash	Greensboro, North Carolina, USA	20–21 November 2015	To visit North Carolina A&T State University (NCAT)	Personal fund
9	Sathyan Subbiah	USA	28 March to 1 April 2016	To attend International Conference on Micro Manufacturing (ICOMM), UC Irvine	IIT Madras
10	A. Seshadri Sekhar	Florence, Italy	12–17 July 2015	To present a paper at 22nd International Congress on Sound and Vibration (ICSV22)	IIT Madras
11	S. Varun Kumar	China	13–18 September 2015	To present a paper at IASPEP 2015	CPDA

Visits within India by faculty members

Sl. No.	Faculty Member	Purpose of Visit	Venue and Date
1	P.V. Manivannan	To attend Arjun ARRV Project design review meeting and visit BEML office	BEML, Bengaluru, 5–6 November 2015
2	Shankar Krishnapillai	External examiner for Ph.D. viva voce	IIT Delhi, 17 November 2015
3	M.P. Maiya	Semi Conductor Laboratory (SCL) visit	SLIET Punjab, 20 November 2015
4	K. Srinivas Reddy	Ph.D. comprehensive exam	VIT University, Vellore, 23 November 2015
5	N. Ramesh Babu	Imprint-India initiative launch	Rashtrapathi Bhawan, New Delhi, 5 November 2015
6	N. Ramesh Babu	Faculty selection meeting	IIT Ropar, 1 December 2015
7	K. Srinivas Reddy	Faculty selection in Mechanics as a member on the Panel of Experts	NIT Goa, 27 December 2015
8	N. Ramesh Babu	Panel discussion at Annual General Board Meeting of Indian Machine Tool Manufacturers Association	Bengaluru, 10 December 2015
9	N. Ramesh Babu	Panel discussion titled 'Indian Manufacturing Scenario'	IIT Bombay, 11 December 2015
10	N. Ramesh Babu	Imprint-India meeting	DST, New Delhi, 14 December 2015

Sl. No.	Faculty Member	Purpose of Visit	Venue and Date
11	A. Seshadri Sekhar	Ph.D. viva voce	NIT Trichy, 11 December 2015
12	L. Vijayaraghavan	To attend BOG meeting	College of Engineering, Kollam, Kerala, 31 December 2015
13	M.S. Shunmugam	Selection committee meeting	BITS-Pilani, 18 March 2015
14	N. Ramesh Babu	Project review meeting	BHEL R&D, Hyderabad, 17 March 2016
15	N. Ramesh Babu	Board of Study meeting	GITAM University, Visakhapatnam, 26 March 2016
16	L. Vijayaraghavan	Governing Council meeting	PSG College of Technology, Coimbatore, 28 March 2016
17	Somashekhar S. Hiremath	Robotic World of the Future	National Conference on Automation, Robotics and Mechatronics Systems (NCARMS-2016) (keynote speaker), Department of Production Technology, Anna University, MIT Campus, Chromepet, Chennai, 26 March 2016
18	Somashekhar S. Hiremath	Recent Trends in Renewable Energy	Recent Trends in Renewable Energy: Energy of the Future (national seminar, keynote speaker), organized by Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Manalmedu, Karur, 24 March 2016

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award
Honou	rs				
1	K. Srinivas Reddy	Honorary Professor	College of Engineering Mathematics and Physical Sciences, University of Exeter, UK		23 August to 3 September 2015
2	B.V.S.S.S. Prasad	Outstanding Reviewer of ASME—Journal of Heat Transfer	Heat Transfer Division at ASME	In testimony of the high regard of his associates and the deep appreciation of the society for his valued services in advancing the engineering profession	13–19 November 2015
3	Abhijit Sarkar and P. Priyadarshan	Best Paper Award at the International Conference on Vibration Problems (ICOVP 2015) for the paper titled 'Vibration Control of Frame Structures'	ICOVP 2015, IIT Guwahati	Best paper at ICOVP 2015	14–17 December 2015
4	Manoj Pandey and Atul Shankara Kulkarni (ME13S009)	Best Paper Award at ICOVP 2015 for the paper titled 'Nonlinear Dynamic Analysis of Cracked Cantilever Beam Using Reduced Order Model'	ICOVP 2015, IIT Guwahati	Best paper at ICOVP 2015	14–17 December 2015
5	Sujatha Srinivasan	Invited to showcase standing wheelchair at the exhibition on 'Innovations in Medical Science and Biotechnology', Rashtrapati Bhawan	ICMR	Standing wheelchair	16 March 2016

SI. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award	
Award	Awards					
1	V.V.S.D. Ratna Kumar Annabattula	Young Faculty Recognition Award–2015	Director of YFRA Committee	Outstanding achievements in teaching, scholarship and creative research	5 September 2015 (Teachers' Day)	
2	P. Chandramouli	Thomas French Achievement Award	The Ohio State University	Select alumni of his alma mater	1 April 2016	
3	C. Balaji	Mid-career Research Award	IIT Madras	IIT Madras	2015	

Books and monographs authored/co-authored

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SI. No.	Faculty Member	Title	Publisher	Author/Co-author
Books				
1	K. Srinivas Reddy	Sustainable Energy and the Environment: A Clean Technology Approach	Capital Publishing Company with Springer as a co-publisher	K. Srinivas Reddy
Monog	raphs			
1	Raghu Prakash	Advanced Monographs and Journals in the Frontier Disciplines of Engineering & Sciences	Tech Science Press	Editor-in-Chief of Structural Longevity (SL) for a period of 5 years during 2015–2020

Fellowships of academies and professional societies

Sl. No.	Faculty Member	Details
INAE		
1	Arvind Pattamatta	INAE Young Engineer Award for 2015
Others		
1	Krishnan Balasubramanian	Member, Board of Governors, NIT Trichy
2	Krishnan Balasubramanian	Class of 1981 Institute Chair
3	N. Ramesh Babu	Institute Chair
4	A. Ramesh	Institute Chair
5	Sarit Kumar Das	Institute Chair

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	V. Raghu Prakash	Editor-in-Chief	Journal of Structural Longevity
2	K. Srinivas Reddy	Editor	Journal of Low Carbon Technologies, UK
3	M. Govardhan	Member of editorial board	International Journal of Thermal Science
4	Somashekhar S. Hiremath	Editor-in-Chief	International Journal of Recent Advances in Mechanical Engineering (IJMECH)

4.13.4. Design and Development Activities

New facilities added or major equipment procured

SI. No.	Name of Equipment	Value (lakhs of ₹)
1	50 kN table top UTM from Shimadzu through New Faculty Seed Grant, Ratnakumr Kumar Annabatula	19.0
2	Automated circumferential traverse mechanism	12.0
3	Bertec force plates, Dr. Sujatha Srinivasan	25.0

Patents	Patents filed				
Sl. No.	Faculty Member	Title of Patent			
1	Sujatha Srinivasan with Sripriya Kalidoss (ME11B133), Karthikeyan SD (ME11B086), and Vivek Sarda (ME09B102)	Hybrid Manual–Electric Wheelchair			
2	Sujatha Srinivasan with Ganesh Bapat (ME12D074)	Flexlock for Tri-state KAFO			
3	Sujatha Srinivasan with Vivek Sarda (ME09B102) and Swostik Sourav Dash (ME08B088)	Supportive Walker with Integrated Seating Mechanism			
4	Sujatha Srinivasan with Swostik Sourav Dash (ME08B088) and Vivek Sarda (ME09B102)	Attachment Mechanism to Convert a Manual Wheelchair into a Tricycle or Motorized Wheelchair			

4.13.5. Research and Consultancy

Sponsored research projects

Бропоо	red research projects				
Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Composition–Property–Performance Relationship of Biodiesel Fuels of Indian and German Origin for Use in Compression Ignition Engines	November 2013 to March 2016	DST	50.00	Pramod S. Mehta and K. Anand
2	Microfludic Platform for Identification and Isolation of Target Cells	3 years from September 2015	DST-SERB	47.06	Ashis Kumar Sen, Anil Prabhakar and Madhulika Dixit
3	Experimental Investigation of Thermomechanical Behaviour of Ceramic Breeder Materials	2 years	BRNS	19.00	Ratna Kumar and Annabattula
4	Seismic Test of 145 kV Disconnector for S&S Power Switchgear	13 November 2015 to 30 May 2016	S&S Power Switchgear Limited	3.135	P. Chandramouli
5	Seismic Test of 12 kV Outdoor Circuit Breaker, Toshiba Transmission	13 November 2015 to 30 May 2016	Toshiba	2.622	P. Chandramouli
6	Machining and Characterization of Micro-Shaped Holes in High- Temperature Materials Using Hybrid Machining Process	2016–2017	ARDB	230	M.S. Shunmugam (PI)
7	Development of Hydrokinetic Energy Conversion System	30 November 2015 to 30 May 2017	IOC Limited	80.19	Dhiman Chatterjee (PI), Shyama Prasad Das (Co-PI), P. Chandramouli (Co- PI) and V. Anantha Subramanian (OE)
8	Effect of Forward Sweep Blades on the Performance of Axial Flow Compressor Stage	10 February 2015 to 9 February 2017	GTRE	23.20	M. Govardhan
9	Endwall Contouring and Leading Edge Fillets for Reducing Secondary Losses in an Axial Turbine Stage	10 February 2015 to 9 February 2017	GTRE	16.07	M. Govardhan
10	Experimental and Numerical Investigation of Ultrasonically Excited Encapsulated Microbubbles Inside Flexible Tubing	11 February 2015 to 10 February 2016	IIT Madras	10	Dhiman Chatterjee and Mukesh Doble
11	Microfluidic Platform for Identification and Isolation of Target Cells	2015–2018	DST	47	M. Dixit and A. Prabhakar
12	Affordable Standing Wheelchair	April 2015 to April 2018	Wellcome Trust, UK	302	Sujatha Srinivasan

SI. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
13	Centre of Excellence on Machine Tools and Production Technology	Null	Department of Heavy Industry	5612.50	Ramesh Babu N. and Krishna Vasudevan
14	Affordable Standing Wheelchair	6 April 2015 to 5 April 2018	Wellcome Trust, UK	300.21	Sujatha Srinivasan
15	Machining and Characterization of Micro-Shaped Holes in High- Temperature Materials Using Hybrid Machining Process	23 February 2016 to 22 February 2018	ARDB	238.90	Shunmugam M.S. and Samuel G.L.
16	Microfluidic Platform for Identification and Isolation of Target Cells	21 October 2015 to 20 October 10-2018	DST	47.07	Ashis Kumar Sen, Anil Prabhakar and Madhulika Dixit
17	Development of a Prototype for Dismantling Time Expired Ammunitions with Abrasive Water	19 June 2015 to 18 June 2018	Armament Research Board	46.16	Ramesh Babu N.
18	Development of Three-Dimensional Blade Profiles Based on Iterative Inverse Design Methodology	30 September 2015 to 29 September 2017	GTRE	37.40	Prasad B.V.S.S.S. and Sanyasiraju Y.V.S.S.
19	CFD Studies on Jet Deflector Duct of Future Launch Pad for Advanced Launch Vehicles of ISRO	1 March 2016 to 31 August 2017	ISRO	23.22	Sundararajan T. and Raghavan V.
20	Design and Development of Cost- Efficient Solar Receiver Tube for Medium- and High-Temperature Solar Thermal Applications	3 February 2016 to 2 February 2019	DST	22.12	Sundararajan T.
21	Performance and Durability Improvement of the Solar Thermal Desalination System at Narippaiyur, and Utilization of Reject Sea Water for Algae Cultivation to Produce Biogas	5 February 2016 to 4 February 2019	DST	21.90	Sundararajan T. and Mani A.
22	Experimental Investigation of Thermo- mechanical Response of Ceramic Breeder Pebble Beds	18 September 2015 to 17 September 2017	Board of Research in Nuclear Sciences	18.75	Ratna Kumar Annabattula V.V.S.D.
23	Imprint-Manufacturing	6 January to 5 July 2016	Ministry of Human Resource and Development	5.00	Ramesh Babu N.
24	Development of Bi-metallic Joining Technique and Realization of Bi-metallic Adaptors for Launch Vehicles	March 2013 to May 2016	ISRO	35.00	Sushanta Kumar Panigrahi

Industrial consultancy projects

	J 1 J			
Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Shyama Prasad Das	Development of Hydrokinetic Energy Conversion System	IOCL	80.2
2	A.K. Sen	Cell Sorter	Jiva Sciences Private Limited	25.0
3	Prakash Maiya M. and Shiva Nagendra S.M.	Study and Evaluation of the Design of Three-Stage Cooling Systems for Titan Corporate Office, Bengaluru	Titan Company Limited	8.99
4	Krishnan Balasubramanian	Consultancy Testing Project	Sundaram-Clayton Limited	2.67
5	Sundararajan T.	NDT of Passenger Ropeway System	Arulmigu Dhandayuthapani Swamy Thirukoil	5.00
6	Chandramouli P. and Kruishna Kannan	Seismic Testing of CVTs	Alstom T&D India Limited	11.51

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
7	Chandramouli P. and Shankar Krishnapillai	Seismic and Mechanical Tests on 420 kV CVTs	Siemens India Limited	5.70
8	Chandramouli P. and Abijith Sarkar	Seismic and Mechanical Tests on 145 and 245 kV CVTs	Siemens India Limited	5.70
9	Chandramouli P. and Parag Ravindran	Seismic Testing of CTs and VTs	Toshiba Transmission and Distribution Systems (India) Private Limited	10.34
10	Sujatha C. and Seshadri Shekar A.	Seismic Test on 170 kV Circuit Breakers	Siemens India Limited	4.90
11	Sujatha C. and Abijith Sarkar	Seismic Test on Current Transformers	Heptacare Power Industries Private Limited	4.27
12	Srinivas Reddy K.	K-Value Test of LRB Rockwool Mattresses	Common Code	2.02
13	Mallikarjuna J.M.	Design of Worm-Wheel Gear Box	Vircap Sealingtech Private Limited	3.19
14	Sujatha C. and Seshadri Shekar A.	Seismic Tests on 170 kV Three-Pole and 170 kV Single-Pole Circuit Breakers	Siemens Limited	4.90
15	Sujatha C. and Abijith Sarkar	Seismic Test on 390 kV Surge Arrester	Crompton Greaves Limited	2.13
16	Sujatha C. and Parag Ravindran	Seismic Test on 72.5 kV Breaker	ABB Limited	2.13
17	Srinivas Reddy K.	Determination of Thermal Conductivity Values LRB Mattresses of 100 and 150 kg/m ³	Hi-Tec Rock Fibre Private Limited	2.02
18	Chandramouli P. and Abijith Sarkar	Seimic Test on 145 kV GCB	Alstom T&D India Limited	2.68
19	Chandramouli P. and Parag Ravindran	Seismic Test of 390 kV Surge Arrester	Oblum Electrical Industries Private Limited	2.74
20	Srinivas Reddy K.	Design and Development of Solar Thermal Systems and Estimation of Thermal Conductivity of Insulating Materials	Common Code	0.00
21	Chandramouli P. and Seshadri Shekar A.	Seismic Test of 12 kV OCB	Toshiba Transmission and Distribution Systems (India) Private Limited	2.62
22	Chandramouli P. and Shankar Krishnapillai	Seismic Test of 145 kV Disconnector	S&S Power Switchgear Limited	3.14
23	Srinivas Reddy K.	Estimation of Thermal Conductivity of LRB Rockwool Mattress	Punjstar Insulation Fibre Co.	2.24
24	Srinivas Reddy K.	Design and Development of Solar Thermal Systems and Estimation of K-Value of Various Insulating Materials	Common Code	1.12
25	Chandramouli P.	Acoustic Transmission Loss of Motorcycle Silencers	Royal Enfield Limited	1.03
26	Sujatha C. and Seshadri Shekar A.	Seismic Test on CTs, PA and LA	Lamco Industries Private Limited	9.42
27	Sujatha C. Shankar Krishnapillai	Seismic Test on 400 kV and 800 kV Circuit Breakers	Crompton Greaves Limited	5.27
28	Prakash Maiya M.	Consultancy for Replacement of Existing AC Ducts at Door Dharshan Kendra, Hyderabad	All India Radio	3.44

RBIC p	projects			
Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Sujatha Srinivasan	TTK Centre for R2D2 (CSR project)	TTK group	368
2	M. Govardhan	Aerodynamics Characterization of a Turbine Rear Frame Using Flow Measurement Techniques	GE Technologies, Bengaluru	40.63
3	M. Govardhan	Aeromechanical Design of an Axial Compressor for Process Industry	BHEL, Hyderabad	10.31
4	M. Govardhan	Thermal Analysis and Optimization of 350 kW PM Motor	BHEL, Hyderabad	10.30
5	Dhiman Chatterjee, A. Ramesh and S.K. Das	Cooling System: Design for Tractor Application	TAFE	12
6	K. Arul Prakash and Dhiman Chatterjee	Orifice Size Selection Tool	Caterpillar	6.75
7	S.K. Bhattacharyya and Dhiman Chatterjee	Canister Flooding Dynamics	DRDL	22.472
8	Mahesh V. Panchagnula and Dhiman Chatterjee	Advanced Microspray Cooling Technologies for High-Power Density Hydraulics	Eaton	33.708
9	Dhiman Chatterjee, Shyama Prasad Das, P. Chandramouli and V. Anantha Subramanian	Development of Hydrokinetic Energy Conversion System	IOCL	80.199
10	Sujatha C.	Measurement of Acceleration and Stress/ Strain of Combat Vehicle During Firing of Gun	Ordnance Factory, Medak	6.25
11	Ramesh A.	Low Compression Ratio Diesel Engine	Mahindra & Mahindra Limited	39.64
12	Raghu Prakash V.	Stress Analysis of Wiper Arm Motor Shaft	Lucas-TVS Limited	2.81
13	Shankar Krishnapillai	Design of Rack and Pinion Drive for Guillotine Gates	Bharat Heavy Electricals Limited	9.99
14	Srinivas Reddy K.	Modulation Study in Boiler and Flue Gas System: Investigation of Flow Maldistribution of Flue Gases in ESP Inlet Manifold of 660 MWe Supercritical Thermal Power Plant	Thermal Powertech Corporation India Limited	27.68
15	Srinivas Reddy K.	Development of 40 m ² Solar Dish System for Steam Generation	Arkin Ventures Private Limited	5.42
16	Srinivas Reddy K.	Estimation of Thermal Conductivity Values of LRB Rockwool Mattresses of Different Densities and Thickness	Goenka Rockwool (India) Private Limited	4.05
17	Ramesh Babu N.	Accelerated Grinding and Other Topics of Mutual Interest	Saint–Gobain Research India Limited	24.62
18	Prasad B.V.S.S.S.	Design and Analysis of Wall Blower with Blowing Radius of 3.5 m	Bharat Heavy Electricals Limited	6.84
19	Shamit Bakshi	Experiments on Gas Atomization of Low Melting Point Metal for Powder Production	Sandvik Asia Private Limited	24.00
20	Vijayaraghavan L.	Testing of Grinding Wheel on IIT Madras Centreless Grinding Facility	Saint–Gobain Research India Limited	1.72
21	Krishnan Balasubramaniam	Guided Ultrasonic Wave Technology Using Magnetostriction-Based Sensors in Pipes and Tubes	Aditya Birla Science and Technology	9.16
22	Krishnan Balasubramaniam	Feasibility Evaluation and Development of Sensors for Boiler Tube Condition	National Thermal Power Corporation Limited	55.32

Retaine	Retainer consultancy					
SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)		
1	P. Chandramouli	Noise and Vibration in Motorcycles	Royal Enfield Limited	2.06		
2	Sathyan Subbiah	Research Consultancy Related to Science, Technologies and Processes of Material Removal and Other Aspects of Mutual Interest	Saint-Gobain Research India Limited	1.50		

Faculty	Faculty members' participation with other institution under MoUs				
SI. No.	Faculty Member	Details	University/Institution		
1	M.M. Mayuram	Doctoral Committee meeting of a Ph.D. candidate held on 15 April 2015	AU-FRG Institute for CAD/CAM, Anna University		
2	A. Seshadri Sekhar	Ph.D. viva on 13 April 2015	IIT Guwahati		
3	M.M. Mayuram	Board of Studies meeting on 18 April 2015	Kongu Engineering College, Perundurai, Erode		
4	V. Raghu Prakash	Ph.D. synopsis meeting on 22 April 2015	Meeting at IIT Hyderabad—colloquium of Mr. Abdul Huq Ghouse-Ramji		
5	K. Srinivas Reddy	The Doctoral Committee meeting of a Ph.D. candidate, Mr. C.S. Sujith Kumar, on 22 April 2015	Office of Dean (Academic) at NIT Trichy		
6	P. Ramkumar	Final Ph.D. viva voce thesis examiner for Mr. Sourabha S. Havalder on 30 April 2015	VSM Institute of Technology, Nipani		
7	P. Ramkumar	Ph.D. synopsis meeting for Mr. D. Elil Raja, Doctoral Committee meeting	SSN College of Engineering, Kalavakkam, Chennai, 26 May 2015		
8	Krishnan Balasubramanian	Juror on 23 April 2015	Tata Innovista 2015, Mumbai		
9	Krishnan Balasubramanian	Visit to labs on 24 April 2015	DRDO, Hyderabad		
10	Krishnan Balasubramanian	Project meeting on 1 May 2015	DMRL, Hyderabad		
11	Raghu Prakash	Delivering lecture titled 'Design for Manufacturing and Assembly' on 9 April 2015	Government Engineering College, Tiruvananthapuram, Kerala		
12	Shaligram Tiwari	Selection Committee meeting for recruitment of faculty members on 1 May 2015	Convention Centre, KIIT University, Bhubaneswar		
13	P. Ramkumar	External examiner for B.Tech. project viva of 2011 batch students on 22 May 2015	IITDM, Kancheepuram		
14	Krishnan Balasubramanian	Project meeting on 20 and 21 August 2015	IOCL, Faridabad		
15	Krishnan Balasubramanian	Industrial visit to Shell on 10 August 2015	Shell Company, Bengaluru		
16	Krishnan Balasubramanian	Visit to Tata Steel Company on 17 and 18 August 2015	Tata Steel, Jamshedpur		
17	Krishnan Balasubramanian	Nano-Mission Committee meeting on 11 June 2015	ARCI, Delhi		
18	Krishnan Balasubramanian	Distinguished speaker at the Summit on Emerging Trends in Electro-magnetism for Industrial and Medical Research on 10 June 2015	GE, Bengaluru		
19	B.V.S.S.S. Prasad	Seminar talk	KREC College, Thiruchengodu		
20	B.V.S.S.S. Prasad	Seminar talk on 31 August 2015	SRKC Engineering College, Bhimavaram		
21	K. Srinivas Reddy	100th Meeting of Expert Committee on Science and Technology for Women to evaluate new project proposals for DST funding on 6 and 7 August 2015	K.L. University, Green Fields, Vaddeswaram, Guntur District, Andhra Pradesh		

Sl. No.	Faculty Member	Details	University/Institution
22	P. Ramkumar	Doctoral Committee meeting for research scholar Mr. Mullai Vendhan on 18 August 2015	Sri Siva Subramaniya Nadar College of Engineering, Chennai
23	V. Raghu Prakash	Viva voce exam of Mr. Abdul Huq Ghose on 24 August 2015	IIT Hyderabad
24	A. Ramesh	Automotive Industrial and Aviation Fuels Sub- committee meeting on 29 July 2015	BIS, New Delhi
25	V. Raghu Prakash	Expert member at faculty selection on 27 and 28 September 2015	IIT Patna
26	A. Mani	Project review meeting on 19 October 2015	BRNS, BARC, Mumbai
27	A. Mani	An expert committee member for the Interview Board, 12–16 October 2015	UPSC, New Delhi
28	M.S. Shunmugam	Expert Advisory Committee meeting (Development of Advanced Manufacturing)	DST, Bengaluru
29	B.V.S.S.S. Prasad and Dhiman Chatterjee	Technology Upgradation of Pumps	Engineering Export Promotion Council of India meeting, Coimbatore (sponsored by Ministry of Commerce and Industry, GoI)
30	B.V.S.S.S. Prasad	Project review meeting, 24 February 2016	CVRDE, Avadi, Chennai
31	M.S. Shunmugam	MoU signing ceremony, IMPRINT	MHRD
32	M. Govardhan	Faculty selection, 15 March 2015	Thiagaraja College of Engineering, Madurai
33	M. Govardhan	Onsite review of NAL project under GATET, GTRE, Bengaluru,16 May 2015	NAL/GTRE, Bengaluru
34	M. Govardhan	Viva voce examination, April 2015	SRM University, Chennai
35	M. Govardhan	Prime Minister's Shram Awards (member), 17 July 2015	Faridabad
36	M. Govardhan	Board of Studies (Expert Committee member) meeting, 31 July 2015	NIT Trichy
37	M. Govardhan	GATET review meeting, 8 October 2015	GTRE
38	M. Govardhan	GATET review meeting, 15 October 2015	GTRE, Bengaluru
39	M. Govardhan	Review meeting, 9 January 2016	Manipal Institute of Technology, Manipal
40	M. Govardhan	On-site review of NAL project under GATET, GTRE, Bengaluru, 16 March 2016	NAL, Bengaluru
41	M. Govardhan	Review of projects, GTRE, 15 March 2016	GTRE, Bengaluru
42	P. Chandramouli	Transient Vibration Analysis, 25 April 2015	VIT Chennai
43	Abhijit Sarkar	Research collaboration, 15 May 2015 to 13 June 2015	University of New South Wales, Sydney
44	Narayanan	External member for Ph.D. viva voce and SERB/DST PAC meeting on 15 May 2015	College of Engineering at Pune
45	V. Raghu Prakash	Expert Committee meeting to consider scientists/ engineers for Promotion to the next higher grade SG, 11 June 2015	Indian Space Research Organization(ISRO)/Department of Space, Bengaluru
46	A. Seshadri Sekhar	Evaluation of postgraduate viva voce for the dissertation work for M.Tech. (Product Design and Development) (examiner), 10–11 June 2015	NIT Warangal
47	Seshadri Sekhar	External member for Ph.D. viva voce	NIT Trichy, 11 December 2015
48	Shankar Krishnapillai	External member for Ph.D. viva voce, 17 November 2015	IIT Delhi

Research publications of faculty members and research scholars

Papers published in refereed national journals: 1

Papers published in refereed international journals: 113

Papers presented at national conferences: 32
Papers presented at international conferences: 54

Papers published in refereed national journals

1. P. Ramkumar and Yadvendra Kaushik. 2015. Study of soot contamination on tribological properties using steel and silicon nitride sliding contacts. *Indian Journal of Tribology* 7: 33–38.

Papers published in refereed international journals

- 1. L. Vijayaraghavan. Microstructure and mechanical properties of cold metal transfer welded aluminium/dual phase steel. *International Journal of Science and Technology of Welding and Joining*.
- K.S. Reddy, L.Micheli, N. Sarmah, X. Luo and T.K. Mallick. 2015. Design, development and analysis of a densely packed 500× concentrating photovoltaic cell assembly on insulated metal substrate. *International Journal of Photo Energy*.
- 3. Ashokkumar. 2015. Effects of vacuum chamber and reverse flow on supersonic exhaust diffuser starting. *Journal of Propulsion and Power* 31(2): 750–754.
- 4. K. Anand and R.D. Reitz. Exploring the benefits of multiple injections in low temperature combustion using a diesel surrogate model. *Fuel.* (impact factor 3.520)
- 5 Babu Viswanathan. Determination of the optimal relaxation parameters for the solution of the Neumann-Poisson problem on uniform and non-uniform meshes using the Scheduled Relaxation Jacobi Method. *International Journal of Advances in Engineering Sciences and Applied Mathematics*.
- 6. Sourav Rakshit and Anindya Chatterjee. 2015. Scalar generalization of Newtonian restitution for simultaneous impact. *International Journal of Mechanical Sciences* 103: 141–157.
- 7. Sundararajan Natarajan. 2015. Environmental effects on the free vibration of curvilinear fibre engineering. *International Journal of Impact Engineering*.
- 8. Sundararajan Natarajan. 2015. Dynamic fracture simulations using the scaled boundary finite element method over hybrid polygon-quad-tree meshes. *International Journal of Impact Engineering*.
- 9. Sundararajan Natarajan. 2015. Virtual and smoothed finite elements: A connection and its application to polygonal/polyhedral finite element methods. *International Journal for Numerical Methods in Engineering* 104: 1173–1199.
- 10. Sundararajan Natarajan. 2015. An XFEM/CZM based inverse method for identification of composite failure parameters. *International Journal for Numerical Methods in Engineering* 153: 91–97.
- 11. M.S. Shunmugam and Amitava Ghosh. CAD based simulation of ball end mill manufacturing. *Computed Aided Design and Applications* (accepted).
- 12. P. Mythravaruni and Parag Ravindran. 2016. Growth and remodeling in soft tissues subjected to torsion. *International Journal of Advances in Engineering Sciences and Applied Mathematics* 8(1): 39–45.
- 13. M.K. Nivedya, Parag Ravindran and Murali Krishnan. 2016. Experimental investigations and constitutive modeling of bitumen stabilized mixtures. *International Journal of Engineering Science & Applied Mathematics* 102: 36–54.
- 14. Ratna Kumar Annabattula and Sai Sharan Injeti. 2015. Extending Stoney's equation to thin, elastically anisotropic substrates and bilayer films. *Thin Solid Films* 598: 252–259.
- 15. G. Venkataratnam. 2016. Comparison of straight adiabatic capillary tube expansion devices used in refrigeration system operating with refrigerants R134a and R1234yf. *ASME Journal of Thermal Science and Engineering Applications* 8(2): 021015-1–021015-7.
- 16. K.S. Reddy, S. Aravindhan and Tapas K. Mallick. Investigation of performance and emission characteristics of a biogas fuelled electric generator integrated with solar concentrated photovoltaic system. *Renewable Energy* 92: 233–243.
- 17. Shivangi Sharma, Asif Tahir, K.S. Reddy and Tapas K. Mallick. 2016. Performance enhancement of a building-integrated concentrating photovoltaic system using phase change material. *Solar Energy Materials and Solar Cells* 149:29–39.
- 18. S. Somasundharam and K.S. Reddy. 2016. Inverse estimation of thermal properties using Bayesian inference and three different sampling techniques. *Inverse Problems in Science and Engineering*.
- 19. M. Govardhan, N. Sitaram and K.V. Murali. 2015. Effects of stage loading on performance and flow field of a centrifugal compressor with inlet pressure distortion. *Journal of Aerospace Sciences and Technologies* (Aeronautical Society of India) 67(3): 416–438.
- 20. Leonardo Micheli, K.S. Reddy and Tapas K. Mallick. 2015. Plate micro-fins in natural convection: An opportunity for passive concentrating photovoltaic cooling. *Energy Proceedia* 82: 1876–6102.
- 21. Leonardo Micheli, K.S. Reddy and Tapas K. Mallick. 2015. General correlations among geometry, orientation and thermal performance of natural convective micro-finned heat sinks. *International Journal of Heat and Mass Transfer* 91: 711–724.
- 22. Leonardo Micheli, K.S. Reddy and Tapas K. Mallick. 2015. Thermal effectiveness and mass usage of horizontal micro-fins under natural convection. *Applied Thermal Engineering* 1359–4311.

- 23. T.E. Boukelia, M.S. Mecibah, B.N. Kumar and K.S. Reddy. 2015. Investigation of solar parabolic trough power plants with and without integrated TES (thermal energy storage) and FBS (fuel backup system) using thermic oil and solar salt. *Energy* 88.
- 24. T.E. Boukelia, M.S. Mecibah, B.N. Kumar and K.S. Reddy. 2015. Optimization, selection and feasibility study of solar parabolic trough power plants for Algerian conditions. *Energy Conversion and Management* 101: 450–459.
- 25. K.S. Reddy, T. Srihari Vikram and G. Veershetty. 2015. Combined heat loss analysis of solar parabolic dishmodified cavity receiver for superheated steam generation. *Solar Energy* 121: 78–93.
- 26. K.S. Reddy, K. Ravi Kumar and C.S. Ajay. 2015. Experimental investigation of porous disc enhanced receiver for solar parabolic trough collector. *Renewable Energy* 77: 308–319.
- 27. Leonardo Micheli, S. Senthilarasu, K.S. Reddy and Tapas K. Mallick. 2015. Applicability of silicon microfinned heat sinks for 500× concentrating photovoltaics systems. *Journal of Materials Science* 50(16): 5378–5388.
- 28. H. Sharon and K.S. Reddy. 2015. Performance investigation and enviro-economic analysis of active vertical solar distillation units. *Energy* 84: 794–807.
- 29. H. Sharon and K.S. Reddy. 2015. A review of solar energy driven desalination technologies. *Renewable and Sustainable Energy Reviews* 41: 1080–1118.
- 30. T. Sri Hari Vikram and K.S. Reddy. 2015. Investigation of convective and radiative heat losses from modified cavity based solar dish steam generator using ANN. *International Journal of Thermal Sciences* 87: 19–30.
- 31. K.S. Reddy, Sendhil Kumar Natarajan and G. Veershetty. 2015. Experimental performance investigation of modified cavity receiver with fuzzy focal solar dish concentrator. *Renewable Energy* 74: 148–157.
- 32. K.S. Reddy, L. Micheli, N. Sarmah, X. Luo and T.K. Mallick. 2015. Design, development and analysis of a densely packed 500× concentrating photovoltaic cell assembly on insulated metal substrate. *International Journal of Photo Energy* 1–18.
- 33. K. Srinivasan and T. Sundararajan. 2015. Acoustic characteristics of equal and unequal twin circular slot jets. *Journal of Sound and Vibration* 342: 90–112.
- 34. Viktor Recklin, Arvind Pattamatta and Peter Stephan. 2015. Experimental investigation on the thermohydrodynamics of oscillatory meniscus in a capillary tube using FC-72 as working fluid. *International Journal of Multiphase Flow* 75: 82–87.
- 35. Narasimhan A. and Sundarraj C. 2015. Convection-enhanced intravitreous drug delivery in human eye. *ASME Journal of Heat Transfer* (in press).
- 36. Narasimhan A. and Joseph A. 2015. Porous medium modeling of combined effects of cell migration and anisotropicity of stratum corneum on transdermal drug delivery. *ASME Journal of Heat Transfer* (in press).
- 37. Paul A., Narasimhan A. and Das S.K. 2015. Investigation of thermal damage of tissue mimics embedded with large blood vessels during PPTT. *International Journal of Numerical Methods for Heat and Fluid Flow* (in press).
- 38. Sujatha Srinivasan. 2015. Analysis and optimization of 'Y' wheel stair climbing mechanism. *Applied Mechanics and Materials* 786: 269–274.
- 39. A. Sarkar, R. Srikanth and A.S. Sekhar. Instability of asymmetric shaft system. *Journal of Sound & Vibration* 362: 276–291.
- 40. S. Gedupudi, D.B.R. Kenning and T.G. Karayiannis. 2016. Flow boiling in rectangular microchannels: 1-D modeling of the influence of inlet resistance on flow reversal. *Heat Transfer Engineering*. doi:10.1080/01457 632.2015.111111
- 41. G.L. Samuel. Mechanistic and finite element model for prediction of cutting forces during micro-turning of titanium alloy. *Machining Science and Technology: An International Journal*.
- 42. G.L. Samuel. Optimisation of a machine loading problem using a genetic algorithm-based heuristic. *International Journal of Productivity and Quality Management.*
- 43. Sumanth Dathathri and C. Balaji. 2015. Heat transfer and optimization studies on layered porous stackings under an imposed pressure drop. *International Communications in Heat and Mass Transfer*.
- 44. B. Konda Reddy and C. Balaji. 2015. Bayesian estimation of heat flux and thermal diffusivity using liquid crystal thermography. *International Journal of Thermal Sciences* 87: 3148.
- 45. Shaik Imran Ahamad and C. Balaji. 2015. In search of a simpler thermal model for mixed convection from protruding heat sources on vertical plate: A combined numerical and experimental study. *Heat Transfer Engineering* 36(4): 396–407.
- 46. S.P. Pathak, K. Velusamy, K.K. Rajan and C. Balaji. 2015. Numerical and experimental investigations of heat removal performance of sodium to air heat exchanger used in fast reactors. *Heat Transfer Engineering* 36(5).
- 47. Tapan Kumar Hotta, C Balaji and S.P. Venkateshan. 2015. Experiment driven ANNGA based technique for optimal distribution of discrete heat sources under mixed convection. *Experimental Heat Transfer* 28(3).

- 48. Shaik Imran Ahamad and C. Balaji. 2015. Inverse conjugate mixed convection in a vertical substrate with protruding heat sources: A combined experimental and numeric studies. *Heat and Mass Transfer*.
- 49. Rajesh Alayil and C. Balaji. 2015. Conjugate heat transfer in PCM based composite heat sink with cross plate fins. *ASME Journal of Heat Transfer* 137(10): 102302.
- 50. R. Srikanth, Pavan Nemani and C. Balaji. 2015. Multi-objective geometric optimization of a PCM based matrix type composite heat sink. *Applied Energy* 156(15): 703714.
- 51. B. Anoop, C. Balaji and K. Velusamy. 2015. A characteristic correlation for heat transfer over serrated finned tubes. *Annals of Nuclear Energy* 85: 1052–1065.
- 52. P.V.S.S. Srivatsa, Rajesh Baby and C. Balaji. 2015. Geometric optimization of a PCM based heat sink: A coupled ANN and GA approach. *Heat Transfer Engineering* 2015: 875–888.
- 53. R. Chandrasekar and C. Balaji. 2016. Impact of physics parameterization and 3DVAR data assimilation on prediction of tropical cyclones in the Bay of Bengal region. *Natural Hazards* 80(1): 223–247.
- 54. Renju Kurian, C. Balaji, and S.P. Venkateshan. 2016. Experimental investigation of convective heat transfer in a vertical channel with brass wire mesh blocks. *International Journal of Thermal Sciences* 99: 170179.
- 55. S.P. Pathak, V.K. Suresh Kumar, I.B. Noushad, A.K. Rajan, K. Velusamy and C. Balaji. 2016. Porous body based parametric study for sodium to air heat exchanger used in fast reactors. *Journal of Thermal Science and Engineering and Applications* 8(1).
- R.S. Jadhav and C. Balaji. 2016. Fluid flow and heat transfer characteristics of a vertical channel with detached pin-fin arrays arranged in staggered manner on two opposite endwalls. *International Journal of Thermal Sciences* 105: 57–74.
- 57. C. Krishnamoorthy, Deo Kumar and C. Balaji. 2016. Retrieval of humidity and temperature profiles over the oceans from INSAT 3D satellite radiances. *Journal of Earth System Science* 125(2).
- 58. Ansari Tabish U., N. Ojha, R. Chandrasekar, C. Balaji, Narendra Singh and Sachin S. Gunthe. 2016. Competing impact of anthropogenic emissions and meteorology on the distribution of trace gases over Indian region. *Journal of Atmospheric Chemistry*.
- 59. P.K. Shijin, V. Raghavan and V. Babu. March 2016. Numerical investigation of flame-vortex interactions in laminar cross-flow non-premixed flames in the presence of bluff bodies. *Combustion Theory and Modeling*.
- 60. Akhilesh Kumar Sahu, V. Raghavan and B.V.S.S.S. Prasad. 2016. Numerical study of hydrodynamics in gassolid reactors operating within bubbling fluidization regime. *Progress in CFD: An International Journal*.
- 61. G. Avinash, Amit Kumar and V. Raghavan. 2016. Experimental analysis of diffusion flame spread along thin parallel solid fuel surfaces in a natural convective environment. *Combustion and Flame*.
- 62. S.K. Panigrahi. 2016. Transformation of cast A356 ingots to wrought sheets with enhanced mechanical and tribological properties by different thermo-mechanical processing routes. *Materials & Design* 101: 44–55.
- 63. S.K. Panigrahi. 2016. Particle refinement and fine-grain formation leading to enhanced mechanical behaviour in a hypo-eutectic Al–Si alloy subjected to multi-pass friction stir processing. *Materials Characterization* (Elsevier) 113: 134–143.
- 64. S.K. Panigrahi. April 2015. Enhancing strength, ductility and machinability of an Al–Si cast alloy by friction stir processing. *Journal of Manufacturing Processes* (Elsevier), 18: 67–74.
- 65. S.K. Panigrahi and M.S. Shunmugam. 2015. Influence of annealing on strain hardening behaviour and fracture properties of a cryorolled Al 2014 alloy. *Materials Science and Engineering A* (Elsevier) 645: 383–392.
- 66. S.K. Panigrahi. July 2015. Influence of cryorolling on microstructure and mechanical properties of a cast hypoeutectic Al–Si alloy. *Materials Science and Engineering A* (Elsevier) 640: 424–435.
- 67. S.K. Panigrahi and M.S. Shunmugam. 2015. Precipitation phenomena, thermal stability and grain growth kinetics in an ultra-fine grained Al 2014 alloy after annealing treatment. *Journal of Alloys and Compounds* (Elsevier) 649: 229–238.
- 68. S.K. Panigrahi. 2015. Age hardening, fracture behavior and mechanical properties of QE22 Mg alloy. *Journal of Magnesium and Alloys* (Elsevier) 3(3): 210–217.
- 69. Dileep Chandran P.M. and Bhamidi Prasad. 2015. Conjugate heat transfer study of combined impingement and showerhead film cooling near NGV leading edge. *International Journal of Rotating Machinery* 2015 (article ID 315036).
- 70. Raghavan and K. Srinivasan. 2015. Effects of burner configurations on the natural oscillation characteristics of laminar jet diffusion flames. *International Journal of Spray and Combustion Dynamics* 7(3): 257–281.
- 71. M. Govardhan and C. Hari. 2015. Effect of inlet clearance on the aerodynamic performance of a centrifugal blower the inlet clearance effects on an industrial centrifugal blower. *International Journal of Turbo and Jet Engines*. doi:10.1515/tjj-2015-0026, 2015
- 72. Y.H. Lee, K.G. Nithesh, Dhiman Chatterjee and C. Oh. Design and performance analysis of radial-inflow turboexpander for OTEC application. *Renewable Energy*.

- 73. Shamit Bakshi, P. Chandran and Dhiman Chatterjee. Study on the characteristics of hydrogen bubble formation and its transport during electrolysis of water. *Chemical Engineering Science*.
- 74. M. Kamaraj, C. Syamsundar, Dhiman Chatterjee and A.K. Mait. Erosion characteristics of nanoparticle reinforced polyurethane coatings on stainless steel substrate. *Journal of Materials Engineering and Performance*.
- 75. A.K. Sen, K.S. Jayaprakash and U. Banerjee. Dynamics of aqueous droplets at the interface of co-flowing immiscible oils in a microchannel. *Langmuir*.
- 76. A.K. Sen, S. Damodara and D. George. Single step fabrication and characterization of PDMS micro lens and its use in optocapillary flow manipulation. *Sensors and Actuators B: Chemical*
- 77. A.K. Sen and A. Raj. Flow-induced deformation of compliant microchannels and its effect on pressure–flow characteristics. *Microfluidics and Nanofluidics*.
- 78. A.K. Sen, D. George and R. Anoop. 2015. Elastocapillary powered manipulation of liquid plug in microchannels. *Applied Physics Letters*.
- 79. M.S. Maria, B.S. Kumar, T.S. Chandra and A.K. Sen. 2015. Development of a microfluidic device for cell concentration and blood cell–plasma separation. *Biomedical Microdevices*.
- 80. A.K. Sen and R. Anoop. 2015. Capillary flow enhancement in rectangular polymer microchannels with a deformable wall. *Physical Review E*.
- 81. A.K. Sen, P. Sajeesh, S. Manasi and M. Doble. 2015. A microfluidic device with focusing and spacing control for resistance-based sorting of droplets and cells. *Lab on a Chip.*
- 82. S.P. Das, U. Srinivasan and J.H. Arakeri. 2015. Instabilities in unsteady boundary layers with reverse flow. *European Journal of Mechanics B Fluids*.
- 83. K.S. Reddy, L. Micheli, S. Senthilarasu and T.K. Mallick. Applicability of silicon micro-finned heat sinks for 500× concentrating photovoltaics systems. *Journal of Materials Science* 50(16): 5378–5388.
- 84. F. Khab M.D. and S.K. Panigrahi. 2015. Age hardening, fracture behavior and mechanical properties of QE22 Mg alloy. *Journal of Magnesium and Alloys* (Elsevier) 3(3): 210–217.
- 85. T. Sundararajan, V. Raghavan and P. Senthil Kumar. 2015. The effects of grids on the near-field evolution of turbulence in a low-Reynolds number jet. *Journal of Physics of Fluids*.
- 86. T. Sundararajan, S.K. Das and P.K. Jitesh. 2015. The effect of nonuniform under-rib convection on reactant and liquid water distribution in proton exchange membrane fuel cells. *Journal of Fuel Cell Science and Technology*.
- 87. P.P. Reddy and A. Ghosh. 2015. Some critical issues in cryo-grinding by a vitrified bonded alumina wheel using liquid nitrogen jet. *Journal of Material Processing Technology* 229: 329–337.
- 88. Jain S., Somasundaram S. and Anand T.N.C. 2016. A fluorescent laser-diffuser arrangement for uniform backlighting. *Measurement Science and Technology* 27(2): 025406.
- 89. Sarkar S., Sivaprasad P.V. and Bakshi S. 2016. Numerical modeling and prediction of particle size distribution during gas atomization of molten tin. *Atomization and Sprays* 26(1): 23–51.
- 90. Hemant Naik and Shaligram Tiwari. 2015. Heat transfer and fluid flow characteristics from finite height circular cylinder mounted on horizontal plate. *Procedia Engineering* 127: 71–78.
- 91. Gautam Ghaisas and Swapnil Kadam and Aniraj C.R. and Shaligram Tiwari. 2015. Experimental study of pool boiling at low heat flux in water miscible binary mixtures. *Procedia Engineering* 127: 455–461.
- 92. G. Raghu Vamsee, Shaligram Tiwari and Thirumalachari Sundararajan. 2016. Effect of base elongation of circular cylinder on its wake characteristics. *Progress in Computational Fluid Dynamics* 16(3).
- 93. Hemant Naik and Shaligram Tiwari. 2016. Three-dimensional flow characteristics near a circular cylinder mounted on horizontal plate at low Reynolds number. *Progress in Computational Fluid Dynamics* 16 (in press).
- 94. K.S. Reddy, L. Micheli, S. Senthilarasu and T.K. Mallick. Applicability of silicon micro-finned heat sinks for 500× concentrating photovoltaics systems. *Journal of Materials Science* 50(16): 5378–5388.
- 95. P. Dhar, A. Katiyar, L.S. Maganti, Arvind Pattamatta and S.K. Das. 2015. Superior dielectric breakdown strength of graphene and carbon nanotube infused nano-oils. *IEEE Transactions on Dielectrics and Electrical Insulation*.
- 96. Ch. Sampath Kumar and Arvind Pattamatta. 2015. A numerical study of convective heat transfer enhancement with jet impingement cooling using porous obstacles. *Journal of Enhanced Heat Transfer*.
- 97. Savithiri S., Arvind Pattamatta and S.K. Das. 2015. Rayleigh-Benard convection in water based alumina nanofluid: A numerical study. *Journal of Heat Transfer*.
- 98. Nikhilesh Ghanta and Arvind Pattamatta. Modeling compressible phase-change heat transfer in a Taylor-bubble with application to pulsating heat pipe (PHP). *Numerical Heat Transfer: Part A*.
- 99. Purbarun Dhar, Soujit Sen Gupta, Arvind Pattamatta and Sarit K. Das. 2015. Bridging thermal and electrical transport in dielectric nanostructure based polar colloids. *IEEE Transactions on Nanotechnology*.

- 100. Arvind Pattamatta, Axel Sielaff and Peter Stephan. 2015. A numerical study on the hydrodynamic and heat transfer characteristics of oscillating Taylor bubble in a capillary tube. *Applied Thermal Engineering* 89: 628–639.
- 101. Ch. Sampath Kumar, Nikhilesh Ghanta and Arvind Pattamatta. 2015. An optimization study of heat transfer enhancement due to jet impingement over porous heat sinks using lattice Boltzmann method. *Journal of Porous Media* (in press).
- 102. S. Savithiri, Arvind Pattamatta and S.K. Das. 2015. A single component non-homogeneous lattice Boltzmann model for natural convection in Al₂O₃/water nanofluid. *Numerical Heat Transfer Part A: Applications* 68: 1106–1124.
- 103. Ratna Kumar Annabattula, V. Iyer, A. Raj and A.K. Sen. 2015. Experimental and numerical studies of a microfluidic device with compliant chambers for flow stabilization. *Journal of Micromechanics and Microengineering* 25(7).
- 104. Sivakumar Subramanian, A.S. Sekhar and B.V.S.S.S. Prasad. 2015. On the choice of initial clearance and prediction of leakage flow rate for a rotating gas turbine seal. *Proceedings of the Institution of Mechanical Engineers*, *Part C*. doi:10.1177/0954406215581692
- 105. Narasimhan Swaminathan, Sangeeth Balakrishnan and Kiran George. 2016. Elasticity and size effects on the electrochemical response of a graphite, Li-ion battery electrode particle. *Journal of the Electrochemical Society* 163(3): A1–A11.
- 106. Adapa Sainath and G.L. Samuel. 2015. Modelling and verification of stability of micro-milling process. *International Journal of Machining and Machinability of Materials*. (published online)
- 107. Giridharan A. and G.L. Samuel. 2015. Modeling and analysis of crater formation during wire electrical discharge turning (WEDT) process. *The International Journal of Advanced Manufacturing Technology* 77(5): 1229–1247.
- 108. A. Murugarajan and G.L. Samuel. 2015. Characterization of dimensional features of meso-scale component using capacitive sensor. *International Journal of Advanced Manufacturing Technology* 77: 1831–1849.
- 109. Shrey Ginoria, G.L. Samuel and G. Srinivasan. 2015. Optimization of a parallel machine scheduling problem using a genetic algorithm based heuristic. *International Journal of Productivity and Quality Management* 15(1): 36–56.
- 110. Rajesh Babu and G.L. Samuel. 2015. Dynamic response of a micro end mill cutter by mode superposition method and study of damping effect on its dynamic performance. *International Journal of Precision Technology*.
- 111. Giridharan A. and G.L. Samuel. 2015. Analysis on the effect of discharge energy on machining characteristics of wire electrical discharge turning process. *Journal of Engineering Manufacture*, *iMechE* (published online).
- 112. Jagadesh T. and Samuel G.L. 2015. Mechanistic and finite element model for prediction of cutting forces during micro-turning of titanium alloy. *Machining Science and Technology: An International Journal* 19: 593–629.
- 113. Jagadesh T. and G.L. Samuel. 2015. Finite element modeling for prediction of forces during micro turning of Ti-6Al-4V using PCD and coated carbide tool. *Journal of Institute of Engineers, Series C*.

Papers presented at national conferences

- 1. Sundararajan Natarajan and Hrishikesh. Hybrid Trefftz finite element method over arbitrary polytopes. *Indian Conference on Applied Mechanics (INCAM)*, IIT Delhi, 13–15 July 2015.
- 2. Sundararajan Natarajan and Amrita Francis. Stationary crack analysis using the extended scaled boundary finite element method. *INCAM*, IIT Delhi, 13–15 July 2015.
- Rohan Biwalkar, K. Anand and A. Ramesh. Development of a combustion model for a biogas-fuelled dual fuel engine. *National Conference on IC Engines and Combustion*, Dehradun, 30 October to 1 November 2015.
- 4. Shobhit Khanna and J.M. Mallikarjuna. Use of higher alcohol and diesel blends in a compression ignition engine: An experimental investigation. *National Conference on IC Engines and Combustion (NCICEC 2015)*, Dehradun, 30 October–1 November 2015.
- 5. Krishna Addepalli S. and J.M. Mallikarjuna. Effect of fuel injector location near the spark plug on the equivalence ratio in a GDI engine: A CFD analysis. *NCICEC 2015*, Dehradun, 30 October to 1 November 2015.
- 6. Jacob Kuriakose and J.M. Mallikarjuna. Effect of use of nanoparticles, fuel preheating and piston coating on performance, emissions and combustion of a biodiesel engine. *NCICEC 2015*, Dehradun, 30 October to 1 November 2015.
- 7. Amit Soni, Hemant Naik and Shaligram Tiwari. Three-dimensional flow characteristics for flow along a square prism having built-in side flaps. *Proceedings of the 42nd National Conference on Fluid Mechanics and Fluid Power*, NIT Surathkal, Mangalore, 14–16 December 2015.

- 8. Ananth Pai and Shaligram Tiwari. Effect of external pulsation on kinematics of fluid particle in the field of Lamb-Oseen vortex pair. *Proceedings of the 42nd National Conference on Fluid Mechanics and Fluid Power.* NIT Surathkal, Mangalore, 14–16 December 2015.
- 9. Sahar Ahsaas and Shaligram Tiwari. Numerical simulation of steady flow of blood in a common carotid artery with symmetric stenos. *Proceedings of the 42nd National conference on Fluid Mechanics and Fluid Power*, NIT Surathkal, Mangalore, 14–16 December 2015.
- Anurag Singh, M.P. Maiya and Srinivasa Murthy. Experimental studies on solid state hydrogen storage device embedded with a novel heat exchanger. Proceedings of the 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTEF Heat and Mass Transfer Conference, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 11. Kadam Ruturaj, M.P. Maiya and Shaligram Tiwari. Numerical investigation on evaporation of single water droplet in Stefan flow. *Proceedings of the 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 12. Harish Deshmukh, M.P. Maiya and Srinivasa Murthy. Study of sorption based energy storage system with silica gel for heating applications. *Proceedings of the 23rd National Heat and Mass Transfer Conference and First International, ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 13. Pravin D. Sawarkar. Experimental investigations on the effects of externally applied pulsations of LPG flame. *Proceeding of 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 14. Neeraj Paul and Shaligram Tiwari. Three-dimensional computations on wake and dynamic characteristics of flow past sphere rotating about its own axis. *Proceeding of the XXVII IUPAP Conference on Computational Physics*, IIT Guwahati, Assam, India, 2–5 December 2015.
- 15. Amit Soni and Shaligram Tiwari. Numerical investigation of flow past the flapping wing. *Proceedings of the XXVII IUPAP Conference on Computational Physics*, IIT Guwahati, 2–5 December 2015.
- 16. Arpan Das and Shaligram Tiwari. Three-dimensional numerical investigations on dynamic stall of pitching wing. *Proceedings of the XXVII IUPAP Conference on Computational Physics*, IIT Guwahati, 2–5 December 2015.
- 17. Aniraj C.R., Shaligram Tiwari and M.P. Maiya. Effect of flow velocity and heat flux on set of nucleate flow boiling in a tube. *Proceeding of the 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 18. Arun K.M., Shaligram Tiwari and Mani Annamalai. Three-dimensional numerical analysis on ejector of a vapor jet refrigeration system. *Proceeding of the 23rd National Heat & Mass Transfer Conference and 1st International, ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 19. Arpita Srivastava, Shaligram Tiwari and Mani Annamalai. Two-dimensional numerical investigation of two-phase flow jet pump with swirling primary jet. *Proceedings of the 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTEF Heat and Mass Transfer Conference*, VSSC, Thiruvananthapuram, Kerala, 17–20 December 2015.
- 20. Neeraj Paul M., Mithun M.G. and Shaligram Tiwari. Effect of amplitude variation for synchronous excitation of transversely vibrating square cylinder in cross-flow. *NCSEE*, GCE, Kannur, 2015.
- 21. Antony Roam Simenthy, V. Raghavan and Shaligram Tiwari. Flow field characteristics behind a transversely vibrating circular cylinder. *42nd National Conference on Fluid Mechanics and Fluid Power (FMFP 2015)*, NIT Surathkal, Karnataka, India, 2015.
- 22. Sahar Ahsaas and Shaligram Tiwari. Numerical simulation of steady flow of blood in a common carotid artery with symmetric stenoses. 42nd National Conference on Fluid Mechanics and Fluid Power (FMFP 2015), NIT Surathkal, Karnataka, India, 2015.
- 23. Ananth Pai, Pavan Kumar V. and Shaligram Tiwari. Effect of external pulsation on kinematics of fluid particle in the field of Lamb-Oseen vortex pair. 42nd National Conference on Fluid Mechanics and Fluid Power (FMFP 2015), NIT Surathkal, Karnataka, India, 2015.
- 24. Amit Soni, Hemant Naik and Shaligram Tiwari. Three-dimensional flow field characteristics for flow along a square prism having built-in side flaps. *FMFP 2015*, NIT Surathkal, Karnataka, India, 2015.
- 25. Aniraj C.R., Shaligram Tiwari and M.P. Maiya. Effect of flow velocity and heat flux on onset of nucleate boiling in a tube. 23rd National Heat and Mass Transfer Conference and First International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2015), Thiruvananthapuram, India, 17–20 December 2015.
- 26. Ruturaj Kadam, Shaligram Tiwari and M.P. Maiya. Numerical investigations on evaporation of single water droplet in Stefan flow. *IHMTC* 2015, Thiruvananthapuram, 17–20 December 2015.

- 27. A. Sarkar and A. Baxy. Dynamics of circular curved beams. *National Symposium of Acoustics 2015*, National Institute of Ocenaography, Goa, 7–9 October 2015.
- 28. R. Srinath, A. Sarkar and A.S. Sekhar. Parametric vibration in rotating shaft system. *National Symposium in Rotor Dynamics*, NIT Rourkela, January 2016.
- 29. Rajlakshmi Nayak, Dhiman Chatterjee and Sarit Kumar Das. Two phase flow studies in microchannels: The effect of aspect ratio on slug length. *Fluid Mechanics and Fluid Power (FMFP)*, NIT Surathkal, 14–16 December 2016.
- 30. N.K. Chaurasia, S. Gedupudi and S.P. Venkateshan. 3-D mixed convection in a rectangular channel with discrete heat sources. *IHMTC* 2015, Thiruvananthapuram, India, 17–20 December 2015.
- 31. S. Pandey, S. Gedupudi and S.P. Venkateshan. Natural convection in a square cavity with triangular fins. *IHMTC 2015*, Thiruvananthapuram, India, 17–20 December 2015.
- 32. J. Prasanna, S.Gedupudi and S.K. Das. Effect of surface roughness on evaporation of nanofluid droplet on heated surface. *IHMTC* 2015, Thiruvananthapuram, India, 17–20 December 2015.

Papers presented at international conferences

- 1. L. Vijayaraghavan, N. Ramesh Babu and P. Radhakrishnan. Experimental study on material removal capability with Vibration assisted WEDM. *Sixth International Conference on Mechanical and Aerospace Engineering (ICMAE2015)*, Rome, Italy, 16–17 July 2015.
- 2. L. Vijayaraghavan, M. Kamaraj and S. Madhavan. Investigation on the mechanical and microstructural properties of dissimilar Ai/magnesium welds produced by cold metal transfer. *The Second International Conference on Advance in Cutting, Welding and Surfacing (CWS-2015)*, Coimbatore, jointly organized by WRI-BHEL, University of Bergen, Norway, Lulea University of Technology, Sweden, and Mexican Materials Research Institute, Mexico, 5–7 August 2015.
- 3. S. Soundarapandian. Modelling and experimental approaches of laser system for LASIK eye surgery. *International Congress on Applications of Lasers & Electro-optics*, Atlanta, GA, USA, 18–22 October 2015.
- C. Balaji, S.P. Venkateshan and Rahul Yadav. Implementation of SLW model in axi-symmetric geometries with particles and high temperature gradients. *Numerical Heat Transfer 2015*, Warsaw, Poland, 27–30 September 2015.
- L. Micheli, K.S. Reddy and T.K. Mallick. Plate micro-fins in natural convection: An opportunity for passive concentrating photovoltaic cooling. 70 Congresso Annuale ATI Associazione Termo tecnica Italiana, Rome, Italy, 9–11 September 2015.
- 6. K. Abdul Rahman and A. Ramesh. Effect of split injection on combustion and performance of a biogasdiesel fuelled PPCCI engine. *12th International Conference on Engines & Vehicles (ICE2015)*, SAE Naples Section, Italy, 13–17 September 2015.
- 7. Leera Raju and Somashekhar S. Hiremath. Machining of micro holes using the tailor-made micro-electro discharge machining (µ-EDM) setup. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 8. Santhosh Kumar S. and Somashekhar S. Hiremath. Finishing of convergent and divergent nozzle using the developed abrasive flow machine. *International Conference on Precision, Meso, Micro & Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 9. Robins Mathew and Somashekhar S. Hiremath. Motion control of E-Puck mobile robot for generating 2-D geometrical shapes. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 10. Dhananchezhiyan P. and Somashekhar S. Hiremath. Performance evaluation of multiple micro pumps to minimize flow pulsation. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 11. Ranjeet Kumar Sahu and Somashekhar S. Hiremath. Synthesis of aluminium nanoparticles using a novel micro-EDM technique. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 12. Navatha A., Somashekhar S. Hiremath and Karunanidhi S. System modeling and simulation of precision electro hydrostatic actuator system. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 13. Bindu Madhavi J. and Somashekhar S. Hiremath. Investigation on micro electro chemical discharge machining used to produce micro holes on borosilicate glass. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.
- 14. Kumar Abhishek and Somashekhar S. Hiremath. Machining of micro-holes on sodalime glass using the developed micro-abrasive jet machine (micro-AJM). *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015.

- 15. Aniraj C.R., Gautham Ghaisas, Swapnil Kadam and Shaligram Tiwari. Experimental study on pool boiling at low heat flux in water miscible binary mixture. *International Conference in Computational Heat and Mass Transfer*, NIT Warangal, 30 November–2 December 2015.
- 16. Hemant Naik and Shaligram Tiwari. Heat transfer and fluid flow characteristics from finite height circular cylinder mounted on horizontal plate. *International Conference in Computational Heat and Mass Transfer*, NIT Warangal, 30 November to 2 December 2015.
- 17. Umesh V., Shaligram Tiwari and Srikrishna Sahu. Effect of aspect ratio on isothermal side wall conditions for single layer Rayleigh-Benard convection. *International Conference on Engineering and Technological Sciences*, NAAR Hotel Pearl, Malaysia, 16–17 November 2015.
- 18. Rambabu S. and N. Ramesh Babu. Development of graded ice bonded abrasive polishing tool for ultrafine finishing of metallic materials. *AMPT-2015*, Madrid, Spain, 14–17 December 2015.
- 19. Rambabu S. and N. Ramesh Babu. Graded ice bonded abrasive polishing tool for ultrafine finishing of advanced ceramics. *COPEN-2015*, IIT Bombay, India, 10–12 December 2015.
- 20. R. Vairamuthu, B. Vijaya Raghavendra and N. Ramesh Babu. Prediction of volumetric accuracy of a cylindrical grinding machine tool using kinematic error modeling approach. *COPEN-2015*, IIT Bombay, India, 10–12 December 2015.
- 21. Abhijit Sarkar. Vibration control of frame structures. *12th International Conference on Vibration Problems* (*ICOVP-2015*), IIT Guwahati, 14–17 December 2015.
- 22. Santhosh Kumar and Somashekhar S. Hiremath. Finishing of convergent and divergent nozzle using the developed abrasive flow machine. *International Conference on Precision, Meso, Micro and Nano Engineering*, IIT Bombay, Mumbai, 10–12 December 2015. (paper ID 176)
- 23. Sravan Pannala, K. Anand and Pramod S. Mehta. Investigations on sustainability of biodiesel fuels. *Indo-German Conference on Sustainability*, IIT Madras, 5–6 December 2015.
- 24. Sujatha Srinivasan and C. Sujatha. Design of controller for single-axis knee using hydraulic damper. Proceedings of 2015—12th IEEE Africon International Conference, Addis Ababa, Ethiopia, 14–17 September 2015.
- 25. Sujatha Srinivasan and C. Sujatha. Design of controller for single-axis knee using MR damper. *Proceedings of ECCOMAS—Thematic International Conference on Multibody Dynamics*, Barcelona, Spain, June 2015.
- A. Sarkar, H. Peters and N. Kessissogolou. Simplified model of vorticity-induced plate vibration of a flat cantilever plate. *International Congress of Sound & Vibration*, ICSV22, Florence, Italy, 12–16 July 2015
- 27. A. Sarkar and V. Swaroop Raj. Fluid–structure interaction effects for minimizing transmission in wave-guides: Time and frequency domain approach. *Acoustical Society of America Meeting*, Jacksonville, 2–6 November 2015.
- 28. G.S. Sharma and A. Sarkar. Directivity based noise control for an obliquely incident transmission problem. *International Conference of Vibration Problems*, IIT Guwahati, 14–17 December 2015.
- 29. Manoj Pandey. Modeling mode mixing and chaos in a resonant NEMS. *International Conference on Advanced Nanomaterial and Nanotechnology*, IIT Guwahati, 11–18 December 2015.
- 30. M. Govardhan and K. Vijayraj. Aerodynamics of contra-rotating fans with swept blades. *ASME GTINDIA* 2015, Hyderabad, 1–2 December 2015.
- 31. U.M. Kurup and S. Gedupudi. 1-D modelling of pressure fluctuations and flow reversals due to multiple confined bubbles during flow boiling in microchannels. *Ninth International Conference on Boiling and Condensation Heat Transfer*, Boulder, Colorado, USA, 26–30 April 2015.
- 32. S. Pandey, S. Gedupudi and S.P. Venkateshan. Simulation of multimode heat transfer in a square cavity with continuous fins on vertical isothermal walls. *Proceedings of the First Pacific Rim Thermal Engineering Conference, PRTEC*, Big Island, Hawaii, USA, 13–17 March 2016. (paper no. PRTEC-14625)
- 33. Jagadesh T. and G.L. Samuel. Investigations into cutting forces, surface roughness, and chip morphology during micro turning of cryogenically treated titanium alloy. *AMPT-2015*, Madrid, Spain, 14–17 December 2015.
- 34. Niketh S. and G.L. Samuel. Micro-scale pattern generation on drill bit and its effect on the machining of titanium alloys. *COPEN-2015*, IIT Bombay, India, 10–12 December 2015.
- 35. Kanka Goswami and G.L. Samuel. Investigation into the surface integrity of components machined with micro-EDM process. *COPEN-2015*, IIT Bombay, India, 10–12 December 2015.
- 36. C. Balaji, S.P. Venkateshan and Renju Kurian. Heat transfer enhancement in air flows in plate channels with wire-mesh inserts. *First Thermal and Fluids Engineering Summer Conference*, New York City, USA, conducted by ASTFE, 9–12 August 2015.
- 37. C. Balaji and Rohit S. Nair. Heat transfer enhancement of a finned wickless heat pipe based heat sink. ASME-ATI-UIT 2015 Conference on Thermal Energy Systems: Production, Storage, Utilization and the Environment, Napoli, Italy, 17–20 May 2015.

- 38. Deepak Saini, C. Balaji and S.P. Venkateshan. Heat transfer and optimization studies on PCM based hybrid heat sinks with discrete protruding heat sources. *ICHMT International Symposium on Advances in Computational Heat Transfer*, Rutgers University, USA, 25–29 May 2015.
- 39. Rino Nelson N., N. Siva Prasad and A.S. Sekhar. Finite element analysis of flange joint with single and twin gaskets under external bending load. *ASME Pressure Vessel and Piping conference*, Boston, USA, 19–23 July 2015. (paper PVP2015-45492)
- 40. Sivakumar Subramanian, A.S. Sekhar and B.V.S.S.S. Prasad. Influence of centrifugal growth on the rotor dynamic stability of a rotating labyrinth seal. *The 22nd International Congress on Sound and Vibration, ICSV22*, Florence, Italy, 12–16 July 2015.
- 41. Rathna Prasad Sagi and A.S. Sekhar Sagi. Damage detection in rotors using wavelet analysis of operational deflection shapes. *ICSV22*, Florence, Italy, 12–16 July 2015.
- 42. Subramanian S., A.S. Sekhar and B.V.S.S.S. Prasad. Thermal influences on rotor dynamic coefficients of a rotating gas turbine seal. *Fifth International Conference on Advances in Energy Research*, ICAER 2015, IIT Bombay, India, 15–17 December. (paper ID 328)
- 43. N. Rino Nelson, N. Siva Prasad and A.S. Sekhar. Analysis of bolts in flange joints under internal pressure and thermal loads using finite element method. *International Conference on Computer Aided Engineering (CAE 2015)*, Hyderabad, 10–12 December 2015.
- 44. Leonardo Micheli, Eduardo F. Fernandez, Florencia Almonacid, K.S. Reddy and T.K. Mallick. Optimization of the least-material approach for passive ultra-high CPV cooling. *International Photovoltaic Specialist Conference (PVSC)*, *IEEE 42 (2015)*, 14–19 June 2015.
- 45. Shivangi Sharma, Nazmi Sellami, Asif Tahir, K.S. Reddy and Tapas K. Mallick. Enhancing the performance of BICPV systems using phase change materials. *11th International Conference on Concentrator Photovoltaic SYSTEMS: CPV-11*, 25–27 April 2015.
- 46. M. Govardhan and Vikram Kulkarni Ashok. Investigations on S-bladed axial flow fan for cooling bi-directional electric motors. *International Conference on Mechanical Engineering (ICME)*, London, UK, 25–27 May 2015. (paper no. 220)
- 47. M. Govardhan and Ganesh Kaveeshwar. Design and analysis of flow through centrifugal compressor based on closed loop Brayton cycle with CO₂ as working fluid. *International Conference on Mechanical Engineering (ICME)*, London UK, 25–26 May 2015. (paper no. 224)
- 48. M. Govardhan and Royapati Subbarao. Computational studies on flow through blade rows in a counter rotating turbine. *International Conference on Computer Aided Engineering (CAE-2015)*, 27–28 November 2015. (paper no. 183)
- 49. M. Govardhan and Royapati Subbarao. Performance studies on a counter rotating turbine and comparison with axial flow turbine configuration. *International Conference on Computer Aided Engineering (CAE-2015)*, 27–28 November 2015. (paper no. 184)
- 50. Joe Jacob and Dhiman Chatterjee. Numerical study of the performances of Darrieus and Savonius turbines for hybrid hydrokinetic turbine application. *AICFM13*, 7–10 September 2015.
- 51. Karuna Agarwal and Dhiman Chatterjee. The role of encapsulated microbubbles in the diagnosis of stenosis in arteries. *CAV2015: Ninth International Symposium on Cavitation*, 6–10 December 2015.
- 52. Pankaj Kumar, Dhiman Chatterjee and Shamit Bakshi. Effect of ultrasound on cavitation behind a circular cylinder. *CAV2015*, 6–10 December 2015.
- 53. Pankaj Kumar, Dhiman Chatterjee and Shamit Bakshi. Experimental investigation of cavitation behind a circular cylinder in cross-flow. *Ninth International Conference on Thermal Engineering: Theory and Applications*, 24–26 March 2016.
- 54. S.P. Das and E.J. Hopfinger. Heat and mass transfer across liquid–vapor interface in a pressurized circular cylindrical container due to gravity waves. 23rd National and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference, Thiruvananthapuram, India, 17–20 December 2015.

Distinguished visitors to the department

Sl. No.	Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Hauke Gravenkamp, Federal Institute for Materials Research and Testing (BAM Bundesanstalt für Materialforschung und- prüfung), Berlin. Organizer – Dr. Sundararajan Natarajan	6 April 2015	To deliver a talk titled 'Modelling Ultrasonic Waves Using the Scaled Boundary Finite Element Method'
2	Dr. Wang Wei-Chung, Vice Chancellor, Department of Power Mechanical Engineering	24 April 2015	Visiting Mechanical Engineering Department and meeting with HoD and faculty

Sl. No.	Visitor and Designation	Date of Visit	Purpose of Visit
3	Dr. Wu Yong-xian, Department of Engineering and System Science	24 April 2015	Visiting Mechanical Engineering Department and meeting with HoD and faculty
4	Dr. Anita Chen, The Taiwan Education Center, Senior PM, NTHU Taiwan	24 April 2015	Visiting Mechanical Engineering Department and meeting with HoD and faculty
5	Mr. Michael Schieb, Global Head of Automotive Parts Production, Witzenmann GmbH, Germany	29 April 2015	Visiting Mechanical Engineering Department and meeting with HoD and faculty members and lab tour
6	Mr. V. Chandrasekhar, President and CEO, Witzenmann India Private Limited	29 April 2015	Visiting Mechanical Engineering Department and meeting with HoD and faculty members and lab tour
7	Dr. Dohmen-Janssen, University of Twente, The Netherlands	17 June 2015	Visiting Mechanical Engineering Department and meeting with HoD and a research lab tour
8	Dr. Dierkes, University of Twente, The Netherlands	17 June 2015	Visiting Mechanical Engineering Department and meeting with HoD and a research lab tour
9	Prof. Ashok Saxena, Provost and Vice Chancellor for Academic Affairs, University of Arkansas, USA. Organized by Dr. V. Raghu Prakash	1 August 2015	Giving a lecture titled 'Creep and Creep- Fatigue Crack Growth'
10	Prof. Peter Coal Drake, Vice Chancellor, Prof. Gordon Wyeth, Dean, Faculty of Science and Engineering, Prof. Ross Young, Dean, Faculty of Health, Prof. Sheel Nuna, Director, South Asia, Prof. R. Nagarajan, Dean, IAR, and Prof. Kamamoti, Department of Computer Science and Engineering	21 August 2015	Discussion to explore the possibility of collaborative Ph.D. programme
11	Dr. Yash Agarwal, Technical Consultant India, Simpleware	3 September 2015	Delivering a talk about the capabilities of Simpleware software
12	Dr. Balasubramaniam Pesala, alumnus of IIT Madras and UC Berkeley, Senior Scientist, CSIR, and Assistant Professor, ACSIR	30 October 2015	For delivering an invited talk
13	41 school students from north-eastern India visiting under Ishan Vikas Scheme (GoI), accompanied by four teachers	30 December 2015	Ishan Vikas Scheme, GoI
14	Prof. T. Sidhu, Dean, University of Ontario Institute of Technology (UOIT), Canada, Michael Owen, Vice-President (Research), and Prof. Bale V. Reddy, Professor and Chair, Department of Automotive Mechanical and Manufacturing Engineering, Faculty of Engineering and Applied Science	14 March 2016	To visit research activities in engineering and explore opportunities for joint international activities
15	Dr. Rusi Taleyarkhan, Ph.D., M.B.A., B.Tech. (IIT Madras, 1977 Batch), Professor, School of Nuclear Engineering, Purdue University	28 March 2016	To discuss collaborations, including hosting select IIT Madras students at Purdue and considering possibilities for joint research and technology commercialization/manufacturing in India

4.13.6. Other Activities of the Department/Centre

Results obtained in research work (from M.S. and Ph.D. theses) of scholars/faculty members

M.S. Thesis Abstracts

Prabhakaran, Dr. Krishnan Balasubramanian and Dr. Prabhu Rajagopal

The characteristics of guided wave propagation in bends and joints are understood using semi-analytical finite element (SAFE) analysis and 3D FE simulations cross-validated by experiments.

Ravi S. Jadhav and Dr. C Balaji

The work investigates the fluid flow and heat transfer characteristics of a vertical parallel plate channel filled with protruding partial-length, high-density meshing fins on the two inside walls, considering electronic equipment as one of the possible applications. A detailed parametric study is performed considering four geometrical parameters,

and the results are used to train artificial neural networks. The optimal configuration of the system is determined by performing multi-objective optimization of the system using NSGA-II as the driving algorithm.

N. Srivathsan and Dr. Shamit Bakshi

This work deals with the influence of suspenders (conducting and non-conducting needles and solid suspenders) in the evaporation of suspended droplets at atmospheric conditions. Evaporation rates of ethanol from the suspending needles were found to be much greater compared with the solid suspenders (quartz and steel). Reasons for the increased evaporation rates are estimated via a heat transfer study and confirmed using steady-state simulations of the heat transfer through the suspenders and the ethanol droplet.

Oindrila Manna, Dr. Sarit Kumar Das and Dr. K Srinivas Reddy

The present investigation is devoted to the development of water-based slippery systems. The importance of the substrate's underlying roughness and the lubricant's surface tension have been investigated systematically for the better performance and increased thermodynamic stability of the developed slippery surfaces.

Sandip More and Dr. P. Chandramouli

The thesis investigates the dynamics of a floating raft vibration isolation system. CMS-based power flow is used to compute the dynamics of FRS. Both beam- and plate-based models have been studied. The parameters affecting the power flow have been optimized using a genetic algorithm as an optimization tool.

A. Kiran Kumar and Dr. Krishna Kannan

A novel framework was developed computationally to include microstructure variabilites such as fibre diameter and its distribution in a unidirectional composite to carry out reliability-based design of an aerospace structure. By integrating a multiscale framework with reliability-based design one can understand the behaviour better and design composite structures better.

Gajanan, Dr. K. Viswanath and Dr. N. Sitaram

The ppresent work was carried out to control the laminar flow separation on the suction surface of LP turbine cascade blades at low Reynolds numbers. Laminar flow separation control was achieved using a passive flow separation control device called the Gurney flap. Both Computational and experimental investigations were carried out. Different heights and shapes of Gurney flaps were tested.

Bajwa R.P. Singh and Dr. P.V. Manivannan

The thesis presents passivity-based impedance and motion controllers for variable stiffness actuators (VSA). In addition to the control of VSA, the thesis addresses the vibration control problem in flexible links using the Gaussian input shaping technique.

Anurag Singh, Dr. M.P. Maiya and Dr. Srinivasa Murthy

In the present work two cylindrical solid-state hydrogen storage devices embedded with novel heat exchangers are investigated experimentally and numerically. Spatial variations in the concentration and temperature of metal hydride beds are examined.

Deepak Ranjan Sahoo and Dr. Narasimhan Swaminathan

The thesis presents the role of point defects in irradiation damage production in beta-Silicon Carbide (SiC). It also describes the irradiation-induced mechanical stability of the SiC crystal and its amorphization.

Ph.D. Thesis Abstracts

Mudireddy Chandra sekhar Reddy, Dr. A. Seshadri Shekhar

Rotating machinery is very popular in industrial applications. So far people are using vibration measurements for fault detection in rotating machines. Misalignment and crack in rotor systems is detected by using torque and strain measurements. In addition to torque values, Statistical parameters are used to distinguish crack from coupling misalignment. ANNs are used for severity identification of different faults.

Shijin P.K., Dr. V. Babu and Dr. V. Raghavan

A detailed numerical study of laminar cross-flow non-premixed methane-air flames in the presence of different bluff-bodies has been performed using ANSYS FLUENT. The flow, temperature, species and reaction fields have

been predicted using a comprehensive transient 3D reactive flow model with detailed chemical kinetics to study the flame stabilization phenomena. The effect of vortex shedding on the flame sheet roll-up has been explored. The flame stability maps have been generated based on the experimental studies with different bluff-bodies. Transitions between the regimes of flame stabilization have been experimentally investigated over a wide range of air and fuel flow velocities and the reasons have been analyzed numerically.

Samarjeet Chanda, C. Balaji and S.P. Venkateshan

The study involves development of a novel methodology for simultaneous estimation of the principal thermal conductivities of anisotropic media, particularly layered honeycomb composites used in spacecraft structures and satellite applications, by harnessing the capabilities of state-of-the-art inverse techniques.

G. Raghu Vamsee and Dr. Shaligram Tiwari

An in-house flow solver was developed on the basis of body-fitting grids and co-ordinate transformation to investigate the wake behaviour behind stationary and vibrating complex geometries. The effect of the shape of the body, the presence of a wall and stationary and vibrating bodies in the vicinity on the wake behaviour were investigated.

Sudheesh Kumar C.P., Dr. C. Sujatha and Dr. Shankar Krishnapillai

Vibration and acoustic analysis of beams under moving loads is presented in this work. This has direct applications for railway bridges traversed by railway car loads. Both uniform and non-uniform beams are considered in the analysis. The loads are considered as moving point forces and moving oscillators. The effect of the geometry of a beam on its vibro-acoustic response is studied. An experimental investigation is carried out by taking field measurements of the responses of a bridge traversed by a train and is validated with those obtained using an analytical model.

Purbarun Dhar and Dr. Sarit Kumar Das

Augmented thermophysical and electromagnetic transport properties of graphene nanosuspensions. The electromagnetic transport parameters and thermophysical transport parameters in electromagnetic fields were investigated. Some biological interactions of graphene with collagen were also studied. Mathematical models have been proposed for all the transport phenomena observed.

Pradeep V. and Dr. A. Ramesh

Experimental investigations on semi-direct and direct injection strategies to improve an LPG-fuelled two-stroke spark ignition engine and CFD studies on direct cylinder head injection of LPG. The developed systems were able to significantly reduce short-circuiting and hydrocarbon (HC) emissions from a two-stroke spark ignition engine. A novel twin injector strategy for LPG injection was also developed and tested.

Ranjeet Kumar Sahu and Dr. Somasekhar S. Hiremath

Generation and characterization of nanoparticles using advanced mechanical micro-electrical discharge machining $(\mu\text{-EDM})$ were carried out to generate copper and aluminium nanoparticles with a high yield and uniform distribution. The suitability of the generated nanoparticles for applications was studied.

P. Veeramuthuvel and Dr. Shankar Krishnapillai

The novel application of a particle damper in an electronic package of a spacecraft is demonstrated. Optimal particle damper design guidelines are arrived at from an RBF neural network.

Abhijit Dhamanekar and Dr. K. Srinivasan

Novel passive noise control methods for impinging jet noise are implemented. The roughness of an impinging plate is capable of reducing turbulent mixing noise, and a central protrusion on the impinging plate mitigates tonal noise. The permeability of the plate reduces the turbulent mixing noise and broadband shock-associated noise and eliminates tones.

Sujit Karmakar and Dr. Ajit Kumar Kolar

A comparative study of MEA and membrane-based systems for CO_2 capture using advanced coal-based power generation technologies with respect to 4-Es (namely, Energy, Exergy, Environment, and Economics) for Indian coal and Indian ambient conditions with special reference to CO_2 avoided and energy efficiency penalty.

Arun Kumar Pujari, Dr. N. Sitaram and Dr. B.V.S.S.S. Prasad

The major focus of the thesis is to demonstrate a method to obtain the internal heat transfer coefficient on the internal side of a nozzle guide vane without relying on empirical correlations. The sensitivity of flow and thermal variables on key parameters such as the internal heat transfer coefficient and internal temperature distribution are established in the present work. These are useful for designing the internal cooling configurations of a nozzle guide vane.

Faculty visits

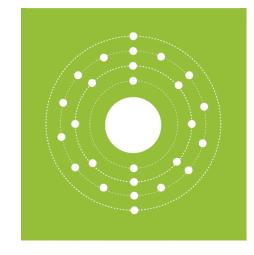
Sl. No.	Faculty Member	Purpose of Visit/University	Country
1	Abhijit Sarkar	Collaborative research work, University of New South Wales, Sydney	Australia
2	V. Raghavan	Discussion about current projects at WPI, Worcester, and MA/ Worcester Polytechnic Institute (WPI)	USA
3	G.L. Samuel	Research work for joint guidance at the Institute for Frontier Materials, Deakin University	Australia
4	S. Soundarapandian	Collaborative work and book writing and research, University of North Texas, Denton	USA
5	Sathyan Subbiah	Visit to review ongoing projects at Rolls Royce NTU Corporate Lab as a Visiting Scientist	NTU Singapore
6	Sujatha Srinivasan	Discussions with WHO, ICRC and ETH Zurich	Switzerland

Major infrastructure development in the department

Design—Construction of Biomechanical Analysis Lab in the ground floor of MDS as part of the TTK Centre for R2D is going on.

Thermal—The annular cascade tunnel for testing the turbine rear frame of GE Technologies has been developed after extensive modifications. The set-up is equipped with automatic circumferential and radial traverse mechanisms.

Department of Metallurgical and Materials Engineering



4.14.1. Introduction

The Department of Metallurgical and Materials Engineering (MME) is one of the oldest departments of IIT Madras, established in 1959 as the Department of Metallurgy at the very inception of the institute. The department is actively engaged in research, education and industrial consultancy. It offers B.Tech., M.Tech., M.S. and Ph.D. degrees. The department's teaching, research and consultancy activities cover a broad spectrum of materials science and engineering and industrial metallurgy (metal casting, metal joining, metal forming and materials technology).

The department developed a unique character at the outset owing to its strong linkages with industry and the expertise of the faculty in industrial metallurgy. Over the years, the department has developed excellent research infrastructure in the broad areas of materials science and engineering. The department also has particularly good infrastructure for carrying out research in materials processing (forming, joining, casting, particulate processing, nano-structured materials), characterisation (X-ray diffraction, electron microscopy, thermal analysis), mechanical testing, environmental degradation/corrosion, surface engineering, computational materials science and electronic materials. The department continues to strive for excellence and realising its vision of becoming 'a pioneering department in the country for teaching, research and consultancy in the emerging areas of material science and engineering, while consolidating the strength in traditional areas of metallurgical engineering. The activities of the year 2015–2016 corroborate the department's progress in keeping with its vision.

4.14.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	MM 6010	Computational Materials Thermodynamics
2	MM 5040	Defects in Materials
3	MM 5050	Thermodynamics and Kinetics
4	MM 5120	Heat Treatment Technology
5	MM 5350	Advanced Metallurgical Thermodynamics

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	31	31	32	23	15	132
Dual Degree	9	13	11	19	19	71
M.Tech.	25	14	_	_	5	44
M.S.	6	9	_	_	16	31
Ph.D.	33	14	21	25	23	116
Total	104	81	64	67	78	394

Students/scholars who attended conferences/seminars/symposia

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroac	d				
1	Prasanna Kumar Iyengar	MM11D025	SMST 2015	18–25 May 2015, Crown Plaza, Chipping, Norton, UK	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
2	T. Rajesh Kumar Dora	MM12S011	SMST 2015	18–25 May 2015, Crown Plaza, Chipping, Norton, UK	IIT Madras
3	Ebnezer D.	MM11D009	ECS meeting	24–29 May 2015, Chicago, Illinois, USA	IIT Madras
4	Soumya Sridhar	MM12D030	CALPHAD 2015	25–28 May 2015, Italy	IIT Madras
5	G. Logesh	MM12D004	11th CMCEE-2015	14–19 June 2015, Vancouver, Canada	IIT Madras
6	K. Vasanthakumar	MM12D013	11th CMCEE 2015	14–19 June 2015, Vancouver, Canada	IIT Madras
7	Eranezhuth Wasan Awin	MM12D018	ECERS 2015	21–25 June 2015, Spain, Europe	IIT Madras
8	G. Srinivas Reddy	MM12D026	ANM 2015	20–22 July 2015, University of Aveiro, Aveiro, Portugal, Europe	IIT Madras
9	Jayant Barode	MM13S014	METFOAM 2015	31 August to 2 September 2015, Barcelona, Spain	IIT Madras
10	Santhoshkumar Bhogi	MM12D024	METFOAM 2015	31 August to 2 September 2015, Barcelona, Spain	IIT Madras
11	Hanas T.	MM13D009	7th Symposium on Bio-degradable Metals	23–28 August 2015, Carovigno, Italy	IIT Madras
12	Viswanathan R.	MM12D028	EUROCORR15	6–10 September 2015, Graz, Australia	IIT Madras
13	Anand Sekhar R.	MM13D006	MS & T 2015	4–8 October 2015, Ohio, Columbus, USA	IIT Madras
14	Pramod S.L.	MM11D011	MS & T 2015	4–8 October 2015, Columbus, USA	IIT Madras
15	Karthiselva N.S.	MM11D019	MS & T 2015	4–8 October 2015, Columbus, USA	SJEF, IIM
16	Chaitanya P.	MM14S002	TMS 2016	14–18 February 2016, Nashville, Tennessee, USA	IIT Madras
17	Mayur Vaidya	MM12D022	TMS-ATM 2016	14–18 February2016, Nashville, Tennessee, USA	IIT Madras
18	Govind Raj Choudhary	MM13S012	TMS-ATM 2016	14–18 February 2016, Nashville, Tennessee, USA	IIT Madras
India					
1	Karthiselva N.S.	MM11D019	35th EMSI	8–10 July 2015, Mumbai	IIT Madras
2	Jagannatham	MM10D009	35th EMSI	8–10 July 2015, Mumbai	Mumbai
3	Jalaj Kumar	MM12D019	35th EMSI	8–10 July 2015, Mumbai	DMRL
4	Karthiselva N.S.	MM11D019	Young Scientists' Colloquium 2015	11 September 2015, Kolkata	IIT Madras
5	K. Vasanthakumar	MM12D013	Nanoyantrika 2015	21–22 September 2015, Kovalam, Kerala	IIT Madras
6	Karthik G.M.	MM11D021	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
7	Viswanathan R.	MM12D028	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
8	Dasari Mohan	MM12D017	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
9	Indumathi N.	MM12D003	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
10	Praveen S.	MM09D025	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
11	Sonia Sharma	MM13D017	NMD-ATM 2015	13–16 November 2015, Coimbatore	IIT Madras
12	Dasari Mohan	MM12D017	ICSSP6 2015	24–27 November 2015, Hyderabad	IIT Madras
13	Santhoshkumar Bhogi	MM12D024	ICSSP6	24–27 November 2015, Hyderabad	IIT Madras
14	Srinivas Karthik Y.	MM11B045	IWPSD 2015	7–10 December 2015, Bengaluru	IIT Madras
15	Praveen S.	MM09D025	Seventh International Conference on Creep, Fatigue, Creep– Fatigue Interactions	19–22 January 2016, IGCAR, Kalpakkam	IIT Madras

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
16	J. Rajesh	MM13D012	Seventh International Conference on Creep, Fatigue, Creep– Fatigue Interactions	19–22 January 2016, IGCAR, Kalpakkam	IIT Madras
17	Jalaj Kumar	MM12D019	Seventh International Conference on Creep, Fatigue, Creep– Fatigue Interactions	19–22 January 2016, IGCAR, Kalpakkam	DMRL
18	Karthik G.M.	MM11D021	IHS 2016	27–28 January 2016, IIT Madras	IIT Madras
19	Dasari Mohan	MM12D017	IHS 2016	27–28 January 2016, IIT Madras	IIT Madras
20	Praveen S.	MM09D025	IHS 2016	27–28 January 2016, IIT Madras	IIT Madras
21	Karthiselva N.S.	MM11D019	ARRMA 2016	27–29 January 2016, BARC, Mumbai	IIT Madras
22	K. Vasanthakumar	MM12D013	ARRMA 2016	27–29 January 2016, BARC, Mumbai	IIT Madras
23	Viswanathan R.	MM12D028	APCCC17	27–30 January 2016, IIT Bombay	IIT Madras
24	Ameey Anupam	MM14D005	TEQIP Workshop on High Resolution X-Ray and Electron Diffraction	1–5 February 2016, IIT Kanpur	IIT Madras
25	Karthik G.M.	MM11D021	IMag Con 2016	4–6 February 2016, Chennai	IIT Madras
26	Tanmay Waghmare	MM11B034	IMag Con 2016	4–6 February 2016, Chennai	IIT Madras
27	Jayant Barode	MM13S013	PM16	18–20 February 2016, Pune	IIT Madras
28	Biswaranjan Muduli	MM13S011	PM16	18–20 February 2016, Pune	IIT Madras

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Prize Awarded by
1	Ashok Vayyala	MM13S008	Best Oral Presentation Award	Seventh National Symposium for Materials Research Scholars (MR 15), conducted by MEMS, IIT Bombay
2	Karthiselva N.S.	MM11D019	MRSI Young Scientists' Oral Award 2015	Young Scientists' Colloquium
3	Karthiselva N.S.	MM11D019	First prize for poster presentation	ARRMA-2016, BARC, Mumbai
4	G.M. Karthik	MM11D021	Best poster award	NMD-ATM 2015
5	G.M. Karthik	MM11D021	Best oral presentation	IMag Con 2016
6	Hanas T.	MM13D009	Best paper award	IMag Con 2016

Students/scholars who won convocation/Institute Day prizes

Sl. No.	Student/Scholar	Roll No.	Prize	Name of Donor
1	Divyasree P.K.	MM11B011	Dr. Dhandapani Memorial Prize	Mr. D. Chandrasekhar
2	Karthik A.	MM10B021	S. Anantharamakrishnan Memorial Prize	Ms Mallika Srinivasan
3	Anand H.	MM13M002	Sudharshan Bhat Memorial Prize	Goud Saraswat Braham Scholarship League
4	Ratna Sunil Buradagunta	MM10D004	Sudharshan Bhat Memorial Prize	Goud Saraswat Braham Scholarship League
5	B. Shakthipriya	MM13M029	Bhagyalakshmi and Krishna Ayengar Award	
6	Asmita Jana	MM12B006	Sri Satish Pai Prize	Mr. Satish Pai [1985/BT/ME]
7	K.N.S. Pavan Kumar	MM11B026	Ratna Award	Dr. Srinivas T. Rao
8	Pisat Ajay Sudhir	MM10B049	Prof. V. Sundaresan Prize	Prof. Sundaresan V. [1971/BT/MT]
9	Sathwik H. Rao	MM13M022	Institute Merit Prize	
10	Devinder Yadav	MM10D008	Institute Research Award	
11	Praveen S.	MM09D025	Institute Research Award	

Students/scholars who won Alumni Day prizes

SI. No.	Student/Scholar	Roll No.	Prize	Name of Donor
1	K. Jayachandran	MM11B015	B. Krishnamurty Award	Dr. K. Rajagopal [1974/BT/ME]
2	K.N.S. Pavan Kumar	MM11B026	Vijay Jagannathan Award	N.A. Sankar [1984/BT/MT]

4.14.3. Faculty and Their Activities

Faculty	
Name and Qualifications	Major Areas of Specialization
Professors	
B.S. Murty, [Head], Ph.D. (IISc, Bengaluru)	Nanocrystalline materials, bulk metallic glasses, high-entropy alloys, composites, phase transformations, electron microscopy, atom probe tomography
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
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, metal forming, high-temperature deformation behaviour of materials, 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, <i>ab initio</i> calculations of thermochemical and thermophysical properties
Prathap Haridoss, Ph.D. (U. Wisconsin-Madison)	Production and characterisation of carbon nanotubes, synthesis of CdS nanocrystals, CO-tolerant PEM fuel cell catalysts
T.S. Sampath Kumar, Ph.D. (IISc, Bengaluru)	Nanostructured biomaterials, antimicrobial ceramics and delivery systems, value- added biomaterials from natural wastes
Uday Chakkingal, Ph.D. (Rensselaer Polytechnic Institute)	Metal forming and material processing, severe plastic deformation processes, aluminium alloys, fatigue
G. Sundararajan, Ph.D. (Ohio State University)	Tribological behaviour of materials, indentation behaviour of materials, coatings on materials, deformation and fracture behaviour of materials
V. Sampath, Ph.D. (IISc, Bengaluru)	Shape memory alloys/smart materials, composite materials, powder metallurgy, structure–property correlations in materials
G. Phanikumar, Ph.D. (IISc, Bengaluru)	Solidification using electromagnetic levitation and melt spinning, transport phenomena in manufacturing processes, microstructure simulation and characterisation
Associate Professors	
R. Bauri, Ph.D. (IISc, Bengaluru)	Metal matrix composites, aluminium alloys, solid oxide fuel cells
A.S. Gandhi, Ph.D. (IISc, Bengaluru), currently in IIT Bombay on leave from IIT Madras	Physical ceramics, ceramic nanomaterials, high-temperature protective coatings (environmental and thermal barrier coatings), materials for energy systems (solid oxide fuel cells (SOFCs)), phase stability and transformations, metastable effects, thermally driven interactions in layered systems, surface engineering, zirconia ceramics, non-equilibrium phenomena in oxides
N.V. Ravi Kumar, Ph.D. (MPI-Stuttgart)	Polymer-derived ceramics, silicon carbide/silicon nitride ceramics, high- temperature mechanical properties, object-oriented finite element programming for prediction of macroscopic properties
S. Sankaran, Ph.D. (IIT Kanpur)	Mechanical behaviour of materials, electron microscopy, structure–property correlations
V. Subramanya Sarma, Ph.D. (IIT Madras)	Materials processing, development and characterisation, microstructure—mechanical property correlations in engineering materials
G.D. Janki Ram, Ph.D. (IIT Madras)	Welding, additive manufacturing, failure analysis

Name and Qualifications	Major Areas of Specialization
Somnath Bhattacharyya, Ph.D. (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 nanobioconjugation using electron probe
Assistant Professors	
Ajay Kumar Sukla, Ph.D. (IIT Kanpur)	Process modeling, 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 (KUL), 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, Gemany)	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
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. 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, modeling and simulation of flows through packed beds, fluidised beds, heat and mass transfer, granular flows, multi-phase flows, reacting flows
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 Thomos, 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
Sreeram K. Kalpathy, Ph.D. (University of Minnesota)	Soft matter—colloid and polymer science, interfacial fluid mechanics, physical chemistry of surfaces, coating and printing methods
Murugaiyan A., Ph.D. (Delft University of Tech., The Netherlands)	Welding metallurgy, welding process development, steel product development, <i>in-situ</i> 3D synchrotron X-ray diffraction, additive manufacturing
Visiting Faculty	
M. Sundararaman, Ph.D. (University of Mumbai)	Phase transformation and structure—property correlation in metallic materials, ordered–disordered transformation under equilibrium and non-equilibrium conditions, micromechanics of plasticity, material characterization, physical metallurgy of super alloys, defect analysis using microscopy
Steel Chair Professor	
Santanu Kumar Ray, Ph.D. (IIT Kharagpur)	R&D in steel making, continuous casting of steels
AICTE-INAE Distinguished Professor	
R. Natarajan, B.Tech (IIT Madras), Vice President (TII), Chennai	R&D in steel technology for tubular products
Adjunct Faculty	
R. Gopalan, Ph.D. (IIT Madras) Associate Director and Head, Centre for Automotive Energy Materials, ARCI, IIT Madras Research Park	Magnetic materials, thermoelectric materials, fuel cells
Raju Ramanujan, Ph.D. (CMU) Professor, NTU, Singapore	Nano functional materials

Short-to	erm courses/workshops/ser	ninars/symposia/conferences organized by facu	lty members
Sl. No.	Co-ordinators	Title	Period
Confer	ences		
1	B.S. Murty	Certificate course in practical metallography	29 June to 2 July 2015, IIT Madras
2	S. Sankaran	Materials for High Temperature Applications —	8–10 July 2015, Mumbai
3	Krishanu Biswas	session at the international conference EMSI	
4	B.S. Murty and S. Sankaran	Certificate course in materials characterization	15–18 July 2015, IIT Madras
5	M. Balasubramanian	Course in powder metallurgy	7–8 August 2015, IIT Madras
6	M. Kamaraj		
7	Uday Chakkingal	International Conference and Expo on Magnesium (IMag Con 2016)	4–6 February 2016, VIT University
Sympos	sia		
1	B.S. Murty	Mr. A.C. Wadhawan Memorial Symposium	15 November 2015, NMD-ATM, Coimbatore
Worksł	iops		
1	K.C. Harikumar	National Workshop on MATCALC	20–24 July 2015, IIT Madras
2	B.S. Murty	Demonstration of remotely operable atom probe	25 August 2015, Cameca, USA
3	Ravi Kumar N.V.	Indo-German workshop, Advanced Materials Challenges for Alternative Energy Solutions (AMAES III)	18 December 2015, New Delhi
Short-t	erm courses		
1	V.S. Sarma	CE programme on the use of physical simulations	17–18 July 2015, IIT Madras
2	G.D. Janaki Ram		

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

SI. No.	Faculty Member	Title	Institution	Period
Worksl	hops			
1	Ajay Kumar Shukla	Theoretical and Practical Aspects of Steelmaking Processes for Research and Technology Groups	JSW Steel Limited, Bellary, Karnataka	10–12 August 2015
2	B.S. Murty	INSPIRE programme for school students	Anna University	6 October 2015
3	B.S. Murty	International workshop, Advanced Materials—Challenges for Alternative Energy Solutions	New Delhi	18–19 December 2015
5	Srinivasa Rao Bakshi	Nuclear Security Workshop for Indian Universities	Pandit Deendayal Petroleum University, in collaboration with Partnership for Nuclear Security (US Department of State) and Nuclear Security Science and Policy Institute (Texas A&M University)	10–12 February 2016
Sympo	sia			
1	M. Kamaraj	Repair Technology Symposium 2015	GE, Bengaluru	27–28 October 2015
2	Ajay Kumar Shukla	High Temperature Processing Symposium	Swinburne University of Technology, Melbourne, Australia	1–2 February 2016
Confer	rences			
1	G.D. Janaki Ram	International Conference on Application of Lasers in Manufacturing (CALM 2015), Pragati Maidan, New Delhi	ARCI	9–11 September 2015

Sl. No.	Faculty Member	Title	Institution	Period
2	Manas Mukherjee	Sixth International Conference on Solidification Science and Processing	Hyderabad	24–27 November 2015
3	G.D. Janaki Ram	GT India 2015, Hyderabad	ASME International Gas Turbine Institute	2–3 December 2015
4	B.S. Murty	International Principal's Educational Conference	Nagpur	15–16 December 2015

Special lectures delivered by faculty members at other institutions

Special	Special lectures delivered by faculty members at other institutions				
Sl. No.	Faculty Member	Topic	Institution	Date	
1	Ajay Kumar Shukla	Mathematical Model-Based Approach to Optimize and Control Iron and Steel Making	JSPL Raigarh	4 April 2015	
2	Ajay Kumar Shukla	Flow-Sheet-Based Approach to Develop Reactor Control Models Using METSIM/FactSage	NML, Jamshedpur	29 May 2015	
3	G.D. Janaki Ram	Welding Metallurgy of Nonferrous Alloys (as a part of a three-day course titled "Welding Technology, Metallurgy and Quality Assurance", organized by IIW Chennai Chapter) Hotel Radha Regent, 6 Arumbakkam, Chennai		6 June 2015	
4	S. Sankaran	Principles and Techniques of Transmission Electron Microscopy, at the FDP in materials processing and characterization techniques	SJCIT, Chickballapur, Karnataka	10–13 June 2015	
5	V. Sampath	Studies on Synergistic Effect of <i>In-Situ</i> Addition of TiB ₂ to 2219 Al Matrix and Friction Stir Processing on Mechanical Properties of the Composite	Frontiers in Materials Processing, Research and Technology (FiMPART '15), Hyderabad, India	12–15 June 2015	
6	B.S. Murty	Metastable Microstructures and Electron Microscopy	IISc, Bengaluru	8–10 July 2015	
7	B.S. Murty	Characterization of Nanocrystalline High- Entropy Alloys through Atom Probe Tomography	Mumbai	8–10 July 2015	
8	B.S. Murty	Atomic-Level Characterization of Materials	IIT Ropar	27 July 2015	
9	B.S. Murty	The Excitement in Nano Materials	Guru Nank Dev University, Amritsar	27 July 2015	
10	B.S. Murty	Probing Materials at the Atomic Level, INSPIRE programme for school children	SSN College, Chennai	19 August 2015	
11	B.S. Murty	Applications of Nanotechnology, keynote lecture at FDP	PESIT, Bengaluru	27 August 2015	
12	V. Subramanya Sarma	Electron Back Scatter Diffraction—Principles and Applications	PESIT, Bengaluru	27 August 2015	
13	T.S. Sampath Kumar	Nano Calcium Phosphates for Bone and Dental Applications	RVR & JC College of Engineering, Guntur	18 September 2015	
14	V. Subramanya Sarma	Grain Boundary Engineering in Inconel 617— Role of Carbides	IIT Bombay	7 October 2015	
15	Somnath Bhattacharyya	Spectroscopy Without Spectrometer— Determination of Chemical Composition of Materials Using Transmission Electron Microscopic Images	IMEYMAT, University Cadiz, Spain	28 October 2015	
16	S.S. Bhattacharya	Synthesis and Characterisation of Equimolar Multicomponent Nano-ceramics	IIT Guwahati	8 November 2015	
17	V. Subramanya Sarma	Grain Boundary Engineering in Inconel 617	IISc, Bengaluru	27 November 2015	
18	Ranjit Bauri	Friction Stir Processing of Metal Matrix Composites, short-term course in nano composites	Government College of Trivandrum	10 December 2015	
19	T.S. Sampath Kumar	Biomaterial Applications of Eggshell Waste	IIT Madras	17 December 2015	

Sl. No.	Faculty Member	Topic	Institution	Date
20	M. Balasubramanian	Composite Materials Annamacharya Institute of Techn & Sciences (AITS Rajampet		21 December 2015
21	T.S. Sampath Kumar	Cap Nanoparticles—Therapeutics and Beyond	SSN College, Chennai	29 December 2015
22	V. Sampath	Recent Advances in Smart Materials (NCRASM 2016)	Hindustan University, Chennai	6 January 2016
23	T.S. Sampath Kumar	Innovative Bioceramics from Natural Products	NIT Rourkela 11 Januar 2016	
24	T.S. Sampath Kumar	Prospects of Value-Added Eggshell Waste in Biomedical Applications (CSFPB-16)	Sathyamangalam	21 January 2016
25	Ravi Kumar N.V.	All-India seminar, Residual Stress—Key Challenges and Remedies	National Design and Research Foundation and Central Power Research Institute, Bengaluru	21–22 January 2016
26	Somnath Bhattacharyya	Basics of Transmission Electron Microscopy, Advanced Techniques in Materials Characterization	NIT Raipur	22–23 January 2016
27	V. Sampath	Shape Memory Alloys in Dentistry	Saveetha University, Chennai	30 January 2016
28	Ajay Kumar Shukla	Keynote address at HTTP 2016	Swinburne University of Technology, Australia	1–3 February 2016
29	Ravi Kumar N.V.	National Workshop on Nanoscience & Nanotechnology	Pondicherry	3–5 March 2016

Visits abroad by faculty members

	ADAG UDJOULD J. LICELLO J. L.				
SI. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Ravi Kumar N.V.	France	25 May to 9 June 2015	Indo-French Project	CEFIPRA
2	Ravi Kumar N.V.	Serbia	15–17 June 2015	Invited talk at Third Serbian Ceramic Society	IIT Madras
3	Ajay Kumar Shukla	Germany	July 2015	DAAD Bilateral Exchange Programme	_
4	G.D. Janaki Ram	Saudi Arabia	1–4 August 2015	Technical discussion and delivery of lecture	_
5	Manas Mukherjee	Germany	7–11 September2015	Research stay	_
6	Ravi Sankar K.	South Korea	11–16 October 2015	10th International Conference on Magnesium Alloys (Mg 2015), organized by KIM	_
7	T.S. Sampath Kumar	Indonesia	27–29 October 2015	Keynote speaker at the 27th Symposium & Annual Meeting of the International Society for Ceramics (Bioceramics 27), Bali	_
8	Somnath Bhattacharyya	Spain	28–29 October 2015	Ph.D. examiner, delivery of invited talk	University Cadiz, Spain
9	Sreeram K. Kalpathy	Malaysia	25–27 November 2015	International conference	-
10	Tiju Thomas	Malaysia	25–27 November 2015	International conference	-
11	B.S. Murty	Malaysia	11–12 November 2015	Keynote speaker	_

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
12	Harikumar K.C.	Germany	31 January to 5 February 2016	30th Annual MSIT Meeting	_
13	Ajay Kumar Shukla	Australia	1–3 February 2016	CSIRO/Swinburne University of Technology (delivered keynote address)	_
14	Ajay Kumar Shukla	Australia	3 February 2016	CSIRO (visit)	_
15	Ajay Kumar Shukla	Australia	3 February 2016	Monash University	_
16	Murugaiyan Amirthalingam	Australia	21–27 February 2016	University of Wollongong, NSW	_

Honours and awards obtained by faculty members

		ed by idealty members			
Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award
Honou	rs				
1	T.S. Sampath Kumar	Chief guest at the inaugural session of a national seminar	RVR & JC College	_	_
2	B.S. Murty	Member of Governing Council, INAE	INAE	_	_
3	B.S. Murty	Member, Sectional Committee (Mining, Metallurgical and Materials Engineering)	INSA	_	_
4	B.S. Murty	Member, SERB Expert Committee for Young Scientists in Engineering Sciences	DST	_	_
5	B.S. Murty	Member, PAC on Materials, Mining and Minerals, DST, Government of India	DST	_	_
6	B.S. Murty	Associate Faculty, University of British Columbia, Canada	UBC	_	_
Awards	S				
1	B.S. Murty	G.D. Birla Gold Medal	Indian Institute of Metals, Kolkata	Research and development	November 2015
2	Ravi Kumar N.V.	Junior-Level Research & Development Award	IIT Madras	Research and development	April 2015
4	T.S. Sampath Kumar	JBT Best Paper Award 2014	JBT Editorial Committee and the American Scientific Publishers	Originality and presentability	_
5	Sreeram K. Kalpathy	Best Paper Award	University of Malaysia	FluidsChe2015	_
6	Sreeram K. Kalpathy	Second Best Poster	NIT Surathkal	MIRMM 2015	

Fellowships of academies and professional societies

Sl. No.	Faculty Member and Details	Year of Admission
1	Somnath Bhattacharyya, Andalusia Talent Hub Fellowship, Government of Andalusia, Spain	2015
2	B.S. Murty, Fellow of the Indian Institute of Metals	2015
3	B.S. Murty, Fellow of Andhra Pradesh Academy of Sciences	2016

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	Ravi Kumar N.V.	Editor	Surface Innovations
2	Somnath Bhattacharyya	Editor	Scientific Reports
3	Somnath Bhattacharyya	Editor	Indian Journal of Materials Science

Distinguished Alumnus Award, IIT Madras, 2015

1 Mr. Sekhar Vasan (Founder, Sansera Engineering, 1975/BT/MT)

4.14.4. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Equipment	Value (lakhs of ₹)
1	BET analyser, Micromeritics, Tristar-3020	20
2	UV-visible spectrophotoreactor, Thermofischer, Evolution 220	10
3	3D optical profiler	32

Patents filed

Sl. No.	Faculty Member	Title of Patent
1	Soma Guhathakurta (Department of Engineering Design), T.S. Sampath Kumar	Long Bone Substitutes from Biomimetic Scaffold of Plant Tissues (patent application no. 3608/CHE/2015, 15 July 2015)
2	Srinivasa Rao Bakshi, N.S. Karthiselva (MM11D019), B.S. Murty	Method for Fabricating Textured Ultra High Temperature Diborides (Indian patent application no. 201641010562)
3	B.S. Murty, Rahul Bhattacharya, M. Kamaraj, Daniel Fabijanic, Murugesan Annasamy, Peter Hodgson (Deakin University)	High-Entropy Alloys with Exceptionally Good High- Temperature Dry-Air Oxidation Properties (patent application no. 201641011314)

4.14.5. Research and Consultancy

Sponsored research projects (new-internal)

Sl. No.	Approval Number	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
1	MET1516655- NFSCTIJU	Tiju Thomas	_	New Faculty Scheme	Self-assembled and Nitride Transition Metal Compound Nanostructure for Charge Transfer (in Energy Harvesting, Sensing Platforms) and Remediation Related Applications	15 May 2015 to 14 May 2018	35.00
2	MET1516667- NFSCANAD	Anand Krishna Kanjarla	_	New Faculty Scheme	Integrated Experimental and Computational Study of Creep in Advanced Superalloys	21 January 2016 to 20 January 2019	32.00
3	MET1516663- NFSCSOMT	Somnath Bhattacharyya	_	New Faculty Scheme	Spectroscopy without Spectrometer — Determination of Chemical Composition of Materials Using Intensity Distribution of Scanning Transmission Electron Microscopic (STEM) Images	28 October 2015 to 27 October 2018	28.00
4	MET1516834- RFIRRAVK	Ravi Kumar N.V.	_	Institute Research and Development Award	Institute Research and Development Junior- Level Award	5 April 2015 to 14 April 2018	20.00

SI. No.	Approval Number	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
5	MET1516838- RFMETSSA	Sampath Kumar T.S.	_	Maintenance of Capital Equipment	FT-IR Spectrometer and a UV-Visible Spectrometer	11 March 2016 to 10 March 2017	5.30
6	MET1516835- NFIGSOMT	Somnath Bhattacharyya	_	New Faculty Initiation Grant	Advanced Transmission Electron Microscopy	7 September 2015 to 6 September 2017	5.00
7	MET1516836- NFIGSRER	Sreeram K. Kalpathy	_	New Faculty Initiation Grant	Soft Matter-Colloid and Polymer Science	November 2015 to 1 November 2017	5.00
8	MET1516837- NFIGMURG	Murugaiyan Amirthalingam	-	New Faculty Initiation Grant	Implicit Microstructural Modeling of Solid State Phase Transformations During Welding	15 February 2016 to 14 February 2018	5.00
9	MET1516144- RUTGMANA	Manas Mukherjee	Lakshman Neelakantan	Rural Technology Action Group	Finding Alternative Chemical to the Clayey Mud Used for Bidriware of Bidar	1 February to 31 July 2016	2.80

Sponsored research projects (new-external)

Sl. No.	Approval Number	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
1	MET1516142- ARDBKRAV	Kottada Ravi Sankar	-	Aeronautics Research & Development Board	Development of High Entropy Alloy (HEA) Coatings as Potential Bond-Coat Materials for High Temperature Turbine Engine Applications (GTMAP)	12 February 2016 to 11 February 2020	272.08
2	MET1516140- ARDBSGAN	Ganesh Sundararaman S.	Kamaraj M.	Aeronautics Research & Development Board	Performance of Coatings Under Fretting Wear Conditions	13 November 2015 to 12 November 2018	102.95
3	MET1516141- BRNSBSMT	Srinivasa Murthy B.	Srinivas Rao Bakshi	Board of Research in Nuclear Sciences	Development of W-Cu Functionally Graded Nanocrystalline Material for the First Wall Component in Nuclear Fusion Power Reactor	21 January 2016 to 31 March 2018	53.02
4	MET1516143- NRBXMANA	Manas Mukherjee	Kottada Ravi Sankar	Naval Research Board	Development of Lightweight High Strength Al–Mg Alloy Foams	7 March 2016 to 6 March 2018	33.00
5	MET1516165- ISROANAD	Anand Krishna Kanjarla	_	Indian Space Research Organisation	Effect of Thermo- mechanical Processing on the Microstructure, Texture and Anisotropy Evolution in Various Ti Alloys Being Used in Various Launch Vehicles	1 March 2016 to 28 February 2019	25.78

Sl. No.	Approval Number	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
6	MET1516139- DSTXTIJU	Tiju Thomas	_	Department of Science & Technology	Assured Opportunity for Research Career Fellowship	1 January 2015 to 11 August 2019	24.26
7	MET1516145- DSTXSSBH	Bhattacharya S.S.	_	Department of Science & Technology	Investigation of Boron Nitride (BN) Nanoparticles as Drug Carriers for Cancer Therapy	_	19.20

Industrial consultancy projects (new)

SI. No.	Project No.	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
1	IC1516MET007- CATRSGAN	Ganesh Sundararaman S.	_	Caterpillar India Private Limited	Comparison of Fatigue Lives of Ductile Iron Obtained from Two Different Sources	15 June to 30 November 2015	12.57
2	RB1516MET003- SAILLAKS	Lakshman Neelakantan	Raghuram Chetty	Steel Authority of India	Development of High Performance Stainless Alloy(s) for Bipolar Plate Application in Automobile	31 March 2015 to 30 June 2016	10.25
3	CR1516MET001- TNPLPRAT	Prathap Haridoss	_	Tamil Nadu Newsprint and Papers Limited	Prototypes of Footwear Device for Gait Analysis and Rehabilitation	1 January to 31 December 2016	9.48
4	IC1516MET008- IGCAGDJA	Janaki Ram G.D.	Subramanya Sarma V.	Indira Gandhi Centre for Atomic Research	Hot Ductility Testing of Borated Stainless Steels	November 2015 to 14 January 2016	4.10
5	IC1516MET006- AAAAVSSA	Subramanya Sarma V.	_	Common Code	SEM Analysis	9 July 2015 to 8 July 2018	2.61
6	IC1516MET004- ASPIRAVK	Ravi Kumar N.V.	_	Automotive Steel Pipe India Limited	Estimation of Residual Stresses of Tubes	15 May to 30 June 2015	2.43
7	RB1516MET004- IPRLBSMT	Srinivasa Murthy B.	_	IP Rings Limited	Optimizing the Process Parameters of Vacuum Casting for Small Diameter HSS Tubes	2 September to 31 December 2015	2.05
8	RB1516MET001- IPRLGANP	Gandham Phani Kumar	Kamaraj M.	IP Rings Limited	Friction Welding of Dissimilar Parts	1 May 2015 to 31 January 2016	1.60
9	RB1516MET002- GEITGANP	Gandham Phani Kumar	_	GE India Technology Centre Private Limited	Preparation and Testing of Friction Surfaced Layers on Steel Substrates	1 May to 31 October 2015	1.60
10	IC1516MET016- SMFLRAVK	Ravi Kumar N.V.	_	Sekhar Minerals and Fluxes Limited	Technical Opinion and Analysis of Magnesite Bricks from China	18 February to 14 April 2016	1.24
11	IC1516MET015- ASHORAVK	Ravi Kumar N.V.	_	Ashok Leyland	X-ray Residual Stress Estimation and Failure Analysis of Parabolic Springs Used in Automobiles	14 March to 14 May 2016	1.17

SI. No.	Project No.	PI	Co-PI	Agency	Title	Period	Value (lakhs of ₹)
12	IC1516MET003- RANKRAVK	Ravi Kumar N.V.	-	Rank Surveyors Private Limited	Technical Opinion on Plunger Failure in Master Cylinder Assembly	1 October 2014 to 30 April 2016	1.09
13	IC1516MET002- WHEERAVK	Ravi Kumar N.V.	_	Wheels India Limited	Measurement of Residual Stresses for Leap Springs by Multiple SinΨ X-Ray Diffraction	17 April to 30 June 2015	1.08
14	IC1516MET005- AAAAVSSA	Subramanya Sarma V.		Common Code	Failure Analysis on Aluminium Ring for Alstom Grid	9 June 2015 to 8 June 2018	0.74
15	IC1516MET009- AAAAVSSA	Subramanya Sarma V.	_	Common Code	Analysis of Materials by Scanning Electron Microscope	15 October 2015 to 14 October 2018	0.71
16	IC1516MET012- AAAAVSAM	Sampath V.	_	Common Code	Material Analysis of Industrial Components in Physical Metallurgy	4 January 2016 to 1 January 2019	0.17
17	IC1516MET014- AAAARANJ	Ranjith Baun	_	Common Code	Processing A1- Flyash Metal Matrix Composites	26 February 2016 to 25 February 2019	0.14
18	IC1516MET001- AAAARAVK	Ravi Kumar	_	Common Code	X-ray Diffraction and Failure Analysis	1 April 2015 to 31 March 2018	0.00
19	IC1516MET013- AAAAKRAV	Kottada Ravi Sankar	-	Common Code	Elevated Temperature Testing of Metallic Alloys	15 February 2016 to 14 February 2019	0.00
20	IC1516MET010- AAAATSSA	Sampath Kumar T.S.	_	Common Code	Medical Materials Laboratory Services	21 October 2015 to 20 October 2018	0.00
21	IC1516MET011- AAAARAVK	Ravi Kumar N.V.	_	Common Code	Retained Austenite and Residual Stress Analysis of Industrial Components Using XRD	28 December 2015 to 27 December 2018	0.00
22	IC1516MET017- AAAAVSSA	Subramanya Sarma V.	_	Common Code	SEM Analysis of Failed A1 Ring	29 March 2016 to 28 March 2019	0.00

RBIC projects (ongoing and new)

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	S. Ganesh Sundara Raman, H.S.N. Murthy	Fretting Fatigue Behaviour of Ti-6Al-4V	GTRE	9.79
2	Raghu Prakash, S. Ganesh Sundara Raman	High Temperature Evaluation of Fatigue Crack Growth of Austenitic Stainless Steel (Type 304 LN and 316 LN SS) Weld Joints Made of A-TIG and TIG Welding Processes and Comparison with That of the Base Metals	IGCAR	25.12

Research publications of the faculty members and research scholars

Papers published in refereed international journals: 94

- 1. Peter V. Lega, Dmitry S. Kuchin, Victor V. Koledov, V. Sampath, Alexey M. Zhikharev and Vladimir G. Shavrov. 2016. Simulation of control system of shape memory nanotweezers. *Materials Science Forum* 845: 142–145.
- Dmitry S. Kuchin, Victor V. Koledov, Pavel V. Bogun, Peter V. Lega, V. Sampath and Vladimir G. Shavrov. 2016. Simulation of the electric current flow in amorphous-crystalline Ti₂NiCu alloy with shape memory effect. *Materials Science Forum* 845: 146–149.
- 3. Basavaraj V. Patil, Uday Chakkingal and T.S. Prasanna Kumar. 2015. Effect of geometric parameters on strain, strain inhomogeneity and peak pressure in equal channel angular pressing: A study based on 3D finite element analysis. *Journal of Manufacturing Processes* 17: 88–97
- 4. F. Garcia-Moreno, M. Mukherjee, C. Jiménez and J. Banhart. 2015. Pressure induced foaming of metals. *JOM: Journal of the Minerals, Metals & Materials Society* 67(5): 955–965.
- 5 Devinder Yadav and Ranjit Bauri. 2015. Development of Cu particles and Cu core shell particles reinforced Al composite. *Materials Science and Technology* 31(4): 494–500.
- 6. Devinder Yadav and Ranjit Bauri. 2015. Friction stir processing of Al–TiB₂ in situ composite: Effect on particle distribution, microstructure and properties. *Journal of Materials Engineering and Performance* 24(3): 1116–1124.
- 7. Johnson Jacob and Ranjit Bauri. 2015. One step synthesis and conductivity of alkaline and rare earth co-doped nanocrystalline CeO₂ electrolytes. *Ceramics International* 41(5, Part A): 6299–6305.
- 8. C.N. Shyam Kumar, Devinder Yadav, Ranjit Bauri and G.D. Janaki Ram. 2015. Effects of ball milling and particle size on microstructure and properties of 5083 Al–Ni composites fabricated by friction stir processing. *Materials Science and Engineering A* 645: 205–212.
- 9. A. Surendra Babu and Ranjit Bauri. 2015. Phase evolution and morphology of nanocrystalline BaCe_{0.9}Er_{0.1}O_{3-δ} proton conducting oxide synthesised by a novel modified solution combustion route. *Journal of Physics and Chemistry of Solids* 87: 80–86.
- K. Krushnamurty, I. Srikanth, B. Rangababu, S.K. Majee, R. Bauri and Ch. Subrahmanyam. 2015. Effect
 of nanoclay on the toughness of epoxy and mechanical, impact properties of E-glass-epoxy composites.
 Advanced Materials Letters 6: 684–689.
- 11. S.L. Pramod, Srinivasa R. Bakshi and B.S. Murty. 2015. Aluminum-based cast *in situ* composites: A review. *Journal of Materials Engineering and Performance* 24(6): 2185–2207.
- 12. S.L. Pramod, A.K. Prasada Rao, B.S. Murty and Srinivasa R. Bakshi. 2015. Effect of Sc addition on the microstructure and wear properties of A356 alloy and A356-TiB₂ in situ composite. *Materials and Design* 78: 85–94.
- 13. Niraj Chawake, Koundinya N.T.B.N, Ajeet K. Srivastav and Ravi Sankar Kottada. 2015. On correlation between densification kinetics during spark plasma sintering and compressive creep of B2 aluminides. *Scripta Materialia* 107: 63–66.
- 14. R. Hari Krishna, B.M. Nagabhushana, Baburao N. Sherikar, N. Suriya Murthy, C. Shivakumara and Tiju Thomas. 2015. Luminescence enhancement in monoclinic CaAl₂O₄:Eu²⁺, Cr³⁺ nanophosphor by fuel-blend combustion synthesis. *Chemical Engineering Journal* 267: 317–323.
- 15. Abhijeet Kalaskar, Badari Narayana Rao, Tiju Thomas and Rajeev Ranjan. 2015. Electric field induced short range to long range structural ordering and its influence on the Eu⁺³ photoluminescence in the lead–free ferroelectric Na_{1/2}Bi_{1/2}TiO₃. *Journal of Applied Physics* 117: 244106.
- 16. Niya Mary and Tiju Thomas. 2015. Nanorod to quantum dot conversion in ZnO dispersions with co-surfactants. *RSC Advances* 5: 15154–15158.
- 17. Jian Zheng, Feng-Qiang Xiong, Mingming Zou, Tiju Thomas, Heng Jiang, Ying Tian and Minghui Yang. 2016. Enhanced photocatalytic degradation of Rhodamine B under visible light irradiation on mesoporous anatase TiO₂ microspheres by codoping with W and N. *Solid State Sciences* 54: 49–53.
- 18. U.S. Mallik and V. Sampath. 2015. Effect of grain-refinement on shape memory properties of Cu-A-Mn SMAs. *Advanced Materials Research* 1101: 104–107.
- Rupa Das Gupta, Ashish Kumar Jain, Shahadat Hussain, Abhishek Pandey and V. Sampath. 2016. Effect of Mn content on the properties affecting shape memory behaviour of Cu-12Al-4Ni-10Zn alloy. *Journal on Material Science* 3: 1–4.
- 20. N. Krishna Murthy and G.D. Janaki Ram. 2016. Hot cracking behavior of carbide-free bainitic weld metals. *Materials & Design* 92: 88–94.
- 21. G.M. Karthik, G.D. Janaki Ram and Ravi Sankar Kottada. 2016. Friction deposition of titanium particle reinforced aluminum matrix composites. *Materials Science and Engineering A* 653: 71–83

- 22. Abhishek Mitra, N. Siva Prasad and G.D. Janaki Ram. 2016. Estimation of residual stresses in an 800 mm thick steel submerged arc weldment. *Journal of Materials Processing Technology* 229: 181–190.
- 23. Haijun Gong, Khalid Rafi, Hengfeng Gu, G.D. Janaki Ram, Thomas Starr and Brent Stucker. 2015. Influence of defects on mechanical properties of Ti–6Al-4V components produced by selective laser melting and electron beam melting. *Materials & Design* 86: 545–554.
- 24. S. Meenia, F. Khan MD, S. Babu, R.J. Immanuel, S.K. Panigrahi and G.D. Janaki Ram. 2016. Particle refinement and fine-grain formation leading to enhanced mechanical behaviour in a hypo-eutectic Al–Si alloy subjected to multi-pass friction stir processing. *Materials Characterization* 113: 134–143.
- 25. P.R. Guru, F. Khan MD, S.K. Panigrahi and G.D. Janaki Ram. 2015. Enhancing strength, ductility and machinability of an Al-Si cast alloy by friction stir processing. *Journal of Manufacturing Processes* 18: 67–74.
- 26. T.N. Prasanthi, C. Sudha, Ravikiran, S. Saroja, N. Naveen Kumar and G.D. Janaki Ram. 2015. Friction welding of mild steel and titanium: Optimization of process parameters and evolution of interface microstructure. *Materials & Design* 88: 58–68.
- 27. P. Rani, A. Kumar, B. Vishwanadh, S. Bhattacharyya, R. Tewari and A. Subramaniam. 2015. Stabilization of coherent precipitates in nanoscale thin films. *Philosophical Magazine* 95: 4130–4142.
- 28. P. Rajak, S.B. Lee and S. Bhattacharyya. 2016. Indication of thermal roughening in the retrieved mean inner potential across a Σ5 grain boundary in SrTiO₃ annealed at different temperatures. *Journal on Material Science* 51: 1484–1489.
- 29. Kartik Prasad, Rajdeep Sarkar, Vikas Kumar, K. Bhanu Sankara Rao and M. Sundararaman. 2016. Influence of test temperature on cyclic deformation behavior of a near α titanium alloy. *Material Science and Engineering A* 662: 373–384.
- 30. B. Kartik, R. Veerababu, M. Sundararaman and D.V.V. Satyanarayana. 2015. Effect of high temperature ageing on microstructure and mechanical properties of a nickel-free high nitrogen austenitic stainless steel. *Material Science and Engineering: A* 642: 288–296.
- 31. Kartik Prasad, S. Amrithapandian, B.K. Panigrahi, Vikas Kumar, K. Bhanu Sankara Rao and M. Sundararaman. 2015. Experimental evidence for segregation of interstitial impurities to defects in a near α titanium alloy during dynamic strain aging using energy filtered transmission electron microscopy. *Material Science and Engineering A* 638: 90–96.
- 32. U. Savitha, G Jagan Reddy, A. Venkataramana, A.A. Gokhale and M. Sundararaman. 2015. Effect of process parameters on solidification structure and properties of laser deposited SS316 alloy. *Transactions of the Indian Institute of Metals* 68(6): 1017–1022.
- 33. U. Savitha, G. Jagan Reddy, A. Venkataramana, A. Sambasiva Rao, A.A. Gokhale and M. Sundararaman. 2015. Chemical analysis, structure and mechanical properties of discrete and compositionally graded SS316–IN625 dual materials. *Materials Science and Engineering A* 647: 344–352.
- Mangesh Lodhe, A. Selvam, A. Udayakumar and M. Balasubramanian. 2015. Effect of polycarbosilane addition to a mixture of rice husk and coconut shell on SiC whisker growth. Ceramics International 42: 2393–2401.
- 35. Mangesh Lodhe, Narendra Babu and M. Balasubramanian. 2015. Synthesis and characterization of high ceramic yield polycarbosilane precursor for SiC. *Journal of Advanced Ceramics* 4: 307–311.
- 36. G. Amirthan and M. Balasubramanian. 2015. Helium gas permeability of SiC tubes produced using cotton fabric. *Ceramics International* 41: 3589–3594.
- 37. N. Raghukiran and R. Kumar. 2016. The role of the bimodal distribution of ultra-fine silicon phase and nano-scale V-phase (AlSi₂Sc₂) on spark plasma sintered hypereutectic Al–Si–Sc alloys. *Materials Science and Engineering A* 657: 123–135.
- 38. N. Raghukiran and R. Kumar. 2015. Effect of scandium addition on the microstructure, mechanical and wear properties of the spray formed hypereutectic aluminum–silicon alloys. *Materials Science and Engineering A* 641: 138–147.
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- 40. A. Selvakumar, R. Perumalraj, P.N.R. Jeevananthan, S. Archana and J. Sudagar. 2016. Electroless NiP–MWCNTs composite coating for textile industry application. *Surface Engineering* 32(5): 338–343.
- 41. R. Sujith, A. Zimmermann and R. Kumar. 2015. Crack evolution and estimation of fracture toughness of HfO₂/SiCN(O) polymer derived ceramic nanocomposites. *Advanced Engineering Materials* 17: 1265–1269.
- 42. Eranezhuth Wasan Awin, Soumya Sridar, Rajashekhar Shabadi and Ravi Kumar. 2016. Structural, functional and mechanical properties of spark plasma sintered gadolinia (Gd₂O₃). *Ceramics International* 42: 1384–1391.
- 43. Branko Matovic, Fatima Zivic, Slobodan Mitrovic, Dragan Prsic, Vesna Maksimovic, Tatjana Volkov-Husovic, Ravi Kumar and Nina Daneu. 2016. Ultra-high pressure densification and properties of nanostructured SiC. *Materials Letters* 164: 68–71.

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- 83. K.S.N. Satish Idury, B.S. Murty and Jatin Bhatt. 2015. Thermodynamic modeling and composition design for the formation of Zr–Ti–Cu–Ni–Al high entropy bulk metallic glasses. *Intermetallics* 65: 42–50.
- 84. V.R. Mudinepalli, W.C. Lin, S.H. Song and B.S. Murty. 2015. Spark plasma sintering temperature effect on structural, dielectric and ferroelectric properties of Ba_{0.9}Sr_{0.1}TiO₃ nanocrystalline ceramics. *Journal of Electronic Materials* 44: 4308–4315.
- 85. D. Arvindha Babu, Bhaskar Majumdar and B.S. Murty. 2015. Glass forming ability, structure and soft magnetic properties of rapidly solidified Fe₈₆Zr_{7-x}Nb_xB₆Cu₁ alloy ribbons. *Transactions of the Indian Institute of Metals* 68: 1047–1051.
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- 87. K. Mondal and B.S. Murty. 2015. Factors influencing oxidation behavior of metallic glasses. *Transactions of the Indian Institute of Metals* 68: 1151–1154.

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- 92. C. Chattopadhyay and B.S. Murty. 2016. Kinetic modification of the 'confusion principle' for metallic glass formation. *Scripta Materialia* 116: 7–10.
- 93. V.R. Mudinepalli, L. Feng, W.C. Lin and B.S. Murty. 2016. Preparation and characterization of fine grained barium lead titanate ceramics by spark plasma sintering technique. *Materials Research Innovations* 20: 81–85.
- 94. Venkata Ramana Mudinepalli, Feng Leng, W.C. Lin and B.S. Murty. 2016. Conventional and spark plasma sintered Ba_{0.8}Pb_{0.2}TiO₃ nano ceramics: Structural, dielectric and ferroelectric properties. *Metallurgical and Materials Transactions A* 47: 2579–2586.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Mr. Sekhar Vasan, Founder, Sansera Engineering (1975/BT/MT)	17 April 2015	Selected for the Distinguished Alumnus Award
2	Dr. Visweswara Chakravarthy Gudia, MED, Technical University of Denmark	22 April 2015	IIM talk
3	Delegates from NTHU, Taiwan	24 April 2015	International inter-disciplinary Ph.D. programme
4	Prof. Dipankar Banerjee, IISc, Bengaluru	8 May 2015	Third lecture of EGR Lecture Series
5	Dr. Gaurav Mohanty, Research Fellow, Swiss Labs for MST	18 May 2015	Talk
6	Dr. K.N. Krishnan, Charles Darwin University, Australia	9 July 2015	IIM talk
7	Dr. Vijay K. Vasudevan, University of Cincinnati, Ohio	15 July 2016	IIM talk
8	Dr. Michel Outrequin, CAMECA, France	15 July 2015	Talk
9	Prof. Manoj Gupta, MED, NUS, Singapore	4 August 2015	IIM talk
10	Dr. Shravana Katakam, University of North Texas, USA	6 August 2015	Talk
11	Dr. Stefan Schreiber, Germany	12 October 2015	IIM talk
12	Ms Georgiz Gascoyne, CEO, HFT, UK	13 October 2015	IIW talk
13	Prof Sergey Aksenov, Moscow University of Electronics and Mathematics	30 October 2015	IIM talk
14	Prof. Shashank Priya, MED, Virginia Tech, Blacksburg, VA	20 November 2015	IIM talk
15	Prof. Eun Soo Park, Seoul National University, Korea	23 November 2015	IIM talk
16	Prof. J. Maharana, Institute of Physics, Bhubaneswar	30 November 2015	Talk
17	Prof. C. Suryanarayana, University of Central Florida, USA	22 December 2015	IIM talk
18	Prof. John Haid, Denmark	20 January 2016	IIM talk
19	Dr. (Ms) Lijun Wang, UST Beijing	22 January 2016	Talk
20	Prof. Dr. Karl Ulrich Kainer, MIC, Germany	3 February 2016	IIM talk
21	Dr. A.K. Vasudevan, Office of Naval Research, US	10–15 February 2016	Talk
22	Dr. Arunansu Haldar, Sweden Tech. Center, UK	18 February 2016	Talk
23	Prof. R.K. Ray (former Professor, IIT Kanpur)	6-19 March 2016	Series of lectures
24	Dr. Rusi Taleyarkhan, Purdue University (1977/BT/MT)	28 March 2016	Interaction meeting

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
25	Dr. H. Md. Roshan (former Professor, IIT Madras)	28 March 2016	Talk
26	Dr. Ralph Wilken and Dr. Holger Fricke, Fraunhofer, IFAM,	22–26 February 2016	Technical discussions (Multi-
	Bremen, Germany		Join project)

4.14.6. Other Activities of the Department

Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
1	Uday Chakkingal	Examiner for Ph.D. viva-voce	27 April 2015, IIT Guwahati
2	M. Balasubramanian	Examiner for Ph.D. viva-voce	15 May 2015, IIT Kanpur
3	M. Kamaraj	Examiner for Ph.D. viva-voce	15 May 2015, VNIT, Nagpur
4	M. Sundararaman (Visiting Faculty)	Promotion Committee	15 May 2015, BARC, Mumbai
5	Ajay Kumar Shukla	IEHK Steel Institute, RWTH	July 2015, Aachen University, Germany
6	Srinivasa Rao Bakshi	Project proposals on small fan turbojet engine	18 May 2015, GTRE
7	Srinivasa Rao Bakshi	Ultra-high temperature ceramics meeting	11 December 2015, IIT Kanpur
8	Srinivasa Rao Bakshi	Examiner for Ph.D. viva-voce	8 December 2015, NIT Rourkela
9	M. Balasubramanian	Assessment Committee meeting	27 August 2015, NAL, Bengaluru
10	M. Balasubramanian	Examiner for Ph.D. viva-voce	20 July 2015, Annamalai University
11	Ranjit Bauri	Member of Review Committee	4 September 2015, NSTL
12	T.S. Sampath Kumar	NRB Materials Panel meeting	3–4 September 2015
13	T.S. Sampath Kumar	External examiner at CLRI, University of Madras	10 August 2015
14	Somnath Bhattacharyya	Ph.D. examiner and delivering an invited talk	28 October 2015, IMEYMAT, University Cadiz, Spain
15	Ranjit Bauri	Examiner for Ph.D. viva-voce	23 September 2015 and 3 March 2015, IISc, Bengaluru
16	S. Ganesh Sundara Raman	Expert in Selection Committee for Temporary Faculty	2 July 2015, NIT Trichy
17	S. Ganesh Sundara Raman	Examiner for Ph.D. viva-voce	24 August 2015, IIT Hyderabad
18	S. Ganesh Sundara Raman	Conducting DC meeting	19 September 2015, GCT, Coimbatore
19	S. Ganesh Sundara Raman	Peer Review Committee member to review the Department of MME	19 October 2015, NIT Trichy
20	Ganesh Sundara Raman	Examiner for Ph.D. viva-voce	23 January 2016, PESIT, Bengaluru
21	S.S. Bhattacharya	Member for promotion interview	28 January 2016, IIST, Thiruvananthapuram
22	Ranjit Bauri	Examiner for Ph.D. Viva-voce	3 March 2016, IISC Bengaluru
23	Ranjit Bauri	Member of the review committee to evaluate and suggest remedies for defects in rear shell casting of torpedo developed for Indian Navy	NSTL
24	Manas Mukherjee	Member of a doctoral committee	SRM University
25	V. Subramanya Sarma	Member of the national-level committee for purchase of thermomechanical simulator by Liquid Propulsion Systems Centre	LPSC, Thiruvananthapuram





4.15.1. Academic Programmes

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	28	32	32	30	17	139
Dual Degree	13	14	17	15	20	79
M.Tech.	54	49	_	_	_	103
M.S.	25	18	9	10	2	64
Ph.D.	34	31	29	21	23	138
Total	154	144	87	76	62	523

Student/scholars who attended conferences/workshops/seminars/symposia

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroac	1				
1	John Ashlin S.	OE14D200	Student Exchange Programme	8 April to 8 June 2015, Norway	Project
2	R. Senthil Kumar	OE10D012	Plenose Project of European Union	November 2014 to July 2015, University of Reggio, Italy	Project
3	K.V. Anand	OE11D002	Plenose Project of European Union	15 March to 15 July 2015 and 14 October to 15 November 2015, University of Reggio, Italy	Project
4	K.V. Anand	OE11D002	Plenose Project of European Union	16 July to 13 October 2015, University of Lisbon, Portugal	Project
5	Sivasankar	OE12D024	SPE-KSA Annual Technical Symposium & Exhibition 2016	24–28 April 2016. Dhahran International Exhibitions Center, Dammam Saudi Arabia	IIT Madras alumni
6	Vivek	OE13D010	SPE-KSA Annual Technical Symposium & Exhibition 2016	24–28 April 2016, Dhahran International Exhibitions Center, Dammam, Saudi Arabia	IIT Madras alumni
7	Renu	OE13D038	AGU Fall Meeting 2015	14–18 December 2015, Moscone Convention Centre, San Francisco, USA	IIT Madras
8	Anuj Kulshreshtha	OE11D025	IGARSS 2015	26–31 July 2015, Milan, Italy	IIT Madras
India					
1	Pravin Jeba Dev	OE12D007	SPIE 2016	4–7 April, New Delhi	Project
2	Anuj Kulshreshtha	OE11D025	SPIE 2016	4–7 April, New Delhi	Project

Sl. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
3	Rakesh Kumar Singh	OE12D028	SPIE 2016	4–7 April, New Delhi, India	Project
4	Sanjay Kumar Sahu	OE12D029	SPIE 2016	4–7 April, New Delhi, India	Project
1	Samayam Satish	OE15S005	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
2	Daniel Raj D.	OE15D028	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
3	R. Sukanya	OE15S026	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
4	R. Senthil Kumar	OE10D012	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
5	K. Narendran	OE10D020	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
6	Lokesha	OE12D016	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
7	E. Dinesh Kumar	OE13D028	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
8	T.J. Jemi Jeya	OE14D007	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
9	John Ashlin S.	OE14D200	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015, IIT Madras	Project
1	Samayam Satish	OE15S005	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
2	Daniel Raj D.	OE15S028	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
3	R. Sukanya	OE15S026	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
4	R. Senthil Kumar	OE10D012	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
5	K. Narendran	OE10D020	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
6	Lokesha	OE12D016	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
7	E. Dinesh Kumar	OE13D028	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
8	T.J. Jemi Jaya	OE14D007	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
9	John Ashlin S.	OE14D200	Workshop on REEF 3D: Open Source CFD	11 September 2015, IIT Madras	Project
10	Naga Praveen	OE13D006	International Conference on Computing in Mechanical Engineering (ICCME '15)	10–13 August 2015, SCMS College, Kochi	IIT Madras
11	Naga Praveen	OE13D006	Nasa–ISRO SAR (NISAR) Science & Applications Workshop	19–20 November 2015	IIT Madras
12	Hariharan	OE13S020	Fourth International Conference on Ship and Offshore Technology, ICSOT 2015	10–11 December 2015, IIT Kharagpur	IIT Madras
13	Kunal Tiwari	OE14D025	Indian Control Conference (ICC)	4–6 January 2016, IIT Hyderabad	IIT Madras

Students/scholars who won outside prizes and awards						
SI. No.	Student/Scholar	Roll No.	Prize	Prize Awarded by		
1	Sivasankar	OE12D024	Third Best Paper Award	SPE Kingdom of Saudi Arabia — Annual Technical Symposium — April 2016		
2	Naga Praveen	OE13D006	Gandhian Young Technological Innovation (GYTI) Award	Chairman National Innovation Foundation		
3	Prashant Thawrani	PE15M015	Final eight of 2016 SPE Petrobowl Asia Pacific Regional Qualifier	Offshore Technology Conference, Kuala Lumpur, 22–25 March 2016		
4	Dheeraj Kumar	PE15M007	Final eight of 2016 SPE Petrobowl Asia Pacific Regional Qualifier	Offshore Technology Conference, Kuala Lumpur, 22–25 March 2016		
5	Narendra Singh Shekhawat	PE15M009	Final eight of 2016 SPE Petrobowl Asia Pacific Regional Qualifier	Offshore Technology Conference, Kuala Lumpur, 22–25 March 2016		

Final eight of 2016 SPE Petrobowl

Final eight of 2016 SPE Petrobowl

Asia Pacific Regional Qualifier

Asia Pacific Regional Qualifier

Offshore Technology Conference, Kuala

Offshore Technology Conference, Kuala

Lumpur, 22-25 March 2016

Lumpur, 22-25 March 2016

Students/scholars who won convocation/Institute Day prizes

PE15M013

PE15M018

Sl. No.	Student/Scholar	Roll No.	Prize	Name of Donor
1	Sashwat Sharma	PE14M013	Ms Ananth Prize	Ms Ananth

4.15.2. Faculty and Their Activities

Rishabh Saurabh

Kaligi Amar

Faculty

Name	Major Areas of Specialization
Professors	
V. Sundar	Coastal engineering, port and harbour structures, fluid flow problems, tsunami mitigation measures
R. Sundaravadivelu	Computer aided analysis, design and experimental studies of coastal and offshore structures
S.A. Sannasiraj	Wave breaking: Nonlinear free surface waves, wind-wave modelling
G. Suresh Kumar	Thermal/microbial enhanced oil recovery flow through shale gas reservoirs, flow through fractured reservoirs
Shanmugam	Oceanography, ocean optics and acoustic imaging
Abdus Samad	Surrogate-based optimization methods, computational fluid dynamics, turbomachinery design and optimization, artificial lift, ocean energy
Rajesh R Nair	Computational seismic data analysis for estimating sweet spots in hydrocarbon recovery, petroleum geomechanics, shallow surface geophysics for well pad assessment and exploration
Tarun K Chandrayadula	Signal processing, underwater acoustics

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period				
Confer	Conferences						
1	V. Sundar, S.A. Sannasiraj, K. Murali	Eighth International Conference of Asian and Pacific Coasts APAC 2015	7–10 September 2015				
2	P. Krishnankutty	OMAE 2015, ASME, Canada	31 May to 5 June 2015				
3	P. Krishnankutty	ICCME-2015, SCMS, Kochi	10–13 August 2015				
4	P. Krishnankutty	ICETEM 2016, SNG CE, Kochi	12–13 January 2016				
5	P. Krishnankutty	TaBSE-2016, KUFOS, Kochi	4–6 February 2016				
6	P. Shanmugam	Workshop on Coastal Zone Management	18 April 2015				
Worksl	Workshops						
1	V. Sundar, V. Sriram	Workshop on REEF 3D: Open Source CFD	11 September 2015				

SI. No.	Co-ordinators	Title	Period
2	V. Sundar	International Workshop on Geosynthetics & Coasts 2015, Merida, Mexico	2–4 December 2015
3	R. Sundaravadivelu, Shanmugam	National Workshop on Coastal Zone Management	18 April 2015
4	R. Sundaravadivelu, K. Murali	Indo-Japan Workshop on Ocean Environment Policy and Coastal Zone Management, organized jointly with Yokohama National University, Japan	21–25 September 2015
5	S.A. Sannasiraj, Richard Mannasesh, V. Sundar	Indo-Australia Workshop on Marine Renewable Energy	4–5 April 2016
Global	Initiative of Academic Netwo	rks courses	
1	V. Sundar, S.A. Sannasiraj	Introduction to Marine Renewable Energy	15–20 February 2015
2	V. Sundar, S.A. Sannasiraj	Extreme Waves in Ocean Engineering	21 March to 1 April 2016

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members at academic institutions and public sector undertakings

	at academic distitutions and public sector undertakings						
	Faculty Member	Title	Institution	Period			
Worksl	nops						
1	V. Sundar	Workshop on Coastal Structures	Wuppertal, Germany	1–2 June 2015			
2	V. Sundar	ISOPE 2015	Kona, Hawaii	21–26 June 2015			
3	V. Sundar	Tidal Energy Resources for Potential Indian Site and Impact of Energy Extraction on Environment	University of Edinburgh	21–23 September 2015			
4	V. Sundar	International Workshop on Geosynthetics & Coasts 2015	Merida, Mexico	2–4 December 2015			
5	Abdus Samad	Indo-Australian Marine Renewable Energy Workshop	IIT Madras	4–5 April 2016			
6	S.A. Sannasiraj	Perspectives of Offshore Engineering	IIT Madras	8–9 February 2016			
7	S.A. Sannasiraj, V. Sundar, Robin Wallace	GIAN course: Introduction to Marine Renewable Energy	IIT Madras	15–21 February 2016			
8	S.A. Sannasiraj, Felice Arena	GIAN course: Extreme Waves in Ocean Engineering	IIT Madras	21 March to 1 April 2016			
9	V. Anantha Subramanian	INCAM	IIT Delhi	13–15 July 2015			
10	V. Anantha Subramanian	APAC	IIT Madras	7–10 September 2015			
11	V. Anantha Subramanian	Indo-Japan Workshop on Ocean Environment, Policy and Coastal Zone Management	IIT Madras	21 September 2015			
Semina	ars						
1	V. Sundar	DAAD Alumni Seminar 2015	Cologne University of Applied Sciences, Germany	8–14 November 2015			
2	Abdus Samad	Prof P.K. Nag Memorial Lecture and Seminar	Aliah University, Kolkata, India	7 April 2016			
3	Abdus Samad	Design Optimization of Ocean Energy Systems	VIT University, Chennai	21 January 2016			
Confer	ences						
1	Tarun Chandrayadula	SYMPOL 2015	CUSAT	December 2015			
Short-t	erm courses						
1	Abdus Samad	Energy Resources Management in Current Scenario (Ocean Energy)	Government College of Technology, Coimbatore	4–7 April 2016			

Special	Special lectures delivered by faculty members at other institutions					
Sl. No.	Faculty Member	Topic of Lecture	Institution	Date		
1	Sundaravadivelu	Failure of Sheet Pile Diaphragm Wall at Vizagapatanam Port Trust	Adaani Projects, Ahmedabad	6–7 November 2015		
2	Sundaravadivelu	Nonlinear Analysis of Cantilever and Tie Back Diaphragm Wall at Pondicherry Fishing Harbour using STADD Pro using Iterative Method by Replacing the Springs with MAZ Passive Reaction if the Spring Force is More than the MAZ Passive Reaction	Adaani Projects, Ahmedabad	6–7 November 2015		
3	Sundaravadivelu	Analysis of Anchored Diaphragm Wall in Vizagapatanam Port for Increased Dredging than the Original Design	Adaani Projects, Ahmedabad	6–7 November 2015		
4	Sundaravadivelu	Implication in the Design of Diaphragm Wall as per IS4651-2014	Adaani Projects, Ahmedabad	6–7 November 2015		
5	Sundaravadivelu	Construction of Diaphragm Wall in Soft Clay Deposit with Steel Formwork Attached to the Reinforcement Cage, Precast Stop Ends, Filling the Initial Bore with Sand and Construction of Stable Bund in Sea Front	Adaani Projects, Ahmedabad	6–7 November 2015		
6	Abdus Samad	Ocean Energy (keynote lecture)	Saveetha Engineering College, Chennai, India	6–8 April 2016		
7	P. Krishnanakutty	Bio-inspired Propulsion Systems for Marine Vehicles	SCMS College, Kochi	10 August 2015		
8	P. Krishnanakutty	Energy Efficient and Environment-Friendly Marine Vehicles	SNGCE, Kochi	12 January 2016		
9	P. Krishnanakutty	Technological Innovations for Sustainable Development in Marine Transport System	KUFOS, Kochi	6 February 2016		
10	S.A. Sannasiraj	Tsunami Impact on Coastal Infrastructure, Ports and Harbours	Sathyabama University	29 October 2015		
11	S.A. Sannasiraj	Shore Protection Work for the Coast of Mousuni Island near the Ganga River Mouth Estuary in West Bengal, India	Merida, Mexico	2–4 December 2015		
12	S.A. Sannasiraj	Tsunami and Storm Surge-Induced Impact on Costal Infrastructure and Its Design	NIT Trichy	22–24 February 2016		
13	P. Shanmugam	Atmospheric Correction, Retrieval Algorithms, Satellite Oceanography	Korean Institute of Ocean Science and Technology, Seoul, Korea	17 May to 25 November 2015		

Visits abroad by faculty members

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	V. Sundar	University of Lisbon, Portugal	1–30 April 2015	Project discussion	_
2	V. Sundar	Trondheim, Norway	25–29 May 2015	Project discussion	_
3	V. Sundar	Wuppertal, Germany	1–2 June 2015	Attending workshop	_
4	V. Sundar	Kona, Hawaii	21–26 June 2015	Attending ISOPE 2015	_
5	V. Sundar	University of Edinburgh	21–23 September 2015	Tidal Energy Resources for Potential Indian Site and Impact of Energy Extraction on Environment	_
6	V. Sundar	Cologne University of Applied Science, Germany	8–14 November 2015	DAAD Alumni Seminar 2015	_

Sl. No.	Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
7	V. Sundar	Merida, Mexica	2–4 December 2015	International Workshop on Geosynthetics & Coasts 2015	_
8	V. Sundar	Dallas, USA	8 December to 5 January 2016	Visit to Texas A&M Transportation Institute and a few sites	_
9	V. Sundar	Mauritius	7–8 February 2016	Site visit and project discussion	_
10	R. Sundaravadivelu	USA and Canada	31 May to 5 June 2015	OMAE and ISOPE	IIT Madras and IC&SR
11	Abdus Samad	Germany	July-August 2015	Research at the Otto von Guericke University of Magdeburg	DAAD
12	P. Krishnanakutty	USA	23–30 May 2015	University of Cincinnati	PCF, IIT Madras
13	P. Krishnanakutty	Canada	1–5 June 2016	OMAE 2015	IIT Madras
14	S.A. Sannasiraj	Italy	1–21 December 2015	PLENOSE	European Union
15	V. Anantha Subramanian	USA	2015	Baker Hughes, Houston & KBR	PCF
16	P. Shanmugam	South Korea	17 May to 25 November 2015	Research	Korean Institute of Ocean Science and Technology
17	S. Nallayarasu	Malaysia	2–3 April 2015	Meeting with client	Client
18	S. Nallayarasu	Malaysia	7–8 May 2015	Meeting with client	Client
19	S. Nallayarasu	Malaysia	28–29 May 2015	Meeting with client	Client
20	S. Nallayarasu	Malaysia	16-19 June 2015	Meeting with client	Client
21	S. Nallayarasu	Malaysia	16-19 June 2015	Meeting with client	Client
22	S. Nallayarasu	Malaysia	30-31 July 2015	Meeting with client	Client
23	S. Nallayarasu	Malaysia	25 November to 27 July 2015	Meeting with client	Client
24	S. Nallayarasu	Malaysia	13–15 January 2016	Meeting with client	Client
25	S. Nallayarasu	Malaysia	9–11 March 2016	Meeting with client	Client

Honours and awards obtained by faculty members

Sl. No.	Faculty Member	Award	Awarded by	Awarded for	Date of Award
Honou	irs				
1	P. Shanmugam	Brain Pool Research	Korean Federation of Science and Technology (Korean Ministry of Education, Science and Technology), Government of Korea	Outstanding research in ocean optics and remote sensing	17 May to 25 November 2015
Award	s				
1	S.A. Sannasiraj	The Institution Prize	Indian Engineering Congress	Technical paper titled 'A Load Cell for the Measurement of Slack Mooring Forces'	18 December 2015

Books authored

Sl. No.	Title	Author/Co-author	Year
1	Surrogate Assisted Evolutionary Computing Methods	Saket Kansara, Sumeet Parashar, Abdus Samad	2016

Editorial boards of journals SI. No. **Faculty Member** Position (Editor/Member) Member Journal of Applied Water Engineering and Research V. Sundar 2 V. Sundar Associate Editor Journal of Hydro-environment Research (Elsevier) 3 Associate Editor V. Sundar Ocean Engineering Journal (Elsevier) V. Sundar Member Institution of Mechanical Engineering, Part M: Journal of Engineering for the Maritime Environment 5 V. Sundar Associate Editor Indian Society of Hydraulics Journal Member of editorial board 6 V. Sundar China Ocean Engineering 7 Associate Editor G. Suresh Kumar Journal of Groundwater Research 8 G. Suresh Kumar Member of editorial board Journal of Petroleum and Gas Engineering 9 Member of editorial board P. Shanmugam Journal of Remote Sensing & GIS

4.15.3. Design and Development Activities

New facilities added and major equipment procured

Sl. No.	Equipment	Value (lakhs of ₹)
1	Hydrofracking equipment for fracturing reservoir rocks for enhanced oil and gas recovery	25
2	LISST portable particle size analyzer	20.95
3	DELL precision tower 5810 (two nos.)	2.2
4	Field-based anemometer, hygrometer and GPS	10.34

Patents filed

SI. No.	Faculty Member	Title of Patent
1	Rajesh R. Nair	Method Useful in Drilling Boreholes in Water Sensitive Formation
2	Rajesh R. Nair	Method of Plastic Packer Setting in Borehole Annulus
3	Rajesh R. Nair	Method and Implementation of Versa Fracking for Oil and Gas Wells
4	Rajesh R. Nair	Method for Continuous Underground Coal Gasification
5	Rajesh R. Nair	Method for Industrial Gas Hydrate Production

4.15.4. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Development of a New Method of Regime Characteristics Assessment for Wind and Waves Along the Indian Coast	8 July 2014 to 7 July 2016	_	18.36	V. Sundar, S.A. Sannasiraj
2	Impact of Waterborne Debris on the Nearshore Structures During Extreme Coastal Floods	24 August 2015 to 23 August 2017	_	21.43	V. Sundar, V. Sriram
3	Design and Testing of an Impulse Turbine for Wave Energy Conversion	2015–2017	The Ministry of Earth Sciences (MoES), Government of India	35	Abdus Samad
4	Experimental Study of Shallow Water Effects on Surface Ship Controllability	2014–2017	Naval Research Board	93.0	P. Krishnankutty, V. Anantha Subramanian
5	Experimental Study of Shallow Water Effects on Surface Ship Controllability	2013–2016	Naval Research Board	67.0	V. Anantha Subramaniam, P. Krishnankutty

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
6	Development a New Method of Regime Characteristics Assessment for Wind and Wave Along the Indian Coast	July 2014 to July 2016	DST and Russian Foundation for Basic Research	17.0	S.A. Sannasiraj, V. Sundar, V. Sriram, Polnikov Vladislav
7	Impact of Waterborne Debris on the Nearshore Structures During Extreme Coastal Floods	June 2015 to June 2017	DST and Russian Foundation for Basic Research	21.4	V. Sriram, S.A. Sannasiraj, Ira Didenkulova, V. Sundar, Deepak Kumar
8	Hydrodynamic Loads on Offshore Wind Turbine Substructures due to Nonlinear Irregular Breaking, High and Extreme Wave	June 2015 to June 2018	DST and RCN (Norway)	29.6	R. Pannerselvam, S.A. Sannasiraj, K. Murali, Oivind D. Myrhaug
9	Acoustics Experiments in Shallow Waters of Bay of Bengal	2015–2017	MoES/NIOT	17.0	_
10	New Faculty Seed Grant	2015-2017	IIT Madras	34.0	_
11	Development of Atmospheric Correction Algorithm and Up Scaling of In Situ Measurements to Derive Hyperspectral Remote Sensing Products Over River Ganges	3 years	Department of Science & Technology	42.72	P Shanmugam
12	Feasibility Study of Submarine Laser Communications	2 years	DRDO	29.64	P. Shanmugam

Industrial consultancy projects

Sl. No.	Faculty Member	Title	Industry	Amount (₹)
1	V. Sundar	Consultancy Studies to Undertake Field Monitoring of Shoreline Changes and Intake Basin for SWIO System for a Period of One Year	Wapcos Limited	41,62,938
2	V. Sundar	Design and Physical Modelling of Revetment and Breakwater Extension for the Creation for Additional Open Space of 60 hectares by Reclamation near Gate No. 1 to the North of Bharathi Dock Adjacent to Eastern Breakwater in Chennai Port	Chennai Port Trust	20,00,480
3	V. Sundar	Design of Suitable Coastal Protection Scheme for the Coastal Stretches of Alappuzha District, Kerala	Irrigation Division	70,68,000
4	V. Sundar	Construction of Groins at Beemapally, Thiruvananthapuram	Irrigation Department	8,98,980
5	V. Sundar	Construction of Fishing Harbour at Valiyathura, Thiruvananthapuram District	Harbour Engineering Department	12,54,000
6	V. Sundar	Consultancy Services for Undertaking Mathematical Model Studies for the Proposed Reconstruction and Modernization Fishing Harbour at Mallipattinam, Thanjavur District	Wapcos Limited	15,96,000
7	V. Sundar	Stability and Dredging of Eden Channel	Kolkata Port Trust	155,72,000
8	V. Sundar	Study for Long Term Measures to Prevent the Shoreline Erosion at STF, Puthuvypeen	Bharat Petroleum Corporation Limited	60,42,000
9	V. Sundar	Hydrodynamic and Geotechnical Stability of Section Built Using Geosystem for the Coastal Protection	Flexituff International	28,62,500
10	V. Sundar	Preparation of Comprehensive Shoreline Protection Management Plan/Scheme for the Entire Coast of Tamilnadu in Compliance with Orders of Hon'ble NGT for the Protection of the Coast	Director of Environment	57,93,700
11	V. Sundar	Studies on Outer Harbour Vis-à-Vis Proposal to Handle CAPE Size Vessels in the Inner Harbour	Paradip Port Trust	25,08,000

Sl. No.	Faculty Member	Title	Industry	Amount (₹)
12	V. Sundar	Nearshore Wave Modeling and Analysis of Wave Energy Concentration Near GCB Berth	Kamarajar Port Trust	17,10,000
13	V. Sundar	Conducting Mathematical Model Studies for Revalidating the CWPRS Studies Including Data Collection for Development of an Outer Harbour in Cochin Port	Cochin Port Trust	97,32,000
14	V. Sundar	Shore Protection Measures to Prevent the Coastal Erosion Along the Coastal Stretch of IOCL Puthuvypeen	Indian Oil Corporation Limited	26,33,500
15	V. Sundar	Development of Web-Enabled GIS-Based Integrated Land Management System for Paradip Port Trust	Paradip Port Trust	67,55,500
16	Abdus Samad	Lazy Wave Riser Optimization	Oceaneering Limited, Chandigarh	20,09,000
17	V. Anantha Subramanian	Model Testing of 8.4 m FRP Boat	Valeth Hightech Composites Private Limited	4,56,000
18	V. Anantha Subramanian	Model Testing of 200 T Fuel Barge	The Shalimar Works Limited	13,68000
19	V. Anantha Subramanian	Model Testing of One 35 T BP Tug (SRP) and One 35 T BP Tug (Voith)	Tebma Shipyards Limited	12,54,000
20	V. Anantha Subramanian	Model Testing of Floating Platform	NIOT	22,48,324
21	V. Anantha Subramanian	Model Testing of 11 m Work Boat	Fibroplast Marine Private Limited	10,26,000
22	V. Anantha Subramanian	150 Pax Harbour Craft	Vijai Marine Services	17,17,500
23	V. Anantha Subramanian	Testing of Aquaculture Cages Purse and Seining Nettings	Gareware–Wall Ropes Limited	17,17,500
24	V. Anantha Subramanian	Evolution of Optimal Hull from Using CFD Studies and Physical Model Testing for 8000 DWT Mini Bulk	JSW Jaigarh Port Limited	17,10,000
25	V. Anantha Subramanian	Model Testing of 6500 LT DWT Product Oil Tanker	Aries Marine & Engineering Services	16,00,000
26	V. Anantha Subramanian	Model Testing of 8000 DWT Mini Bulk Carrier	Western Marine Shipyard Limited	15,88,250
27	V. Anantha Subramanian	Drag Assessment of High-Speed Planning Vessel	Mahindra Marine Private Limited	6,87,000
28	V. Anantha Subramanian	Test for 4000 t Double Tanker	Mahathi Infra Services Private Limited	9,16,000
29	Rajesh R. Nair	Delineation of Buried Object, Hard Bands, Margesites, Lignite Beds by Way of Ground Penetrating Radar Analysis	Neyveli Lignite Corporation Limited	120,00,000
30	S. Nallayarasu	Detailed Engineering Services for BNCPP—B Substructure	Aker Solutions, Malaysia	2.5 crore
31	S. Nallayarasu	Review of Detailed Structural Design—Bassein Development Project	Aker Solutions, Malaysia	37,50,000
32	S. Nallayarasu	Feed Verification for Process Platform Structure (BOCPP)	Aker Solutions, Malaysia	17,00,000
33	S Nallayarasu	Review of Prebid Design for ONGC Neelam Project	Aker Solutions, Malaysia	6,00,000
34	S. Nallayarasu	Structural Design Review Aker Solutions, I		36,00,000
35	S. Nallayarasu	Structural Design of Skid Shoe and Connection for Gina Krog Topside Project	Aker Solutions, Malaysia	64,00,000
36	S. Nallayarasu	Mooring Analysis and Detailed Engineering	Chennai Port Trust	54,00,000
37	S. Nallayarasu	Verification Approach Trestle LF–FCB & RCB–SCB	Mumbai Port	56,00,000

Sl. No.	Faculty Member	Title	Industry	Amount (₹)
38	S. Nallayarasu	Proof Checking of Passenger Boat Landing Jetty	Mumbai Port	10,00,000
39	S. Nallayarasu	Independent Verification of Civil/Marine Facilities of Fifth Oil Berth at Jawahar Dweep MBPT	Mumbai Port	30,00,000
40	S. Nallayarasu	Verification of Pump House	Mumbai Port	12,00,000
41	S. Nallayarasu	Structural Consultancy Services for MHSRD-III	SapuraKencana HI Sdn. Bhd.	65,00,000
42	S. Nallayarasu	Detailed Design of Coal Berth for 160000 DWT Vessels	Kamarajar Port Limited	30,00,000
43	S. Nallayarasu	Residual Engineering Services during Construction of CB3 & CB4	Kamarajar Port Limited	30,00,000
44	S. Nallayarasu	Preparation of DPR for Captive Oil Jetty at Ennore Port	Indian Oil Corporation Limited	48,00,000
45	S. Nallayarasu	TUFF Offshore Engineering Services Private Limited	Oiltech Engineering Private Limited, Singapore	66,00,000
46	S. Nallayarasu	Preparation of DPR for Captive Coal Trestle Jetty	The Ramco Cements Limited	50,00,000
47	S. Nallayarasu	Vibration Analysis of Gina Krog Topsides	Aker Solutions, Malaysia	USD 115,200
48	K. Murali	Consultancy Studies to Undertake Field monitoring of Wapcos Limited Shoreline Changes and Intake Basin for SWIO System for a Period of 1 Year		41,62,938
49	K. Murali	Consultancy Services for Undertaking Mathematical Model Studies for the Proposed Reconstruction and Modernization Fishing Harbour at Mallipattinam in Thanjavur District		15,96,000
50	K. Murali	Stability and dredging of Eden Channel	Kolkata Port Trust	1,55,72,000
51	K. Murali	Drainage Study at Car Nicobar	Port Blair	17,17,500
52	K. Murali	Provision of Intake and Outfall Channels for Super Thermal Power Plant	NTPC Limited	1,38,51,000
53	K. Murali	ICGS Mandapam	Military Engineering Services	6,84,000
54	K. Murali	Slipway at Beypore	Military Engineering Services	1,44,00,000
55	K. Murali	Seawall at Car Nicobar	Military Engineering Services	1,23,12,000
56	K. Murali	GIS Mapping: Study on Land Use Plan for Paradip Port	Paradip Port Trust	67,55,500
57	K. Murali	Hinduja Power Plant	Hinduja	5,00,000
58	K. Murali	Stability of Jetty, Coast Guard	Military Engineering Services	6,87,000
59	K. Murali	CFD Study for ETPS	COMACOE	8,01,500
60	K. Murali	Hinduja Power Plant	Hinduja	5,00,000
61	K. Murali	Stability of Jetty, Coast Guard Military Engineering Services		6,87,000
62	K. Murali	Design of Moorings for FDN-2	L&T Ship Building	7,50,000
63	K. Murali	Security infrastructure	Port Blair	80,15,000
DDIC -	majaats			

RBIC projects

SI. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
1	Abdus Samad, J.V.V Aruna Kumar	Pump Selection Criteria for Different Viscosity Fluids	Bharat Heavy Electricals Limited	6

Sl. No.	Faculty Member	Title	Industry	Amount (lakhs of ₹)
2	V. Anantha Subramanian	Analysis of Flotation, Stability, Hydrodynamic Drag and Propulsion System for Combat Vehicle	Ordnance Factory, Medak	11,251800
3	V. Anantha Subramanian	Concept Development for Demonstration of Wave Energy Converter System	Samudra Energy Technologies Private Limited	2647080
4	Tarun Chandrayadula	Wave Theoretic Approaches to Acoustic Inversion	DRDO/NPOL	6.75
5	Tarun Chandrayadula	Design of Conformal Array for Strategic Purpose	DRDO/NPOL	9.75
6	P. Shanmugam	Feasibility Study of Submarine Laser DRDO Communication		299.65
7	S. Nallayarasu, S.K. Bhattacharya	Hydrodynamic Co-efficient for Vertiwind	Technip India Limited	15.14

Faculty members' participation with other institutions under MoUs

SI. No.	Faculty Member	Details of Participation	University/Institution
1	S.A. Sannasiraj	Organized a joint workshop	Swinburne University, Melbourne, Australia
2	S.A. Sannasiraj	Organized a GIAN course	University of Edinburgh, UK
3	Rajesh R. Nair	Discussion at IIT Madras	Tomsk Polytechnic University, Russia
4	Rajesh R. Nair	Discussion at IIT Madras	Curtin University, Australia

Research publications of the faculty members and research scholars

Publications in refereed national journals

- 1. S. Nallayarasu. CFD Approach to roll damping of ship with bilge keel with experimental validation. *Applied Ocean Research* 55: 1–17.
- 2. S. Nallayarasu. Experimental and numerical investigation on hydrodynamic response of buoy form spar under regular wave. *Journal of Ships and Offshore Structures*.

Publications in refereed international journals

- 1. Paresh Halder and Abdus Samad. 2015. Casing treatment of a wave energy extracting turbine. *Aquatic Procedia* 516–521. doi:10.1016/j.aqpro.2015.02.067
- 2. Afzal Husain, Nasser Al-Azri, Nabeel Al-Rawahi and Abdus Samad. 2015. Comparative performance analysis of microjet impingement cooling models with different spent-flow schemes. *Journal of Thermophysics and Heat Transfer* 30(2): 466–472. doi:10.2514/1.T4577
- 3. Paresh Halder, Abdus Samad, Jin-Hyuk Kim and Young-Seok Choi. 2015. High performance ocean energy harvesting turbine design: A new casing treatment scheme. *Energy* 86: 219–231. doi:10.1016/j. energy.2015.03.131
- 4. Rameez Badhurshah and Abdus Samad. 2015. Multi-objective optimization of a bidirectional impulse turbine blade. *Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy* 229 (6): 584–596. doi:10.1177/0957650915589271
- 5. Sayed Ahmed Imran Bellary and Abdus Samad. 2016. Pumping crude oil by centrifugal impeller having different blade angles and surface roughness. *Petroleum Exploration and Production Technology* 6(1): 117–127. doi:10.1007/s13202-015-0173-y
- 6. Paresh Halder and Abdus Samad. 2015. Wave energy harvesting turbine: Performance enhancement. *Procedia Engineering* 116: 97–102. doi: 10.1016/j.proeng.2015.08.269
- 7. Sayed Ahmed Imran Bellary, Abdus Samad, Ivo Couckuyt and Tom Dhaene. 2016. A comparative study of kriging variants for the optimization of a turbomachinery system. *Engineering with Computers* 32(1): 49–59. doi:10.1007/s00366-015-0398-x
- 8. Sayed Ahmed Imran Bellary, Hamid Siddique, Rohit Adhav, Bo-Hyun Chon, Frank Kenyery and Abdus Samad. 2016. Application of computational fluid dynamics and surrogate-coupled evolutionary computing to enhance centrifugal-pump performance. *Engineering Applications of Computational Fluid Mechanics* 10(1): 172–182. doi:10.1080/19942060.2015.1128359
- 9. Aswin Vuddagiri, Paresh Halder, Abdus Samad and Abhijit Chaudhuri. 2016. Flow analysis of airfoil having different cavities on its suction surface. *Progress in Computational Fluid Dynamics* 16(2): 67–77. doi:10.1504/PCFD.2016.075151

- 10. Sayed Ahmed Imran Bellary and Abdus Samad. 2015. An alternative approach to surrogate averaging for a centrifugal impeller shape optimization. *International Journal of Computer Aided Engineering and Technology*.
- 11. Rohit Adhav, Frank Kenyery and Abdus Samad. 2014. Optimal designs of an ESP to handle up to 10% GVF. *International Journal of Oil, Gas and Coal Technology*.
- 12. Afzal Husain, Nasser A. Al-Azri, Abdus Samad and Kwang-Yong Kim. 2015. Performance analysis of multiple micro-jet impingements cooling model. *The Journal of Engineering Research*.
- 13. K.R. Mrinal and Abdus Samad. 2015. Correlation of leakage flow for progressive cavity pump delivering drilling fluids. *International Journal of Oil, Gas and Coal Technology*.
- 14. Sayed Ahmed Imran Bellary, M. Hamid Siddique, Abdus Samad, Jitendra S. Sangwai and Bohyun Chon. 2016. Effects of crude oil–water emulsions at varying water-cut on the performance of the centrifugal pump for artificial lift operation. *International Journal of Oil, Gas and Coal Technology*.
- 15. Shanmugam Palanisamy, Hussain J. Nasiha and Palanisamy Shanmugam. 2015. Estimating the bulk refractive index and related particulate properties of natural waters from remote-sensing data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 99–126. doi:10.1109/JSTARS.2015.2439581
- 16. Palanisamy Shanmugam, Theenathayalan Varunan, S.N. Nagendra Jaiganesh, Arvind Sahay and Prakash Chauhan. 2016. Optical assessment of colored dissolved organic matter and its related parameters in dynamic coastal water systems. *Estuarine*, *Coastal and Shelf Science* 175: 126–145. http://dx.doi.org/10.1016/j. ecss.2016.03.020
- 17. Palanisamy Shanmugam and Sanjay Kumar Sahu. 2015. Semi-analytical modeling and parameterization of particulates-in-water phase function for forward angles. *Optics Express* 23(17): 22291–22307. doi:10.1364/OE.23.022291
- 18. P. Shanmugam and Anuj Kulshreshtha. 2015. An optical method to assess water clarity in coastal waters. *Environmental Monitoring and Assessment* 187(12): 742. doi:10.1007/S10661-015-4953-0
- 19. Arthi Simon and Palanisamy Shanmugam. 2016. A model to predict spatial, spectral and vertical changes in the average cosine of the underwater light fields: Implications for remote sensing of shelf-sea waters. *Continental Shelf Research* 116: 27–41. doi:10.1016/j.csr.2016.01.011
- 20. Arthi Simon and Palanisamy Shanmugam. 2016. Estimation of the spectral diffuse attenuation coefficient of down welling irradiance in inland and coastal waters from hyperspectral remote sensing data: Validation with experimental data. *International Journal of Applied Earth Observation and Geoinformation* 49: 117–125. doi:10.1016/j.jag.2016.02.003
- 21. P. Shanmugam and Rakesh Kumar Singh. 2016. A multidisciplinary remote sensing ocean color sensor: Analysis of user needs and recommendations for future developments. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 125. doi:10.1109/JSTARS.2016.2520501
- 22. P. Shanmugam and Elamuruga alias Gokul. 2016. An optical system for detecting and describing major algal blooms in coastal and oceanic waters around India. *Journal of Geophysical Research*. doi:10.1002/2015JC011604

Publications in proceedings of national conferences

- 1. Paresh Halder, Ezhil Sabarish and Abdus Samad. Wells turbine stall. 42nd National Conference on Fluid Mechanics and Fluid Power (FMFP), 14–16 December 2015.
- 2. R. Karthikeyan, A. Samad, P. Vyshnavi, O. Singha and N. Venkatesan. Energy from the Indian Ocean. *National Symposium on the Indian Ocean*, 30 November to 4 December 2015.
- 3. R. Sundaravadivelu. Integrated retarded geo tube embankment at pantha along pentha along the coast of Orissa, India. IIT Madras, 21–25 September 2015.
- 4. R. Sundaravadivelu. Protection measure for railway track along a river in Tamil. *Hydro 2015–International*, IIT Roorkee, 17–19 December 2015.
- 5. Omkar Gaonkar, G. Suresh Kumar and I.M. Nambi. 2016. Numerical modelling on fate and transport of coupled adsorption and biodegradation of pesticides in an unsaturated porous medium. *ISH Journal of Hydraulic Engineering* (Taylor and Francis. (impact factor 0.111)
- 6. Suresh Kumar G. 2016. Modeling fluid flow through fractured reservoirs: Is it different from conventional classical porous medium? *Current Science* (Current Science Association and Indian Academy of Sciences) 110(4): 695–701. doi:10.18520/cs/v110/i4/695-701 (impact factor 0.926)
- 7. Vasudevan M., G. Suresh Kumar and I.M. Nambi. 2016. Numerical modeling on rate limited dissolution mass transfer of entrapped petroleum hydrocarbons in a saturated sub-surface system. *ISH Journal of Hydraulic Engineering* (Taylor and Francis) 22(1): 3–15. doi:10.1080/09715010.2015.1043596 (impact factor 0.111)

- 8. Berlin M., I.M. Nambi. and G. Suresh Kumar. 2015. Experimental and numerical investigations on nitrogen species transport in unsaturated soil during various irrigation patterns. *Sadhana* (Springer) 40(8): 2429–2455. (impact factor 0.48)
- 9. Samarth D. Patwardhan, N. Bhore, A. Banerjee and G. Suresh Kumar. 2015. Impact of dynamic slippage on productivity of shale reservoirs. 12(5):443–451. World Journal of Engineering doi:10.1260/1708-5284.12.5.443
- 10. Suresh Kumar G. 2015. Subsurface transport of nuclear wastes in the Indian subcontinent. *ISH Journal of Hydraulic Engineering* (Taylor and Francis) 21(2): 162–176. doi:10.1080/09715010.2014.984249 (impact factor 0.111)
- 11. Suresh Kumar G. and T.V. Rakesh. 2015. Numerical modeling of reactive solute transport in a single fracture with matrix diffusion under complex boundary condition. *ISH Journal of Hydraulic Engineering* (Taylor and Francis) 21(2): 125–141. doi:10.1080/09715010.2014.981956 (impact factor 0.111)
- 12. Nikhil B.L., and G. Suresh Kumar. 2015. Thermal front propagation in variable aperture fracture-matrix system: A numerical study. *Sadhana* (Springer) 40(2): 605–622. doi:10.1007/s12046-014-0324-8 (impact factor 0.48)
- 13. Nikhil B.L. and G. Suresh Kumar. 2015. Effect of non-linear sorption on multispecies radionuclide transport in fracture-matrix system with variable fracture aperture: A numerical study. *ISH Journal of Hydraulic Engineering* (Taylor and Francis) 21(3): 242–254. doi:10.1080/09715010.2015.1016125 (impact factor 0.111)
- 14. Natarajan N. and G. Suresh Kumar. 2015. Numerical modeling and spatial moment analysis of solute transport with Langmuir sorption in a fracture matrix coupled system. *ISH Journal of Hydraulic Engineering* (Taylor and Francis) 21(1): 28–41. doi:10.1080/09715010.2014.939233 (impact factor 0.111)

Publications in proceedings of international conferences

- 1. Abdus Saman, Afzal Husain, Nasser A. Al-Azri, Nabeel Z.H. Al-Rawahi and Abdus Samad. Spent flow effects of multiple micro-jet impingement cooling models. *ASME-JSME-KSME Joint Fluids Engineering Conference*, 26–31 July 2015.
- 2. Abdus Saman, Paresh Halder and Abdus Samad. Wave energy harvesting turbine: Performance enhancement. *International Conference on Asian and Pacific Coasts*, 7–10 September 2015.
- 3. Abdus Saman, Paresh Halder and Abdus Samad. The unsteady flow analysis of a wave energy extracting turbine. *Computer Aided Engineering (CAE-2015)*, 10–12 December 2015.
- 4. Abdus Saman, Md. Hamid Siddique, Sayed Ahmed Imran Bellary and Abdus Samad. Surrogate assisted multi-objective design optimization of a centrifugal pump. *Computer Aided Engineering (CAE-2015)*, 10–12 December 2015.
- 5. Abdus Saman, Paresh Halder and Abdus Samad. Marine energy turbine performance: Effect of blade sweep. *The Fifth International Conference on Advances in Energy Research*, 15–17 December 2015.
- 6. Abdus Saman, S.D. Madappurakkal, A. Goharzadeh, A.A. Razack and A. Samad. Study of water alternating gas (WAG) injection in micro-porous media. *13th International Conference on Fluid Control, Measurements and Visualization*, 15–18 November 2015.
- 7. Abdus Saman, M. Tariq, B. Karunanithi, I. Ahmad, A. Hussain, A. Samad and M. Shamsuzzoha. Biodiesel production from various oil sources and their performance and emission analysis in a compression ignition engine. *Ninth International Conference on Thermal Engineering: Theory and Applications*, 24–26 March 2016.
- 8. P. Shanmugam, P.J. Dev and P. Shanmugam. Determination of immersion factors for radiance sensors in marine and inland waters: A semi-analytical approach using refractive index approximation. *SPIE Asia-Pacific Remote Sensing Conference*, 9878-2, 2016.
- 9. P. Shanmugam, Rakesh Kumar Singh and Palanisamy Shanmugam. 2016. Destriping ocean color monitor-2 data. *SPIE Asia-Pacific Remote Sensing*, 9881. DOI: 10.1117/12.2223512.
- 10. P. Shanmugam, Anuj Kulshreshtha and Palanisamy Shanmugam. 2015. Estimation of underwater visibility from satellite ocean color data. 2015 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 2284–2286. doi:10.1109/IGARSS.2015.7326263
- 11. P. Shanmugam, Anuj Kulshreshtha and Palanisamy Shanmugam. 2016. Estimation of turbidity in coastal waters using satellite data. *SPIE Asia-Pacific Remote Sensing*.
- 12. P. Shanmugam, Sanjay Kumar Sahu and Palanisamy Shanmugam. 2016. Scattering phase function for particulates-in-water: Modeling and validation. SPIE Asia-Pacific Remote Sensing, 9882. DOI: 10.1117/12.2223570
- 13. R. Sundaravadivelu. Hydrodynamic analysis of an inverted catenary cold water pipeline of a LTTD plant. *OMAE 2015*, St John's, NL, Canada, 31 May to 5 June 2015.
- 14. R. Sundaravadivelu. Effect of heave plate on hydrodynamic response of spar. *ISOPE 2015*, Kona, USA, 21–26 June 2015.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Eldad Avital, Reader, Queen Mary	January 2016	UK-India Education and Research Initiative
	University, London		(UKIEF) Project

4.15.6. Other Activities of the Department

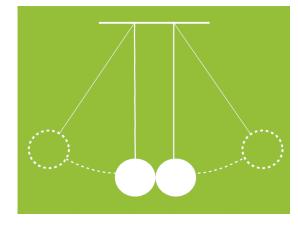
Faculty visits

Sl. No.	Faculty Member	Purpose of Visit	Date and Venue
1	Abdus Samad	Research stay	July-August 2015, Otto von Guericke University, Magdeburg, Germany

Student visits

Sl. No.	Student	Purpose of Visit	Date and Venue
1	Karthikeyan	Research stay	February–March 2016, Queen Mary University

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. These areas include experimental solid state physics, optical and laser physics, soft condensed matter physics and various aspects of theoretical and computational physics, ranging from condensed matter to string theory and cosmology.

The Department of Physics offers a vibrant undergraduate programme—the B.Tech. (Engineering Physics) programme—in conjunction with the Department of Electrical Engineering. The department offers three master's programmes: the Dual Degree (B.S. and M.S.), M.Sc. and M.Tech. programmes in physics. The department also conducts a regular doctoral research (Ph.D.) programme.

4.16.2. Academic Programmes

Engineering Physics (B.Tech), M.Sc., Dual Degree (B.S and M.S.), M.Tech. (Solid State Technology) and Ph.D.

New courses introduced

Two courses were introduced for the B.Tech. (Engineering Physics) and Dual Degree (B.S. and M.S.) programmes.

Sl. No.	Course No.	Title
1	PH2140	Mathematics on the Computer (Lab)
2	PH2170	Basic Electronics (Theory)
3	PH5081	Non-equilibrium Statistical Mechanics (Theory)

Students on roll as of September 2015 + M.S. and Ph.D. scholars admitted in January 2016

Programme	Year I	Year II	Year III	Year IV	Year V and Others	Total
B.Tech.	30	19	30	28	29	136
Dual Degree	6	9	18	8	8	49
M.Sc.	43	43	_	_	_	86
M.Tech.	13	06	_	_	_	19
Ph.D.	35	30	41	42	14	162
Total	127	107	89	78	51	452

Students/scholars who attended conferences/workshops/seminars/symposia

			<u> </u>		
SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance
Abro	oad				
1	C. Thirmal	PH11D030	Second International Conference on Polymer Materials Science (PMS-2016)	14–16 January 2016, Bangkok	IIT Madras
2	Y. Rambabu	PH12D048	ICMAT2015 and IUMRS-ICA2015	28 June to 3 July 2015, Singapore	_
3	P.R. Shaina	PH12D052	ICMAT2015 and IUMRS-ICA2015	28 June to 3 July 2015, Singapore	_
4	R. Rajivgandhi	PH12D047	Joint MMM-INTERMAG	11–16 January 2016, San Diego, USA	_
5	Radhika K.	PH10D033	International Conference on Magnetism	5–10 July 2015, Barcelona, Spain	_

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance
6	Shashikant S.K.	PH13D046	The March Meeting of the American Physical Society	March 2016, Baltimore, USA	_
7	Tapan Kumar Das	PH12D059	ICMAT2015 and IUMRS-ICA2015	Singapore	_
8	Vikas Sharma	PH13D056	ICMAT2015 and IUMRS-ICA2015	Singapore	_
9	Tapan Kumar Das	PH12D059	MRS Meeting and Exhibit	San Francisco, USA	_
10	Pavana S.V.M.	PH10D030	MRS Spring Meeting and Exhibit	6–10 April 2015, San Francisco, USA	_
11	Pavana S.V.M.	PH10D030	ICMAT2015 and IUMRS-ICA2015	28 June to 3 July 2015, Suntec, Singapore	_
12	Resmi P.K.	PH14D039	Collaborative visit to the University of Oxford	May–June 2015	_
13	Prasanth Krishnan	PH12D010	Collaborative visit to KEK	June 2015, Japan	_
14	Gautam Venugopalan	_	Collaborative visit to KEK	June 2015, Japan	_
15	Ranjana Rani Das	PH13D042	14th Oxford School on Neutron Scattering	September 2015, Oxford University, UK	_
16	G.R. Haripirya	PH13D004	14th Oxford School on Neutron Scattering	September 2015, Oxford University, UK	_
17	S. Mallesh	PH12D062	Intermag China-2015	11–15 May 2015, Beijing, China	_
18	Sk. Mohammad Yasin	PH11D020	13th Joint MMM-Intermag Conference	11–15 January 2016, San Diego, California	_
19	Sk. Mohammad Yasin	PH11D020	Intermag China-2015	11–15 May 2015, Beijing, China	_
20	Sudhakar Reddy	PH11D010	IEEE Photonics Society	4–8 October 2015, Virginia	_
21	Shubhayan Bhattacharya	_	National Laser Symposium, NLS-24 RRCAT	2–5 December 2015, Indore	_
22	Sudhakar Reddy	PH11D010	National Laser Symposium, NLS-24 RRCAT	2–5 December 2015, Indore	_
23	Sai Smruti Samantaray	PH15D009	Visit to the Elettra Synchrotron for two beamtimes	15–21 January 2016	_
24	M. Narasimhamurty	PH11D002	XXIX International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC XXIX) 2015	22–28 July, 2015, Toledo, Spain	_
25	Ajit Jena	PH12D002	APS March Meeting	14–18 March 2016, Baltimore, USA	_
India	ı				
1	Sarath Srinivas	PH13D044	School and Conference on Disordered Systems	IMSc, Chennai	_
2	C. Thirmal	PH11D030	In-House Symposium-2015	12 November 2015, Department of Physics, IIT Madras	_
3	A.B. Swain	PH13D073	COMSOL for Advanced Research-2015	9 October 2015, Anna University	_
4	P.B. Biswas	PH14D012	Bringing the Nanoworld Together	3–4 November 2015, IIT Madras	_
5	P.B. Biswas		Thomson Innovation: Patent and Literature Search	18 March 2016, IIT Madras	-
6	A. Sahoo	PH13D021	International Conference on Nanoscience, Nanotechnology and Advanced Materials	14–17 December 2015, GITAM University, Visakhapatnam	_
7	Roshna S.H.	PH15D008	International Conference on Nanoscience, Nanotechnology and Advanced Materials	14–17 December 2015, GITAM University, Visakhapatnam	_

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance
8	A. Sahoo	PH13D021	International Conference on Advanced Nanomaterials and Nanotechnology	8–11 December 2015, IIT Guwahati	_
9	U.K. Sinha	PH13D053	International Workshop on Physics of Semiconductor Devices	7–10 December 2015, IISc, Bengaluru	_
10	Roshna S.H.	PH15D008	International Conference on Frontier Science and Technology	10–12 December 2015, National Institute of Science and Technology, Berhampur, Odisha	_
11	U.K. Sinha	PH13D053	International Conference on Condensed Matter and Applied Physics	30–31 October 2015, Government Engineering College, Bikaner, Rajasthan	_
12	P.R. Shaina	PH12D052	National Conference on Condensed Matter Physics and Applications (CMPA 2015)	27–28 March 2015, Manipal Institute of Technology	_
13	Lijin George	PH12D009	Recent Advances in Nano Science and Technology (RAINSAT-2015)	8–10 July 2015	_
14	Lijin George	PH12D009	IWPSD	7 December 2015, IISc, Bengaluru	_
15	Lijin George	PH21D009	International Conference on Condensed Matter & Applied Physics ICC 2015	30 October 2015, Bikaner	_
16	M.K. Kavitha	_	2015 IEEE International Symposium on Nanoelectronic and Information Systems	22 December 2015	_
17	Lijin George	PH12D009	Bringing the Nano-world Together (BTNT) 2015	3–4 November 2015, IIT Madras	_
18	P.R. Shaina	PH12D052	Bringing the Nano-world Together (BTNT) 2015	3–4 November 2015, IIT Madras	_
19	R. Rajivgandhi	PH12D047	International Conference on Science, Technology and Applications of Rare Earths	22–25 April 2015, Thiruvananthapuram	_
20	Moumita Naskar	_	Frontiers in Advanced Materials (FAM 2015)	15–18 June 2015, IISc Bengaluru	_
21	R. Rajivgandhi	PH12D047	International Conference on Magnetic Materials (ICMAGMA 2015)	2–4 December 2015, VIT, Vellore	_
22	Lakshman Dhal	PH12D037	Materials Science with Neutrons	3–4 February 2016, UGC-DAE-CSR, Mumbai Centre, BARC, Mumbai	_
23	Bishnupada Ghosh	_	ICMAGMA-2015	2–4 December 2015, VIT Vellore	_
24	P.V. Midhunlal	PH14D009	ICMAGMA-2015	2–4 December 2015, VIT Vellore	_
25	Shashikant S.K.	PH13D046	International Workshop on Emergent Phenomena in Quantum Hall Systems	7–9 January 2016, TIFR, Mumbai	-
26	Shashikant S.K.	PH13D046	Topological Particles in Condensed Matter Physics	6–11 August 2015, IISER Pune	-
27	Shashikant S.K.	PH13D046	School and Conference on Disordered Systems	IMSc, Chennai	-
28	Tapan Kumar Das	PH12D059	EMSI-2015	Mumbai	_
29	Tapan Kumar Das	PH12D059	Bringing the Nanoworld Together 2015	IIT Madras	_
30	Tapan Kumar Das	PH12D059	In-House Symposium	Department of Physics, IIT Madras	_
31	Tapan Kumar Das	PH12D059	DST-JSPS Joint Collaborative Project Meeting	25–26 January 2016, Chennai	_

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance
32	Pritha Dolai	PH12D044	Complex Fluids, CompFlu-2016	2–4 January 2016, IISER Pune	_
33	Pritha Dolai	PH12D044	Third Indian Statistical Physics Community Meeting	12–14 February, 2016, ICTS, Bengaluru	_
34	Ankita Pandey	PH09D013	Third Soft Matter Young Investigator Meet	17–20 December 2015, Pondicherry	_
35	Maria Quadeer	PH15D006	Quantum Correlations, Foundations, Information Processing and Various Applications	22 June to 3 July 2015, ISI, Kolkata	_
36	Maria Quadeer	PH15D006	International School and Conference on Quantum Information-2016	9–18 February 2016, Institute of Physics, Bhubaneswar	_
37	Akshaya J.	PH15D002	Quantum Correlations, Foundations, Information Processing and Various Applications	22 June to 3 July 2015, ISI, Kolkata	_
38	L. Pradipkanti	PH12D036	International Conference on Condensed Matter and Applied Physics, ICC-2015	30–31 October 2015, Veterinary University Auditorium, Bikaner	_
39	L. Pradipkanti	PH12D036	Complex Fluids, CompFlu-2016	2–4 January 2016, IISER, Pune	_
40	Hisay Lama	PH14D007	Nanoparticle Assembly: From Fundamentals to Applications — Faraday Discussion	7–9 January 2016, IIT Bombay	_
41	Hisay Lama	PH14D007	Sixth School of Statistical Physics	3–18 July 2015, ICTS and RRI, Bengaluru	_
42	Geethu P.M.	PH13D031	Complex Fluids, CompFlu-2016	2–4 January 2016, IISER Pune	_
43	V. Jemseena	PH10D027	Indian Statistical Physics Community Discussion Meeting	12–14 February 2016, ICTS– TIFR, Bengaluru	_
44	V. Jemseena	PH10D027	Soft Matter Young Investigators Meeting	17–20 December 2015, Pondicherry	_
45	Deepak Bhat	PH10D022	Soft Matter Young Investigators Meeting	17–20 December 2015, Pondicherry	_
46	B. Srinivas	PH14D028	ICTS–ICTP Winter School on Quantitative Systems Biology	ICTS, Bengaluru	_
47	Ushasi Roy	PH13D014	Bangalore School on Statistical Physics-VI, ICTS	2–18 July 2015, Bengaluru	_
48	Deepak Bhat	PH10D022	Bangalore School on Statistical Physics-VI, ICTS	2–18 July 2015, Bengaluru	_
49	G.R. Haripriya	PH13D004	Workshop Materials Science with Neutrons	3–4 February 2016, UGC- DAE Consortium for Scientific Research, Mumbai	_
50	T.S. Suraj	PH14D046	School on Nanoscale Transport and Magnetism 2016	22 February and 2 March 2016, Harish-Chandra Research Institute, Allahabad	_
51	S. Mallesh	PH12D062	ICMAGMA-2015	2–4 December 2015, VIT University, Vellore	-
52	S. Mallesh	PH12D062	ICONSAT-2016	29 February to 2 March 2016, IISER Pune	_
53	S.K. Manna	PH11D009	ICMAGMA-2015	2–4 December 2015, VIT University, Vellore	_
54	Sk. Mohammad Yasin	PH11D020	ICMAGMA-2015	2–4 December 2015, VIT University, Vellore, Chennai	_
55	Venkatrao Chunchu	PH09D015	ICMAGMA-2015	2–4 December 2015, VIT University, Vellore, Chennai	_
56	Ch. Venkatesh	_	ICMAGMA-2015	2–4 December 2015, VIT University, Vellore	_

SI. No.	Student/Scholar	Roll No.	Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance
57	D. Jaffino Stargen	PH12D016	The Eighth International Conference on Gravitation and Cosmology	14–18 December 2015, IISER Mohali	_
58	Debika Chowdhury	PH13D028	The Eighth International Conference on Gravitation and Cosmology	14–18 December 2015, IISER Mohali	_
59	Radhika V. Nair	PH13D009	Cochin Nano-2016, International Conference on Frontiers in Nanoscience and Technology	20 February 2016, CUSAT	_
60	Venkata Siva Gummaluri	_	Cochin Nano-2016, International Conference on Frontiers in Nanoscience and Technology	20 February 2016, CUSAT	_
61	M. Narasimhamurty	PH11D002	Second International Workshop on Dissociative Electron Attachment	18–20 November 2015, TIFR, Mumbai	_
62	Sarath Srinivas	PH13D044	In-House Symposium	IIT Madras	_
63	Ushasi Roy	PH13D014	Bangalore School on Statistical Physics–VI	1–18 July 2015, RRI, Bengaluru	_
64	Ushasi Roy	PH13D014	Alan Turing Lectures in Biology (by Prof. William Bialek, Princeton University)	4–6 January 2016, ICTS, Bengaluru	_

Students/scholars who won outside prizes and awards

Sl. No.	Student/Scholar	Roll No.	Prize	Awarded by
1	A. Sahoo	PH13D021	Best Poster Award	International Conference on Nanoscience, Nanotechnology and Advanced Materials
2	P.R. Shaina	PH12D052	Second Prize for Poster	Bringing the Nanoworld Together (BTNT) 2015
3	Manmadha Rao Banki	PH11D019	Institute Research Award	Institute Day (April 2015)
4	Ankita Pandey	PH09D013	Best Oral Presentation	ICSM-2014
5	Hisay Lama	PH14D007	Best Poster Award	Meeting of Royal Society of Chemistry, 'Nanoparticle Assembly: From Fundamentals to Applications, Faraday Discussion'
6	L. Pradipkanti	PH12D036	Best Poster Award	ICC-2015
7	S.K. Manna	PH11D009	Best Poster Award	ICMAGMA-2015

4.16.3. Faculty and Their Activities

Faculty

- ··· · · · ·	
Name	Major Areas of Specialization
Professors	
Ramachandra Rao M.S. [Head]	Electronic and magnetic materials, thin films and bulk oxide electronics, magneto-transport studies in manganites and spintronics
Arul Lakshminarayan	Quantum information, complex quantum systems, mathematical physics
Neelima Gupte	Nonlinear dynamics, statistical physics
P.C. Deshmukh	Atomic and molecular physics
Prem B. Bisht	Ultrafast laser spectroscopy, fluorescence microscopy
Sethupathi K.	Experimental condensed matter physics, magnetic oxide materials and cryogenic insulation
Suresh Govindarajan	String theory
Srinivas V.	Magnetic materials
Vijayan C.	Nanophotonics, light-matter interaction
Sankaranarayanan V.	Low-temperature physics and cryogenics, magnetocaloric effect, superconductivity

Name	Major Areas of Specialization
Ramaprabhu S.	Nanomaterials, fuel cells, Li battery
Satyanarayana M.V.	Quantum optics, laser physics, photonics
Markandeyulu G.	Magnetism, magnetic materials
Harish Kumar N.	Superconductivity, spintronics, novel magnetic materials
Lakshmi Bala S.	Classical and quantum dynamical systems, nonlinear dynamics and chaos,
	chaos in gauge theories, quantum information theory
Subrahmanyam A.	Photovoltaics, photocatalysis, electrochromics, bio-medical engineering, surface engineering
Subramanian V.	Microwave techniques, propagation and devices
	Dielectrics and multi-ferroics
Kasiviswanathan S.	Near- and far-field response of plasmonic structures, films of transparent oxide and ternary semiconductors, systems exhibiting quantum coherence
Santhosh P.N.	Multiferroics, layered oxide materials, CuO-based nanomaterials
Sunil Kumar P.B.	Complex fluids, biological physics, statistical mechanics
Sriramkumar L.	Semi-classical and quantum gravity, inflationary cosmology and the cosmic microwave background, alternatives to inflation
Murthy V.R.K.	Microwave physics and materials
Associate Professors	
Ganesan A.R.	Applied optics, holography, adaptive optics
C.V. Krishnamurthy	Non-destructive evaluation, microstructural modeling, light scattering
James Libby	Experimental particle physics, flavour and neutrino experiments
Manoj Gopalakrishnan	Theoretical biological physics, stochastic processes, statistical mechanics
Murugavel P.	Ferroelectrics, dielectrics and multifunctional oxides for multiferroic and photovoltaic studies
Nirmala R.	Intermetallics
Prahallad Padhan	Magnetic materials and heterostructures, spintronic devices, electronic and magnetic properties of novel materials in nanostructure form
Prafulla Kumar Behera	Collider experiments and atmospheric neutrino experiments
Rajesh Narayanan	Condensed matter theory, strongly correlated systems, disordered systems
Sudakar Chandran	Materials for energy applications, defect–structure property correlations, multifunctional materials
Somnath Chanda Roy	Experimental materials science, nanomaterials and thin films, nanotechnology for energy and environment
Pattabiraman M.	Experimental atomic physics, quantum optics, magnetometry
Mahaveer Kumar Jain	Semiconductors, photovoltaics, chemical sensors
Prasanta Kumar Tripathy	String theory, high-energy physics
Assistant Professors	
Aditi Simha	Soft condensed matter, non-equilibrium statistical physics
Aravind G.	Autoionization and autodetachment resonances in atomic, molecular and cluster systems
Dawood Kothawala	Semi-classical gravity, quantum mechanics of black holes, QFT with minimal length scale
Dillip K. Satapathy	Structure and mechanics of polymer films, directed self-assembly of microemulsions and colloids, X-ray and neutron characterization of materials
Jayeeta Bhattacharyya	Semiconductors, optical spectroscopy, THz spectroscopy
Manu Jaiswal	Elastic, electronic properties of graphene and other 2D systems, applications of graphene for solar energy, sensing and filtration, conducting polymers and other carbon-based systems
Prabha Mandayam	Quantum information and computing, quantum optics

Name	Major Areas of Specialization
Sivarama Krishnan	Femtosecond dynamics, photonics, quantum dynamics
Sunethra Ramanan	Nuclear structure, renormalization group, effective field theories
Ashwin Joy	Soft condensed matter physics and hydrodynamics
Ranjit Kumar Nanda	Magnetism in strongly correlated systems, graphene with defects and functionalization, CO_2 reduction

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period
1	Neelima M. Gupte	Complex System Approach to Self-organization 2016	1–4 February 2016
2	Rajesh Narayanan (Co-organizer)	School and Conference on Disordered Systems	24 February to 3 March 2016
3	C. Sudakar	ICMAT 2015 and IUMRS-ICA 2015 Conference	28 June to 4 July 2015
4	C. Sudakar	EMSI-2015	_
5	Jim Libby	Colloquia - Department of Physics	_
6	L. Sriramkumar	One-day Meeting on Black Holes and Cosmology	6 October 2015

$Short-term\ courses/workshops/seminars/symposia/conferences/training\ programmes\ attended\ by\ faculty\ members\ at\ academic\ institutions\ and\ public\ sector\ undertakings$

SI. No.	Faculty Member	Title	Institution	Period
Worksl	hops			
1	Prahallad Padhan	Size Effect on Magnetic Coupling in All- Ferromagnetic Superlattices	Department of Physics, S.S.N. College of Engineering, Kalavakkam	21–22 March 2016
2	R. Nirmala	Brazilian Physical Society meeting (ENFMC 2015)	Foz do Iguaçu, Brazil	25–28 May 2015
3	R. Nirmala	International Conference on Magnetic Materials (ICMAGMA 2015)	VIT, Vellore	2–4 December 2015
4	Prabha Mandayam	m Workshop on Quantum Information Centro de Ciencias 21		21 June to 3 July 2015
5	Prabha Mandayam	Asian Quantum Information Science (AQIS'15)	Korea Institute of Advanced Study (KIAS), Seoul, South Korea	24–28 August 2015
6	Jayeeta Bhattacharyya	National Laser Symposium: Indian Laser Association Workshop	Raja Ramanna Centre for Advanced Technology, Indore	30 November and 1 December 2015
7	Jim Libby	Second Workshop on Belle II Theory Interface Platform (B2TiP)	IFJ, Krakow, Poland	27–29 April 2015
		Wayne State University, Detroit, MI, USA	18–22 May 2015	
9	Jim Libby	35th Physics in Collisions	University of Warwick, UK	15–19 September 2015
10	Jim Libby	70th Belle General Meeting	KEK, Tsukuba, Japan	28–29 January 2016
11	Jim Libby	23rd Belle II General Meeting	KEK, Tsukuba, Japan	1–5 February 2016
12	Jim Libby	Frontiers in High Energy Physics (FHEP) III	IMSc, Chennai	22–25 March 2016
13	Manoj Gopalakrishnan	Indian Statistical Physics Community Discussion Meeting	ICTS-TIFR, Bengaluru	12–14 February 2016

Sl. No.	Faculty Member	Title	Institution	Period
14	Santhosh P.N.	Symposium FISCOM 2015 (French-©-Indian Symposium on Correlated Oxide Materials)	University of Montpellier, France	15–17 July 2015
15	L. Sriramkumar	Discussion Meeting on Cosmology and Astroparticle Physics	Institute of Physics, Bhubaneswar	30 October to 5 November 2015
16	L. Sriramkumar	National Workshop on Theoretical Physics	Department of Physics, St. Aloysius College, Elthuruth, Thrissur	27–28 November 2015
17	L. Sriramkumar	The Eighth International Conference on Gravitation and Cosmology	IIISER Mohali	14–18 December 2015
18	L. Sriramkumar	100 Years of General Relativity: Where do We Stand?	Department of Physics, IIT Guwahati	13 February 2016
19	L. Sriramkumar	Seminar on Recent Trends in Applied Physics	KCG College of Technology, Chennai	19 March 2016
20	P.B. Bisht	International Conference on Light Quanta: Modern Perspective and Applications	University of Allahabad	14–16 December 2015
21	Ashwin Joy	Soft Matter Young Investigators Meet Pondicherry (SMYIM) 2015		17–20 December 2015
22	Prafulla Behera	Belle/Belle II Collaboration meeting	Japan	16-27 June 2015
23	Prafulla Behera	25th International Workshop on Weak Interactions and Neutrinos (WIN2015) MPIK Heidelberg Germany		8–13 June 2015
24	Prafulla Behera	The XIII Workshop on Resistive Plate Ghent University, Chambers and Related Detectors (RPC2016) Ghent University, Belgium		22–26 February 2016
25	Prafulla Behera	Workshop on Nuclear Security, PDPU	Gandhi Nagar, Gujarat	10–12 February 2016
26	Prafulla Behera	Frontier in High-Energy Physics	IMSc, Taramani, Chennai	21-24 March 2016
27	Sivarama Krishnan			3–5 March 2016
28	Sivarama Krishnan	Inter-atomic Decay Processes in JNCASR 25–26 Nanoscale Quantum Fluid He Droplets		25–26 February 2016
29	Sivarama Krishnan	•		29 February 2016
30	B.R.K. Nanda	Manipulation of Magnetic Order and Conductivity in Strongly Correlated Oxides through Layer Deformation and Tailored Interfaces	Université de Montpellier, France	15–17 July 2015

Special lectures delivered by faculty members at other institutions

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
1	Arul Lakshminarayan	minarayan Entangling Power: From Coupled Maps to the Unimodular Ensemble (and Back) Gracow, F		4 May 2015
2	Arul Lakshminarayan	Entanglement and Quantum Chaos	Center for Theoretical Physics, Polish Academy of Sciences, Warsaw	6 May 2015
3	Arul Lakshminarayan	Entanglement and Quantum Chaos: From Coupled Maps to Spin Chains	Max Planck Institute for the Physics of Complex Systems, Dresden, Germany	14 October 2015
4	Arul Lakshminarayan	Entanglement Transitions: From Bipartite to Many-Body Localized Systems (QIPA Conference)	HRI, Allahabad	11 December 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
5	Arul Lakshminarayan	Entanglement and Quantum Chaos	IISER Pune	8 January 2016
6	Arul Lakshminarayan	Uncovering Universality in the Entanglement of Strongly Chaotic Subsystems (Workshop Meeting: Statphys Community)	ICTS, Bengaluru	14 February 2016
7	Arul Lakshminarayan	Local Entanglement Structure Across IMSc, Chennai a Many-Body Localization Transition (Conference on Disordered Systems)		1 March 2016
8	Arul Lakshminarayan	Random Matrix Theory: A Gentle Introduction (colloquium)	IISER Bhopal	16 March 2016
9	Manu Jaiswal	Physics at the Oxide: Graphene Interface	Université de Montpellier, Montpellier, France	15–17 July 2015
10	Manu Jaiswal	Atom-Thin Membranes on Deforming Surfaces	IGCAR, Kalpakkam	24 February 2016
11	Manu Jaiswal	Carbon Nanomaterials: Workshop on Fundamentals and Applications of Nanoscience and Nanotechnology	Science City	6 October 2015
12	P. Murugavel	Stabilizing Ferroelectricity by Interface Engineering	Abdul Raheman University, Vandalur, Chennai, Tamil Nadu	25 February 2016
13	P. Murugavel	Electricity and Magnetism in the Physics in Engineering (special lecture) Department of Physics in Thiagarajar College Engineering, Madur		6 November 2015
14	R. Nirmala	Rare Earth-Based Materials for Magnetic Thiruvananthapuran Refrigeration Applications		22–25 April 2015
15	R. Nirmala	Magnetocaloric Effect in Electron-Doped University of Montpellier, Oxides R0.15Ca0.85MnO3 (R = Rare Earth) France		15–17 July 2015
16	R. Nirmala	Magnetism of the Spinel Oxide CuAl2O4 IBS-CCES, Seoul Nation University		23 June 2015
17	R. Nirmala	Glasslike Ground State in the Spinel Oxide $\;$ IMSc, Chennai $\;$ CuAl_2O_4 $\;$		1–3 March 2016
18	R. Nirmala	Rare Earth Intermetallics for Magnetic Refrigeration Applications SSN College of Engineering, Chenna		21–22 March 2016
19	S. Ramaprabhu	Engineering Carbon-Based Nanomaterials Department of Chemic for Energy and Environmental Applications Engineering, IIT Guwa		1 March 2016
20	S. Ramaprabhu	Nanomaterials and Their Applications	Christian College, Chennai	23 January 2016
21	S. Ramaprabhu	Nano Materials and Their Applications	Chennai	23 January 2016
22	S. Ramaprabhu	Synthesis and Characterizations of 1D CNT and 2D Reduced Graphene Oxide	Madras University, Chennai	30 November 2015
23	S. Ramaprabhu	Applications of 2D Reduced Graphene Oxide	Madras University, Chennai	30 November 2015
24	S. Ramaprabhu	Current Development Trends in Electrochemical Secondary Battery Technology	RCI, Hyderabad	16 November 2015
25	S. Ramaprabhu	State of the Art in the Synthesis of Graphene- Based Composites and their Applications	JAIST, Japan	30 September 2015
26	S. Ramaprabhu	Carbon Nanomaterials for Li Battery and Fuel Cells Applications	RCI, Hyderabad	28 April 2015
27	N. Harish Kumar	Fascinating World of Physics (lecture and experimental demonstrations of physics concepts as a mentor)	Sri Venkateswara University, Tirupati	3 November 2015
28	N. Harish Kumar	Magnetic Materials (lecture as a mentor)	Sri Lakshmi Ammal College of Engineering, Chennai	30 December 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
29	N. Harish Kumar	Fascinating World of Physics (lecture and experimental demonstrations of Physics concepts as a mentor)	Veltech University, Chennai	27 August 2015
30	N. Harish Kumar	Lecture-demonstration of physics principles—resource person	SRM University, Ramapuram campus	27 February 2016
31	N. Harish Kumar	Low Magnetic Moment Half Metallic Heusler Alloys as Ideal Spin Injection Electrodes in Spintronic Devices SSN Engineering College, Chennai		22 March 2016
32	N. Harish Kumar	Magnetism and Superconductivity (special lecture)	S.A. Engineering College, Chennai	23 March 2016
33	Somnath C. Roy	Recycling Carbon Dioxide through Solar Energy: A Small Step but Giant Leap Towards Sustainability	Sydney, Australia	1–3 June 2015
34	Prabha Mandayam	Quantum Information	Loyola College, Chennai	15 May 2015
35	C.V. Krishnamurthy	Measuring High Temperatures: Issues and Approaches	QIRT-Asia, Chennai	July 2015
36	C.V. Krishnamurthy	High Temperature Challenges in Infrared Thermography	NDE 2015	26–28 November 2015
37	Dillip K. Satapathy	Confined Polymers	National Institute of Science and Technology, Berhampur, Odisha	10–12 December 2015
38	Dillip K. Satapathy	Solvent Dielectric and Ionic Concentration Effects on Confined Colloids	icentration IISER Pune 2–4 Ja 2016	
39	Dillip K. Satapathy	RHEED and Ellipsometry IIT Madras		21 February 2016
40	Jim Libby	Belle II: Physics at the Flavour Frontier Colloquium, Saha Institut of Nuclear Physics, Kolka		20 January 2016
41	Jim Libby	The Goddamn Particle: The Higgs and Hindustan University More		2 March 2016
42	Manoj Gopalakrishnan	Noise in the Cell: Excursions into the Stochastic Dynamics of Living Systems Department of Physics, Pondicherry University		26 February 2016
43	Neelima M. Gupte	Characterisation of Time Series Networks: A Simplicial Approach	Physcon 2015, Istanbul Turkey	19–22 August 2015
44	Neelima M. Gupte	Characterization of Time Series Networks: Torino, Italy A Simplicial Approach and an Application to Network Traffic		14–17 October 2015
45	Neelima M. Gupte	Characterization of Time Series Networks: A Simplicial Approach and an Application to Network Traffic	NIT Durgapur	15–17 February 2016
46	Neelima M. Gupte	Chaos in Hamiltonian Systems (series of lectures)	Manipur University, Manipur, Imphal	November– December 2015
47	Neelima M. Gupte	Synchronization on Branching Hierarchical Lattices	Physics Colloquium, BARC, Mumbai	12 June 2015
48	Santhosh P.N.	Powder X-ray Diffraction and Rietveld Analysis	SRIB, Kottayam, Kerala	September 2015
49	Santhosh P.N.	Intriguing World of Complex Oxides	Government College Kottayam, Kerala	September 2015
50	Santhosh P.N.	Ordered and Disordered Double Perovskites: CECRI, Karaikudi A Structure Property Correlation		April 2015
51	K. Sethupathi	Series of lectures in the summer training programme for postgraduate students	University of Madras	5–6 June 2015
52	K. Sethupathi	Giant Magnetoresistance and Large Magnetocaloric Effect in Rare Earth Doped Manganites	NCHSM 2016, SRM University	March 2016

Sl. No.	Faculty Member	Title of Lecture Institution		Date
53	K. Sethupathi	Observation of Exchange Bias and Magnetoresistance in the Spin Glass Phase of Sr2FeCoO6 Double Perovskite System	Université de Montpellier, France	July 2015
54	K. Sethupathi	The Effect of A-Site Cationic Size on the Structure and Magnetism of the Double Perovskite Oxides A_2FeCoO_6 (A= Sr or Lanthanides)		17–19 March 2016
55	K. Sethupathi	Energy Storage Density, Dielectric and Ferroelectric Properties and Band Gap Study of La Doped PZT	Jaipur National University, India	17–19 March 2016
56	L. Sriramkumar	Whither Inflation and Bouncing Universes	Institute of Physics, Bhubaneswar	30 October to 5 November 2015
57	L. Sriramkumar	Exploding Stars, Distances to Far away Galaxies, and the Composition of the Universe	Utkal University, Bhubaneswar	2 November 2015
58	L. Sriramkumar	Understanding Our Universe: From the Early Epochs to Late Times	Indira Gandhi Centre for Atomic Research, Kalpakkam	19 November 2015
59	L. Sriramkumar	Understanding Our Universe: From the Early Epochs to Late Times	Department of Physics, St. Aloysius College, Elthuruth, Thrissur	27–28 November 2015
60	L. Sriramkumar	The Standard Model of Cosmology (invited talk at "100 Years of General Relativity: Where Do We Stand?")	IIT Guwahati	13 February 2016
61	L. Sriramkumar	Ripples in Spacetime: A New Window to the Universe	IIT Tirupati	1 March 2016
62	L. Sriramkumar	Ripples in Spacetime: A New Window to SRM Ramapuram, of the Universe		17 March 2016
63	L. Sriramkumar	Ripples in Spacetime: A New Window to the Universe	KCG College of Technology, Chennai	19 March 2016
64	C. Vijayan	Directions in Nanophotonics	Pondicherry University	March 2016
65	C. Vijayan	Strategies for Quality Improvement in Science Teaching	BITS Goa	December 2015
66	C. Vijayan	Emerging Trends in Nanophotonics	Kerala University	December 2015
67	C. Vijayan	Essentials of Nanophotonics	Kerala University, Thiruvananthapuram	November 2015
68	C. Vijayan	Light-Matter Interaction in Regular and Random Media	IISER Thiruvananthapuram	September 2015
69	P.B. Bisht	Optics, Phenomena and Modelling in Laser Spectrocopy	University of Allahabad	14–16 December 2015
70	P.B. Bisht	Nonlinear Optical Spectroscopy of Quantum Dots and Metal Nanoparticle- Embedded Microstructures	Department of Physics, DSB College, Kumaun University, Nainital	19 November 2015
71	P.B. Bisht	Teaching Learning in the Year of Light	Science Resource Centre Kulethi, Champawat, Uttarakhand	8–9 June 2015
72	Ashwin Joy	Instabilities and Relaxation in a Model Pondicherry Visco-elastic Liquid (SMYIM 2015)		17–20 December 2015
73	Sivarama Krishnan	High-Order Harmonic Generation from Table-Top Femtosecond Pulses	VIT Vandalur, Chennai	15 July 2015
74	G. Arvind	Photoelectron Spectroscopy and Collision Studies on Interstellar Medium Anions	TIFR, India	18–20 November 2015

Sl. No.	Faculty Member	Title of Lecture	Institution	Date
75	Suresh Govindarajan	A Hardy–Ramanujan–Rademacher- Type Formula for Plane Partitions (National Symposium on Mathematical Methods and Applications)	Department of Mathematics, IIT Madras	22 December 2015
76	B.R.K. Nanda	Computational Methods to Study Diffusion in Solids	Central University of Tamil Nadu	25 April 2015
77	Sunethra Ramanan	Pairing in Triplet Channel in Pure Neutron Matter	Institut de Physique Nucléaire (IPN), Orsay, France	1 December 2015

4.16.4. Visits abroad by faculty members

- 1. Arul Lakshminarayan, on sabbatical at MPIPKS, Dresden, Germany, 1 January to 1 November 2015
- 2. Manu Jaiswal, visit to Université de Montpellier, Montpellier, France, 15–17 July 2015 for French-Indo Symposium on Correlated Oxide Materials
- 3. R. Nirmala, visited Institute of Basic Sciences, Seoul National University, Seoul, South Korea, 20 June to 10 July 2015, for collaborative research work with Prof. J.-G. Park's group
- 4. Somnath C. Roy, Recycling Carbon Dioxide Through Solar Energy: A Small Step but Giant Leap Towards Sustainability, invited talk at World Resources Forum Asia–Pacific and International Sustainability Symposium, Sydney, Australia, 1–3 June 2015
- 5. R. Aditi Simha, sabbatical at Department of Mathematics, University of West Virginia, Morgantown, USA, 25 August to 31 August 2015
- 6. Prabha Mandayam, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, 21 June to 3 July 2015
- 7. Prabha Mandayam, Korea Institute of Advanced Study (KIAS), Seoul, Korea, 24–28 August 2015
- 8. Jim Libby, collaborative visit to CERN, June 2015
- 9. Jim Libby, collaborative visit to University of Oxford, July 2015
- 10. Neelima M. Gupte attended Physcon 2016 at Istanbul, Turkey, 19–22 August 2015 and gave a talk at a special invited session.
- 11. Neelima M. Gupte attended the Challenges in Data Science (DASC2015) Conference, Torino, Italy, 14–17 October 2015.
- 12. Neelima M. Gupte, visited the Institute for Climate Research at Potsdam, Germany, 18–20 October 2015.
- 13. P. Murugavel, sabbatical at IBS-CCES, Department of Physics, Seoul National University, Seoul, South Korea, April to July 2015
- 14. Santhosh P.N., attended the symposium FISCOM 2015 (French—©-Indian Symposium on Correlated Oxide Materials), University of Montpellier, France
- 15. K. Sethupathi, visited Material Université de Montpellier, France, July 2015, to give an invited talk in the French–Indo Symposium on Correlated Oxide
- 16. C. Vijayan, Ninth India–Singapore Joint Physics Symposium, National University of Singapore (invited talk), 23–26 February 2016
- 17. Ashwin Joy, invited for an oral presentation at a joint meeting of the 10th West Lake International Symposium (WLIS) on Magnetic Fusion and the 12th Asia–Pacific Plasma Theory Conference (APPTC), held at Zhejiang University, Hangzhou, China, 9–13 May 2016
- 18. B.R.K. Nanda, French-Indo Symposium on Correlated Oxide Materials, Université de Montpellier, France, 15–17 July 2015
- 19. Sunethra Ramanan, IPN Orsay, France, 14–19 December 2015

Honours and awards obtained by faculty members

SI. No.	Faculty Member	Award	Awarded by	Awarded for	Date
1	Ashwin Joy	Parvez Guzdar Young Scientist Award 2015 (carries a cash prize of ₹50,000)	Parvez Guzdar Memorial Fund and the Institute for Plasma Research, Gandhinagar	Outstanding research contributions in the field of strongly coupled plasmas given to only physicists below the age of 35	December 2015

Books and monographs authored/co-authored

Sl. No.	Faculty Member	Title	Publisher	Author/ Co-author
Books				
1	Prabha Mandayam	The Functional Analysis of Quantum Information Theory	Springer	Co-author
2	C. Vijayan	Modified Photonic Processes in Dielectric- Plasmonic Random Media	Laap Lambert Academic Publishing	Co-author

Fellowships of academies and professional societies

	1	
SI. No.	Faculty Member	Details
Humbo	oldt Fellowship	
1	Jayeeta Bhattacharyya	Humboldt Fellow
INSA		
1	Aravind G.	INSA Young Scientist, awarded INSA Young Scientist Research Award
Others		
1	C.V. Krishnamurthy	Member, ISNT (Indian Society of Nondestructive Testing), 2009
2	Somnath C. Roy	Bhaskara Advanced Solar Energy (BASE) Fellowship jointly awarded by the IUSSTF and DST for the year 2015–2016–to visit University of Houston, Texas, for 3 months' duration to work on advanced solar cell materials
3	Prabha Mandayam	INSPIRE Faculty Fellowship, August 2014 to August 2019
4	K. Sethupathi	Fellow of Academy of Sciences, Chennai
5	V. Subramanian	IEEE member

Editorial boards of journals

Sl. No.	Faculty Member	Position (Editor/Member)	Journal
1	Ganesan A.R.	Associate Editor	Optical Engineering
2	Ramaprabhu S.	Editor-in-Chief	Graphene
3	Ramaprabhu S.	Member of editorial board	Journal of Nanofluids (American Scientific), Nano Communications (American Scientific)
4	Ramaprabhu S.	Associate Editor	Journal of Nanoscience and Nanotechnology

4.16.5. Design and Development Activities

Details of process/instruments/equipment/software designed and developed

Sl. No.	Faculty Member	Equipment	Figure
1	G. Aravind	Cold-cathode ion source	

Sl. No.	Faculty Member	Equipment	F
2	G. Arvind	State-of-the-art ion-trap	
		experimental setup	



3 Departmental facility FESEM



New facilities added or major equipment procured

SI. No.	Faculty Member	Facility	Description	Amount (lakhs of ₹)
1	Jayeeta Bhattacharyya and Sivarama Krishanan	Femtosecond laser facility	Institute facility maintained by Physics Department	200
2	Prafulla Behera	VME data acquisition system	_	20

Patents filed/awarded

Sl. No.	Faculty Member	Title of Patent
1	P. Murugavel	Fabrication of Eco-friendly Organic Ferroelectric Diisopropylammonium Bromide Films
2	C. Sudhakar	Inorganic Quantum Dots and Organic Fluorophore-Based Hybrid Composite for White Light Emission
3	Sivarama Krishnan	Dual Pulse-Driven Extreme Ultraviolet (UV) Radiation Source Utilizing a Droplet Comprising a Metal Core with Dual Concentric Shells of Buffer Gas (US patent application 20160081174, application no. 14/484996, publication date 17 March 2016)

4.16.6. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
1	Study of Electronic Transport of La _{0.7} Sr _{0.3} MnO ₃ /Mg-Doped ZnO/ La _{0.7} Sr _{0.3} MO ₃ Lateral Junction	2015–2018	DAE-BRNS	24.91	Prahallad Padhan

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
2	Multi-stacked Two-Dimension Atomic Crystals for Lithographically Patterned Novel Tunneling Transistors	May 2012 to October 2015	IIT Madras, NFSC	29.3	Manu Jaiswal
3	Graphene-Based Novel Hybrid Materials for Solar Energy Applications	July 2012 to July 2015	Nissan NRSP	11.1	Manu Jaiswal, T.S. Natarajan (Co-PI)
4	Tuning the Electronic Properties of Chemical Vapour-Deposited Graphene by Strain Engineering and Doping	March 2013 to March 2016	DAE-BRNS Young Scientist Research Award	16.9	Manu Jaiswal
5	Engineering Electronic Properties of Graphene by Mechanical Deformation for All Graphene Electronic Circuit Applications	Sepetember 2013 to September 2016	DST Fast Track	22.32	Manu Jaiswal
6	Flexible and High-Performance Perovskite-Based Solar Cells on Graphene Electrodes	October 2014 to October 2017	_	42.75	Manu Jaiswal (India), K.P. Loh (Singapore)
7	TiO2–Graphene Photo-catalysts for Application to Sustainable Fuel Cell	August 2013 to August 2015	_	11	S.C. Roy, Manu Jaiswal (Co-PI)
8	Novel Rare Earth Intermetallic Compounds: Optimization of Crystal Structure and Thermomagnetic Properties	_	PHY/15-16/311/ DSTX/RNIR	_	R. Nirmala (Russian counterpart is Prof. A.V. Morozkin)
9	Tracking Structural and Magnetic Transitions in Electron-Doped Manganite Oxides by Powder Neutron Diffraction	_	UGC-DAE-CSR	_	R. Nirmala
10	Nitrogen-Doped Partially Exfoliated Multi-walled Carbon Nanotubes— PtRu Nanoparticle Hybrids as High-Performance Anode for Direct Methanol Fuel Cells	_	DST	38.4	S. Ramaprabhu
11	Development of High- Capacity Metal Oxide/Carbon Nanomaterial-Based Anode Material for Sodium Ion Batteries	_	RCI, Hyderabad	10	S. Ramaprabhu
12	Development of Flexible Solar Cells Based on TiO ₂ Nanotube Arrays Grown on Kapton Substrates	2016–2019	DST (CERI)	73	Somnath Roy, Sudakar Chandran
13	Semiconductor and Quantum Dot Sensitized Solid State Nanostructured Tio ₂ Solar Cells	_	_	_	C. Sudhakar
14	Quantum Key Distribution	2016–2017	Office of the Principal Scientific Adviser	351	Prabha Mandayam (Co-I)
15	Wide-Band Frequency-Selective Surfaces (FSS) for Quasi-optical Network (ISRO-SAC)	March 2014 to September 2016	ISRO-SAC	29	Kavitha Arunachalam, C.V. Krishnamurthy
16	Development of Advanced NDE Techniques for Enhanced Sensitivity, Reliability and Reduced Inspection	November 2011 to December 2016	BRNS	420	Krishnan Balasubramaniam, C.V. Krishnamurthy, Prabhu Rajagopal, Kavitha Arunachalam
17	Centre for Nano- electromechanical Systems (NEMS) and Nanophotonics	April 2011 to March 2017	DEITY	4820	Krishnan Balasubramaniam, C.V. Krishnamurthy

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
18	Advanced Manufacturing Process Monitoring Using in-Line Laser Thermography	September 2014 to September 2017	AMPLAST	1920	Krishnan Balasubramaniam, C.V. Krishnamurthy
19	Development of On-line, High- Temperature, Non-destructive Measurement/Sensing Techniques	October 2014 to September 2017	DST/RC-UK	2920	Krishnan Balasubramaniam, Prabhu Rajagopal, C.V. Krishnamurthy
20	Medical Microwave Radiometry for Non-invasive Tissue Thermometry	June 2015 to June 2018	DST	51	Kavitha Arunachalam, C.V. Krishnamurthy
21	Development of Dielectric/ Microwave NDE of Composites	November 2015 to November 2017	DRDO-ASL	76.6	C.V. Krishnamurthy
22	Design and Development of Flexible, Miniature Array-Type Eddy Current Probes for Non- destructive Evaluation	October 2015 to October 2017	IGCAR	23.5	Kavitha Arunachalam, C.V. Krishnamurthy
23	Survey and Assessment of Measurement Techniques	7–15 July 2015	OP-TECH	3	C.V. Krishnamurthy
24	Measurements of CP Violation with the Belle and Belle-II Experiment	8 July 2013 to 7 July 2016	DST	28.5	Jim Libby (Co-PI: Prafulla Kumar Behera)
25	R&D Efforts by University Groups for INO Projects	31 October 2013 to 30 October 2018	DST	322	Prafulla Kumar Behera (Co-PIs: Jim Libby, Anil Prabhakar, Nagendra Krishnapurna, Nitin Chandrachoodan)
26	The Quest for CP Violation in Charm Decays	1 March 2013 to 31 August 2015	UKIERI (British Council–UGC)	8	Jim Libby
27	EMR-II for the Scheme Synchronisation and Explosive Synchronisation Transitions for Processes on Networks	_	CSIR	19.7	Neelima M. Gupte (Investigator)
28	Investigation of Photovoltaic Effect in Rare Earth-Doped Bismuth Ferrite Film	31 October 2014 to 30 October 2016	DST- Nanomission	38.2	P. Murugavel (PI), V. Subramanian (Co-PI)
29	Magnetic, Electrical and Structural Investigation into the Layered Structures of Double Perovskites	2012–2015	CSIR	24	P.N. Santhosh (PI)
30	Mimicking the GMR Multilayer Structure with Novel Double- Layer Brownmillerite Systems A ₃ BB/GaO ₈ : Structure, Magnetic and Magneto-transport Studies	Ongoing from 2015	DST	50	P.N. Santhosh (PI)
31	Novel Ferroelectrics in Ruddlesden-Popper Structures: Rotation-Driven Ferroelectricity	February 2015 to June 2016	IIT Madras Exploratory Research Project	10	P.N. Santhosh (PI)
32	Tracking Structural and Magnetic Transition in Electron-Doped Manganite Oxides	Ongoing from 2015 March	UGC-DAE	_	P.N. Santhosh (Co-I)
33	Understanding Partial Discharge Activity in Cryogenic Insulation under Harmonic Voltages Adopting Super High Frequency (SHF) Technique	2012–2015	DST	25.08	Sethupathi K., Dr. R. Sarathi (EE)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
34	Diagnostic Study on Partial Discharge Activity in Cryogenic Insulation Structure by Multi Sensor System	2012–2015	Central Power Research Institute	46	Dr. R. Sarathi (EE, PI), Sethupathi K. (Co-I)
35	Magnetoimpedance Studies of Electrodeposited Fe and Co- Based Thin-Film Alloys for Low Field Sensor Applications	2014–2017	NRB (DRDO)	25	V. Srinivas
36	Fundamental Tests of Cosmology with Planck Measurements of the Cosmic Microwave Background	2015–2017	Indo-US Science and Technology Forum	20	PIs: Tarun Souradeep (IUCAA), Krzysztof M. Gorski (JPL, Caltech, Pasadena, USA). US Co- PIs: Marc Kamionkowski (Johns Hopkins University, Baltimore; Charles Lawrence, JPL, Caltech, Pasadena; Julian Borrill, LBNL, University of California, Berkeley; Graca Rocha, JPL, Caltech, Pasadena). Indian Co-PIs: Sanjit Mitra (IUCAA, Pune), L. Sriramkumar (IIT Madras), Pankaj Jain (IIT Kanpur), Tirthankar Roy Choudhury (NCRA, Pune)
37	Socially Relevant Project (CSR)	2015–2017	Fidelity, Chennai Development of Science Hands- on Activities for High Schools	_	C. Vijayan
38	Development of Electromagnetic Interference (EMI) Shielding Structures for Power Apparatus Using Metamaterials	25 September 2013 to 24 September 2016	DST	51	V. Subramanian, R. Sarathi
39	Ultrafast Photonic Processes and Interactions	2013–2016	European Commission (DCU, Dublin)	80	Prem B. Bisht (Coordinator), Co-PIs from EE and CY
40	Plasmon-Assisted Charge- Transfer Studies by Using Picosecond Degenerate Four Wave Mixing	2014–2017	CSIR	10	Prem B. Bisht
41	Ultrashort White Light Continuum for Applications in Laser Spectroscopy	2014–2017	DRDO	16	Prem B. Bisht
42	Localised Surface Plasmon- Coupled Whispering Gallery Modes of Microcavities	2015–2018	DST	40	Prem B. Bisht
43	Shear Localization and Yielding in Glassy Complex Plasma	2013–2017	INSPIRE Programme, DST	35	Ashwin Joy
44	R&D Efforts by University Groups for INO Projects	31 October 2013 to 30 October 2018	DST	322	Prafulla Kumar Behera (PI); James Libby, Anil Prabhakar, Nitin Chandrachoodan, Nagendra Krishnapura (Co-PIs)

Sl. No.	Title	Period	Funding Agency	Amount (lakhs of ₹)	Co-ordinators
45	Measurements of CP Violation with the Belle and Belle-II Experiment	8 July 2013 to 7 July 2016	DST	28.5	James Libby, Prafulla Kumar Behera
46	Construction of Radio Frequency Multiple Ion-Trap Experimental Set-up for Studying Ion-Atom Collision	28 November 2013 to 27 November 2016	DST	111. 75041	G. Aravind, P.C. Deshmukh
47	Construction of Ion–Molecule and Ion–Photon Collision Experimental Setup	23 January 2013 to 22 June 2016	INSA	15	G. Aravind

Faculty members' participation with other institutions under MoUs

Sl. No.	Faculty Member	Details	University/Institution
1	Ramaprabhu S.	_	JAIST, Japan (Prof. Matsumi)
2	L. Sriramkumar	Jointly supervising the student R. Rathulnath, IMSc, Chennai, with Prof. Ghanashyam Date of IMSc	IMSc, Chennai
3	C. Vijayan	A student under the NUS-IIT Madras joint Ph.D. programme, Ms Radhu Subha, received her Ph.D. degree in 2015. She is the first student of the institute under this scheme. The co-guide was Prof. Ji Wei, Department of Physics, National University of Singapore	National University of Singapore
4	Prafulla Behera	CMS experiment	CERN, Geneva, Switzerland

Research publications of faculty members and research scholars

Papers published in refereed national journals: 4

Papers published in refereed international journals: 120

Papers presented at national conferences: 3
Papers presented at international conferences: 14

Papers published in refereed national journals

- 1. R. Nirmala, A.V. Morozkin and S.K. Malik. 2015. Magnetocaloric effect in rare earth intermetallics: Recent trends. *Pramana: Journal of Physiscs* 84: 977.
- 2. Prabha Mandayam and M.D. Srinivas. 2015. A class of distance-based incompatibility measures for quantum measurements. *Current Science* 109(22): 1997.
- 3. M.D. Srinivas and Prabha Mandayam. 2015. Uncertainty trade-off and disturbance trade-off for quantum measurements. *Current Science* 109: 2044.
- L. Sriramkumar. 2016. Primordial gravitational waves, BICEP2 and beyond. *Pramana* 86(2): 325–333. doi:10.1007/s12043-015-1152-z

Papers published in refereed international journals

- J. Magesh, P. Murugavel, R.V.K. Mangalam, K. Singh, Ch. Simon and W. Prellier. 2015. Ferroelectric ordering and magnetoelectric effect of pristine and Ho-doped orthorhombic DyMnO₃ by dielectric studies. *Journal* of Applied Physics 118: 074102.
- 2. C. Nayek, C. Thirmal, A. Pal and P. Murugavel. 2015. Study of enhanced magnetism in Lu doped multiferroic bismuth ferrite. *Materials Science and Engineering B* 199: 121–124.
- 3. C. Nayek, P. Murugavel, S. Dinesh Kumar and V. Subramanian. 2015. Impedance and magnetoelectric characteristics of (1-x)BaTiO₃-xLa_{0.7}Sr_{0.3}MnO₃ (x = 0.1 and 0.3) nano-composites. *Applied Physics A* 120: 615–622.
- C. Nayek, S. Samanta, Kaustuv Manna, A. Pokle, B.R.K. Nanda, P.S. Anil Kumar and P. Murugavel. 2016. Spin-glass state in nanoparticulate (La_{0.7}Sr_{0.3}MnO₃)_{1-x}(BaTiO3)_x solid solutions: Experimental and density-functional studies. *Physical Review B* 93: 094401.
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- 6. B.C. Behera, P. Padhan and W. Prellier. 2015. Influence of substrate in all-ferromagnetic superlattices. *Journal of Magnetism and Magnetic Materials* 338: 22.

- 7. Shashi C.L. Srivastava and Arul Lakshminarayan. 2015. Records in the classical and quantum standard map. *Chaos, Solitons & Fractals* 74: 67–78.
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- Shashi C.L. Srivastava, Steven Tomsovic, Arul Lakshminarayan, Roland Ketzmerick and Arnd Bäcker. 2016. Universal scaling of spectral fluctuation transitions for interacting chaotic systems. *Physical Review Letters* 116: 054101.
- 10. Soumya Bera and Arul Lakshminarayan. 2016. Local entanglement structure across a many-body localization transition. *Physical Review B* 93: 134204.
- 11. P.R. Shaina, Lijin George, Vani Yadav and Manu Jaiswal. 2016. Estimating thermal expansion coefficient of graphene: The role of graphene–substrate interactions. *Journal of Physics: Condensed Matter* 28: 085301.
- 12. Lijin George, A. Gupta, P.R. Shaina, Nandita Das Gupta and Manu Jaiswal. 2015. Mechanical tearing of graphene on an oxidizing metal surface. *Nanotechnology* (IOP) 26: 495701.
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- 116. N.K. Nisar et al. (Belle Collaboration). 2016. Search for the rare decay $D^0 \rightarrow \gamma \gamma$ at Belle. *Physical Review D* 93(5): 051102. doi:10.1103/PhysRevD.93.051102
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- 119. Ajit Jena and B.R.K. Nanda. 2016. Unconventional magnetism and band gap formation in LiFePO₄: Consequence of polyanion induced non-planarity. *Scientific Reports* 6: 19573. doi:10.1038/srep19573
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Papers presented at national conferences

- 1. Rajneesh Yadav, Shubhayan Bhattacharya, Sudhakar R. Bongu and Prem B. Bisht. Dispersion compensation of ultrafast laser pulse by a single prism compressor. *National Laser Symposium (NLS-24)* (Cp 1.12, p. 34), RRCAT, Indore, 2–5 December 2015.
- 2. Sudhakara R. Bongu, Prem B. Bisht, Sundara Ramaprabhu and John T. Costello. Control of Pauli-blocking range in metal nanoparticle decorated graphene under second harmonic of Ti: Sapphire laser. *NLS-24* (Cp 5.7, p. 98), RRCAT, Indore, 2–5 December 2015.

3. K. Raveendrababu, P.K. Behera, B. Satyanarayana. 2016. Glass RPC and its electrode characterization. *DAE-BRNS*,IITGuwahatiand*SpringerProceedingsinPhysics*174:377–382.doi:10.1007/978-3-319-25619-1_57

Papers presented at international conferences

- 1. C. Thirmal, P. Murugavel and V. Subramanian. 2015. Synthesis and characterization of PVDF–La_{0.7}Sr_{0.3}MnO₃ nanocomposite films. *AIP Conference Proceedings* 1665: 05011.
- 2. Vishakh Hegde and Prabha Mandayam. Unextendible mutually unbiased bases. 15th Asian Quantum Information Science Conference (AQIS'15), Korea (refereed international conference).
- 3. P.P. Patnaik, A. Arunachalam and C.V. Krishnamurthy. Design and validation of slot spiral antenna for stepped frequency ground penetrating radar. *International Radar Symposium*, Krakow, 2016.
- 4. S. Shivaprasad, Anuraag S., Padma Purushothaman, Krishnan Balasubramaniam and C.V. Krishnamurthy. Elastic wave propagation in polycrystalline materials using ray tracing model. *World Conference on NDT*, Munich, Germany, 2016.
- 5. S. Shivaprasad, K. Balasubramaniam and C.V. Krishnamurthy. Voronoi based microstructure modelling for elastic wave propagation. *AIP Conference Proceedings* 1706. 2016.
- S. Shivaprasad, Sreedhar Unnikrishnakurup, Sundarajan Natarajan, Krishnan Balasubramaniam and C.V. Krishnamurthy. 3D elastic wave propagation and heat diffusion studies using polycrystalline material models. *Proceedings of NDE 2015*, Hyderabad, 25–27 November 2015.
- 7. J. Libby. CP content of D $\rightarrow \pi^+\pi^-\pi^0$. CHARM 2015, Wayne State University, Detroit, USA. e-Proc C15-05-18.6, arXiv:1509.04086 [hep-ex].
- 8. Nithyanand Rao, N. Nirmal Thyagu and Neelima Gupte. Characterizing the complexity of time series graphs: A simplicial approach. *Proceedings of the PHYSCON 2015 IPACS Conference*, Istanbul, Turkey, 19–22 August 2015. (IPACS electronic library)
- S. Mallesh and V. Srinivas. 2015. Investigation of thermal stability and magnetic properties of ZnO coated Mn_{0.6}Zn_{0.4}Fe₂O₄ nanoparticles. AIP Conference Proceedings 1665: 130039.
- Sk. Mohammad Yasin, Ritwik Saha, T.V. Chandrasekhar Rao, V. Srinivas, S. Kasiviswanathan and A.K. Nigam. 2015. Low temperature magnetic and electrical transport behavior of Co_{58.5}Ga_{41.5} alloy. AIP Conference Proceedings 1665: 110010.
- 11. Prem B. Bisht. Optics, phenomena and modelling in laser spectroscopy. *International Conference on Light Quanta: Modern Perspective & Applications*, p.15, University of Allahabad, 14–16 December 2015.
- Sudhakara R. Bongu, Prem B. Bisht, Raman C.K. Namboodri S. Akbar Ali, Thomas. J. Kelly, John. T. Costello, Anuradha Patra and S. Kasiviswanathan. Localized surface plasmon effects in ZnO sandwiched gold nanoparticles under fs pumping. IPC 2015, IEEE Photonics Society, 4–8 October 2015, Virginia, USA.
- 13. Aparna N., Nilesh J. Vasa, R. Sarathi, P.B. Bisht, J. Sundara Rajan and J.T. Costello. Analysis of copper sulfide contaminant in solid transformer insulation using vacuum ultraviolet laser induced breakdown spectroscopy. *13th International Conference on Laser Ablation (COLA 2015)*, Cairns, Australia, 31 August to 4 September 2015.
- 14. Nrisimhamurty Madugula, Roby Chacko, Pranawa C. Deshmukh and Aravind Gopalan. 2015. Photoelectron imaging of interstellar medium anions. *Journal of Physics: Conference Series* 635: 112115.

Distinguished visitors to the department

Sl. No.	Visitor	Date of Visit	Purpose of Visit
1	Prof. Sheila Rowan, Director, Institute for Gravitational Research, University of Glasgow, UK	4 November 2015	Invited seminar titled "The Search for Gravitational Waves: Ripples from the Dark Side of the Universe"
2	Dr. Tom Miller, publisher of Journal of Physics D: Applied Physics	5 November 2015	Invited seminar titled "Publishing Your Research Demystified"
3	Dr. Matthias Opel, Walther-Meissner- Institut, Bayerische Akademie der Wissenschaften, Garching, Germany	18 November 2015	Invited seminar titled "Proximity Magnetism and Spin-Hall Anomalous Hall Effect in Pt on Y3Fe5O12 (YIG)"

4.16.7. Other Activities of the Department

- In-House Symposium 2015 was conducted by the department.
- BHOUTICS 2016—The Physics Festival was organized by the department.
- The Brahmagupta Physics Colloquium was organized by the department every week.

Interdi	sciplinary group achiev	rements
SI. No.	Faculty Member	Activity
1	Manu Jaiswal	There is one jointly supervised Ph.D. student in the ID category working on the optoelectronic properties of graphene and 2D systems (collaborating department—Department of Electrical Engineering). One M.S. student is also cosupervised by the Electrical Engineering faculty.
2	S. Ramaprabhu	Work on the development of ${\rm CeO_2}$ nanotube-based lubricants is going on through an M.S. student with Prof. Kamaraj, Metallurgical and Materials Engineering Department.
3	C. Sudhakar	An ID student registered as an M.S. student is working under the co-supervision of Prof. Sundararajan, Metallurgical and Materials Engineering Department. Another Ph.D. student is working under the co-supervision of Prof. S. Sankaran, whose work focuses on using TEM as a tool to understand and improve the electrochemical characteristics of materials for Li-ion battery applications.
4	Prabha Mandayam	There is work with the photonics group in the Electrical Engineering Department on setting up an experimental demonstration of quantum key distribution, as part of a sponsored research project.
5	C.V. Krishnamurthy	(1) One M.S. (by Research) student has been taken under the ID program between the departments of Physics and Engineering Design and is working on "Development of Step-Frequency Radar for Ground Penetrating Applications".
		(2) A project under the Research Scholar Initiative has been taken up between the departments of Physics, Engineering Design and Civil Engineering. The project is titled "Electromagnetic Nondestructive Technique for Pavement Assessment".
6	Dillip K. Satapathy	The group is conducting interdisciplinary research in the area of experimental soft condensed matter physics. There is a strong collaboration with the Department of Chemical Engineering and the Department of Metallurgical and Materials Engineering.
7	V. Subramanian	Metamaterial-based EMI shielding is being developed to arrest the high-frequency signal emanating from high-voltage discharges in collaboration with Prof. Sarathi, Department of Electrical Engineering.
8	Prafulla Behera	The Physics and Electrical Engineering departments are working together in an INO experiment.
Socially	y relevant activities	
	Faculty Member	Activity
1	Jim Libby	Outreach talks at TechSaloon, IIT Madras Research Park (Higgs Boson) and the
2	C. Vijayan	Madras Club (Gravitational Waves) Socially relevant project (CSR) funded by Fidelity, Chennai, titled "Development of Science Hands-on Activities for High Schools (2015–2017)"
3	B.R.K. Nanda	Swachh Bharat: Ranjit and a group of research scholars cleaned the periphery of the Physics Department twice last year.
Interna	ntional collaboration	
SI. No.	Faculty Member	Collaborators
1	Arul Lakshminarayan	(1) MPIPKS Dresden
1	. II di Zakomimiarayan	(2) Jagiellonian University, Cracow, Poland
		(3) Technical University, Dresden
		(4) Washington State University, Pullman, USA
2	Manu Jaiswal	A joint research project is going on under the DST-A*STAR Indo-Singapore Programme. The PI in Singapore is Prof. K.P. Loh, at the National University of Singapore. The collaboration aims to develop perovskite solar cells on flexible graphene electrodes.
3	C. Sudhakar	(1) Prof. Dr. Joachim Mayer, Central Facility for Electron Microscopy (GFE), RWTH Aachen University, Germany, and Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons—Research Centre Juelich, Juelich, Germany

Sl. No.	Faculty Member	Collaborators
		(2) Prof. Hamish Fraser and Prof. David W. McComb, Professor and Ohio Research Scholar, Center for Electron Microscopy and Analysis, Department of Materials Science and Engineering, Columbus, OH,
4	Jim Libby	Collaborators on the Belle and Belle II experiment from 98 institutions in 23 countries—the principal collaborators are from KEK (Japan), KIT (Germany), Melbourne (Australia), Tokyo (Japan) and Prague (Czech Republic). Long-standing collaborations with the Universities of Oxford, Bristol and Warwick in the UK to work on charm physics
5	C. Vijayan	A student under the NUS–IIT Madras joint Ph.D. programme, Ms Radhu Subha, received her Ph.D. degree in 2015. The co-guide was Prof. Ji Wei, Department of Physics, National University of Singapore. The interaction is continuing, and there are plants to start one more student on a joint Ph.D. programme.
6	P.B. Bisht	Dr. W.S. Brocklesby, and Dr. Senthil Ganapathy, University of Southampton, UK under the European Marie Curie IRSES Project—Ultrafast Photonic Processes and Interactions (UP-PI) Programme
7	Prafulla Behera	CMS collaboration, CERN, Switzerland
8	P. Murugavel	Wilfrid Prellier, CNRS, CAEN, France
9	Sivarama Krishanan	(1) Prof. Jan Michael Rost, Max Planck Institute for the Physics of Complex Systems, Dresden
		(2) Dr. A. Heidenreich, University of the Basque Country, San Sebastian, Spain
10	Sunethra Ramanan	Dr. Michael Urban, IPN Orsay, France

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. The 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.

Periodically, SAIF conducts workshops, seminars and conferences to disseminate information on new trends in sophisticated instrumentation and methods in addition to providing training and hands-on experience. Students from educational institutions, colleges and schools visit SAIF regularly to gain exposure to the use of sophisticated instruments for analysis.

5.2. Faculty Members and Their Activities

Faculty and Staff

Name and Qualifications	Major Areas of Specialization
Professors	
S.S. Bhattacharya, Ph.D. [Head]	Nanocrystalline materials—synthesis and characterization, superplasticity—theoretical and experimental, metal forming
Adjunct Professors	
S. Subramanian, Ph.D.	Nuclear magnetic resonance spectroscopy, electron spin resonance spectroscopy
Scientific Officers	
R. Murugesan, Ph.D.	Mass spectroscopy, chromatography
Technical Staff	
C. Baby, Ph.D.	Nuclear magnetic resonance spectroscopy
K.V. Rama, Ph.D.	ICP-OES
N. Sivaramakrishnan, M.S.	Magnetometry
G.R. Kamalnab, DEE	Electronics, instrumentation
P. Thiruppathi, DEEE	Electronics, instrumentation

Short-term courses/workshops/seminars/symposia/conferences organized by faculty members

Sl. No.	Co-ordinators	Title	Period and Venue
1	R. Murugesan	Workshop on Vibrational Spectroscopy in Structure and	23-24 March 2016, SAIF
		Chemical Property Studies	

5.3. Research and Consultancy

Research publications

Papers published in refereed international journals: 4

Papers published in refereed international journals

- 1. D.K. Chand, S. Prusty, S. Krishnaswamy, S. Bandi, B. Chandrika, J. Luo, J.S. McIndoe and G.S. Hanan. 2015. Reversible mechanical interlocking of D-shaped molecular karabiners bearing coordination-bond loaded gates: Route to self-assembled [2] catenanes. *Chemistry—A European Journal* 21(43): 151740–15187. doi:10.1002/chem.201502394
- 2. R. Saravanan, R. Karthik, V. Manigandan, R.P. Rajesh and B. Chandrika. 2016. Structural characterization and in vitro biomedical activities of sulfated chitosan from *Sepia pharaonis*. *International Journal of Biological Macromolecules* 84(1): 319–328. doi:10.1016/j.ijbiomac.2015.12.030
- 3. G.Gopalakrishnan, P. Nagapandiselvi and C. Baby. 2015. Self assembled supra molecular structure of 1-methyl piperezenium 4-nitrophenolate 4-nitrophenol mono hydrate single crystal: Synthesis, growth, thermal and photophysical properties. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 147(1): 270–279. doi:10.1016/j.saa.2015.02.082
- 4. G. Gopalakrishnan, P. Nagapandiselvi and C. Baby. 2015. Synthesis, growth, structure and nonlinear optical properties of a semiorganic 2-carboxy pyridinium dihydrogen phosphate single crystal. *Optical Materials* 47(1): 398–405. doi:10.1016/j.optmat.2015.06.012

Centre for Continuing Education

6.1.1. Introduction

The Centre for Continuing Education (CCE) was established in June 1986. 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

The institute faculty effectively participate and contribute to the institute's commitment of providing a broad base of learning opportunities through the following major activities of the Centre for Continuing Education:

- Academic programmes (M.Tech. and Ph.D.) under the Quality Improvement Programme (Q.I.P.) (sponsored by the AICTE)
- Short-term courses (STCs) under the Quality Improvement Programme (sponsored by the AICTE)
- Curriculum development under the Curriculum Development Cell (CD Cell)
- Book Writing Scheme sponsored by the CD Cell, with ISBN numbers being allotted by the CCE
- Continuing Education Programmes (CEPs) for professionals from industry
- User-Oriented Programmes (UOPs) for specific industries through which their engineers acquire higher degrees (M.Tech.)
- National Programme on Technology-Enhanced Learning (NPTEL)
- Video recording of lectures
- Conference/seminar/workshop/symposium facilitation
- Online continuing education programmes for industries
- Global Initiative of Academic Networks (GIAN)

The Centre for Teaching Learning was established in 2011 under the auspices of the Centre for Continuing Education. This has now grown into a fully functional centre with its own administrative structure. This centre strives to be a centre of excellence and innovation in teaching learning processes (TLPs) and to create a new and sustainable paradigm in higher technical education, producing human resources of the highest professional and personal quality for the service of the nation.

6.1.2. Quality Improvement Programme (QIP)

The faculty development activities of the AICTE that are funded by the Ministry of Human Resources Development (MHRD) are geared to ensure quality, relevance, excellence and equity in technical education by supporting activities under the QIP scheme. Deputation to the academic programmes (M.Tech. and Ph.D.) of the institute facilitates development of the careers of faculty members of AICTE-approved technical institutions in the country.

From the inception of the programme to 2015–2016, 518 faculty members from other institutions have obtained Ph.D. degrees, and 605 faculty members have obtained M.Tech. degrees.

Period	Ph.D.				M.Tech.		
	Admitted	On Roll	Awarded	Admitted	On Roll	Awarded	
2015–2016	7	51	10	4	9	8	
Since inception	630	_	518	637	_	605	

6.1.3. Short-Term Training Programmes Under QIP (AICTE-STC)

Organisation of short-term courses for faculty members of engineering institutions is supported by the AICTE (under QIP), and these courses open up avenues in which the institute's faculty members with rich experience in

new and upcoming areas can share their expertise with others. Under this programme, 11 courses (with a total duration of 11 weeks) were conducted during 2015–2016. A total of 301 teachers of engineering institutions participated in these programmes. From 1970–1971 to 2014–2015, 365 programmes have been conducted, and 8838 teachers from various engineering colleges have participated and benefited from these courses.

Programmes held during 2015-2016 under AICTE-STC

Sl. No.	Departments	Co-ordinators	Title	Date	No. of
1	Mechanical Engineering, Engineering Design	Somashekhar S. Hiremath, T. Asokan	Mechatronics: Integrated Technologies for Intelligent Machines	27–31 September 2015	Participants 27
2	Mechanical Engineering	K. Anand, J.M. Mallikarjuna	Advanced IC Engine Technologies	31 August to 4 September 2014	32
3	Management Studies	Arshinder Kaur, R.P. Sundarraj, R.K. Amit	Supply Chain Excellence in Emerging Economies	12–16 September 2015	23
4	Ocean Engineering	Srinivasan Chandrasekaran	Dynamics Analysis and Design of Ocean Structures	21–25 September 2015	42
5	Mathematics	Neelesh S. Upadhye, Arun Kumar	Bayesian and Classical Statistics	22–26 September 2015	10
6	Applied Mechanics	S.K.M. Varadhan, V.V. Raghavendra Sai	Biomedical Diagnostics, Therapeutics and Rehabilitation	16–21 November 2015	24
7	Applied Mechanics, Mechanical Engineering	K. Arul Prakash, Shaligram Tiwari	Theoretical and Computational Fluid Dynamics	23–27 November 2015	34
8	Civil Engineering	Radhakrishna G. Pillai	Advanced Concrete Technology	29 November to 4 December 2015	25
9	Civil Engineering	J. Murali Krishnan, S.P. Atul Narayan	Rutting and Fatigue Cracking of Bituminous Pavements	1–5 January 2016	27
10	Civil Engineering	Balaji Narasimhan, K.P. Sudheer	Introduction to Soil and Water Assessment Tool Using Open Source Tool	4–9 January 2016	27
11	Electrical Engineering	Boby George, V. Jagadeesh Kumar	Sensors and Signal Conditioning	25–29 January 2016	30
	Total				301

6.1.4. Activities of the CD Cell

Support is available from the CD Cell, with funding from the AICTE, for activities such as course structuring, preparation of instructional and resource material (monographs, laboratory manuals, workshop materials, etc.) and development of computer-aided instruction packages to explore interesting avenues for innovation in design and delivery of courses (support is available under the CD Cell, funded by the AICTE). The material developed through these activities can be made available for use by the various engineering institutes in the country. During the year under review, four activities under the CD Cell, including workshops, were organised.

Sl. No.	Departments	Co-ordinators	Title of Activity	Dates	Sponsoring Agency
1	Humanities and Social Sciences, Management Studies	S.P. Dhanavel, V. Vijayalakshmi	Self-awareness and Higher Goals in Education— SAHGE 2015	2–6 June 2015	AICTE
2	Management Studies	T.J. Kamalanabhan	High Achieving Schools	15-16 May 2015	AICTE
3	Physics	M.V. Satyanarayana	Workshop on Physics Education and Research	28 December 2015 to 2 January 2016	AICTE

6.1.5. Book Writing Scheme (BWS)

The BWS is designed to encourage teachers to write textbooks and monographs. Fifty-six books have been published by the institute's faculty members under this scheme so far. The number of books published under the Golden Jubilee Book Writing Scheme is 24. During the year under review, the following books were in different stages of progress:

Sl. No.	Author	Department	Title of Book
1	Srinivasan Chandrasekaran	Ocean Engineering	Ocean Structures and Materials
2	Srinivasan Chandrasekaran	Ocean Engineering	Risk & Reliability of Offshore Structures
3	Nanian Kurian	Civil Engineering	House Building: Materials, Construction and Maintenance
4	Aysha Iqbal	Humanities and Social Sciences	Contemporary Bollywood Directors
5	A. Kannan, R. Selvaganapathy	Chemical Engineering	Laboratory Manual for Heat & Mass Transfer in Chemical Engineering
6	Janakiram	Computer Science and Engineering	Grid & Cloud Computing (Research Monograph) Part-1
7	Janakiram	Computer Science and Engineering	Grid & Cloud Computing (Research Monograph) Part-2
8	Prathap Haridoss	Materials and Metallurgical Engineering	Physics for Materials Essentials Concepts of Solid State Physics
9	M. Balasubramanian	Materials and Metallurgical Engineering	Characterization Techniques for Composite Materials
10	Rajesh Kumar	Humanities and Social Sciences	Language Identity and Contemporary Society
11	K. Srilata	Humanities and Social Sciences	The Reluctant Writer and Stories
12	K.S. Reddy	Mechanical Engineering	Sustainable Energy and Environment
13	Srinivasan Chandrasekaran	Ocean Engineering	Advanced Structural Analysis
14	Srinivasan Chandrasekaran	Ocean Engineering	Fire Resistance Design of Structures
15	Sathya Sundar Sethy	Humanities and Social Sciences	Meaning and Language
16	Parasuraman Swaminathan	Materials and Metallurgical Engineering	Electronics Materials, Devices and Fabrication
17	Raghavan	Mechanical Engineering	Combustion Technology

6.1.6. Continuing Education Programmes (CEPs)

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. CEPs are divided into two categories: Internal CEPs and External CEPs. From the date of inception (1980) to 2016, a total of 1464 STCs have been conducted, and 1,35,351 participants have benefitted from these. Eighty-five to 90 such programmes are generally organised every year. During 2015–2016, 79 STCs were conducted, and 5641 participants attended these programmes. The following STCs were conducted during 2015–2016.

Internal CEPs

Sl. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of Participants
1	Management Studies	M. Thenmozhi, P. Krishna Prasanna	Summer School on Financial Engineering and Analytics	14–18 May 2015	45
2	Management Studies	R.P. Sundarraj	Business Solutions Using R-Based Analytics	27–28 May 2015	19
3	Ocean Engineering	S. Nallayarasu	Conducting Recruitment Process	23–25 May 2015	72
4	Biotechnology	Mukesh Doble	Short-Term Certification Programme on Bioinformatics	6 April to 30 May 2015	20
5.	Computer Science and Engineering	Rupesh Naresh, Harishankar Ramachandran	Programming Applications in Python	10–26 June 2015	30
6	Electrical Engineering	Ashok Jhunjhunwala	Digital Signal Processor and Applications	8–20 June 2015	44

Sl. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of Participants
7	Engineering Design	Venkatesh	Anand Manufacturing Excellence	1–15 June 2015	30
8	Physics	T.S. Natarajan	Fundamental Electronics Assembly for Defence Applications	15–19 June 2015	30
9	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive System	29–30 June 2015	20
10	Management Studies	T.J. Kamalanabhan, M. Thenmozhi	Executive Programme in Business Administration	1 August 2014 to 31 July 2015	20
11	Mechanical Engineering	Ratna Kumar, Annabattulla	Mechanical Engineering Design Applications	28 March to 4 July 2015	30
12	Biotechnology	MukeshDoble, Sathyanarayana Gummadi	Summer Workshop on Problem Solving Skills in Bioprocess Engineering	29 June 2015 to 3 July 2016	20
13	Computer Science and Engineering	V. Kamakoti	Computer Architecture	1 March 2015 to 1 March 2016	35
14	Computer Science and Engineering	D. Janakiram	Database Design—NPTEL video course	1–31 July 2015	60
15	Metallurgical and Materials Engineering	V. Subramanya Sarma	Use of Physical Simulation in Material Research	17–18 July 2015	50
16	Mechanical Engineering	Ratna Kumar, Annabattulla	Mechanical Design	3–25 July 2015	_
17	Central Workshop	G. Balaganesan, N. Ramesh Babu	Basics of Mechanical and Electrical Engineering for Plant Maintenance	6–10 July 2015	1
18	Metallurgical and Materials Engineering	V. Subramanya Sarma	Use of Physical Simulation in Material Research	17–18 July 2015	50
19	Management Studies	M. Thenmozhi T.J. Kamalanabhan	Practice Approaches to Investing in Stock Market	8–9 August 2015	30
20	Engineering Design	Shankar Ram	Fundamentals of Automotive Systems	6–7 August 2015	20
21	Management Studies	Rupashree Baral	Management Development Programme	10–11 August 2015	20
22	Management Studies	M. Thenmozhi, Feroz Alikhan	Workshop on Intellectual Property Rights: Strategy for Growth	7–8 August 2015	20
23	Management Studies	R.P. Sundarraj	Business Solutions Using R-Based Analytics—II	19–21 August 2015	19
24	Mechanical Engineering	Ratna Kumar, Annabattula	Introduction to Probability and Statistics	13 August to 4 September 2015	20
25	Management Studies	Arshinder Kaur, R.P. Sundarraj, R.K. Amit	Supply Chain Excellence in Emerging Economies	12–16 September 2015	11
26	Ocean Engineering	Srinivasan Chandrasekaran	Dynamics Analysis and Design of Ocean Structures	21–25 September 2015	5
27	Electrical Engineering	K. Shanti Swarup	Power System Protection: A course for Schneider Electric engineers	21–24 September 2015	10
28	Central Workshop	M.S. Sivakumar	Essential Skills for Engineers	21–25 September 2015	24
29	Management Studies	V. Vijayalakshmi	Building Future Leaders programme for Caterpillar India	25–26 September 2015	44
30	Aerospace Engineering	Velmurugan, K.V.N. Gopal	Composites Analysis and Design	12–16 October 2015	25

SI. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of Participants
31	Management Studies	Rupashree Baral, T.J. Kamalanabhan	Management Development Programme	5–6 October 2015	24
32	Management Studies	Rupashree Baral, T.J. Kamalanabhan	Management Development Programme	8–9 October 2015	28
33	Management Studies	M. Thenmozhi, T.J. Kamalanabhan	Supervisory Development Programme	12–17 October 2015	25
34	Management Studies	Rupashree Baral, T.J. Kamalanabhan	Management Development Programme	16–17 October 2015	28
35	Central Workshop	G. Balaganesan, N. Ramesh Babu	Effective Maintenance of Industrial Equipment	2–6 November 2015	2
36	Applied Mechanics, Mechanical Engineering	K. Arul Prakash, Shaligram Tiwari	Theoretical and Computational Fluid Dynamics	23–27 November 2015	8
37	Biotechnology, Metallurgical and Materials Engineering	Mukesh Doble, T.S. Sampath Kumar	Biomaterials for Dental Applications	21 November 2015	25
38	Management Studies	C. Rajendran	Six Sigma Green Belt	16 October to 30 November 2015	20
39	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	17–18 November 2015	20
40	Management Studies	Nandan Sundarshanam, Rahul R. Marathe	Analytics and Big Data	17 October to 15 November 2015	10
41	Civil Engineering	Koshy Varghese, K. Ananthanarayanan	Construction Project Management	10–14 October 2015	20
42	Management Studies	R.P. Sundarraj	Business Solutions Using R-Based Analytics	5–6 November 2015	20
43	Engineering Design	Venkatesh Balasubramaniam	Anand Manufacturing Excellence	1 June to 15 December 2015	-
44	Institute Hospital	Mahalakshmi M. Ravi	BRIDGE 2015	28–29 November 2015	65
45	Management Studies	Rupashree Baral, T.J. Kamalanabhan	Project DISHA—Dealer Training Programme	23–24 November 2015	20
46	Civil Engineering	Radhakrishna G. Pillai	Advanced Concrete Technology	30 November to 4 December 2015	29
47	Management Studies	Lata Dyaram, T.J. Kamalanabhan	Architect Essential Programme	27 November to 11 December 2015	20
48	Electrical Engineering	R. Pasumarthy, A. Mahindrakar	Advanced Topics in Control of Complex and Nonlinear Systems	30 November to 4 December 2015	20
49	Management Studies	L. Prakash Sai, Lata Dyaram	Conflict and Negotiation Management Skills	17–19 November 2015	30
50	Management Studies	R.P. Sundarraj	Business Solutions Using R-Based Analytics	18–19 November 2015	20
51	Civil Engineering	Balaji Narasimhan, K.P. Sudhir	Introduction to Soil and Water Assessment Tool (SWAT) Using Open Source Tools: QGIS and QSWAT	21 November 2015	17
52	Civil Engineering	S. Mathavakumar, Venuchandra	Investigation, Remediation of Soil and Ground Water Contaminated Sites	7–9 January 2016	20
53	Management Studies	Rupashree Baral, T.J. Kamalanabhan	Project DISHA—Dealer Training Programme	21–22 January 2016	25

Sl. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of Participants
54	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	4–5 February 2016	20
55	Civil Engineering	Manu Santhanam	Construction Materials and Management Course	8–12 February 2016	18
56	Computer Science and Engineering	V. Kamakoti	Computer Architecture Course Material	1 March 2015 to 31 March 2016	_
	Total				1358

External CEPs

Sl. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of. Participants
1	Engineering Design	C.S. Shankar Ram	System Dynamics and Control	March–April 2015	20
2	Metallurgical and Materials Engineering	K.C. Hari Kumar	Advanced Metallurgical Thermodynamics	January–April 2015	45
3	NPTEL	Andrew Thangaraj	IIT Madras—NPTEL Online Certification	1 February to 31 May 2016	1439
4	Electrical Engineering	Shanti Pavan	Continuous-Time Delta Sigma ADCs	22–26 June 2016	30
5	Management Studies	L.S. Ganesh	Oriented Programme in Management	4–24 June 2015	25
6	NPTEL	Andrew Thangaraj	IIT Madras—NPTEL Online Certification Exam for 27 Courses	1 April to 30 June 2015	2391
7	Chemistry	P. Selvam	Seminar-cum-Lecture Series	9–11 July 2015	20
8	Chemistry	P. Selvam	Seminar-cum-Lecture Series	16-18 July 2015	15
9	Civil Engineering	Manu Santhanam	Training Programme on Construction Technology and Management for Engineers	27–28 July 2015	20
10	Computer Science and Engineering	V. Kamakoti	DRDO Preparatory Course	29 June to 10 July 2015	20
11	Electrical Engineering	Shanthi Pavan	Continuous Time Delta Sigma ADC Design	27–31 July 2015	18
12	Civil Engineering	Manu Santhanam	Training Programme on Construction Technology and Management for Engineers	27–28 July 2015	20
13	Metallurgical and Materials Engineering	Ajay Kumar Shukla	Two-Day Workshop on Steel Making for Practicing Engineers and Scientists	10–12 August 2015	20
14	Ocean Engineering	S.K. Bhattacharya, C.P. Vendhan	Hydrodynamic Loading Due to TBL Wall Pressure	20–22 August 2015	15
15	Electrical Engineering	C.S. Ramalingam	Digital Signal Processing	1 April to 31 September 2015	20
16	Ocean Engineering	S.K. Bhattacharya, C.P. Vendhan	Flow Noise in Underwater Vehicles	1–3 September 2015	15
17	Engineering Design	C.S. Shankar Ram	Vehicle Dynamics	1–31 October 2015	20
18	CEC	Jagadeesh Kumar	Basic Test Measuring Instruments: Concepts, Calibration and Measurement Uncertainty	28–30 September 2015	15
19	Civil Engineering	Koshy Varghese, Ashwin Mahalingam, Raghavan	Training on Lean Construction	3 October 2015 to 31 January 2016	15

Sl. No.	Department	Co-ordinators	Title of the Proceedings	Duration	No. of. Participants
20	Management Studies	Praksh Sai, Lata Dyaram	Conflict and Negotiation Management Skills	27–29 January 2016	30
21	Engineering Design	Palaniappan Ramu	Engineering Optimization	29 January 2016	20
22	Engineering Design	Venkatesh Balasubramainam	Anand Manufacturing Excellence	1 July 2015 to 31 March 2016	15
23	Civil Engineering	Koshy Varghese	Mentoring and Augmenting Planning Skills—Batch 7	11 November 2015 to 31 March 2016	20
24	Civil Engineering	Koshy Varghese	Programme on Lean Construction	11 November 2015 to 31 March 2016	15
	Total				4283

6.1.7. User-Oriented Programmes (UOPs)

UOPs are designed to the requirements of industrial organisations. Two-year M.Tech. programmes are being organised to meet the specific needs of the associated industries. So far 17 programmes have been conducted or are being conducted by the departments of Civil Engineering, Ocean Engineering, Mechanical Engineering, Engineering Design and Management Studies.

Sl. No.	Department	Co-ordinators	Course Number	Title
1	Civil Engineering	K.N. Satyanarayana, Koshy Varghese, K. Ananthanarayanan	CCE/CEP/UoP/15/ KA&KV/ CE/12-13	UOP M.Tech. (Construction Technology and Management, 15th batch)
2	Civil Engineering	K.N. Satyanarayana, Koshy Varghese, K. Ananthanarayanan	CCE/CEP/UoP/16/ KA&KV/ CE/13-14	UOP M.Tech. (Construction Technology and Management, 16th batch)
3	Civil Engineering	K.N. Satyanarayana, Koshy Varghese, K. Ananthanarayanan	CCE/CEP/UoP/17/ KA&KV/ CE/14-15	UOP (Construction Technology and Management, 17th batch)
4	Civil Engineering	K.N. Satyanarayana, Koshy Varghese, K. Ananthanarayanan	CCE/CEP/UoP/19/ KA&KV&KNS/CE/15-16	UOP (Construction Technology and Management, 18th batch)
5	Ocean Engineering	S. Nallayarasu, S.K. Bhattacharya	CCE/CEP/Uop/12/OE/SN- SKB/11-12	M.Tech. (Offshore Structural Engineering)
6	Civil Engineering	R.G. Robinson	CCE/CEP/UoP/13/CE/ RGR/11-12	PG Diploma Programme (Metro Rail Technology and Management)
7	Engineering Design	Venkatesh Balasubramanian	CCE/CEP/UoP/18/ VLM/15- 16	VLM Project
8	Management Studies	Rahul Marathe	CCE/CEP/UoP/18/ VLM/15- 16	VLM Project
9	Mechanical Engineering	N. Ramesh Babu	CCE/UoP/04/ME/MSS/ NRB/06-07	UOP M.Tech. (Automotive Technology)

6.1.8. NPTEL: A Joint Initiative of the IITs and IISc, Funded by MHRD

NPTEL, implemented using information and communication technology (ICT), is India's largest technical dissemination programme in the higher-education sector. The broad objective of the NPTEL project is to facilitate Indian industry to be competitive in global markets by improving the quality and reach of engineering education. The operational objective of NPTEL is to make high-quality learning material available to students of engineering institutions across the country by exploiting the advances in ICT, improving the way students learn concepts and reducing the tedious and mechanical aspects of some of the current learning methods. To realize these objectives,

seven IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and IISc, Bengaluru have together developed Web and video-based material for science and engineering courses. IIT Madras is the co-ordinating institute of this project.

In Phase 1 of NPTEL, which was from June 2003 to June 2007, 125 Web courses and 138 video courses were created successfully.

In NPTEL Phases 2 and 3, which began in June 2009, 305 Web courses and 446 video courses have been created. The total number of courses now stands at 1014 (430 Web courses and 584 video courses) on both the NPTEL website and YouTube, covering 24 disciplines, including engineering, management, basic sciences and the humanities. Each Web course has textual content that can be used to support a 40-hour course, and a typical video course comprises about 40 video lectures of 1 hour's duration each.

Courses completed (discipline-wise-video and Web)

Discipline	No. of Courses	Web	Video
Aerospace engineering	37	16	21
Atmospheric science	4	1	3
Basic courses (semesters 1 and 2)	38	17	21
Biotechnology	30	16	14
Chemical engineering	69	34	35
Chemistry and biochemistry	36	17	19
Civil engineering	109	59	50
Computer science and engineering	92	32	60
Electrical engineering	68	25	43
Electronics and communication engineering	86	27	59
Engineering design	11	8	3
Environmental science	3	3	0
General	4	0	4
Humanities and social sciences	63	25	38
Management	40	13	27
Mathematics	63	24	39
Mechanical engineering	140	65	75
Metallurgy and material science	36	13	23
Mining engineering	2	1	1
Nanotechnology	5	3	2
Ocean engineering	23	1	22
Physics	39	16	23
Textile engineering	16	14	2
Total	1014	430	584

Number of courses (video and Web) completed by each institute

Institute	No. of Courses	Web	Video
IIT Bombay	99	46	53
IIT Delhi	76	38	38
IIT Guwahati	95	77	18
IIT Kanpur	190	78	112
IIT Kharagpur	171	48	123
IIT Madras	254	75	179
IIT Roorkee	47	29	18
IISc	82	39	43
Total	1014	430	584

NPTEL courses are used extensively by faculty members and students across the world to further their knowledge about various subjects in different disciplines. The learning material is supplemented with references and recommended reading material and contains self-assessment quizzes for students. The courses developed for NPTEL can be viewed at http://nptel.ac.in and on YouTube (as a separate channel, at http://www.youtube.com/iit).

Accessing NPTEL courses

All courses developed under NPTEL phases 1 and 2 and the list of courses (along with syllabi) are available to everyone free of cost, without any formal registration. The videos are also available on YouTube. But for ease of use and to help institutes that do not have access to the Internet or do not enjoy high bandwidths, the content is distributed through the following channels:

- Free downloads from the NPTEL website
- From the NPTEL office, Chennai, free of cost
- Video streams on demand through YouTube using any browser add-ons
- Video content in DVDs from Bodh Bridge Educational Services Private Limited, Chennai (for a fee)
- Compressed 'tar' downloads (entire courses or multiple courses)

Free and easy downloads of Web and video-based courses are available from the NPTEL website in three formats (MPEG4, FLV and 3GP) and are distributed to individuals/institutions free of cost. The media needed for copying the contents is to be provided by the individual or institution. DVDs of individual video courses are available for a fee that covers the cost of production and distribution. Institutions can use the government-subsidised VPN bandwidth available through NMEICT.

Transcripts and MP3 versions of video lectures

Edited transcripts (in the form of PDF files), audio extracts of video lectures (in the MP3 format) and subtitled text (in the form of srt files) are all hosted at the ICT home page, the URL of which is http://textofvideo.nptel.iitm.ac.in. These may be downloaded by users free of charge.

All NPTEL video lectures are transcribed and edited so that students can access the content in a video lecture as textual material. The process of verifying the text transcripts is going on. 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 with the corresponding video lecture. This file, coupled with the text transcript, serves as a good educational resource. So far, more than 16,200 lectures have been transcribed through a manual transcription process, and more than 11,500 videos are available with subtitles in English. The availability of complete text material for technology courses will enable the lectures to be subtitled in Hindi and other regional languages. This will help non-native English speakers and students in rural colleges throughout India learn the concept through a partial or complete translation of the spoken content in their first language. It is proposed to take up subtitling in regional languages in the future.

Statistics of NPTEL usage

The Web-based NPTEL content is registered with Google Analytics, and the statistics provided by Google are being used to study the effectiveness of this programme. The data that have been collected to date show that the number of visitors to NPTEL has steadily increased over the years and that the NPTEL content is being used extensively by students, faculty members and working professionals.

NPTEL videos are also hosted on YouTube at http://youtube.com/iit. Statistics gathered from YouTube show that NPTEL is the educational channel most subscribed to (in YouTube) and that the number of upload views of the channel has crossed 177 million. The NPTEL site has had more than 305 million visits since its inception, in 2006.

NPTEL online courses

Online learning has been going through a major revitalisation in the last few years, with major worldwide players such as Coursera (www.coursera.org) and edX (www.edx.org) offering free education for anyone who is interested. These courses have been named Massive Open Online Courses (MOOCs) and are quite popular today. NPTEL has recently embarked on a project of offering online courses through its new portal (https://onlinecourses.nptel.ac.in/). The portal is powered by Google India. This new effort has been termed NPTEL Online Certification, or NOC in short.

MOOCs are essentially an asynchronous platform and a process for teaching using pre-recorded lectures, resource video materials, lecture notes, assignments and quizzes, which are usually online and provide self-assessment at regular intervals during learning. The learning happens in a fixed time duration, and, therefore, the simultaneous participation of teachers and a large number of students may be termed synchronous. This learning is thus similar to that which takes place in a classroom although it is enabled by the Internet and the size of the class is much larger. The extended classrooms on the Internet facilitate the development of new methodologies and are well suited to the

current mobile—Twitter—Facebook—YouTube generation of students. When offered through supplementary DVDs and mobile-delivered content, considering students in non-urban and rural areas, they enable quality and equitable access to a much larger population of students and can lead to a significant rise in the Gross Enrolment Ratio.

NPTEL online certification

The objective of 'enabling students obtain certificates for courses' is to make students employable in industry or pursue a suitable higher education programme. Four-week, 8-week and 14-week online courses, typically on topics relevant to students (typically in their final years of higher education), basic core courses in sciences and humanities and relevant exposure to tools and technologies are being offered through an online portal. Enrolment in these courses and the learning process involve no cost. At the end of each online course, an in-person, proctored certification exam is conducted, and a certificate is provided through participating institutions and industry, when applicable. Till date about 157 courses have been offered under NPTEL online certification.

Methodology

The following are the features of a typical online course:

- 1. Clear assumptions about prerequisites
- 2. Clear learning outcomes
- 3. Duration of 4 weeks (10 hrs), 8–12 weeks (20 hours) or a full semester (40 hours)
- 4. Two to four hours of lectures every week
 - The lectures are broken up into short modules.
 - Each module has a clear description of its contents and expected learning outcomes.
- 5. Objective/subjective/programming assessments every week as decided by the faculty member
- 6. A discussion forum where students can raise questions and get their doubts answered
- 7. An announcements section in which announcements are posted
- 8. A progress page where a student can view his or her scores and an analytics page for the course instructor that provides an overview of a student's performance and interest in the course

The content of online courses will be peer reviewed to assess if it meets all the requirements.

Certification process

NPTEL began the initiative of offering certification for courses in March 2014. The process of certification is as follows:

- 1. Subject Matter Experts (SMEs, faculty members of IITs or partner institutes, with input from industry) create new content in the MOOCs format or use course content that has already been created for NPTEL and offer the entire course for certification or slice up the content and use parts of it to make a 20-hour course.
- 2. The course is uploaded on the portal and opened for enrolment, which is free.
- 3. Every week, about 2–3 hours of video content is released, along with an assignment based on this, which is evaluated and provides the student with a score.
- 4. Teaching Assistants (TAs) and faculty members support the discussion forum, answering questions and clearing doubts.
- 5. Registration for the online proctored certification exam is opened (which is optional), in collaboration with an exam partner, and nominal fees of ₹1000 and ₹1250 are charged for non-programming and programming courses, respectively.
- 6. The certification exam is conducted on two consecutive Sundays after the course has been run, giving the student flexibility in terms of the date of the exam.
- 7. Certificates (hard copies, e-verifiable on a website) are issued. The scores on the certificates are combinations of scores for assignments and final scores. These certificates are issued by the CCEs of IITs (in partnership with industry bodies, if applicable).
- 8. Now certificates are being used by select universities for transfers, for making the student more employable or for enhancing her or his growth in the current place of work.

Certification completed

Course Run	Number of Courses	Enrolled	Registered	Certified	
July 2014	1	53,807	1380	1182	
December 2014	2	58,947	1653	1549	
March 2015	12	78,924	2262	1856	

Course Run	Number of Courses	Enrolled	Registered	Certified
May 2015	15	31,684	1659	853
July 2015	27	23,195	2400	1827
September 2015	18	1,22,782	5569	4625
November 2016	18	38,037	1722	1379
March 2016	29	1,50,766	13,080	11,730
April 2016	35	90,925	4266	3551
Grand Total	157	6,49,067	33,808	13,271

Courses based on the MOOCs model being offered currently

The proctored exam provides a good model for creation of new course content and exploiting existing content. Finally, the proctored exam provides a viable means of delivering authentic certification after online education. The courses listed here are now in progress and the exam dates for the same are on 24 and 30 April 2016.

Discipline	Course	Duration (hours)
Ocean engineering	HSE for Offshore and Petroleum Engineers—Practices	40
Ocean engineering	Risk and Reliability of Offshore Structures	40
Computer science	Discrete Mathematics	40
Computer science	Introduction to Machine Learning	40
Computer science and engineering	Artificial Intelligence: Knowledge Representation and Reasoning	40
Chemical/mechanical/civil/aerospace engineering	Computational Fluid Dynamics	40
Mechanical engineering	Fundamentals of Gas Dynamics	40
Aerospace engineering	Stability and Control of Aircraft	40
Electrical engineering	Electromagnetic Theory	40
Civil engineering	Geology and Soil Mechanics	40
Materials science	Phase Diagrams in Materials Science and Engineering	40
Mechanical engineering	Conduction and Convection Heat Transfer	40
Mathematics	Probability and Statistics	40
Mathematics	Industrial Automation and Control	40
Electrical engineering	Probability Methods in Civil Engineering	40
Civil engineering	Applied Multivariate Statistical Modeling	40
Management	Vibration of Structures	40
Mechanical engineering	Biochemistry	40
Mechanical/civil/aerospace engineering/ naval architecture/engineering design	Experimental Stress Analysis—An Overview	10
Biological engineering/biotechnology/biochemical engineering, etc.	Bioreactors	10
All branches of engineering/medicine/social sciences	Introduction to Statistical Hypothesis Testing	10
Biotechnology	Mass Spectrometry-Based Proteomics	10
Biotechnology	Proteins and Gel-Based Proteomics	10
Biotechnology	Advanced Digital Signal Processing—Multirate and Wavelets	10
Psychiatry	Psychiatry—An Overview	10
Analysis: mathematics and statistics	Differential Calculus in Several Variables	10
Life science/biology/biotechnology/medical sciences	Human Molecular Genetics	10
Electrical, electronics and communications engineering	Error Control Coding: An Introduction to Linear Block Code	10

Discipline	Course	Duration (hours)
Electrical, electronics and communications engineering	Error Control Coding: An Introduction to Convolutional Codes	10
Electronics and communication engineering	Basic Tools of Microwave Engineering	10
Mathematics	Partial Differential Equations (PDEs) for Engineers: Solution by Separation of Variables	10
Chemical engineering	Introduction to Process Modeling in Membrane Separation Process	10
HSE	Technology Transfer Through Joint Venture	10
HSE	Legal Compliance for Incorporating Startup	10
Electronics and communication engineering	Design and Simulation of DC–DC Converters Using Open Source Tools	10

Role of CCE of IIT in NOC

Each online course will be conducted administratively under the CCE of the IIT whose faculty member is offering the course for certification. All financial transactions and contracts will be done through the CCE. The final course completion certificate and scorecard from the proctored exam will be issued by the Chairman of the CCE and NPTEL jointly.

Online courses for companies

As a pilot project, NPTEL is partnering with a company called Aricent to offer the Programming, Data Structures and Algorithms course for fourth-year college students whom Aricent has recruited from campuses. This course is like a post-placement training programme that will reduce the time required to bring the students up to speed once they join Aricent.

Use of NPTEL video and Web material as GATE preparation aids

NPTEL has taken up the task of mapping every question in the GATE question papers (2011–2013) to NPTEL reference material, readily available within existing NPTEL courses.

Question papers in five disciplines have been mapped so far with the help of postgraduate student volunteers, and the answers have been further validated by faculty members specialising in the area. Both the students and the faculty members have been paid honoraria.

NPTEL study centres

NPTEL has been actively organising local chapters in colleges. These local chapters will provide a platform for continuous engagement with the colleges involved and serve as direct points of contact that will act as champions of NPTEL in these colleges. These chapters are a recent initiative of NPTEL but have received a tremendous response. Today there are 406 colleges across India that have NPTEL local chapters.

State	No. of Colleges
Andaman and Nicobar	2
Andhra Pradesh	37
Assam	2
Bihar	3
Chhattisgarh	11
Goa	1
Gujarat	13
Haryana	8
Himachal Pradesh	2
Jharkhand	1
Karnataka	20
Kerala	20
Madhya Pradesh	13

State	No. of Colleges
Maharashtra	54
Orissa	6
Pondicherry	3
Punjab	6
Rajasthan	9
Tamil Nadu	103
Telangana	8
Uttar Pradesh	64
Uttarakhand	8
West Bengal	14

The local chapters have helped spread awareness about NPTEL, gauge the needs of colleges in the academic environment, fill the gaps and identify how more students across colleges can benefit from the certification courses. It is through the local chapters that NPTEL is able to interact with colleges and award scholarships to deserving candidates with a reduced exam fee.

Feedback about NPTEL

Feedback from many students, teachers and other users is being collected regularly. Several feedback forms have been designed for this purpose, with varying degrees of detail.

Recording special and topical lectures in different areas

NPTEL has officially approved and recorded lectures on various special topics—History of Mathematics in India Since First Century A.D., Ayurvedic Medicine, Temple Arts and Paleontology, to name a few. These lectures will be supplemented by many more, which will be electives and master's-level courses.

Workshops

Workshops are routinely conducted for students and faculty members of other institutes to create awareness about NPTEL. Three types of workshops are conducted by NPTEL:

- NPTEL awareness workshops for students
- NPTEL awareness workshops for faculty members
- NPTEL course-specific workshops for faculty members
- NPTEL MOOCs workshop for faculty members

The participants at these workshops are from various institutes, and so the information reaches a large number of colleges. Typically, these issues are addressed: What is NPTEL? How is the content procured? How can the content be used by students and faculty members? What are the special features of NPTEL? Suggestions are invited from the participants for improvements to enhance the learning experience.

More than 148 workshops have been conducted by NPTEL:

Venue	No. of Workshops
IIT Madras	121
IIT Bombay	2
IIT Delhi	6
IIT Guwahati	3
IIT Kanpur	10
IIT Kharagpur	5
IIT Roorkee	1

NPTEL workshops also help create awareness about the NPTEL local chapters and facilitate the participation of more colleges.

Previously, NPTEL had conducted about 600 workshops in different parts of India with the help of a private partner (Classle Inc.). The workshops were held with the idea of improving awareness among students and helping students make better career choices.

Teachers were informed how to adapt the content for their classes. More than 1,00,000 teachers and students attended these workshops.

During the last year, several MOOCs workshops were conducted across the country to familiarize faculty members with the MOOCs format. Details of the workshops are provided here:

Sl. No.	Location	Date
1	IIT Kanpur	11 May 2015
2	IIT Kharagpur	13 May 2015
3	IMSc, Chennai	June 2015
4	CMI, Chennai	June 2015
5	IIT Bombay	July 2015
6	IIT Bhubaneshwar	11December 2015
7	IISc, Bengaluru	16 December 2015
8	IIT Delhi	15 December 2015
9	IIT Hyderabad	5 February 2016
10	IIIT Hyderabad	5 February 2016
11	IIT Guwahati	16 March 2016
12	UGC-CEC Delhi	9-10 March 2016
13	IIT Delhi	29 March 2016
14	Delhi University	30 March 2016

NPTEL portals for various workflows

The following portals have been created:

- http://nptel.ac.in—This portal was given a better design, and the NPTEL office continues to add new features to this website.
- http://nptel.ac.in/noc—For NPTEL online courses
- http://nptel.ac.in/LocalChapter—For NPTEL local chapters with login for Small Private Online Courses (SPOCs) and mentors of NPTEL local chapters

NPTEL has new Facebook and Twitter accounts as well:

- https://www.facebook.com/pages/Nptel-India/1413735098927291
- https://twitter.com/nptelindia

6.1.9. Educational Technology Cell

CCE TV studios

The Educational Technology Cell, which started in a small way in 1989, has grown by leaps and bounds and has been the incubator for many later projects such as NPTEL, NPTEL on-line courses, NKN, GIAN and, recently, M.Tech. Online Courses for Industries.

The following facilities are available:

- Studio-1—A fully equipped state-of-the-art television studio, equipped with remote controlled broadcast quality video cameras, control room equipment, video conferencing system and other related equipment in a 120-seat theatre
- Studio-2—A fully equipped state-of-the-art television studio, equipped with remote controlled broadcast quality video cameras, control room and other related equipment, in a 60-seat seminar hall
- Conference room 40 seater, likely to be converted to a television studio/video conferencing studio
- MSB-359—A video conferencing studio in a 54-seat seminar hall
- MSB-360—A video conferencing studio in a 54-seat seminar hall
- Alpha Mini Video conferencing theatre for M.Tech. online courses
- Beta Mini Video conferencing theatre for M.Tech. online courses
- Gamma Mini Video conferencing theatre for M.Tech. online courses
- Outdoor Video Coverage Unit—For outdoor video coverage in other halls and labs in the IIT campus

6.1.10. Central Photographic Section

The Central Photographic Section caters to the photographic needs of departments and centres of the institute. The jobs include photographic coverage of most of the important functions such as convocations, farewell functions and Independence Day and Republic Day celebrations held at the institute. The section also renders assistance with technical photography, etc. to the students, research scholars and faculty members of all the departments and centres. Recently the section was modernised, and it meets all the digital high-resolution photography needs of the institute. The Central Photographic Section has contributed a large percentage of its photographs to the Heritage Centre.

6.1.11. Conference registration for 2015-2016

IIT Madras has instructed faculty members (*vide* circular No. F.R.150/3/2011 dated 31 March 2011) to register all national and international conferences, workshops, seminars, symposiums, etc. organised by them with CCE. The following programmes were registered with CCE in 2014–2015.

Sl. No.	Department	Co-ordinators	Conference	Duration	No. of. Participants
1	Civil Engineering	B.S. Murthy	Workshop on Peri-urban Dynamics and Sustainability	21 April 2015	100
2	Applied Mechanics	M. Ramasubba Reddy	Biomedical Signals, Systems and Images	7–9 December 2015	100
3	Mechanical Engineering	Krishnan Balasubramaniam	Infrared Thermography: Basics, Applications and Recent Advances	11 July 2015	75
4	Mechanical Engineering	Krishnan Balasubramaniam	CNDE Workshop	Series of workshops—5 years	_
5	Biotechnology	Michael Gromiha	Third IIT Madras–Tokyo Joint Symposium on Algorithms and Applications of Bioinformatics	5–6 November 2015	120
6	Computer Science and Engineering	V. Kamakoti	ACCS-ADCOM 2015	18–20 September 2015	50
7	Biotechnology	Guhan Jayaraman	Bio Processing India 2015	17–19 December 2015	20
8	Biotechnology	Guhan Jayaraman	Downstream Processing of Recombinant Proteins and Other Biomolecules	20–22 August 2015	20
9	Aerospace Engineering	S.R. Chakravarthy	International Combustion Institute Winter School (ICIWS India 2015)	12 December 2015	200
10	Civil Engineering	Sachin S. Gunthe	Winter School on Aerosol Measurement and Monitoring Techniques	7–12 December 2015	2500
11	Ocean Engineering	V. Sundar	Numerical Modeling of Free Surface Flows in Coastal and Hydraulic Engineering	11 September 2015	30
12	Biotechnology	D. Karunagaran, Nithish R. Mahapatra	International Conference on Cardiovascular Translational Research and 13th Annual Conference of the International Society for Heart Research (India Section)	22–24 January 2016	200
13	Electrical Engineering	Krishna Vasudevan	Indo-German Conference on Sustainability	5–6 December 2015	200
14	Electrical Engineering	Soumya Dutta, Vinay Kulkarni	Short-Term Course on NEMS and Nanophotonics	25–26 September 2015	40
15	Electrical Engineering	R. Sarathi	First National Power Engineering Research Scholars Meet	29–30 December 2015	150

Sl. No.	Department	Co-ordinators	Conference	Duration	No. of. Participants
16	Electrical Engineering	R. Sarathi	14th Indo-European Winter Academy	2–8 December 2015	125
17	Ocean Engineering	R. Sundaravadivelu, K. Murali	Ocean Environment, Policy and Coastal Zone Management	21–25 September 2015	30
18	Mathematics	K.C. Sivakumar	International Conference Game Theory and Optimization	6–10 June 2016	65
19	Civil Engineering	S.M. Shiva Nagendra	First International Conference on Air Quality Management — IICAQM 2016	17–18 February 2016	130
20	Humanities and Social Sciences	Milind Brahme	International Conference on Multi Grade Multi Level Pedagogy	17–19 February 2016	150
21	Chemistry	Muraleedharan K.M., Indrapal Singh	Anti-diabetic Drug Discovery and Development	29–30 February 2016	202
22	Computer Science and Engineering	B. Ravindran	Indo-German Spring School on Big Data	22–26 February 2016	65
23	Electrical Engineering	Enakshi Bhattacharya	WS on Sensors for Agriculture	20–21 November 2015	30
24	Humanities and Social Sciences	Mathangi Krishnamurthy	DOHSS Academic Conference	21–24 January 2016	50
25	Physics	Soumya Dutta	Short-Term Course on NEMS and Nanophotonics 2016	28 March to 1 April 2016	20
26	Metallurgical and Material Sciences	B.S. Murthy	International Symposium for Research Scholars on Metallurgy Materials Science and Engineering (ISRS-2016)	21–23 December 2016	250
27	Physics	C. Vijay	Bhoutics: The Physics Festival	4-6 March 2016	50
28	Management Studies	T.J. Kamalanabhan	Excellence in School Education: Teachers Transforming Children	6–8 May 2016	160
29	Humanities and Social Sciences	D. Malathy	Globalization of Technology and Development	16–18 December 2016	65
30	Ocean Engineering	Anantha Subramanian	Computational and Experimental Marine Hydrodynamics (MARHY 2016)	24–25 November 2016	100
31	Ocean Engineering	Anantha Subramanian	Petroleum Science and Technology 2016 (ICPST2016)	18–19 December 2016	150
32	Civil Engineering	Indumathi M. Nambi	Antibiotics and Antimicrobials in Water Systems: Prevalence and Impacts	7 March 2016	50
33	Library	Mahendra N. Jadhav	Regional (South-I) Workshop on Institutional Digital Repository for National Digital Library (NDL)	25 March 2016	60
34	Mathematics	A.V. Jayanthan	Mathematics Training and Talent Search Programme 2016	23 May to 18 June 2016	120
35	Management Studies	M. Thenmozhi	Financial Markets and Corporate Finance	12–13 August 2016	170

6.1.12. Global Initiative of Academic Networks (GIAN)

Under the Global Initiative of Academic Networks (GIAN) Programme, launched by the Ministry of Human Resource Development, Government of India, international faculty members of repute may be invited to offer courses on advanced research topics at institutes in India. At IIT Madras, the response to the four rounds of calls for proposals for GIAN courses has been overwhelming. The details of the number of proposals processed in the four rounds are as follows:

Round	Month	No. of Proposals Received	No. of Proposals Shortlisted
1	August 2015	27	25
2	October 2015	40	39
3	January 2016	53	47
4	February 2016	16	16
Total		136	127

Status of proposals for GIAN courses from IIT Madras as on 31 March 2016

Proposals submitted: 127 Proposals approved: 57 Proposals rejected: 6 Proposals under review: 64

GIAN courses conducted at IIT Madras up to 31 March 2016: 13

Details of the courses conducted up to 31 March 2016 are given in the table below:

Sl. No.	Department	Co-ordinators	Title of Conference	Dates	No. of. Participants
1	Applied Mechanics	S. Vengadesan	Modeling Engineering Turbulent Flows	19–25 December 2015	19
2	Applied Mechanics	S. Vengadesan	Insect and Bird Aerodynamics: Theory And Methods	24–30 December 2015	21
3	Electrical Engineering	Shanthi Pavan	Millimeter Wave ICS: 60 GHz and Beyond	1–17 January 2016	45
4	Electrical Engineering	Shanthi Pavan	Millimeter Wave ICS: 60 GHz and Beyond	25–29 December 2015	48
5	Electrical Engineering	Boby George, Jagadeesh Kumar V.	Advanced Topics in Instrumentation	1–12 February 2016	20
6	Electrical Engineering	Deepa Venkitesh, David Koilpillai	Coherent Optical Communication	4–15 January 2016	25
7	Ocean Engineering	S.A. Sannasiraj, V. Sunder	Introduction to Marine Renewable Energy	15–20 February 2016	4
8	Biotechnology	Ram S. Varma	3-Dimensional Cell-Based Repair and Therapeutic Approach For Tissue Regeneration	24 January to 5 February 2016	4
9	Chemical Engineering	Arun Menon	Seismic Analysis And Design of Masonry Structures	8–20 February 2016	18
10	Aerospace Engineering	Amit Kumar	Fire Dynamics and Fire Production	6–12 February 2016	27
11	Ocean Engineering	S.A. Sannasiraj	Extreme Waves in Ocean Engineering	21 March to 1 April 2016	15
12	Civil Engineering	B. Nageswara Rao	Computation for Historical Masonry	21 March to 1 April 2016	5
13	Metallurgical and Materials Engineering	Bhattacharya	Tailored And Tunable Properties of Nano Metals	13–17 March 2016	23
14	Applied Mechanics	S. Vengadesan	Turbulence Models for Engineering Applications	17–23 May 2016	_
15	Civil Engineering	Ashwin Mahalingam	Megaproject and Leadership and Governance: New Infrastructure of Departments	1–3 April 2016	_

Centre for Industrial Consultancy and Sponsored Research

6.2.1. Introduction

The Centre for Industrial Consultancy & Sponsored Research was set up in 1973 to foster and promote sponsored research activities as well as relationships with industries. It facilitates active participation of faculty members in various interactive programmes organized for the benefit of industries and the institute. The centre also plays a pro-active role in managing the intellectual property generated by the institute and commercialization of this intellectual property. In addition, the centre provides administrative support for carrying out consultancy and sponsored research projects, particularly recruitment of project staff, maintenance of accounts and purchase of equipment and materials.

The following are some of the major activities that the centre is involved with:

- Sponsored research programmes
- Consultancy projects: research based/retainer/institutional
- Collaborative projects with organizations and industries in foreign countries
- Industrial Associateship Scheme
- ISRO-IIT Madras Space Technology Cell joint projects
- IGCAR–IIT Madras Cell joint projects
- NIOT–IIT Madras Ocean Technology Cell
- Patenting and technology transfers
- Faculty and student entrepreneurship and incubation
- · Positive messaging and outreach programme

Dean: Krishnan Balasubramanian

Staff

R. Sundaram Chief Techno-economic Officer
V. Suresh Senior Techno-economic Officer

B. Nagarajan Deputy Registrar

V. Rajendran Assistant Registrar—up to May 2015 P. Sarvaharana Assistant Registrar—from May 2015

6.2.2. Sponsored Research

A total of 110 projects with a value of ₹20,071 lakhs were taken up by the institute during 2015–2016:

Sl. No.	Agency	No. of Projects	Value (lakhs of ₹)
1	Aeronautics Research & Development Board	3	614
2	AFOSR International Grant	1	47
3	Armament Research Board	2	79
4	Board of Research in Nuclear Sciences	6	178
5	Centre for Social Sciences and Humanities	1	3
6	Council of Scientific and Industrial Research	6	78
7	Defence Research and Development Organisation	1	95
8	Department of Biotechnology	7	295
9	Department of Electronics & Information Technology	3	1112
10	Department of Heavy Industry	1	5613

Sl. No.	Agency	No. of Projects	Value (lakhs of ₹)
11	Department of Science & Technology	53	2115
12	Gas Turbine Research Establishment	1	37
13	Global Innovation Initiative	1	22
14	Indian Council for Medical Research	2	29
15	Indian Institute of Tropical Meteorology	1	52
16	Indian National Academy of Engineering	1	7
17	Indian Space Research Organisation	5	145
18	Indo German Science & Technology Centre	1	3
19	Ministry of Earth Sciences, New Delhi	2	111
20	Ministry of Human Resource and Development	2	10
21	Ministry of Power	1	8035
22	Ministry of Steel	1	40
23	National Institute of Ocean Technology	2	66
24	Naval Research Board	1	33
25	Office of the Principal Scientific Adviser	1	351
26	University Grants Commission	1	90
27	Wellcome Trust, UK	3	811
	Grand total	110	20,071

This includes international collaborative and industry sponsored projects. About 126 faculty members served as coordinators for projects sanctioned in 2015–2016. The value of the ongoing sponsored projects during 2015–2016 is ₹72,007 lakhs. About 342 faculty members were actively involved in these ongoing sponsored research projects.

6.2.3. Consultancy Programmes

A total of 501 consultancy assignments amounting to ₹7115 lakhs were taken up during 2015–2016:

Sl. No.	Type of Consultancy	Number of Jobs	Value (lakhs of ₹)
1	Institutional consultancy	375	3814
2	Research-based industrial consultancy	96	2233
3	Retainer consultancy	17	84
4	Testing (ET & IT)	10	50
	Additional value	_	860
	Total	498	7041

A total of 178 faculty members were actively involved in consultancy projects. The total value of the ongoing consultancy projects of 2014–2015 is ₹12,576 lakhs.

Corporate social responsibility: The corporate social responsibility (CSR) activities defined in Schedule VII of the Companies Act 2013 has many areas in which IIT Madras can be actively involved with industries. This new scheme was approved in November 2015, and three projects with a value of ₹74.48 lakhs were assigned to it.

6.2.4. New Faculty Scheme

The institute provides funds for new faculty members to initiate research in their area of specialization at IIT Madras. This funding will also help them get sponsored research grants to continue and establish their research activities at IIT Madras. This scheme is operated as a project under the Centre for IC&SR. Proposals for projects up to \$5.00 lakhs will be recommended by the Dean, IC&SR to the Director for approval. In the case of proposals where there is experimental activity requiring special equipment, institute support of up to \$20.00 lakhs is possible.

During the year, 16 proposals were approved for funding under the New Faculty Scheme for a total sum of ₹366 lakhs.

6.2.5. Industrial Associateship Scheme

A total of 142 industries (large scale, 25; medium scale, 83; small scale, 34) were members of this scheme in 2015.

6.2.6. Technology Appreciation Programme

SI. No.	Title of the Programme	Co-ordinator
1	Basics of Surface Engineering with an Introduction to Kelvin Probe	A. Subrahmanyam, Department of Physics
2	Intellectual Property Rights Strategy for Growth	M. Thenmozhi, Department of Management Studies
3	Infrared Thermography Applications & Recent Advances	Krishnan Balasubramanian, Department of Mechanical Engineering

6.2.7. Other Programmes

(a) ISRO-IIT Madras Space Technology Cell joint projects

This is an ongoing activity sponsored by ISRO in which projects of interest to ISRO are being taken up at IIT Madras. Twenty ongoing projects with a total value of ₹550 lakhs were continued, and five new projects with a value of ₹145 lakhs were taken up during the year 2015–2016.

(b) IGCAR-IIT Madras Cell

Two new projects with a total value of ₹29 lakhs were initiated during this period.

(c) NIOT-IIT Madras Cell

The NIOT-IIT Madras Cell was set up in IIT Madras to initiate further NIOT-sponsored research activities at IIT Madras during 2010–2011. Three ongoing projects, with a total value of ₹130 lakhs were continued during 2015–2016, and four new projects, with a value of ₹87 lakhs, were sanctioned for the year 2015–2016.

HAL-IIT Madras Centre for Aerospace Transmission Systems (CATS)

The HAL-IIT Madras Centre for Aerospace Transmission Systems (CATS) has been set up in IIT Madras. HAL is interested in supporting research and development projects in the area of aerospace transmission systems through CATS.

Technologies for Social Development

IIT Madras has initiated activities for transfer of technologies that are of immediate relevance to society. For this purpose, the following three projects have been taken up.

- (1) Socially relevant projects
- (2) Rural Technology Action Group (funded by Planning Commission)
- (3) Centre for Social Innovation & Entrepreneurship (CSIE)

Details of the activities of these projects are provided in Annexure 1.

6.2.8. Distinguished Visitors to the Centre

Delegations from the following organizations visited IIT Madras for discussions regarding possible collaborative research work.

- GE India Technology Centre
- Honda Cars India
- GAIL
- Totetsu Manufacturing Company Limited
- CFESS, DRDO
- ABB
- BOSCH
- Caterpillar
- Vallourec
- ABB India Limited
- TATA Advanced Systems
- Alfa Tkg Company Limited and Jinpao Precision Industry, Thailand
- Eicher Trucks and Buses, VE Commercial Vehicles Limited
- CTOs of TATA group

- Exxon Mobil
- TATA
- Fidelity India Limited
- GE Dubai

MoUs/agreements signed

Seventy-three new MoUs/agreements were signed by IIT Madras with the following organizations/institutions during 2015–2016:

- GE India Exports Private Limited
- Purius Nanosystems Private Limited
- Renault Nissan Technology and Business Centre India Private Limited
- Cancer Research and Relief Trust (CRRT)
- National Centre for Biological Sciences
- Swadha Energies Private Limited
- Cygni Energy Private Limited
- Rensol Power Private Limited
- Centre for Cellular and Molecular Platforms (C-CAMP)
- FIB-SOL Life Technologies Private Limited
- Fluidyn Consultancy Private Limited
- Dell International Services India Private Limited
- Sterlite Technologies Limited
- NanoHoldings LLC
- · Harita Seating Systems Limited
- Somaya & Kalappa Consultants Private Limited
- Vortex Engineering Private Limited
- Hitachi India Private Limited and Hitachi Limited
- Bharat Electronics Limited
- TCS Consultancy Services Limited
- Indian Oil Corporation Limited
- National Research Development Corporation

- Blue Star Limited
- Saint-Gobain Research India Private Limited
- Shell Research Limited
- Toshiba Corporation Social Infrastructure Systems Company
- Ministry of Railways
- SRC Laboratories Private Limited
- AB Sandvik Materials Technology
- Tata Power Company Limited
- Siemens Technology Services Private Limited
- Bharat Heavy Electricals Limited
- Reliance Industries Limited
- GE India Technology Centre Private Limited
- Chennai Metro Private Limited
- Aditya Birla Science and Technology Private Limited
- Centre for Development of Advanced Computing (C-DAC)
- Saint-Gobain Research India Limited
- Oil & Natural Gas Corporation Limited (ONGC)
- Semiconductor Laboratory
- Thermax Limited (TL)
- ABB India Limited
- Aditya Birla Science and Technology
- Biotech Consortium India Limited

Details of patent applications filed and granted are given in Annexure 2.

6.2.9 Technology Transfer/Royalty

Sl. No.	TT Earnings for the Year 2015–2016	Receipt Amount (lakhs of ₹)	
1	Unipore Software Systems Private Limited	1,44,604	
2	CDAC	1,26,250	
3	Eureka Forbes Limited	13,38,120	
4	Blueprint IT	30,91,500	
5	Harita Seating Systems Limited	39,90,000	
6	Benchmark Electronic Systems Private Limited	2,91,779	
7	Steadfast Medishield Private	1,03,050	
8	Nano Holdings LLC	85,39,274	
9	Pfizer Inc New York	6,37,250	
10	Others	86,587	
	Total	1,83,48,414	

6.2.10. Publications

• IC&SR also brought out the IIT Madras Calendar, IIT Madras New Year Greeting Card, and the IIT Madras Diary for 2016.

6.2.11. Research Fund

An amount of ₹50 crores has been earmarked for the Research Fund from the IC&SR overheads. The interest on the fund (approximately ₹5–6 crores) is proposed to be used for various research-related expenses. The broad allocation for expenses for this financial year (2015–2016) is as follows:

1. **R&D Award:** 50% from the Institute Fund and 50% from the Research Fund. Approximate budget–₹100 lakhs

Six wwards for a total value of ₹160 lakhs.

- 2. Research Scholar Innovation Projects: Up to $\stackrel{>}{\scriptstyle \sim} 25$ lakhs from the Research Fund.
 - 12 projects for a total value of ₹52 lakhs.
- 3. Exploratory Research Projects: To support projects from any faculty member who has a "breakthrough" idea and wishes to initiate work without waiting for the proposal to be sanctioned by the funding agency. Maximum of ₹10 lakhs with a duration of 12 months. Approximately ₹100 lakhs.

No new projects were initiated during this period.

- 4. New Faculty Initiation Grant: Add-on grant up to a maximum of ₹5 lakhs. National and international travel will be permitted. The total outlay is estimated to be around ₹100 lakhs.

 17 projects for a total value of ₹85 lakhs.
- 5. One team project of significance which as demonstrated proof of concept will be eligible for funding for a period of 2 years with an initial maximum budget of ₹200 lakhs. The project will be selected through peer review members.

Project title – Development of microfluidics-based healthcare diagnostics

Principal Co-ordinator—Dr. Ashis Kumar Sen

Value –₹200 lakhs

- Patenting and commercialization activities by IP Cell: A maximum amount of ₹50 lakhs was earmarked for this
- 7. Maintenance of capital equipment and operation of these facilities: This will be supported by IC&SR initially for a value of ₹25 lakhs, which will be used for hiring technical persons for maintaining and operating select central research facilities. Maintenance funds for capital equipment will be considered in the near future. 22 projects for a total value of ₹121 lakhs.

6.2.12. Positive Messaging and Outreach Programme

IIT Madras is one of the few high-ranking institutions in India that are prompt, active and well connected on the social media. The institute's Facebook page has over 1,02,000 likes and is extremely well updated, with a response time of just one day, actively engaging over 30,000 people every week. IIT Madras's tweets have 36 K impressions every month on average. The institute has a noteworthy LinkedIn connect. It is also ahead of the curve in its presence across other platforms such as Instagram, Google+ and Pinterest. A monthly e-newsletter is sent to all stakeholders of IIT Madras.

6.2.13. Other Information

- An IGCAR-IIT Madras Cell review meeting was held on 14 August 2015.
- ISRO-IIT Madras Space Technology Cell review meeting was held on 14 September 2015.
- IIT Madras participated in the Global Investors Meet 2015, 9–10 September 2015, Chennai Trade Centre, Chennai. The event was managed by CII.

 Objective:

To explore the possibility of tie-ups with industry, both domestic and global, for research in different fields. To make industry aware of different areas where research has been taken up and the institute's IPR strength.

- A NIOT-IIT Madras OTC Joint Policy Committee meeting was held on 9 November 2015.
- An IC&SR Board meeting was held on 23 November 2015.
- Dr. R. Brakaspathy, Secretary, SERB, DST, visited IIT Madras on 20 February 2016 to interact with the faculty for taking up new projects with SERB.

Annexure 1a

SOCIALLY RELEVANT PROJECTS (SRP) PROGRAMME

The Socially Relevant Projects Programme, which was started in 2003, with an initial grant of ₹10.0 lakhs from IIT Madras, is over the years being supported by funds received from IIT Madras alumni. In 2011, in honour of Prof. M.S. Ananth, who was retiring as Director that year, the alumni of IIT Madras established the Prof. M.S. Ananth Endowment Fund. The interest from this fund, along with other contributions from alumni, is now used to fund projects under the SRP scheme.

In 2015, the following four projects were funded under this scheme.

- 1. A project titled 'Empowerment of the Differently-Abled Persons' was proposed by Dr. S. Pushpavanam, Department of Chemical Engineering. The aim of the project is to collect information and set up a database of the differently abled people in Tamil Nadu. The focus is multi-fold.
 - To produce an accurate database by approaching the people and getting first-hand information
 - To understand the different kinds of disabilities particularly faced by the rural population
 - To determine whether people are aware of different schemes of the government and increase their awareness
 - Facilitate means to ensure that government support reaches the people.

A trip was made on 15 August 2015 to Dindigul District, where the PSNA Mobility Centre carries out work such as fitting of prosthetic devices for rural people. The first visit established that the main problems that people are affected by are mental retardation and cerebral palsy. These are affecting the younger generation, in the age group of 1–10 years, significantly. This was the common feature seen in the three villages that were visited.

- 2. A project titled 'Publish Science Books at High School Level in Regional Languages (Telugu and Tamil) and Donate Them to Village School Libraries" was proposed by Dr. V. Srinivasa Chakravarthy, Department of Biotechnology. Translation of 16 short books in the series 'How Did We Find Out?', by by Isaac Asimov, was planned. Seven of the books have been completed. Translation of books such as *Stars and Planets*, by Ephrem Levitan, *Figures for Fun*, by Yakov Perelman, and *Khagolasastracharitra* (History of Astronomy) into Telugu is planned. *Stars and Planets*, by Ephrem Levitan, has been translated as '*Taaralu*, *Grahaalu*', and 500 copies have been printed and distributed.
- 3. Dr. Thillai Rajan, Department of Management Studies proposed a project titled 'Enhancing the Success Potential of the Marginal Entrepreneur'. A development programme, 'Strategies for Business Growth and Profitability', was conducted for marginal and micro women entrepreneurs from 4 to 8 January 2016 in Kanchipuram in the premises of the NGO partner, Hand in Hand (HiH). Sixty women participants attended the programme. The participants were selected jointly by HiH and IIT Madras. About 100 applications were received from people interested in attending the programme. The programme covered various aspects of business such as marketing, finance, business plan development, information technology, law and banking. On the last day, experienced entrepreneurs were invited to Kanchipuram, and they mentored the participants in small groups to develop their business. The feedback received from the participants indicated that they found the programme very useful.
- 4. The project 'Research at High School Level: A Pilot Study of the Concept' was proposed by Dr. Pijush Ghosh, Department of Applied Mechanics. The collaboration with IIT Kharagpur, who will be primarily looking after this project for the West Bengal part, has been formalized. Dr. T.K. Bandyopadhyay, Assistant Professor, Department of MME and RGSOIPL, IIT Kharagpur is involved in this project as the Principal Investigator. IIT Kharagpur have started visiting schools and talking to the headmasters about the projects. Before conducting the first workshop at IIT Madras some time in June, they are trying to visit as many schools as possible and develop a relationship with them. They are handing over reading material and pamphlets during the visits. High school teachers (Project Investigators or PIs) and teams of students will perform research on topics related to social awareness. The teams will identify social problems of the villages around the respective schools and write proposals on them to the funding agency for funding. Following this, the teams will work on those issues and generate awareness in society through different innovative means.

Annexure 1b

ACTIVITIES OF RURAL TECHNOLOGY ACTION GROUP (RUTAG) IIT MADRAS DURING 2015–2016

A. Completed Projects

1. Charcoal from velikatan (Prosopis juliflora)

Prosopis juliflora grows in abundance in southern Tamil Nadu. It is burnt with a controlled flow of oxygen in an open furnace for conversion into charcoal. The process gives an uneven yield, which affects the income of the workers and produces harmful fumes, causing environmental damage. A new type of kiln for converting wood to charcoal is under development that addresses many of the problems, resulting in a better yield, reduced pollution and safe operation.

2. Manual water filtration

A reverse osmosis water filtration system powered by a bicycle has been developed for use in homes and in emergency situations where there is no electricity. The quality of the water produced is comparable with that of an RO system. The RuTAG system removes dissolved solids, bacteria and colour.

3. Development of loom for Pattamadai mats

A special handloom has been developed in order to reduce drudgery and improve productivity to help women weavers of Pattamadai, a well known mat-weaving centre in Tamil Nadu. The loom reduces drudgery by allowing women to work in a more ergonomic setting. It also helps increase productivity. A number of looms have been deployed.

4. Pedal-operated charkha

This project was undertaken at the request of the Khadi and Village Industries Board (KVIB) Kerala, to reduce the drudgery of spinning workers and to improve their productivity.

B. Ongoing Projects

1. Oil expeller

A motorized oil expeller has been developed for extracting oil from groundnut, sesame and coconut. One of the highlights is that the expeller is capable of adopting the cold-press process, the yield of which is considered to be healthier.

2. Palm tree climber (Mechanized)

A mechanized palm tree climber is being developed to climb a height of up to 30 feet. This project has been funded by KVIC, Tamilnadu. The climber consists of 3–5 tubular masts and a lateral support. This is expected to be a low-cost alternative that also improves productivity, at the same providing safety.

3. Electronic jacquard

This is an attachment to the loom designed for Pattamadai mats. It is used to create designs. It uses an electronically controlled design selector. The electronic jacquard gives the loom versatility, and it improves productivity. This is being tried out for the first time in Pattamadai.

4. Bidariware

The artisans of Bidar, in Karnataka, face a shortage of clay which is a major consumable used in the making of Bidariware (unique handicraft). The clay, which is obtained from Bidar Fort, is a restricted item, and a new alternative is being developed by the Department of Metallurgical and Materials Engineering, IIT Madras.

C. Seminars Involving NGOs/Technical Institutions

- 1. One-day Workshop titled 'Idea Generation on Novel and Innovative Technologies for Empowering the Society' at Peermade Development Society (PDS), Kerala on 12 February 2016
- 2. One-day workshop titled 'Innovative Technologies' on 28 March 2016 at Gandhigram Trust, Dindigul







Project Report: April 2015 to March 2016 Centre for Social Innovation and Entrepreneurship (CSIE)

Indian Institute of Technology Madras



(Center for Social Innovation & Entrepreneurship)

Sponsored by alumni of the 1982, 1984 and 1986 batches

Room No. 301A, Department of Management Studies (DoMS) Telephone: +91-44-22578377 Email: csie@iitm.ac.in http://csie.iitm.ac.in

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1. Introduction

The Centre for Social Innovation and Entrepreneurship (CSIE) at IIT Madras was founded in August 2010 with a focus on teaching and research related to social enterprise in India. It aims to bring together the innovation and entrepreneurship aspects of IIT Madras by creating knowledge and understanding that are relevant to the problems that the poor in India face.

2. Activities

2.1. Events

2.1.1. Camp on Social Innovation through Technology for School Students

CSIE conducted two camps titled 'Social Innovation Through Technology' for school students, one in summer (6–8 May 2015, at IIT Madras) and the other in winter (29–31 December 2015, at IIT Tirupati, Sri City). The focus of these camps was to create awareness about the role of technology and entrepreneurship in solving socially relevant issues. Eighty students from rural government schools attended the winter camp, and 77 students (52 students from private schools and 25 from rural government schools) attended the summer camp.

2.1.2. Consultation Workshop for Polytechnics and ITI

CSIE conducted a consultation workshop titled 'Need Assessment to Promote Entrepreneurship' for principals/ senior faculty members of polytechnics and ITIs in the Chennai region on 3 September 2015 at IIT Madras. Twenty-three members from various institutions participated. They identified their needs and requirements for promoting entrepreneurship.

2.1.3. Joint Course Module with IIT Tirupati

In collaboration with IIT Tirupati, CSIE offered some modules of 'Social Innovation Through Technology', the summer camp, for first-year students as part of their course 'Concepts in Engineering and Design'. CSIE facilitated the lectures on the following topics during September–October 2015: (1) Social Entrepreneurship, (2) Definition of Innovation, (3) Engineering in Everyday Life, (4) Science and Tech Applications Around Us and (5) Life Skills and Creativity.

2.1.4. Student Capacity Development Programme

CSIE, in association with Tagore Engineering College, conducted a one-day student development programme titled 'Developing Life Skills for the Winning Edges' on 22 August 2015 at IIT Madras. A total of 101 students from various colleges participated.

CSIE, along with Rajiv Gandhi National Institute for Youth Development (RGNIYD), conducted an interactive session with students, 'Opportunities in Social Entrepreneurship', at the RGNIYD campus on 11 January 2016. A one-day entrepreneurship awareness camp was also conducted at RGNIYD campus, on 29 January 2016. About 143 students from various colleges participated.

2.1.5. Idea Spark 2015

CSIE launched Idea Spark 2015 on 27 August 2015 at IIT Madras to bring out the ideas of engineering students and help them develop these into business plans. The grand finale was on 28 January 2016 at IIT Madras. A total of 27 teams from nine engineering colleges in Tamilnadu, including IIT Madras, participated. The best three ideas were selected for cash awards of ₹1,75,000.

2.1.6. Internship with CSIE

Five students from Tata Institute of Social Sciences, Tuljapur, completed their internship with CSIE from July to September 2015. They worked on the preparation of mini case-studies of companies incubated at RTBI (Rural Technology & Business Incubator), IIT Madras.

2.1.7 Social Entrepreneurship Club

CSIE, in association with Centre for Innovation (CFI), launched the Social Entrepreneurship Club (SE Club) at IIT Madras on 29 September 2015. The mission of the club, in alignment with CSIE, is to build an environment conducive to students to learn about social issues and social enterprises and assist them with becoming social entrepreneurs. Prof. R. Nagarajan and Prof. Ashwin Mahalingam are the faculty advisors of the club.

Activities

- The SE Club invited Mr. T.N. Suresh Kumar, Senior Scientist, ISRO, for the first lecture in its series. He gave a talk titled 'My Journey to Edge of Space and Zero Gravity' on 20 October 2015. Around 200 students attended the talk.
- The SE Club launched the Gandhi Hazare Award for IIT Madras students on 27 August 2015. This is an annual award. Student teams can propose technical solutions to fight corruption in the country. This idea was proposed and is funded by Dr. Sarma N. Gullapalli, an alumnus of IIT Madras (B.Tech., 1964 batch).
 - This year, the final was held on 25 January 2016, during Shaastra. Cash awards of about ₹28,000 were given to the three winners. Support is also being provided to develop ideas into prototypes. A workshop on IBM Bluemix, a digital innovation platform, was also organized as part of this event.
- As part of the UK India Social Entrepreneurship in Education Conference, SE Club, in association with CSIE, organized a preliminary debate session on social entrepreneurship for IIT Madras students on 8 March 2016.

2.1.8. Workshop on Business Model Canvas

In partnership with CSIE, Incubation Cell and Pan IIT Reach for India (PARFI), Ennovent conducted a workshop titled 'Shaping Up Your Business Ideas' on 31 October 2015 at IIT Madras Research Park. Mr. Shubho Broto Das, Ennovent and Mr. Shanawaz, PARFI led the workshop, which focused on creating business models and profitable ventures, among others.

2.1.9. National Conference, TISS Mumbai

In partnership with CSIE, Tata Institute of Social Sciences (TISS Mumbai) conducted a national conference titled 'Methodological Issues in Social Entrepreneurship' from 28 to 30 January 2016. Prof. L.S. Ganesh, from the Department of Management Studies, delivered an expert lecture titled 'The Morphology of CSR' on 28 January. Vidhiya Saravanan, from CSIE, presented a paper titled 'Methods of Impact Measurements'.

2.1.10. Annual Change Makers Day, IIT Madras

UnLtd Tamil Nadu conducted the 'Annual Change Makers Day' programme on 5 February 2016 at IIT Madras. James Rajanayagam talked about the role of CSIE in promoting social entrepreneurship. Prof. Sujatha Srinivasan, Department of Mechanical Engineering, gave a talk titled 'Social Entrepreneurship: Scopes and Opportunities in Technology', and Joseph Thomas, VP Development Office, participated in the expert clinic on corporate communication.

2.1.11. Three-Day Entrepreneurship Awareness Camp

CSIE conducted a 3-day entrepreneurship awareness camp from 10 to 12 March 2016 at IIT Madras under the aegis of NSTEDB, Department of Science & Technology, Government of India. Various sessions were conducted on themes such as technology for entrepreneurship, innovation and creativity, role of incubators and IP management. There was also an industrial visit on the final day, and students were taken to few companies located at IIT Madras Research Park.

2.2. Networking, Collaboration and Other Meetings

- CSIE participated in the meeting organized by Tata Institute of Social Sciences at Ahmedabad on 26 and 27 May 2015 to discuss the role of the South Asia-Level Global Impact Masters initiative.
- CSIE was invited as a community partner to the National University of Singapore's DBS-NUS Social Venture Challenge Asia 2015 competition.

- The Centre for Technology and Policy (C-TaP) invited Joseph Thomas, from CSIE, for a lunch discussion on the Water CoLab, an experiment running at IIM Ahmedabad and CIIE (The Centre for Innovation, Incubation, and Entrepreneurship).
- CSIE hosted the second meeting of the South Asia Network for Impact Masters (SANIM) on 10 September 2015. Members from CSIE, Tata Institute of Social Sciences and Sri Aurobindo Foundation for Integral Management participated in the meeting.
- CSIE attended the First Regional Advisory Group meeting of NABARD on 25 August 2015 at their regional office, Chennai. The objective of the meeting was to deliberate on issues of farms, farmers and the rural economy.
- CSIE, along with Confederation of Indian Industry (CII) and IIT Madras Incubation Cell, held a meeting with Dalit Indian Chamber of Commerce & Industry (DICCI) office bearers on 20 November 2015 at IIT Madras Research Park. About 20 officials of DICCI from different state chapters attended the meeting. The objective of this meeting was to create awareness about setting up incubators and how to nurture entrepreneurship among potential members through incubators.
- CSIE was invited to the second Regional Advisory Group meeting (RAG) of NABARD on 14 March 2016 at their regional office, Chennai. The objective of the meeting was to deliberate on the issues of farmers and the rural economy.
- Sandeep and Vidhiya, from CSIE, attended the one-day workshop titled 'Innovation and Social Entrepreneurship' at VIT University, Chennai, on 16 March 2016.
- James Rajanayagam, from CSIE, attended the interactive panel session 'Sustainability Through Social Entrepreneurship' on 17 March 2016 at WTC, Mumbai.
- James Rajanayagam attended the panel session 'Role of Universities in Developing Change Makers' on 13 January 2016 at St. Joseph's College, Bengaluru as part of the annual Youth Changemaker Week, organized by Ashoka Innovators for the Public.
- Dr. Guru Gujral and Jaya Singh Solomon, from the British Council, UK, visited CSIE on 11 February 2016 to review the progress of the recently initiated Social Enterprise Education Programme (SEEP).

2.3. Proposals and MoUs

- CSIE signed an agreement with TBI, VIT University, Vellore, on 28 April 2015 for promoting innovation and entrepreneurship activities with a focus on innovation capacity development, skill development and mentoring start-ups
- CSIE signed agreements with Vikasa International Centre, Hyderabad, on 9 July 2015 at IIT Madras for promoting social entrepreneurship and with Karnataka Law Society's Institute of Management Education and Research, Belgaum, in February 2015.
- CSIE entered into an agreement with two institutions, Rajiv Gandhi National Institute of Youth Development (RGNIYD) and Academy of Maritime Education (AMET), Chennai for collaboration in research and consultancy
- CSIE, in collaboration with University of Southampton, has been awarded a grant under the UK British Council SEEP initiative.
- CSIE is funded by Tamil Nadu Newsprint and Paper Limited (TNPL) under CSR (corporate social responsibility) to conduct a capacity development programme for producer companies in Tamilnadu.
- CSIE has been awarded a grant under the DST-NIMAT Project, managed by EDI, Ahmedabad, to conduct an entrepreneurship awareness camp.

3. Visitors

- Mr. Sri Ram, Founder of Land to Kitchen 22 June 2015
- Mr. Ramesh Subramaniam, SriCity Foundation—21 July 2015
- Mr. Srinivas Krishnaswamy, Deputy CEO, Hand in Hand—20 August 2015
- Three faculty members from B.S. Abdur Rahman University, Chennai—10 August 2015
- Five faculty members from B.V. Raju Institute of Technology, Telangana 14 August 2015
- Prof. Nitin Kulkarni, Director, Centre for Technology Innovation and Entrepreneurship (CTIE), K.L.E. Society's B.V. Bhoomaraddi College of Engineering & Technology visited CSIE on 6 November 2015 to understand more about the entrepreneurship ecosystem at IIT Madras.
- Dr. Pathik Pathak, Faculty Director of Social Entrepreneurship and Director of Social Impact Lab, from University of Southampton, visited CSIE on 19 November 2015 to discuss the recently initiated UK British Council SEEP and in particular an international conference.

- Prof. John Tharakan, Associate Professor, Chemical Engineering (Howard University, USA) visited CSIE on 6 January 2016 to discuss possible collaborations in conducting a workshop on engineering ethics and impact assessment.
- Dr. Zach Zacharia, Associate Professor of Supply Chain Management from Lehigh University, USA, visited CSIE on 19 January 2016 to discuss internship opportunities for Lehigh students.
- Ms Meera Goel, Principal Consultant, Ma Foi Connecting Dots, visited CSIE on 7 March 2016 to explore the feasibility of collaborative projects with CSIE.
- Mr. Rahul Mehta, of the Mehta Family Foundation, Prof. Sridhar Thayur, Professor of Operations Management at Carnegie Mellon University, and a delegation from the University of Southampton visited CSIE on 6 January, 16 February and 10 March 2016, respectively, to gain an understanding of the entrepreneurship ecosystem at IIT Madras.

4. Photographs



IdeaSpark 2015 finals



Talk by Mr. T.N. Sureshkumar, ISRO



Group photo of the participants of the entrepreneurship awareness camp with the CSIE team at IIT Madras Research Park

Annexure 2

INTELLECTUAL PROPERTY MANAGEMENT CELL, IIT MADRAS (ACTIVITIES DURING 2015–2016)

A. Programme Initiatives

1. Monthly Open Forum

After considerable publicity this programme is conducted on a particular day in a month, generally when students and faculty members are relatively free and there are no other pressing activities, either curricular or extra-curricular. This is open to all—students and faculty members. A total of five such programmes were conducted during the period, and the response was very good and encouraging.

2. Guest Programmes

Eminent guest speakers in the field of IP are invited to give talks to the faculty and students on various aspects of IP. The talk is followed by a question-and-answer session. Two guest speakers were invited during this period. The participation in these two programmes was highly encouraging as 199 students and faculty members attended. The Deputy Controller of Patents was one of the eminent speakers invited.

3. M.S.-Ph.D. (Orientation Programme)

This was started 2 years back and continues to be conducted regularly, twice a year, when there is a fresh intake of research scholars. At both the orientation programmes conducted this year, the IPM Cell presented an overview of patenting possibilities as an outcome of research efforts and the prerequisites of an invention for patenting. The total number of participants at these two programmes was 950 participants.

4. Workshop (ID6020 & ED1500)

Workshops are the follow-up action after the orientation programme. The requirements for any invention to be considered for patenting are discussed in detail. Legal aspects are also covered. The participants are also introduced to the 'search' and 'prior art' concepts. Four programmes were conducted, and 850 research scholars participated.

5. M.S.-Ph.D. (Comprehensive Exam-One to One)

At the Comprehensive stage one to one interactions are held with the research scholars to assess the suitability of the invention to be filed as Patents. Both general possibility and legal aspects are discussed. Total of 3 such programmes were conducted covering 9 scholars.

6. Department Interaction About IP

All the Heads of Department have been informed that IPM Cell personnel will be happy to visit the departments and have interactions at their premises on any aspect of IP. One such programme was conducted at the Aerospace Department. The main query from the Head of Department and scholars was, 'What we can patent and what can we not?' The interaction was very cerebral and interesting. Seven scholars and the Head of Department participated in the programme.

7. Search Programme for Engineering Design Department

A specific request was made by the Department of Engineering Design to conduct a 'search' programme for their PD Lab students. One such programme was held, and there were 50 participants. 'Search' on the Advanced Google platform to check for prior art was the main issue discussed.

8. Interaction at IPM Cell office

During the programmes mentioned above, all the participants were informed that for any query they can come to the IPM Cell for solving their issues. The footfall to the IPM Cell office was more than 75. Inventors with initial queries, urgent patent filing requirements, Thompson search requirements, claims to be included, etc. came to the office and were fully guided in all matters.

B. IP Management

1. Applications Cleared

All application for patents up to 2007 has been cleared by the office of the Controller of Patents.

2. Patents Filed

Eighteen Indian patents and 13 international patent applications have been filed. One Indian patent and 15 international patent applications have been granted.

Details of the patents granted follow:

Sl. No.	Title	Inventor	Country	Department
Indian	Title	- Inventor	Country	Department -
1	A Method of Measuring the Air-Fuel Ratio of a Spark Ignition Engine	Manivannan P.V., Ramesh A. and Singaperumal M.	India	Mechanical & Electrical Engineering
Interna	tional			
1	Gold and Silver Quantum Clusters in Molecular Containers and Methods for Their Preparation and Use	Pradeep T.	USA	Chemistry
2	Synthesis of Quantum Clusters in Molecular Confinement—Rapid and Scalable Method	Pradeep T.	USA	Chemistry
3	Gold and Silver Quantum Clusters in Molecular Containers and Methods for Their Preparation and Use	Pradeep T.	Japan	Chemistry
4	Organic-Templated Boehmite-Nanoarchitecture: An Adsorbent Composition to Remove Arsenic and Fluoride from Drinking Water	Pradeep T.	Japan	Chemistry
5	Designing Molecules for Naked Eye Detection of Fluoride Ions in Organic Medium	Edamana Prasad	USA	Chemistry
6	Cognitive Interference Management in Wireless Networks with Relays Macro Cells Micro Cells Pico Cells and Femto Cells	Sheetal Kalyani and Bhaskar Ramamurthi	USA	Electrical Engineering
7	Pilot-Aided Data Transmission and Reception with Interference Mitigation in Wireless Systems	Giridhar K. and Bhaskar Ramamurthi	USA	Electrical Engineering
8	Robust Channel Estimation and Interpolation in OFDMA Systems	Sheetal Kalyani and Raghavendran Lakshminarayanan	USA	Electrical Engineering, CEWIT
9	Indoor Personal Relay	Sheetal Kalyani and Bhaskar Ramamurthi	USA	Electrical Engineering
10	Pre-coding for Single Transmission Streams in Multiple Antenna Systems	Giridhar K. and Bhaskar Ramamurthi	USA	Electrical Engineering
11	Robust Channel Estimation of OFDM Systems	Sheetal Kalyani, Giridhar K. and Lakshminarayanan Raghavendran	USA	Electrical Engineering, CEWIT
12	Technique for Imaging Using Virtual Array of Sources Using Phased Excitation	Krishnan Balasubramaniam, Saivathan Alavudeen and Chitti Venkatta Krishnamurthy	USA	Mechanical and Electrical Engineering
13	Metal Nanoparticle-Decorated Carbon Nanotube and Method of Preparation and Use	Ramaprabhu S.	USA	Physics
14	Enhancement of Raman Scattering Signal by Using Photonic Nanojet of a Single Microsphere	Prem B. Bisht	USA	Physics
15	Electrode and/or Capacitor Formation	Ramaprabhu S.	USA	Physics

3. Commercialisation Effort Through Mail

About 119 letters have been sent to different potential companies for the various patents filed so far. The IPM Cell has received some replies, and follow-up action (mainly providing clarifications) has been taken.

4. Visit to the Campus by Different Companies

Officials from the following visited our campus in connection with a few patents that they were interested in, and discussions were held between the IPM Cell and the inventors.

- (1) Biotech Consortium Indian Limited (BCIL)
- (2) NRDC
- (3) CSIR-Tech
- (4) IP Metrix
- (5) Godrej
- (6) Qualix
- (7) Bloom Technologies

- (8) Nissan
- (9) HCL
- (10) Dow Chemicals
- (11) Applied Inventions
- (12) Intellectual Ventures
- (13) Unilumen Photonics

5. IP Technology Transfer to Nano Holding

A total of 13 patents were licensed out. The receipts amounted to ₹85,39,279.

6. Licensing Agreement with Incubation Companies

The following incubation companies have entered into tie-up agreements:

- (1) Gyan
- (2) Merkel
- (3) Vital Bio Science

- (4) Purius Nano system
- (5) FIB-SOL
- (6) Planys

Central Electronics Centre

6.3.1. About the Centre

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 a 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 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, 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
- Training programmes for manpower development
- Calibration of electronic test and measuring instruments
- Testing of electronic products
- Development of custom-built equipment
- Consultancy services to industries in the above-mentioned areas
- 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 inside and outside the country.

The CEC has been playing a key role in the area of renewable energy by conducting training programmes related to solar photo-voltaics (SPV). Forty SPV training programmes have been conducted, and more than 860 personnel have been trained. The project was sponsored by the Indian Renewable Energy Development Agency (IREDA), New Delhi. SPV laboratory (indoor and outdoor) facilities have been established to promote developmental activities in this area. The CEC is active in diverse projects involving SPV technology.

Four special (customized) 12-week training programmes were organized for radio officers of the merchant navy so that they could become Electro-technical Officers. The project was sponsored by AMET (Academy of Maritime Education and Training), Chennai. As and when requests are received from industries, the centre conducts the short-term training programmes "Calibration Requirements and Uncertainty calculations as Per NABL Accreditation ISO 17025;2005."

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 from RWTÜV, Germany for having established quality systems in its services. Also, the centre received NABL accreditation in 2004 for testing and calibration laboratories in accordance with ISO/IEC 17025 standards. The ISO and NABL accreditations were actively maintained through adherence to the specified processes and procedures.

6.3.2. Activities

1. CEC 2-year Technician Training Programme

Preparations are going on for admitting the 31st batch of the Technician Training Programme (2 years' duration). The total number of candidates to be admitted is eight. The previous batch comprises seven trainees.

2. Workshop sessions for B.Tech. students

The CEC conducts the electronics workshop/laboratory sessions for the B.Tech. Year I students (part of WS1020).

3. New facilities created

- BGA rework station
- -70°C to +180°C temperature–humidity chamber
- Electrical safety testing equipment
- 6 kV lightning surge generator
- 10 kV insulation/withstanding voltage tester
- 200°C to 1200°C precision temperature furnace

4. Sponsored research and consultancy projects

(i) Sponsored research projects

Sl. No.	Co-ordinator	Period	Title of Project	Organization	Project Value (₹)
1	The Head CEC	18 December 2014 to 17 December 2016	Scheme for Setting Up/ Upgrading Electronic Product Testing Quality Control Laboratories	Department of Electronics and Information Technology (DeitY), Ministry of Communication & Information Technology, GoI, New Delhi	1,40,00,000

(ii) Consultancy projects

Sl. No.	Co-ordinator	Title of Project	Organization	No. of Assignments	Value of Project (₹)
1	The Head, CEC	Calibration of the DC Power Supply Model PAN 30A— Additional Points	Keith Electronics Private Limited, Chennai	1	2247
2	The Head, CEC	Testing of LEDs at Different Wavelengths	Anshuman Tech Private Limited, Pune	1	10,112
3	The Head, CEC	Internal Audit (Testing and Calibration)	Oasys Energy Efficiency Private Limited, Chennai	1	6840
4	The Head, CEC	Testing of Distribution Amplifier	Elixir Electronics, Chennai	1	18,240
5	The Head, CEC	Servicing of Hearing Aid Test Set	ETDC, Chennai	1	9120
6	The Head, CEC	Testing of 45 W and 50 W LED L and F	Baliga Lighting Equipments Private Limited, Chennai	1	22,572
7	The Head, CEC	Testing of 10-45 W LED Light	Elenserve Technologies, Chennai	1	24,624
8	The Head, CEC	Testing of 18 W LED Tube	Powerline Agencies, Calicut	1	15,960
9	The Head, CEC	One Kilowatt Grid Tied Inverters as per IEC 61683 Standards	Sun Industrial Automation and Solutions, Chennai	1	27,360
10	The Head, CEC	Testing of 18–20 W Tubelights	Elenserve Technologies, Chennai	1	17,100
11	The Head, CEC	Testing of 125 W Light	K-Lite Industries, Chennai	1	17,100
12	The Head, CEC	Servicing of POF Generator Board and EFT Surge Generator	ETDC, Chennai	2	26,220
13	The Head, CEC	Lumen Test as per LM79 Standard (LED 100 & 18 W)	Baliga Lighting Equipments Private Limited, Chennai	1	25,137
14	The Head, CEC	Testing of Tubular Batteries as per IS 13369-1992 & ISO	Sankalp India Solutions Private Limited, Bengaluru	1	37,785
15	The Head, CEC	ILC Testing (CCT & CRI)	Lighting Technologies India Private Limited, Bengaluru	1	5725
16	The Head, CEC	Calibration of Oscilloscope	Pulsars, Chennai	1	6870
17	The Head, CEC	Servicing of Lithium Ion Battery Charger	ETDC, Chennai	1	5130
18	The Head, CEC	Calibration of Digital Multimeter	L&T Construction PT&D, Chennai	1	2290

Sl. No.	Co-ordinator	Title of Project	Organization	No. of Assignments	Value of Project (₹)
19	The Head, CEC	ILC on Automatic Line Voltage Corrector	ETDC, Chennai	1	5725
20	The Head, CEC	ILC Testing (CCT & CRI)	Lighting Technologies India Private Limited, Bengaluru	1	5725
21	The Head, CEC	Calibration of DMM, Escort Model 3146A	SAMEER—Centre for Electromagnetics	1	4008
22	The Head, CEC	Servicing of Hearing Aid Test Set	ETDC, Chennai	1	6870
23	The Head, CEC	Lumen Test as per LM79 Standard	Baliga Lighting Equipments Private Limited, Chennai	1	16,488
24	The Head, CEC	Defence Project	Ministry of Defence	17	94,620
25	The Head, CEC	Testing of VRLA Lead Acid Battery as per TEC Standards	Nippo Batteries, Chennai	4	4,01,280
26	The Head, CEC and C.R. Jeevandoss	Development of Moisture Measurement System	Pride Technologies, Chennai	1	5,15,250

5. Training programmes attended by CEC staff members

- G. Amutha and S. Veeraraghavan attended the NABL Internal Auditor Course conducted by CETE, Bengaluru between 25 and 28 May 2015.
- C.R. Jeevandoss attended the NABL Conclave, conducted by NABL, Chennai on 19 March 2016.

6. Development work completed

- a. Industries
 - RF controlled trigger unit for defence
 - Development of first prototype of shrink fit induction tooling system completed
- b. IIT Madras departments
 - Design and development of piezo valve Controller and RF generator for G. Aravind, Department of Physics
 - PWM-controlled pressure regulator using ERG valve and Hall effect sensor for IC Engine Laboratory, Mechanical Engineering Department
 - Design and fabrication of 16-channel data acquisition system for pressure transducers with signal conditioner for Ph.D. student from Department of Applied Mechanics
- Modification of existing tensometer controller to perform cyclic test for Ph.D. student from Department of Engineering Design
- Current-to-voltage converter with power supply for Department of Biotechnology
- Heating element with power supply for Department of Metallurgical and Materials Engineering
- Optical chopper controller for Department of Physics

7. Staff strength

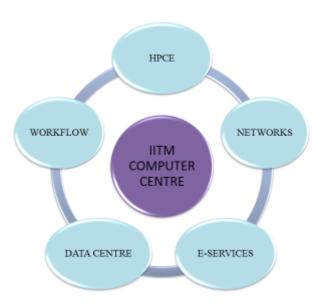
The centre has 10 technical and two administrative staff members assisted by seven technicians employed in project mode.

P.G. Senapathy Centre for Computing Resources

6.4.1. Introduction

The computer centre at IIT Madras was established in 1973 to provide centralized computing resources and support for 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 super-computers and communication and network services of today. Over the years, the computing and information technology requirements of the IIT Madras community have been increasing. The computer centre's organization has also evolved with the increasing requirements. In 2007, the infrastructure of the centre was significantly upgraded through an endowment given by Mr. S. Gopalakrishnan in the name of his father, Mr. P.G. Senapathy.

The activities of the centre are organized under five verticals: High-Performance Computing Environment (HPCE), Networks, E-Services, Data Centre and 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. Currently, it maintains all its processes in conformance with the ISO 9001:2008 standards and is certified along with other units at the institute by TUV Nord. This report presents a background of each vertical and a summary of the 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 super-computing facilities from researchers at IIT Madras.

The Virgo super-cluster, with 292 nodes and two iDataPlex dx360 M4 master nodes, with FDR10 InfiniBand connectivity, is currently the main super-computing resource. The nodes have 2 × Intel E5-2670 eight-core, 2.6 GHz processors, with 4 GB of memory per core. This machine caters to the needs of the research community, which mostly uses parallel programming.



Virgo cluster

The Virgo system has a storage capacity of two 80 TB General Parallel File Systems and a 50 TB NAS file system for backup.

The following are some active research areas that use the Virgo 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.

The computer centre also houses a LIBRA GPU cluster, with one head node with dual processors and six-core Intel Xeon 5670 series processors with 24 GB RAM and 146 GB SAS hard disks. It has eight compute nodes based on HP Proliant SL390s servers with dual processors, six-core Intel Xeon X5675 processors with three Telsa M2070 GPU cards and 146 GB SAS hard disks in each node.

The computer centre has a cluster for B.Tech. users called GNR, named after the great scientist Prof. G.N. Ramachandran, with one head node from Supermicro, with Intel Xeon CPUs with a memory of 32 GB and 500 GB hard disks and eight compute nodes of the same configuration. This cluster has a file system of 14 TB, and PBS Pro is the job scheduler. Eight compute nodes have been provided by the Biotechnology Department, and eight nodes are from an institute grant. Eight nodes of this cluster are populated with 16 Intel Xeon PHI cards (two PHI cards per node).

The HPCE group also maintains machines at various departments and centres. This group also supports users in improving code and organizes training programmes related to effective use of the facility. This group maintains all commercial software-related licenses and implements the 80:20 policy for all the commercial software procured by the computer centre for HPCE users. Detailed information about the HPCE, including the latest usage statistics and the software available, is posted at the website www.cc.iitm.ac.in.

6.4.3. Networks

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, with a fibre-backbone high-speed network, there is connectivity for all the buildings in the Academic Zone as well as the residential quarters and all hostels. The total available bandwidth is about 2 Gbps from the National Knowledge Network and an additional 200 Mbps from Tata

Telecom. The total number of nodes in the campus is approximately 18,000. 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. Facilitation for video conferencing is 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. The following is a summary of the key activities of the Network Group for the year under consideration:

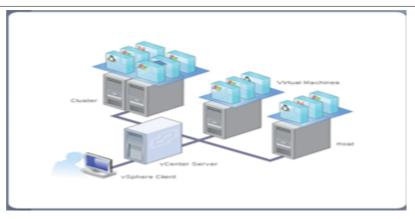
- 1. Supported Wi-Fi connectivity in the Classroom Complex for online tests of the Placement Office. Enabled the Placement Office to conduct online tests for more than 500 candidates simultaneously in one building.
- 2. Supported Web-casting of convocation through Internet and Intranet.
- 3. Designed and implemented network connectivity for Tunga and Bhadra hostels, having 396 rooms each in the ground floor plus six floors.
- 4. Designed and implemented network connectivity for renovated block of Sharavathi Hostel.
- 5. Assigning an I/O box number to each network point (contains building name, room no., point no., switch port no., switch host name, IP address) in the Academic Zone is in process. The process has been completed in the Engineering Design, Biotechnology, Structural Engineering, BSB, ESB, MSB, MSRC buildings and GATE and IEE offices
- 6. Implementation of a new Fortigate-3200D network firewall is in process.

6.4.4. E-Services

The E-Services vertical focuses on services such as Web system configurations, e-mail, Web access, Web security, storage solutions, virtualization and Web services. Several new services were added by the E-Service group. The services maintained and initiated by the group are listed here:

Mail s	ervices	Develo	opment and deployment services
1	IIT Madras (email.iitm.ac.in) upgraded to	1	Convocations
	exchange 2013	2	Distinguished Alumnus Awards
2	Students (smail.iitm.ac.in)	3	User registration for IC&SR
3	Alumni (alumni.iitm.ac.in)	4	HPCE Web-based user management
4	Retirees (retiree.iitm.ac.in)	5	Faculty and staff portal
5	Conferences (wmail.iitm.ac.in)	6	Web-based training
6	Projects (imail.iitm.ac.in)	7	VTLS support (Library)
		8	Support for students' elections
Web s	ervices	9	Support for JEE
1	Virtual hosting	10	Support for HSEE
2	Mailing list maintenance	11	Support for departments with Web services
3	Employee user Web portal	12	Support for Office of Alumni Affairs
4	Websites	13	Support for Placement Office
		14	Support for conferences
Securi	ity and monitoring services		
1	Firewall tuning	Other	services
2	Hack solution	1	SMS gateway
3	Security gateway (spam appliances)	2	Google API services
4	Log analytics	3	Intranet services
5	SSL certificate	4	Project management support
		5	Online ticketing system
Storag	ge solution	6	Home portal for staff/faculty
1	Backup and restore process	7	Cloud services (own cloud)
2	Disaster recovery	8	Authenticated mail service
3	Server and desktop consolidation by virtualization	9	Local/global FTP
	(VMWARE)	10	Virtual Desktop Infrastructure (VDI)
User	nanagement services	11	Resources booking system
1	Active Directory Service (ADS)	12	Microsoft licensing

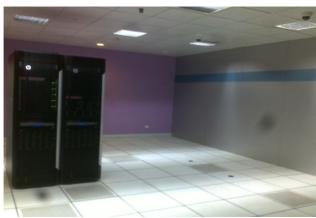
Lightweight Directory Access Protocol (LDAP)



Virtualization

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.



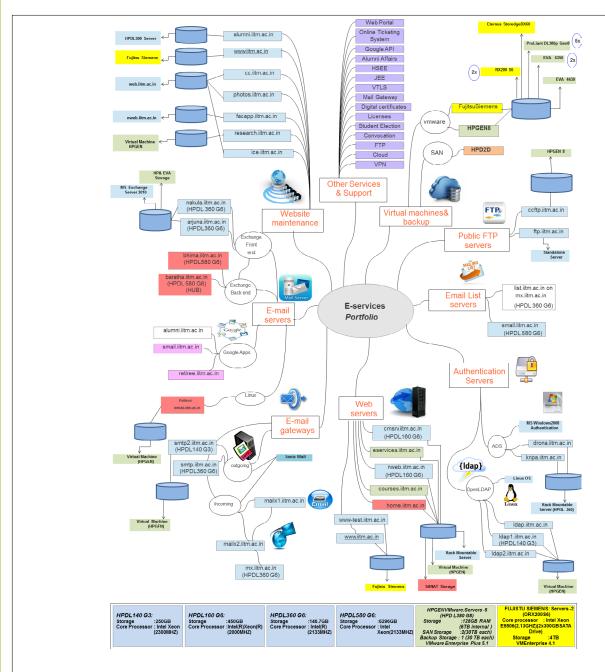


VMWARE server (a) before virtualization and (b) after virtualization





Exchange server: (a) front view and (b) rear view



E-Services portfolio

For services offered by E-Services and help, visit https://eservices.iitm.ac.in.

6.4.5. Data Centre

The function of the Data Centre is to ensure appropriate management of facilities so that all verticals of the computer centre function efficiently and without interruption. These facilities include the uninterrupted power supply, backup power supply (DG set), CCTV, climate control, access control, water leakage system, fire protection under Building Management System (BMS) and office space maintenance. The Data Centre operates and maintains the following equipment:

SI. No.	. No. Description of Equipment Capacity Qua		Quantity
1	Diesel generator set (Caterpillar) with 12 V/200 AH (Exide) — 2 nos.	600 kVA	2 nos.
2	2 Synchronizing panel for parallel operation 1000 kVA 1 no.		1 no.
3	3 UPS (DB) with 12 V/200 AH (batteries)—120 nos. and 12 V/120 AH 160 kVA 4 nos. (Rocket)—192 nos.		4 nos.

Sl. No.	Description of Equipment	Capacity	Quantity
4	UPS (MGE) with 12 V/150 AH (batteries) – 32 nos.	80 kVA	1no.
5	UPS (SOCOMEC) with 12 V/150 AH (batteries – 32 nos.	80 kVA	1 no.
6	UPS (Emerson) with 12 V/42 AH (batteries) – 68 nos.	30 kVA	2 nos.
7	UPS (DB) with 12 V/65 AH (batteries) – 25 nos.	20 kVA	1 no.
8	PRAC AC (Blue Star)	17 TR (60 kW)	10 nos.
9	PRAC AC (Blue Star)	13.5 TR (48 kW)	2 nos.
10	PAK AC (Blue Star)	11 TR	4 nos.
11	PAK AC (Blue Star)	5.5 TR	2 nos.
12	Ductable split AC (Blue Star)	8.75 TR	2 nos.
13	Ductable split AC (Blue Star)	5.5 TR	6 nos.
14	RO plant (EXEL)	250 LPH	1 no.

The Data Centre has upgraded the building management systems with the latest technology. The following were installed in 2015:

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 Fire fighting 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 Humidity control system for DG sets installed
- 2 LCD projector installed in the seminar room
- Modular furniture has been provided in Room 220 and the hall to accommodate SRA and the entire workflow team
- 4 All work related to the electrical system and networking has been carried out in the hall.

6.4.6. Workflow

The enterprise resource planning (ERP) software implementation is internally referred to as Workflow.

The Workflow group at the computer centre works with various sections in the institute to support system usage and capture changes in the requirements of process development activities, maintaining reporting websites that collect data from Workflow and generating reports using new software tools.

Workflow submissions that were enforced in processes (leave, LTC, faculty visits, festival advances, children's education allowances, purchase order creation, imprest claims, SRB, student course registrations, student travel approvals, student work-log approvals, grade approvals, GTC/DC panel creation, introduction of new course etc.) are running successfully. The data extracted from Workflow were analysed using a new reporting tool called Tableau and utilized by the ISO internal audit team to improve the performance of the administrative staff in the previous financial year and continued in the 2015–2016 financial year as well.

The most active processes in workflow were considered for optimization in this financial year. Optimization includes enhancing the look and feel of screens, capturing data from users in effective ways, minimizing the number of clicks to submit a request and triggering e-mails upon submission/approval. Service Level Agreements (task will automatically move to the next level in a process) are 2 days for middle-level approval and 2 weeks for final-level approval in a few processes to reduce the turn-around time.

Online TCF is another major activity that was implemented during the financial year 2015–2016. Students can submit their feedback online, and the reports are enabled for faculty members within the Workflow application.

6.4.7. Training and Professional Activities

Staff members of the computer centre participated in the following training activities this year:

- V. Selvaraju attended "HP Wireless Symposium 2015", at Hasanpur, Haryana on 16 and 17 April 2015.
- S. Priya attended "Data Analytics Using Big Data", at Engineering Staff College of India, Hyderabad from 1 to 5 September 2015.
- P. Mahesh Mithreeven attended "Network Administration: Configuring and Securing LANs & WANs," at Engineering Staff College of India, Hyderabad from 7 to 11 September 2015.
- V. Ravichandran and P. Gayathri attended "CRAY Workshop on High Performance Computing Tools" (SERC) at IISc, Bengaluru on 26 and 27 October 2015.
- V. Selvaraju attended the 4th NKN Annual Workshop, at JNTU, Hyderabad on 21 and 22 January 2016.

During the year, S. Anand Kumar obtained the following certifications:

- Virtualization concepts
- VMware vSphere
- Microsoft Exchange Server Administration

Staff members and areas of work

Sl. No.	Name	Designation	Area of Focus
1	C. Balaji	Chairman	Overall coordination and planning
2	Venkata Krishna Nandivada	Faculty-in-Charge	High-Performance Computing Environment
3	Nitin Chandrachoodan	Faculty-in-Charge	Networks
4	N.S. Narayanaswamy	Faculty-in-Charge	E-Services
5	Rahul Marathe	Faculty-in-Charge	Workflow
6	C.S. Sourirajan	Systems Officer Grade I	Data Centre, Workflow, application software development for TCF of Academic Section, Digilocker systems, MDS billing for Staff Club, estate recoveries
7	V. Ravichandran	Deputy Systems Engineer	High-performance computing, application programming, system programming and administration, user education and planning, Data Centre operations
8	C.N. Vijayaragavan	Deputy Systems Engineer	Centre representative for ISO-9000
9	Banavath Baman	Assistant Systems Engineer	Training
10	S. Anand Kumar	Assistant Systems Engineer	Mail domains, mail gateways, server hardware, VMWARE, Web services, virtualization, support services
11	V. Selvaraju	Assistant Systems Engineer	Network design, servers, switches, campus network maintenance and administration, PC hardware and software
12	S. Priya	Assistant Systems Engineer (contract)	Workflow, software development
13	T.V. Subba Rao	Technical Superintendent	Workflow - Administration Module

Sl. No.	Name	Designation	Area of Focus
14	R. Thiruneelagandan	Junior Technical Superintendent	Planning, operation and maintenance of DG sets, UPS, ACs, BMS, furniture and all Data Centre-related equipment
15	P. Gayathiri	Junior Systems Engineer	High-performance computing, system software, installation of open source applications and commercial applications, user education development
16	M. Jeevanandam	Junior Technician	Computer networks
17	M. Irudayaraj	Junior Technician	Web programming, Linux, E-Services
18	P. Mahesh Mithreevan	Junior Technician	Computer networks

Apart from the permanent staff listed in the foregoing, there are Senior Project Officers, Project Associates and Project Technicians assigned to each vertical in the computer centre to support the various activities of the centre.

Central Facilities

7.1. Central Workshop Facilities

The Central Workshop was established in 1959. Initially it consisted of shops associated with three major manufacturing processes, namely, metal cutting, metal joining and metal forming. Later on, sections on other modern manufacturing processes and control systems were introduced in workshop training.

Presently the Central Workshop of the institute has facilities in different shops and sections. The list of the shops and sections, with their facilities, is given below.

CL N	Cl	e. 3020.	
SI. No.	Shop	Facilities	
Shops			
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, vertical and universal milling machines and computer-aided manufacturing software	
4	Gear Shop	Spur, helical and 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 machine (3D printer)	
7	Welding Shop	Arc welding, gas welding, brazing, TIG welding, plasma arc cutting and arc welding simulator	
8	Foundry Shop	Sand moulding, melting and die casting machines	
9	Smithy Shop	Open hearth furnace	
Section	ıs		
10	Pneumatics and Hydraulics	Basic and advanced pneumatics trainers	
		Electro-pneumatic trainer	
		PLC for 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 using hand-operated, semi- automatic injection and compression moulding machines	
13	Instrumentation & Communication Lab	Introduction to basic communication systems, exercises in optical fibre communication	
		Introduction to various kinds of transducers	
		Microprocessor-based control applications, examples of stepper motor control, traffic light controller and PLC	

The Central Workshop also operates and maintains the buses of the institute.

The Central Workshop is training 772 B.Tech/Dual Degree (Year I) students of the 2015–2016 batch for WS 1010 (4 credits), WS 1020 (2 credits) and WS 1030 (2 credits, exclusively for the students of the Engineering Design Department during their first semester). The details of the students and training modules are given below.

Sl. No.	Department	No. of Students
1	Electrical Engineering	120
2	Engineering Physics	31
3	Mechanical Engineering	148
4	Metallurgical and Materials Engineering	47
5	Aerospace Engineering	57
6	Chemical Engineering	90
7	Naval Architecture and Ocean Engineering	49
8	Civil Engineering	91
9	Biological Engineering	29
10	Computer Science and Engineering	56
11	Engineering Design	54
	Total	772

Training Modules

- 1. Power Tools
- 2. Machining Process—Turning
- 3. Machining Process—Milling
- 4. Foundry and Smithy
- 5. Plastics and FRP
- 6. Welding
- 7. Electrical
- 8. Electronics
- 9. Pneumatics and Hydraulics
- 10. Instrumentation and Communication

The first-semester workshop training course for the 2015–2016 batch was conducted over 12 days from 27 November to 8 December 2015. The second-semester training course for this batch will be conducted during 18–29 July 2016.

The second-semester training course for the 2014–2015 batch Year I B.Tech./Dual Degree students was conducted over 12 days from 20 to 31 July 2015.

The Central Workshop fabricates experimental test set-ups and accessories for B.Tech./M.Tech. students and M.S./Ph.D. scholars. A total of 1104 work orders were executed during the year 2015–2016.

The Central Workshop trained eight apprentice trainees with ITI and Diploma qualification. Two of them have been trained for maintenance of buses in auto shops.

In 2015, the Central Workshop conducted Engineering Is Fun workshops. About 94 school students and children from the campus participated in these workshops. A workshop was also conducted for school students from the Northeast who visited IIT Madras through the Prime Minister's Ishan Vikas Programme.

An HRD training programme on CAM software was conducted for staff members on 13 and 14 February 2016. An HRD training programme titled 'Power Point Presentation' was conducted for staff members involved in training students on 17 June 2015.

An orientation programme was organized for newly recruited Junior Technicians between 25 January and 1 February 2016.

7.2. Central Glass Blowing Section

The Central Glass Blowing Section has been one of the important infrastructural facilities of the institute since 1972. Being a central facility, this section undertakes design and fabrication of sophisticated glass apparatus for research and development in various departments.

This section has a range of modern glass working equipment that was largely procured from Germany as a component of the collaborative programme, including 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 as are necessary for fashioning varied glass apparatus. The section 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.

During the period from April 2015 to March 2016, the section executed 331 work orders for various departments.

Central Library

The Central Library is equipped with all modern facilities and has a rich collection of information resources in the form of CD-ROMs, online databases, e-journals, e-books, e-standards, e-patents and printed material relating to applied science, engineering, technology, humanities, management, social science and emerging subjects. The Central Library holds 4,41,889 items, including 655 current journals, catering to the information needs of 13,197 members, providing various value-added services with the help of modern information-handling tools and techniques. The major activities of the Central Library between April 2015 and March 2016 are described here.

8.1. Library Information Services—Statistics

Item	2014–2015	2015–2016	
Collections			
Books (general)	2,30,335	2,31,031	
Books (gratis)	506	1183	
Books (Hindi)	50	223	
Books (project)	601	854	
Theses	6881	7150	
Book Bank	17,881	14,058	
Current periodicals by subscription	737	655	
Back volumes of periodicals	1,13,919	1,14,165	
Patents and specifications	20,422	20,228	
German collection	44,280	44,280	
CD-ROMs	1499	1499	
Audio/video cassettes	448	448	
e-Books	3,214	6115	
Total	4,40,773	4,41,889	
Membership			
Staff members	913	751	
Faculty members (VF, ADF, RF)	667	697	
Students	11,162	11,046	
Alumni members	357	366	
Corporate members	35	32	
Special members	58	00	
IAS members	126	249	
Project co-ordinators	57	56	
Total	13,375	13,197	
Services—Circulation			
Number of books/journals issued	66,340	74,192	
Number of books issued—Book Bank (GS)	3328	3011	
Number of books issued—Book Bank (WS)	2350	2180	

Item	2014–2015	2015–2016	
Overdue and other charges collected (₹)	4,21,153	5,24,736	
Photocopy charges collected (₹)	883	6988	
Project loans to departments/centres			
Books issued	1038	1360	
Inter-library loan transactions			
Borrowed from other libraries	10	Nil	
Loaned to other libraries	9	Nil	
Reprint service			
Reprints received from other institutions (pages)	106	192	
Reprints supplied to other institutions (pages)	605	786	
Smart Cards			
Cards generated/issued	2605	2698	
Expenditure (₹)			
Purchase of books	143.72	159.90	
Subscriptions of journals and databases	1490.76	1380.00	
New journals/databases			
Journals/databases added	42	3	

8.2. ISO 9001:2008 Activities

The Central Library actively participated in ISO 9001:2008 activities and maintained quality-based library system services and procedures. The major activities related to ISO 9001:2008 are listed below:

- 1. An ISO internal audit was conducted on 20 April 2015.
- 2. An ISO management review meeting (QSM-I and QSM-II) was held on 8 May 2015.
- 3. An ISO internal audit was conducted on 27 November 2015.
- 4. An ISO management review meeting (QSM-I and QSM-II) was held on 15 December 2015.
- 5. The Central Library conducted meetings (Chairman LAC, Librarian in-Charge and Section-in-Charges) to review the functioning of the library. Between April 2015 and March 2016, one review meetings, three LAC meetings and four staff meetings were organized.

8.3. Major Initiatives

The Central Library has taken various initiatives to improve the existing infrastructure, facilities, services and collections to provide strong and dynamic support to the academic, research, development, continuing education and industrial interaction programmes and policies of the institute. Some of these initiatives are described in the following sections.

8.3.1. Online resources (E-Journals, E-Databases and E-Books)

- 1. Online access to three journals was added on the basis of recommendations of the faculty: *Nature Cell Biology*, *Nature Medicine* and *Cell Death and Differentiation*.
- 2. Access to the e-databases and e-journals of various publishers, including the following, were renewed: American Chemical Society, AGU, AIAA, AIP, American Mathematical Society, Blackwell, BMJ, De Gruyter, Elsevier, ICE, Indian Economy Database, IOP, ISI—Emerging Market, JSTOR, Journal Citations Report

- (JCR), MANEY, MathSciNet, Mendeley Institution Edition, NPG, One Petro, Oxford University Press, ProQuest: Dissertations and Theses (PQDT), PsyArticle, RSC-Gold, Sage, 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.
- 3. e-Books from AMS, Cambridge University Press, CRC, De Gruyter, Elsevier, IOP (2015 collection), McGraw-Hill, Oxford University Press, Pearson, RSC (2015 collections), Springer (engineering, material science, mathematics and statistics—2015 copyright collection), Wiley, World Scientific, ProQuest Ebrary and EBSCO were purchased with perpetual access rights.

8.3.2. Extended Working Hours on Saturdays and Sundays

The working hours of the Central Library have been extended up to 12.00 midnight during quizzes and end-semester and make-up exams on Saturdays and Sundays for the benefit of students.

8.3.3. Systematic Re-shelving of Books

Two groups consisting of eight members each have been formed that devote one hour daily in the morning/afternoon in the stack areas to facilitate easy retrieval of books. The first phase of re-shelving of books has been completed, and the second phase is in progress. This initiative has produced considerable satisfaction among users.

8.3.4. Smart Card Facilities

The Central Library provides the Smart Card facility to institute students, faculty and staff members and other members (IAS and corporate members, alumni and retired employees of the institute). A dual-side retransfer Smart Card printer is used. The library also provides dependent cards to present employees of the institute.

8.3.5. Major Re-organization of Library Books in Stacks

Back volumes (before 1980) of engineering and technology journals were shifted from the basement to the third floor. Engineering and technology journal back volumes (after 1980) were shifted from the left wing of the second floor to the right wing. Science (chemistry, physics and mathematics) back volumes in the third floor were shifted from the left wing to the right wing. By shifting these bound volumes, additional reading space and space for book stacks has been created in the second and third floors. The Book Bank was shifted from the basement to the left wing of the first floor.

8.4. Institutional Digital Repository

The Central Library has set up an institutional digital repository, IRepose, using DSpace digital library software. IRepose IIT Madras (http://irepose.iitm.ac.in:8080/jspui/) preserves and enables easy and open access to all the scholarly publications of IIT Madras, namely, journal articles, book chapters, conference papers, working papers, technical reports, etc.

8.5. Retirement of Staff Members

G. Kumar, Assistant Librarian, retired from service on 30 April 2015.

K. Sethu, Senior Library and Information Officer, retired from service on 30 June 2015.

8.6. Recruitment of Staff Members

Mahendra N. Jadhav joined as Librarian on 31 March 2016.

T. Ramakrishnan joined as Assistant Librarian on 31 March 2016.

8.7. Automation

- 1. The e-books were catalogued in the library i-portal, Chamo (http://iportal.cenlib.iitm.ac.in:8080/).
- 2. The VTLS database backup was set up in the Computer Centre in a new server.
- 3. Data relating to 2698 patrons' (students, faculty and staff members, alumni, IAS members) records were added to the Virtua–VTLS database.

8.8. Faculty and Their Activities

Sl. No.	Faculty Member	Qualifications	Major Areas of Specialization
1	Mahendra N. Jadhav, Librarian	M.Sc., M.L.I.Sc., M.Phil., Ph.D.	Library administration, library automation, digital libraries, open source software, library portals, RFID
2	K. Saravanan	M.L.I.Sc., M.Phil., Ph.D.	Library administration, circulation, acquisition, processing, maintenance

8.9. Short-Term Courses / Workshops / Seminars / Symposia / Conferences / Meetings / Training Programmes Attended by Faculty and Staff Members at Recognized Academic Institutions

Sl. No.	Faculty/Staff Member	Title	Institution	Period
1	Mahendra N. Jadhav	ISO 9000:2008 Data Analysis, Workflow & Process Excellence	IIT Madras	8 December 2015
2	Mahendra N. Jadhav	RFID Expert Committee meeting	CUSAT, Cochin	20 November 2015
3	K. Saravanan	ISO 9000:2008 Data Analysis, Workflow & Process Excellence	IIT Madras	8 December 2015
4	Nine library staff members (professional)	ICT Training on DSpace for Library and Information Science Professionals	IIT Madras	17 January 2016
5	Nine library staff members (professional)	Recent Trends in Scientometric Studies and Research Methodology	IIT Madras	16 March 2016
6	Nine library staff members (professional)	Regional South Workshop on Institutional Digital Repository for National Digital Library (NDL) Project, IIT Kharagpur	IIT Madras	25–26 March 2016

8.10. Special Lectures Delivered by Faculty Members at Other Institutions

SI. No.	Faculty Member	Topic of Lecture	Venue and Date
1	Mahendra N. Jadhav	e-Resources Management: An Experience at IIT Madras	NITTTR—Advanced Certificate Course on Modern Library Practices, Chennai, 30 October 2015
2	Mahendra N. Jadhav	Library Automation Trend in India	The special winter school refresher course in library and information science organized by the Department of Library and Information Science, University of Madras, Chennai, 30 December 2015

8.11. Distinguished Visitors/Groups to the Library

	-		
Sl. No.	Name of the Visitor and Designation	Date	Purpose of Visit
1	About 40 persons visited the library	8 September 2015	To participate in a short course organized by the Department of Ocean Engineering
2	Ms Padmashree, Manager (Library), from Indian Maritime University, Visakhapatnam	14 September 2015	Studying the facilities and functioning of the Central Library
3	Faculties from RBI, Staff College, Chennai	7 October 2015	Studying the facilities and functioning of RFID technology in the Central Library
4	NITTTR delegates from various countries	15 October 2015	Studying the facilities, infrastructure and RFID technology in the Central Library
5	Students from Mohamed Sathak A.J. Academy of Architecture, Egattur, Chennai	14 December 2015	Studying the facilities and functioning of the Central Library
6	E. Santha Kumar, from Rajalakshmi School of Architecture, Thandalam, Chennai	16 December 2015	Studying the facilities and infrastructure of the Central Library
7	Faculty members and 50 students from NSN College of Engineering and Technology, Karur, Tamil Nadu	29 January 2016	Studying the facilities, infrastructure and technology used in the Central Library

Sl. No.	Name of the Visitor and Designation	Date	Purpose of Visit
8	Professors and 45 students from the Department of Library and Information Science, Kumaun University, Nainital, Uttarakhand	1 February 2016	Studying the facilities and functioning of the Central Library
9	Professors and 16 students from the Department of Library and Information Science, S.V. University College of Arts, Tirupati	23 February 2016	Studying the facilities and functioning of the Central Library

8.12. Weeding Out Outdated Items

As per the 139th and 140th recommendations of the LAC, the Central Library weeded out 675 outdated items such as DIN standards, government reports, official gazettes, pamphlets, patent specifications, standards, the Stock Exchange Official Directory and technical reports.

8.13. LED Lights

All the lamps of the left wing of the second floor of the library were replaced with LED lights.

8.14. Future Plans

- 1. Initiating submission of scholars' electronic theses to IRepose
- 2. Initiating the creation of a database of bound volumes
- 3. Updating the project/permanent loan book database
- 4. Organizing professional development lectures and other professional events
- 5. Initiating the creation of a database of the conference proceedings received from faculty members of IIT Madras
- 6. Weeding out and writing off mutilated, very old, unused books and German books

Student Amenities and Activities

9.1. Hostels

IIT Madras, being a residential institute, requires the students reside in the hostels on campus. At present there are 17 men's hostels and three ladies' hostels used for accommodating the students of the undergraduate and postgraduate programmes, research scholars and project staff. A total of 6948 single rooms, 70 double rooms, 196 triple rooms, five quadruple rooms and three pentuple rooms are available in the hostels. Research scholars and some students in the master's programmes who are married and who seek family accommodation on campus are housed in earmarked quarters. A few students, especially those from the armed forces, are provided accommodation in the MOH quarters. During the period under report, there were 8139 students residing in the hostels.

At present, there are 10 messes (dining halls) that cater food to the students and project staff members in the hostels of these messes. One of these messes is run by staff members of the Office of the Hostel Management, and the remaining nine (including two for lady students) are run by private contract caterers. The mess registration and allocation of students to messes are done online on the basis of the preferences of individual students. Similarly, accommodation requests are made online. The housekeeping services in the hostel are outsourced.

Each hostel is administered by a Warden (a faculty member), an Assistant Warden (a senior research scholar or project staff member) and a Hostel Council, consisting of student secretaries and the Assistant Warden. The Hostel Council assists the warden with the day-to-day functioning of the hostel. Each hostel office is supported by the staff of the Office of the Hostel Management, which is a centrally administered body and has overall charge of the functioning of the hostels and the Central Supplies Unit. There are 81 employees, and they are accountable to the Hostel Management through the respective Wardens of the hostels. The Chairman, Council of Wardens is the Chairman of the Office of the Hostel Management. The Chairman is assisted by the supporting staff. During the period under report, the following Wardens were in position.

Chairman, Council of Wardens & Chairman, Hostel Management

K. Sethupathi

Professor, Department of Physics

Name of the Hostel/Unit	Warden	
Alakananda	Thyagaraj, Associate Professor, Civil Engineering	
Bhadra	Mallikarjuna J.M., Associate Professor, Applied Mechanics	
Brahmaputra	Arya Kumar Bedabrata Chand, Associate Professor, Mathematics	
Cauvery	Ranga Rao G., Professor, Chemistry	
Central Supplies Unit	Sethupathi K., Professor, Physics	
Ganga	Arul Prakash K., Associate Professor, Applied Mechanics	
Godavari	Manu Santhanam, Professor, Civil Engineering	
Jamuna	Kesavan V., Associate Professor, Biotechnology	
Krishna	Benny Raphael, Associate Professor, Civil Engineering	
Mahanadhi	Dhiman Chatterjee, Associate Professor, Mechanical Engineering	
Mandakini	Satyanarayana M.V., Professor, Physics	
Narmada	Sriram Srinivasa, Associate Professor, Electrical Engineering	
Pampa	Asokan T., Professor, Engineering Design	
Saraswathi	Balaji Narasimhan, Associate Professor, Civil Engineering	

Name of the Hostel/Unit	Warden	
Sarayu	Madhumathi R., Professor, Management Studies	
Sharavati	Usha Mohan, Associate Professor, Management Studies	
Sabarmati	Shanti Bhattacharya, Associate Professor, Electrical Engineering	
Sindhu	Boby George, Associate Professor, Electrical Engineering	
Tamiraparani	Satya Sundar Sethy, Associate Professor, Humanities & Social Science	
Tapti	Prafulla Kumar Behera, Associate Professor, Department of Physics	
Tunga	Usha Mohan, Associate Professor, Department of Management Studies	

9.2. Medical Facilities

The hospital at IIT Madras is one of the best-equipped hospitals attached to any teaching institute. It provides quality health-care facilities to the students and staff of the institute. The hospital has 25 beds and has a well-equipped casualty and operation theatre with a recovery room and post-operative ward. It also has a minor operation theatre.

Additionally, it has facilities such as an NABL-accredited clinical laboratory, a pharmacy, a radiology department (echo cardiograms, ultra-sonograms, X-rays) and a physiotherapy unit.

It also has a well-equipped labour room with facilities for providing neonatal care.

The out-patient department functions from 8.30 am to 8.30 pm. It is manned by 10 Medical Officers.

The emergency room is manned appropriately to receive all kinds of emergencies round the clock and on all days of the year. More details are available in Section 13.7 Hospital.

9.3. Gymkhana

The Institute Gymkhana takes care of the general welfare, sports and co-curricular and cultural activities of students. Sports activities form an integral part of the overall development of personality, which prepares the students to overcome challenges in their life after their graduation. Hence, students are encouraged to organize and participate in a number of sports activities.

The following tournaments were conducted during the year 2015–2016 by the Institute Gymkhana of IIT Madras.

- Freshie Tournament for Year I B.Tech. students (for all games)
- The inter-collegiate invitation tournament Sportfest—2015
- NSO selection for Year I B.Tech. students (compulsory attendance of 85%)
- IIT Sanmar Inter-collegiate Invitation Cricket Tournament 2015
- Inter-hostel tournament for men—Schroeter Trophy (Gymkhana Day)
- Inter-hostel tournament for women (Gymkhana Day)
- Inter-IIT Aquatic Meet—2015 (organized by IIT Madras)
- Inter-IIT Tournament organization 2015
- Non-media Tournament—Dean (Students) Trophy for men and women
- Inter-IIT coaching camp (10 days, compulsory for Inter-IIT contingent)
- Inter-IIT Staff Meet selection and coaching
- Institute Annual Open Road Race
- Institute Annual Cycle Race
- Institute Open Chess Tournament
- Institute Open Triathlon Competition
- Institute Open Bridge Tournament
- Institute Premier League
- Institute Open Best Physique competition
- Summer coaching camps for swimming and badminton

Sportfest 2015–2016

This inter-collegiate invitation tournament was conducted for city colleges, for both men and women, between 29 February and 4 March 2016. This tournament helps finalize the probable Inter-IIT team. Eighteen men's colleges and 11 women's colleges participated. Tournaments were conducted on a league cum knock-out basis. Winner's trophies were awarded for various games. The institute students took part enthusiastically in all the games and won in some of the events. The results are listed in the following table:

Sl. No.	Game	Position	Men's College	Women's College
1	Badminton	Winner	D.G. Vaishnav	Stella Maris
		Runner Up	IIT Madras 'A'	IIT Madras
		Third Place	IIT Madras 'B'	VIT Chennai
2	Basketball	Winner	D.G. Vaishnav	Stella Maris
		Runner Up	IIT Madras 'A'	St. Joseph College of Engineering
		Third Place	Guru Nanak	IIT Madras
3	Football	Winner	Nazareth Arts College	_
		Runner Up	IIT Madras 'A'	_
		Third Place	Patrician College	_
4	Hockey	Winner	St. Joseph College of Engineering	_
		Runner Up	Nazareth Arts College	_
		Third Place	IIT Madras 'A'	_
5	Table Tennis	Winner	D.G. Vaishnav	IIT Madras 'A'
		Runner Up	VIT Chennai	Stella Maris
		Third Place	IIT Madras 'B'	IIITD&M
6	Tennis	Winner	VIT Chennai	Stella Maris
		Runner Up	St. Joseph College of Engineering	VIT Chennai
		Third Place	IIT Madras 'A'	IIT Madras 'A'
7	Volleyball	Winner	D.B. Jain College	Stella Maris
		Runner Up	Guru Nanak College	Chellammal College
		Third Place	IIT Madras	IIT Madras
8	Weight Lifting	Winner	IIT Madras	_
		Runner Up	Velammal Engineering College	_
		Third Place	RMD College	_

31st Inter IIT Aquatic Meet - 2015

The 31st Inter-IIT Aquatic Meet was organized by IIT Madras. The meet was held from 1 to 4 October 2015. Sixteen IITs from all over the country participated in this mega championship. The Inter-IIT Aquatics Meet consists of individual swimming events and a waterpolo tournament.

Swimmers from all the IITs gave their best performances. Supporters witnessed a splendid performance by the swimmers. Ashwin Kenhere from IIT Bombay was declared the Best Swimmer in the men's category, and Gayathri S. from IIT Madras was declared the best swimmer in the women's category.

There was a crucial fight between Kanpur and Bombay for the third position in waterpolo. IIT Kharagpur were strong right from the beginning of their journey in this tournament. The IIT Madras team surprised everyone by getting into the finals. The swimming pool was surrounded by supporters who came to cheer their home team, 'The Madras Sharks'. The crowd was disappointed as the Kharagpur team won the final and became the waterpolo champions of 2015.

For the first time, RFID smart cards were used in the messes, which reduced a lot of time for the swimmers and coaches. The organizing team and the IIT Madras staff took this event to a new level.

Inter-IIT Sports Meet 2015

The Inter-IIT Sports Meet organizing team comprised the Sports Secretary, two Heads and nine Cores from six different departments, with around 170 co-ordinators under them. This team was selected in May 2015 and worked in tandem with the PTIs and other gymkhana staff members to make the event a grand success. Each department was headed by a professor from IIT Madras. A sub-committee was also formed for each sport:

- 1 Facilities & Requirements
- 2 Hospitality & Transportation
- 3 Design & Media
- 4 Sponsorship & Publicity
- 5 WebOps
- 6 Events (Teams)

Due to the heavy floods and uncertain weather conditions at Chennai, the Inter-IIT Tournament Committee took the decision to cancel Inter-IIT Sports Meet 2015. The next Inter-IIT Sports Meet is going to be organized by IIT Kanpur.

IIT Madras-SANMAR Inter-collegiate Cricket Tournament - 2016

The prestigious IIT Madras–Sanmar Inter-Collegiate Cricket Tournament for city colleges, sponsored by the Sanmar group, was conducted from 24 to 27 March 2016. This year, the entries were restricted. Only eight teams were invited by the institute. Knock-out matches were played. All the matches were of 20 overs, including the final match. A high level of competition was witnessed throughout the tournament. Guru Nanak College won the coveted trophy, and R.K.M. Vivekananda College secured the Runner Up position.

Inter-hostel Tournaments 2015–2016

Schroeter Trophy (Inter-IIT events)

Sl. No.	Games	Sl. No.	Games
1	Athletics (men and women)	8	Swimming (men and women)
2	Badminton (men and women)	9	Squash (men)
3	Basketball (men and women)	10	Table Tennis (men and women)
4	Cricket	11	Volleyball (men and women)
5	Football	12	Waterpolo (men and women
6	Hockey	13	Weightlifting (men)
7	Tennis (men and women)		

The Inter-hostel Tournament was conducted over the academic year for the Schroeter Trophy (General Championship). The tournament adheres to the Inter-IIT pattern of sports events. Godavari Hostel won the Schroeter Trophy.

Deans Trophy (non-media tournaments)

Sl. No.	Games	Sl. No.	Games
1	Nine-a-Side Tennis Ball—Cricket (hostel-wise)	8	Cycle Race
2	Nine-a-Side Tennis Ball—Cricket (freshers only)	9	Triathlon
3	Six-a-Side Football	10	Cycle Race (freshers only)
4	Six-a-Side Hockey	11	Chess
5	Three-a-Side Basketball	12	Carom
6	Three-a-Side Volleyball	13	Ball Badminton
7	Road Race		

All these events were aimed at encouraging participation from the students/campus community. They were a grand success, attracting a large number of participants, from both the staff and students. Student spectators witnessed and encouraged their hostel teams.

All the Gymkhana clubs, including the Fitness Club, Skating Club, Badminton club, Tennis Club and Swimming Pool Club, functioned very well during this period. More than a few thousand students, staff members, faculty members and campus children benefited from the excellent facilities and coaching offered by the Gymkhana.

The Fitness Club had a registered membership of 358, the Tennis Club a membership of 26, the Skating Club a membership of 59 and the Badminton Club a membership of 22. Excellent training and able guidance were provided for the students and the campus residents at the Fitness Club and Yoga Club to stress the importance of maintaining a good physique and health.

Planning the calendar of sports events in advance, including the fixtures for the Schroeter and Dean's Trophy events, helped the various sports events to be conducted smoothly, satisfactorily and in time. Also, the new flood-lit facilities attracted many students to the basketball, volleyball and tennis courts. The new international synthetic athletic track improved the sports and games facilities at the campus. The existing basketball court has been converted to a rubberized one. The Gymkhana created an additional volleyball court and an additional basketball court in the campus for the Inter-IIT Sports Meet.

Institute Premier League

New events were introduced in a few games: hockey, football, basketball and volleyball. Overall, it has been an eventful year full of Gymkhana activities.

National Sports Organisation (NSO)

The NSO functions as per GoI's decision to improve sports 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 430 Year I undergraduate students were registered under NSO in the academic year 2015–2016. Coaches and experts from various sports federations and the Sports Development Authority of Tamil Nadu were engaged to coach the NSO students in 20 sports and games (both men and women).

The noteworthy performance of Year I students at the various tournaments, namely Inter-IIT Sports Meet, Sportsfest, IIT-Sanmar Cricket Tournament and All India Invitation Inter-collegiate Basketball Tournament, is partly due to the quality of training given to the students and the hard efforts put in by them during the NSO programme.

9.4. Advisor, Weaker Section

The institute has nominated one Advisor to take care of the welfare of the foreign national and weaker section students. The Advisor periodically meets these students and counsels them regarding various academic and non-academic requirements. During the period under report, a few students could not do well, and they were counselled. As a result of this counselling, they performed very well in their subsequent semesters.

In addition, the Advisor arranged for extra classes in physics and mathematics between August and October for the weaker section and foreign national students of the B.Tech. programme as they expressed difficulty in understanding what was taught during normal teaching hours. Also, drawing instruments were issued to needy Year I students belonging to the weaker section.

The mentor programme, introduced the previous year, was continued. In this programme each Year I student belonging to the weaker section is assigned a mentor (a senior student) for discussions and guidance relating to academic matters. The reports of the mentors are periodically reviewed and discussed with the Advisor.

9.5. International and Alumni Relations

9.5.1. Introduction

The Dean's Office for International and Alumni Relations (I&AR) was established in October 2012. This office strives to support the institute's drive towards global excellence in:

- a. Education
- b. Research
- c. Relations with industry
- d. Innovation and entrepreneurship
- e. Sustainability and social impacts
- f. Internationalization
- g. Physical infrastructure

9.5.2. **Vision**

The vision of the Office of I&AR is to enhance the global stature and impact of IIT Madras by leveraging alumni and international relations.

9.5.3. **Mission**

The mission of the Office of I&AR is to leverage the institute's excellent relationship with alumni to increase engagement with

- · Academia/research labs
- Industry/business

- Entrepreneurs and
- Foundations

to promote institute-external relations by building on alumni relations and to raise funds for the benefit of the institute and its stakeholders

- Students
- · Faculty and staff
- Society

9.5.4. Distinguished Alumnus Awards

The Distinguished Alumnus Award (DAA) is the highest award given to its alumni by IIT Madras, in recognition of achievements of exceptional merit and excellence. The DAA is awarded in recognition of outstanding achievements in the areas of entrepreneurship, leadership and management, academia, social and technological innovation and service to humanity at large.

In 2016, the following 12 alumni were given the DAA:

- 1. Shri. D. Shivakumar, Chairman & CEO, India Region, PepsiCo India Holdings Pvt. Ltd., Gurgaon, Haryana [B.Tech. in Aerospace Engineering, 1982]
- 2. Dr. Ramarathnam Narasimhan, Professor, Department of Mechanical Engineering, IISc, Bengaluru [B.Tech. in Mechanical Engineering, 1982]
- 3. Dr. Chandra R. Bhat, Professor of Civil Engineering & Director of the Center for Transportation Research, University Distinguished Teaching Professor, University of Texas at Austin, USA [B.Tech. in Civil Engineering, 1985]
- 4. Dr. Chandramouli Visweswariah, IBM Fellow, Smarter Energy and Environmental Science; Director, Smarter Energy Research Institute (SERI), New York, USA [B.Tech. in Electrical Engineering, 1985]
- 5. Dr. Vaidehi Narayan, Professor of Molecular Immunology, Beckman Research Institute of the City of Hope, California, USA [M.Sc. in Chemistry, 1981; Ph.D. in Chemistry, 1986]
- 6. Dr. S. Christopher, Secretary, Department of Defence R&D and Director General, Defence Research & Development Organization (DRDO), New Delhi [Ph.D. in Electrical Engineering, 1987]
- 7. Dr. Kumar Ganapathy, Co-founder, Virident, Co-founder, VxTel and Global Vice President of Strategy and Products, HGST, USA [B.Tech. in Electrical Engineering, 1987]
- 8. Dr. Thomas J. Colacot, Global R&D Manager/Technical Fellow, Johnson Matthey, West Deptford, NJ, USA [Ph.D. in Chemistry, 1989]
- 9. Dr. Sridhar Vembu, Co-founder & CEO, Zoho Corporation, Chennai [B.Tech. in Electrical Engineering, 1989]
- 10. Dr. Aravind Srinivasan, Professor, Department of Computer Science & Institute for Advanced Computer Studies, University of Maryland, Maryland, USA [B.Tech. in Computer Science, 1989]
- 11. Dr. Thomas A. Kodenkandath, Scientist, Hazen Research and Co-founder, Appli3D, LLC, USA [Ph.D. in Chemistry, 1990]
- 12. Dr. Ramkumar Dhruva, Senior Vice President (Monomers Division), Asia-Pacific, BASF, Hong Kong [Ph.D. in Chemistry, 1996]



Mr. D. Shivakumar, Chairman & CEO, India Region, PepsiCo India Holdings Private Limited, Gurgaon, Haryana (1982/BT/AE)



Dr. Ramarathnam Narasimhan, Professor, Department of Mechanical Engineering, IISc, Bengaluru (1982/BT/ME)



Dr. Chandra R. Bhat, Professor of Civil Engineering & Director of the Center for Transportation Research, University Distinguished Teaching Professor, University of Texas at Austin, USA (1985/BT/CE)



Dr. Chandramouli Visweswariah, IBM Fellow, Smarter Energy and Environmental Science; Director, Smarter Energy Research Institute (SERI), New York, USA (1985/BT/EE)



Dr. Vaidehi Narayan, Professor of Molecular Immunology, Beckman Research Institute of the City of Hope, California, USA (1981/M.Sc./CY & 1986/Ph.D./CY)



Dr. S. Christopher, Secretary, Department of Defence R&D and Director General, Defence Research & Development Organization (DRDO), New Delhi (1987/Ph.D./EE)



Dr. Kumar Ganapathy, Co-founder, Virident, Co-founder VxTel and Global Vice President of Strategy and Products, HGST, USA (1987/BT/EE)



Dr. Thomas J. Colacot, Global R&D Manager/Technical Fellow, Johnson Matthey, West Deptford, NJ, USA (1989/Ph.D./CY)



Dr. Sridhar Vembu, Co-founder & CEO, Zoho Corporation, Chennai (1989/BT/EE)



Dr. Aravind Srinivasan, Professor, Department of Computer Science & Institute for Advanced Computer Studies, University of Maryland, Maryland, USA (1989/BT/CS)



Dr. Thomas A. Kodenkandath, Scientist, Hazen Research; Co-founder, Appli3D, LLC, USA (1990/Ph.D./CY)



Dr. Ramkumar Dhruva, Senior Vice President (Monomers Division), Asia-Pacific, BASF, Hong Kong (1996/Ph.D./CY)

9.5.5. Lecture Series

Leadership Lecture Series

This series was initiated in 2011 to create more avenues for alumni to interact and share their experiences with students and faculty members. We have three or four lectures each month, more than 108 lectures so far, of which 14 were held between April 2015 and March 2016. Please visit http://alumni.iitm.ac.in/leadership-lecture-series/for more details.

Institute Lecture Series

This series was sponsored by the 1985 batch. Prof. Jim Health gave a talk titled "Science at the Interface: Physics, Chemistry and Biomedicine" on 1 April 2015.

Other lectures

Shri M.S. Srinivasan, Senior Industry Relations Advisor, IC&SR, IIT Madras gave a talk titled "What Does Industry Want?" on 4 March 2016.

9.5.6. Travel Grants

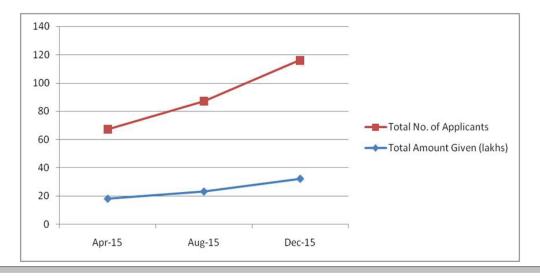
The IITMAANA Travel Grant was instituted 10 years ago. Its scope was enlarged in 2010 to support undergraduate travel also. Sponsored by the IIT Madras Alumini Association of North America, it reimburses half the expenses incurred abroad by students and allows them to travel overseas for competitions, summits, workshops, conferences and internships. This grant transfers \$10,000 annually to IIT Madras for this purpose.

IITMAANA instituted the Travel Grant Endowment in 2011, aiming to make the Travel Grant a sustainable initiative while widening its reach. The Travel Grant is one of the most popular and successful alumni programmes.

In 2015–2016, 15 faculty members were also given travel grants for travel related to research collaborations. The total amount granted towards faculty travel is ₹10.1 lakhs.

Travel Grant summary for the year 2015-2016

SI. No.	Date	Total No. of Applicants	Total Amount Given (lakhs of ₹)
1	April 2015	49	18.16
2	August 2015	64	23.19
3	December 2015	84	32.18
	Total	197	73.53



Statistics of funds received

Financial year-wise report

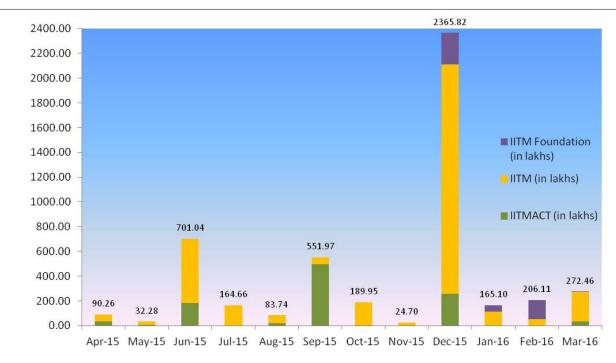
Financial Year	IITMACT (lakhs of ₹)	IITM (lakhs of ₹)	IITM Foundation (lakhs of ₹)	External Trusts (lakhs of ₹)	HTIC Activities (lakhs of ₹)	Total (lakhs of ₹)
2009–2010	15.03	94.77				109.80
2010–2011	69.76	374.88				444.64
2011–2012	1057.39	656.60				1713.99
2012–2013	343.26	127.10				470.36
2013–2014	589.61	292.59		403	200	1485.20
2014–2015	321.21	2498.16		200	150	3169.38
2015–2016	1037.42	3349.98	460.69			4848.09
Total	3433.68	7394.08	460.69	603	350	12,241.46

Major donations

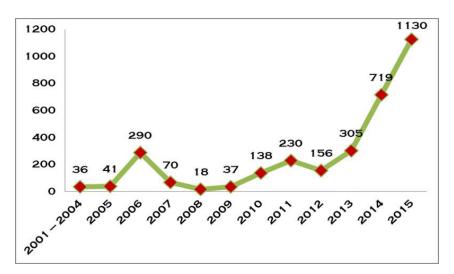
- Kris Goaplakrishnan sponsored two more Distinguished Chairs in Computational Brain Research at ₹10 crores each. All three chairs are currently occupied by outstanding researchers: Dr. Partha Mitra (Cold Spring Harbor Labs, New York), Prof. Mriganka Sur (MIT) and Prof. Anand Raghunathan (Purdue).
- Mr. Prem Watsa donated ₹6.5 crores towards renovation of the stadium, and the same has been named the Manohar C. Watsa Stadium. The synthetic track is spectacular, and it withstood the record rains of December with ease.
- The Mehta Family Foundation sponsored the second biosciences building with an additional contribution of ₹2.31 crores.
- For the first time, in 2015–2016, the CSR contribution received from Indian industry is ₹10 crores.
- Seven "Institute Chairs" were funded at ₹50 lakhs each.
- HAL and MoSDE (Ministry of Skill Development and Entrepreneurship) funded two "Visiting Chairs" at IIT Madras.
- Mr. T.T. Jagannathan and Dr. Krishna Chivukula funded two signature projects at IIT Madras, the Centre for R2D2 (Rehabilitation Research & Device Development) and the Space Lab (satellite facility), respectively.

Funds received: Month-wise (financial year 2015–2016)

Month	IITMACT (lakhs of ₹)	IITM (lakhs of ₹)	IITM Foundation (lakhs of ₹)	Total (lakhs of ₹)
April 2015	36.11	54.15		90.26
May 2015	3.93	28.34		32.28
June 2015	181.99	519.05		701.04
July 2015	0.25	164.41		164.66
August 2015	21.59	62.15		83.74
September 2015	495.90	56.07		551.97
October 2015	0.49	189.46		189.95
November 2015	0.37	24.33		24.70
December 2015	258.47	1853.03	254.32	2365.82
January 2016	1.29	111.00	52.81	165.10
February 2016	1.70	52.10	152.31	206.11
March 2016	35.33	235.89	1.24	272.46
Total	1037.42	3349.98	460.68	4848.09



Funds received (lakhs of ₹)



New donors: Year-wise

Launch of Development Office

To achieve the commitment to IIT Madras (as per Strategic Plan) and to raise a corpus of ₹500–1000 crores by 2020, the volunteer effort needs to be bolstered by development offices in India and in the USA that are professionally staffed and professionally managed. Our range of donors has expanded beyond alumni to non-alumni individuals, corporates and foundations. Industry CSR spending is emerging as a major opportunity for IIT Madras as well. It requires a talented full-time staff to identify, cultivate and close on these.

IIT Madras Development Office—India was launched on 1 May. Three alumni—Subbu Mahalingam (1984), Sujatha Dube (1983) and Joe Thomas (1982) were appointed the CEO and VPs. The Development Office will be under the aegis of the IIT Madras Alumni Charitable Trust (ACT), and it will report to the Board of ACT.

SSAN Ananya Educational Trust

SSAN Ananya is a trust set up with the noble intention of helping deserving students who require financial help during their education at IIT Madras and inspiring them to be a part of a unique brand of citizens who believe in the importance of "paying forward" the interest-free loan. Seven students received ₹9.75 lakhs from this scheme.





9.5.7. Events

Institute Day and DA Forum

The 56th Institute Day was celebrated on 17 April 2015, when eight of 10 Distinguished Alumni (DAs) received their awards. Also, the Excellence-in-Teaching award sponsored by our alumnus, Prof Marti Subrahmanyam, was conferred on Dr. David Koilpillai [B.Tech. in Electrical Engineering, 1984], Professor in Electrical Engineering.





AlumNite

The first-ever AlumNite was held on 25 July in the CLT. More than 350 alumni and their families attended the event. Of these, more than 200 were 2015 graduands. There were awards and prizes for the graduating students, and there was a cultural performance by them. Announcements were made by reunion batches.









Reunion Day

Six batches had their reunions in 2015. Each had an exhilarating time on campus, with alumni and families gathering in large numbers.



• North American Golden Reunion of the 1964 and 1965 batches, held on 23 and 24 May



• 1975 M.Sc. (Mathematics) Ruby Reunion, on 28 November



• Golden Reunion of 1966 batch, on 26 January





• Ruby Reunion of 1975 batch, on 29 December



• Reunions of the 1985, 1990 and 1995 batches, on 28 December

Chair launches

• The Shri N.R. Narayana Murthy Distinguished Chair was launched on 18 April 2015 by Mr. Kris Gopalakrishnan [M.Sc. in Physics, 1977 and M.Tech. in Computer Science, 1979], co-founder of Infosys, who has donated ₹10 crores towards this. Prof Mriganka Sur (MIT, Cambridge, USA) has been appointed the first occupant of this chair.



• The third Distinguished Chair in Computational Brain Research was launched on 25 July. Prof. Anand Raghunathan (Purdue University, West Lafayette, USA) is the first occupant of the chair. Mr. Kris S Gopalakrishnan donated ₹10 crores towards this chair.



• The RAGS Family Foundation Institute Chair in Department of Management Studies was launched on 15 February. Dr. Sridhar Tayur [B.Tech. in Mechanical Engineering, 1986] contributed ₹50 lakhs.



Donor dinner reception

For the first time, a donor dinner reception with the Director of IIT Madras, Prof. Bhaskar Ramamurthi, was held on campus on 18 April 2015 (Saturday). This is in recognition of donors' significant contributions to the development and growth of the alma mater. More than 25 donors, as well as DAs, alumni volunteers, our office staff, students active in alumni relations, the Director, deans, the Registrar and a few IIT Madras faculty members attended the reception.



IITMAANA dinner reception

This dinner is sponsored by the IIT Madras Alumni Association of North America (IITMAANA). This dinner was organised on 5 July for the students going abroad for higher studies or employment. This year, nearly 40 students joined in the festivities.



Chapter meetings





Chicago Chapter meeting – 23 and 24 May





Singapore Chapter meeting—1 November





Delhi Chapter meeting —21 February



Bangalore alumni meet – 26 April

Computational brain research workshop

A computational brain research workshop was conducted from 4 to 8 January. The goal of the workshop was twofold: pedagogy ("neuroscience for engineers") and outreach/community building.









Corporate relations and signing of MOUs





Nokia Head visit to IIT Madras—9 February

CII–IIT Madras workshop—28 September

CII–IIT Madras workshop—28 September



MoU between HAL and IIT Madras



MoU between TCS and IIT Madras-6 October

Inaugurations

Quark

The renovated eatery Quark (casual dining) was inaugurated by the Director, Prof. Bhaskar Ramamurthi, in the presence of alumni from the sponsoring Class of '73. The first floor has some modular spaces for students to get together in.





IIT Madras Space Centre





Dr. Krishna Chivukula [1970/MT/AE], 2015 DA, inaugurated the IITM Space Centre on 18 April.

Heritage Day

Heritage Day was celebrated on Thursday, 3 March, on campus, in the IC&SR Auditorium. Mr. R. Natarajan, the first Registrar of the institute, addressed the audience. The revamped website of the Heritage Centre—https://heritage.iitm.ac.in/—and a two-week exhibition of the wave energy project that began in IIT Madras in the 1980s were inaugurated on that day.

The 1964 and 1965 batches have provided funds for revamping the Heritage Centre. The 1966 batch has now made a donation, which will be used in further projects.









Other Events



Entrepreneurship Unconference—24 October



PAN IIT Conference — 24–25 July



All-IIT workshop – 2–3 October



Madras Week – 19 August



Heritage Centre workshop—2–3 October



CSR project—12 July





IIT AIIC-20 August

PALS 5-5 August





Prem Watsa's visit to IIT Madras—30 May

Nayudamma Award—21 December

Research collaborative workshop with University of Western Sydney (UWS)—14–16 January 2015

UWS participants: Athula Ginige, Ahmed Mustafa, Renu Narchal, Kevin Dunn, Surendra Shrestha, Dongmo Zhang, Nida Denson, Simi Bajaj

IIT Madras participants:Srinivas Kumar P., Deepak Khemani, Ravindran B., Chandra Sekhar C. (Computer Science & Engineering); Srinivas Chakravarthy (Biotechnology); Malathi D., Muraleedharan V.R., Solomon J. Benjamin, Sudarshan Padmanabhan, Jyotirmayi Tripathy, Srilata, Satya Sundar Sethy, Rajesh Kumar (Humanities & Social Sciences)

There were a lot of faculty collaborations and break-out group sessions in which collaborative research on clinical and computational studies of Parkinson's disease were discussed.



Canadaian Citizenship and Immigration Minister's visit—14 January 2015

The Honourable Chris Alexander, Canada's Citizenship and Immigration Minister, visited Chennai on 14 January 2015. He met students of IIT Madras for a brief interaction. Minister Alexander spoke about the importance of Canada's growing economic relationship with India and highlighted the recent changes to Canada's immigration system. The other delegates who accompanied him were the Honourable Devinder Shory, MP, Mr. Nadir Patel, High Commissioner Designate, High Commission of Canada to India, Mr. Sidney Frank, Consul General for South India, Consulate General of Canada in Bengaluru, Ms Shannon Fraser, Program Manager—Immigration, Canadian High Commission, New Delhi, and Ms Sarah Dion-Marquis, Senior Advisor, Stakeholder Relations and Policy (Quebec).

International Students Meet-3 February and 13 August 2015

On 3 February 2015, the Office of International Relations (OIR) held an international students' meet. All the students were invited for a gathering at IC&SR Conference Hall.

Members present: Bhaskar Ramamurthy, Director, R. Nagarajan, Dean International and Alumni Relations, M.S. Sivakumar, Dean of Students, Sudarsan Padmanabhan, Foreign Advisor, K. Sethupathi, Chairman, Council of Wardens (CCW), OIR staff members, IPals, international students.

The event kicked off with high tea, which enabled social networking, followed by a photo shoot. The Director of the institute and the Dean of International and Alumni Relations (IAR) welcomed all the students to the campus. There was an interactive session where questions were raised regarding the hostel and Internet facilities, the unavailability of a course description on the website prior to their application and several more issues that were answered by the Dean of Students and Chairman Council of Wardens.

It was also decided that we would organize a workshop for the students so that they can understand Indian culture better and have monthly meetings with the Dean IAR to share their views and experience at IIT. A presentation was made by the Students Secretary for IAR and IPals, our student volunteer group, on the events and happenings in IIT Madras during the year. This was to enable them to get a view of how things work at the Institute. The purpose of this meeting was well served. The students voiced their opinions on academic and administrative issues to help us improve them. There was also appreciation for the office for having addressed their problems from time to time.



DFG Research Foundation - 20 February 2015

President of the DFG, Prof. Dr. Peter Strohschneider, accompanied by his delegation, visited IIT Madras while in Chennai and met with our Director to discuss the existing collaborations involving DFG and to try for expansion.

IIT Madras participants: Director; Dean AR; P. Sasidhar, Krishna Vasudevan, B.S. Murthy, Ligy Phillip, Franziska Steinbruch, Christoph Woiwode, Arvind Pattamatta (Indo-German Centre for Sustainability (IGCS)).

French Chevalier award conferred on Sukumari Polavaram — 13 March 2015

Sukumari Raghupathy Polavaram, Department of Humanities & Social Sciences, IIT Madras, has been named "Chevalier dans l'Ordre des Palmes Académiques," (Knight in the Order of the Academic Palms) by the Ministry of French National Education, Paris. This award, recognizing her deep interest, scholarship and instruction in the French language, literature and culture, was conferred by the Consul General of France at Puducherry, Mr. Philippe Janvier-Kamiyama, in a ceremony held at IIT Madras on 13 March 2015.

Sukumari R. Polavaram, after obtaining a B.A. in English Literature from Women's Christian College, Chennai, an M.A. in Translation & Interpretation from Jawaharlal Nehru University, New Delhi, followed by a second M.A., in French literature, from the University of Iowa, Iowa City, completed her Ph.D. in French literature from the University of Michigan, Ann Arbor, USA.

With a career in education spanning over 25 years of teaching undergraduates and graduates, she has taught at the Université de Paris VII—Jussieu and the Université d'Amiens, in France; and the University of Michigan and the Residential College at Ann Arbor, the University of Iowa, Iowa City, and the French Institute Alliance Française of New York City, in the USA. She currently teaches world literature, including francophone literature, in the Department of Humanities & Social Sciences at IIT Madras.

L'Ordre des Palmes Académiques (the Order of the French Academic Palms) was founded by Emperor Napoléon I in 1808 to honour eminent members of the University of Paris. Early Palmes Académiques were awarded to professors and teachers. Later, the scope was broadened to include major contributions to French national education and culture by anyone, including non-French citizens and French expatriates who spread the culture throughout the rest of the world. For those who are named and promoted in this Order of the French Academic Palms, this esteemed distinction acknowledges their merits, talents and exemplary activities. Thus, the Academic Palms is the oldest non-military French decoration.

Dossiers for nominations and promotions are typically prepared by the French consulates and are forwarded to and reviewed by the French Embassy before they are transmitted to the Ministry of the French National Education, in Paris, which takes the final decisions on French and foreign recipients. Nominations and promotions, by decree of the Prime Minister and upon proposal by the Minister of the French National Education, occur twice a year: on 1 January and 14 July.

This event, hosted by the Office of International Affairs, also marks the end of a 2-week winter school for 30 students (15 from Germany and 15 from India) conducted by the IGCS, IIT Madras, which works on research in the area of sustainable development, with a special focus on protection of the environment. On 13 March, at the last session of the winter school, Mr. Janvier-Kamiyama addressed the students, faculty and community on the topic "Climate Change—What can France Do for India?" He then proceeded to explain the history and significance of the Chevalier award, after which he decorated Sukumari Polavaram with the medallion.

Talk by consular officer from US Embassy - 24 March 2015

A consular officer from the US Embassy gave a talk to the students about higher educational opportunities in the USA and the visa application process.



Memorial University of Newfoundland, Canada - 5 May 2015

We have an MoU signed with Memorial University of Newfoundland, Canada. Prof. S.K. Bhattacharya is the champion.

Ms Jinghua Nie, International Officer, manages the student recruitment and international collaborations for the Faculty of Engineering and Applied Science at Memorial University. She is working on expanding our international

collaborations. Dr. Faisal Khan is the Head of the Department of Process Engineering at Faculty of Engineering & Applied Science, Memorial University, Canada.

During their visit, Dr. Khan gave a talk to the students on "Oil and Gas Development in Harsh Environments: How to Access and Ensure Safety and Integrity".

IIT Madras signs MoUs with leading Russian universities—8 May 2015

While accompanying a presidential delegation to Russia, Prof. Bhaskar Ramamurthi, Director, IIT Madras, signed MoUs with National Research Tomsk State University, Tomsk, and with Ural Federal University, Yekaterinburg. These MoUs address various aspects of collaboration between the institutions, including exchange of students and faculty members, joint workshops and symposia, and joint research in disciplines of mutual interest. IIT Madras currently has an active MoU with with National Research Tomsk Polytechnic University, Tomsk, and is actively exploring other tie-ups as well. "Given Russia's traditional strengths in science and technology, this is a natural partnership with significant benefits to faculty and students in both countries. We will explore large-scale collaborations with the support of industry, as well as governmental funding agencies such as DST, stated Prof. R. Nagarajan, Dean IAR.

Joint doctoral programme (JDP) agreement signed between Curtin University, Australia and IIT Madras—14 May 2015

Indian Institute of Technology Madras broadened and strengthened its research links with Australia through a new partnership with Curtin University, in Perth. Prof. Brett Kirk, Associate Deputy Vice Chancellor Research, in the presence of the Pro Vice Chancellor of Faculty of Science and Engineering and a number of senior faculty members of Curtin University, and Prof. Bhaskar Ramamurthi, Director, IIT Madras, signed an agreement on the IIT Madras campus to formalize a JDP.

Prof. R. Nagarajan, Dean IAR said that the institute is pleased to join the venture. "IIT Madras has embarked on a systematic programme of research collaboration with leading universities around the world. We envision a four-stage process, starting with faculty interactions, leading to research scholar exchanges and joint supervision of Ph.D.s, culminating over time in JDPs. We are happy that with Curtin University, we have reached the stage of signing a JDP. It is gratifying that several faculty members at both institutions have already expressed interest in participating in this programme. There has already been significant interaction among our faculty members across disciplines, in particular Chemical and Petroleum Engineering, as well as Civil."

Curtin University is located in the state of Western Australia, the resource hub of Australia, and is recognized as the leading provider of engineering teaching, research and research training in the state. "Curtin University accepts with great enthusiasm the JDP development with IIT Madras", said Prof. Syed Islam, Dean International for the Faculty of Science and Engineering. He added that "Curtin University already has a MoU and a student exchange agreement with IIT Madras in ocean engineering. In 2015, Curtin University will be sending a group of engineering students for a semester funded by the New Colombo Plan. The JDP agreement is aligned with Curtin's vision for growth in international higher-degree research students, joint publication with international authors and mechanisms for strong interactions between IIT Madras and Curtin academic scholars and professors."



Taipei Economic Cultural Centre — 7 September 2015

The Ministry of Foreign Affairs (MOFA) of the Republic of China (Taiwan) has been conducting the International Youth Ambassadors Exchange Program since 2009. This programme, which allows talented Taiwanese youth to participate in international affairs and broaden their horizons, has increased the understanding of development in various sectors of host countries. In addition, through a wide array of exchanges and interactions, the Youth Ambassadors have demonstrated Taiwan's important role on the international stage as a provider of humanitarian aid, promoter of cultural exchanges and standard-bearer of Chinese culture.

To enhance the outcome of the programme, the theme for the 2015 delegation was "Youth from Taiwan, Compassion for All". The goal was to not only highlight the vitality and kindness of Taiwanese youth but also reiterate their commitment to issues of global concern such as humanitarian aid and sustainable development.

Last year, MOFA selected 160 college and university students to serve as Youth Ambassadors, dividing them into 10 groups. They visited 41 cities in 35 countries in the Asia Pacific, North American, Caribbean, Latin American, European, African and West Asian regions, where they attended meetings and seminars and gave performances that combine dance and music. With a spirit of professionalism and teamwork, they aimed to introduce Taiwan to friends from around the world, convey the essence of the theme and represent all that Taiwan has to offer.

The delegates from Taipei Economic Cultural Center met the Director and Dean IAR. The students from Taiwan got to meet and interact with IIT students and both showcased their talents with their performance. They also had a visit to the Research Park and CFI, along with a tour of the campus.





University of Melbourne — 8–9 September 2015

IIT Madras and University of Melbourne (UoM), Australia have signed a generic MoU for a regular student and faculty exchange programme, a joint supervision programme (MIPP) and a joint doctoral programme. IIT Madras and UoM conducted a research collaborative workshop on 8 and 9 September 2015 in IIT Madras. UoM brought in faculty members from different departments. There were theme-based meetings, draft proposals and presentations made by both universities, and these were moderated by the Dean IAR, Prof. R. Nagarajan.

Delegates — Dick Strugnell (Pro Vice Chancellor), Muthupandian Ashokkumar (Professor), Uta Wille (Associate Professor), Dr. Martin Sevior (Professor), Andrew Drinnan (Associate Professor), Dr. Guoqi Qian (Professor), Thas Nirmalathas (Professor), Ken Crozier (Professor), Dr. Ranjith R. Unnithan (Professor), Palani M. Palaniswami (Professor), Marcus G. Pandy (Professor), Ramamohanarao Kotagiri (Professor).

Tokyo Institute of Technology — Global Scientists and Engineers Course — 8–19 September 2015

A group of four students and two staff members came to participate in a Global Scientists and Engineers Course for a period of 2 weeks. They attended classes of their choice and visited the Research Park, CFI and other labs in the institute. iPals helped the International Office with coordinating their stay in campus.

German Consulate - 24 September 2015

The German Ambassador Dr. Hans-Ulrich Seidt was in Chennai in the third week of September 2015. He was heading a team that conducted an evaluation at the Consulate General. Dr. Seidt met with some of the heads of the institutions with which they have close cooperation. Hence a meeting with the Dean IAR was arranged.

US Consulate General — 26 September 2015

A delegation from the US Consulate General, Chennai visited IIT Madras on Saturday, 26 September 2015 between 11.00 a.m. and 2.00 p.m.

The delegation included Mr. Jonathan Margolis, Deputy Assistant Secretary for Science, Space and Health, who visited the incubation cell and a water technology lab in the Department of Nanotechnology and Civil Engineering.

DAS Margolis is responsible for policies and programmes in International Science & Technology Cooperation, Space & Advanced Technologies and International Health & Biodefense.

Information sessions - September & October 2015

The Office of International Relations, along with the iPals team, organized information sessions for all the departments in September and October 2015. The objective of these sessions was to initiate awareness about exchange programmes, scholarships, internships and several other opportunities available to students.



Russian delegation - 26 October 2015

Russian delegates from the Ministry of Education and Science visited Chennai on 26 October 2015 to conduct a seminar on Russian technology on the software distribution for high-performance computing.

The delegates were highly research-oriented personalities from Bauman Moscow State Technical University, the National University of Science and Technology "Misis" and Lomonosov Moscow State University.

They had a meeting with the Dean IAR, Prof. R. Nagarajan and the Head of the Department of Computer Science & Engineering to discuss various possibilities related to joint research programmes.

Austrade – 28 October 2015

The Hon. Andrew Robb, the Minister of Trade and Investment, Australia visited the IIT Madras Research Park on 28 October 2015. He stopped by some incubation cells and was welcomed by our Director, Prof. Bhaskar Ramamurthi. The minister spoke on "Australia and India: Innovation for Growth". Later there were meetings the IIT faculty members who currently have collaborations with Australian universities.

International Day - 29 October 2015

The fourth International Day at IIT Madras, organized by the Office of International Relations and iPals, was held on 29 October 2015 at the Students Activity Centre (SAC). International Day is an annual event that has been gaining popularity since 2012. The first half of the session was a cooking fest with all the international students in our campus. Various cuisines were served up for the campus community and IIT students. Simultaneously some games were also organized. Once visitors won coupons by playing these games, dishes were prepared for them by the international students from the different stalls.

The second half of the session comprised some music performances, a traditional Tamil dance and a few dance numbers (flamenco, Japanese and Bollywood) that captured the attention of the large number of students and families that had gathered. The masters of ceremony for the evening's entertainment were two international students. A promotional dance number was performed by IIT and international students in front of Himalaya mess a week before International Day.



NTU-AOTULE Conference — 1–3 November 2015

The Asia-Oceania Top University League on Engineering (AOTULE) Consortium promotes inter-institutional co-operation through joint programmes, including an annual Dean's meeting, a student workshop and exchange of students and staff, in order to improve the quality of engineering education and research of the members. It aims to broaden participating students' perspectives through cross-cultural interactions. Consortium members include highly-ranked universities such as the University of Melbourne, Tsinghua University (China), Hong Kong University of Science & Technology, Nanyang Technical University (Singapore), KAIST (Korea) and Tokyo Institute of Technology.

The 10th AOTULE meeting was hosted by the College of Engineering at the Nanyang Technological University, Singapore between 1 and 3 November 2015.

Prof R. Nagarajan, Dean IAR, Ms Kavitha, Manager International Relations and Mr. Abhishek Sharma, IAR Student Secretary attended.

Asia-Oceania Top University League on Engineering (AOTULE) 2015 Conference:

Three research scholars, Ms Ambica Selvaraj, Ms Shreya Khare and Mr Venkata Reddy also participated in AOTULE to present their research work in three themes:

- New Media
- Water & Environmental (CE)
- Sustainable Earth (IGCS)

During this visit to Singapore, the Dean IAR had scheduled meetings with Prof. Ravi Kumar, Dean of the Business School; Prof. Tim White, Associate Chair (Research), School of Materials Science & Engineering and the Research Director for Engineering, Physical and Biomedical/Life Sciences; and the NTU management team.



NTU announced an AOTULE student logo design competition. IIT Madras student Mr. Krishna A.S. was awarded the second prize in the competition.









University of Twente - 17 November 2015

A group of 20 students from the University of Twente visited the campus. iPals coordinated a campus tour and showed them around the Centre for Innovation (CFI). CFI was started in 2008 with an objective of being a forum for the creative output of the budding engineers of IIT Madras. It provides students the necessary platform for realizing their ideas. A great workspace, a comprehensive inventory, ample guidance from faculty members and senior students and the zeal and passion of the CFI team make CFI a gifted asset for IIT Madras students. And over time, CFI has successfully evolved into a hub that encourages thinking and provokes students to generate novel ideas, making it truly the "centre" for innovation.

National University of Singapore — 17 November 2015

Prof. Lim Teng Joon, Vice Dean (Graduate Studies), Faculty of Engineering and Prof. Chowdari were the NUS delegates who visited the campus. There were several departmental visits, and Prof. Lim and Prof. Chowdari gave a talk to promote the NUS–IIT Madras JDP.

A joint degree awarding ceremony was held for the first two students, Ms S. Radhu and Mr. G. Sridhar, who completed the NUS-IIT Madras JDP.





Philippines Ambassador Visit—20 November 2015

The Philippines Ambassador for India and Nepal, Her Excellency Teresita C. Daza was accompanied by her delegates when she visited IIT Madras on 20 November 2015. Those who came for the interactive session were:

- Mr. B. Naredran, Honarary Consul, Chennai
- Mr. Fernando V. Beup, JR-Second Secretary and Consul, New Delhi
- Mr. Michael Alfred V. Ignacio, Commercial Counsellor, New Delhi
- Ms Jeanette B. Ramos, Cultural Officer, New Delhi

University of Montpellier, France

Prof. Ramachandra Rao (PH) initially championed the agreement between the two universities. The Dean IAR, Prof. R. Nagarajan visited the University of Montpellier, France. He went there to explore a joint master's programme, the first of its kind for IIT Madras.

University of College Cork - 20 November 2015

Seminar on George Boole, co-organized by IIT Madras, Institute of Mathematical Sciences, Chennai and University College Cork



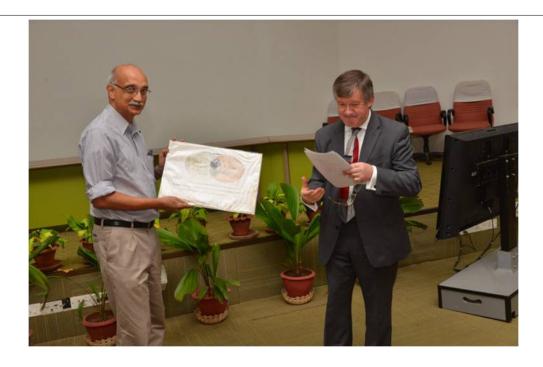
The delegates who participated were:

Mr. Kris Gopalakrishnan, Dr. Ramesh Gopinath (IBM), Dr. Shashikant Albal (SSN Engineering College), Prof. Anand Raghunathan (Purdue University, Distinguished Chair Professor, IIT Madras), Prof. Srinivasa Parthasarathy (Ohio State University).

The delegates from University College Cork (UCC) were Prof. Christopher K. Brown (Director International), Prof. Patrick Fitzpatrick (Emeritus Professor of Mathematics) and Dr. Minakshi Batra (Director India).

The delegates were welcomed by the Dean IAR. A brief introduction was made by the President, UCC, Michael B. Murphy, UCC, and the keynote address was delivered by Kris Gopalakrishnan (Co-founder, Infosys). Prof. Ramanujam (IMSc) delivered a talk titled "Boole & Logic", and Prof. Madhavan Mukund (CMI). The event was moderated by Prof. B. Ravindran (Department of Computer Science & Engineering, IIT Madras).

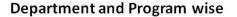


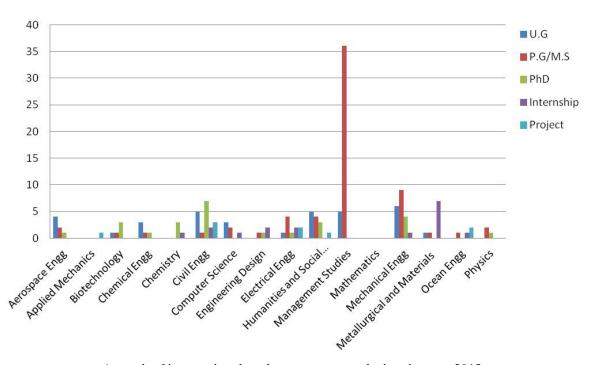


IHEE French think tank delegation – 26 November 2015

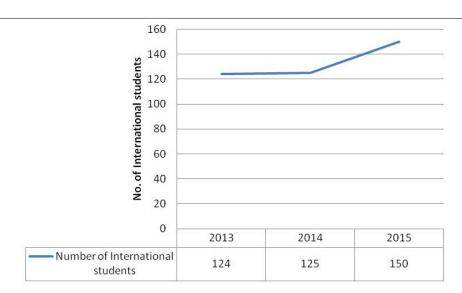
This French delegation was led by the French think tank IHEE, comprising "high potential" French professionals in various fields, including executives of large companies, bankers, politicians, journalists and university professors, who are expected to hold positions of high responsibility in the near future.

The delegation met the Director and Dean IAR and visited the IIT Madras Research Park and Center for Innovation.

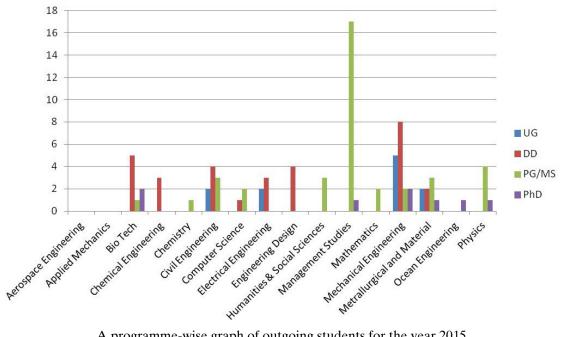




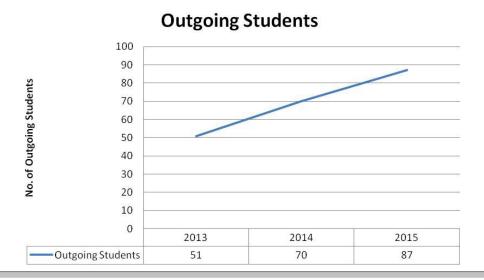
A graph of international students on campus during the year 2015

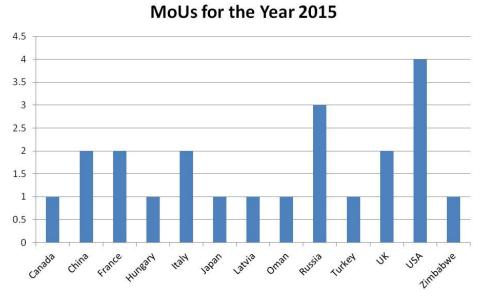


Total number of incoming international students

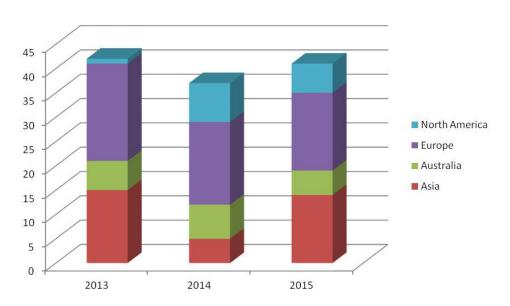


A programme-wise graph of outgoing students for the year 2015

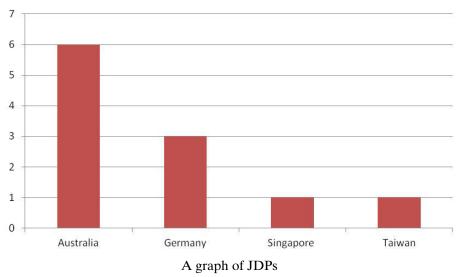


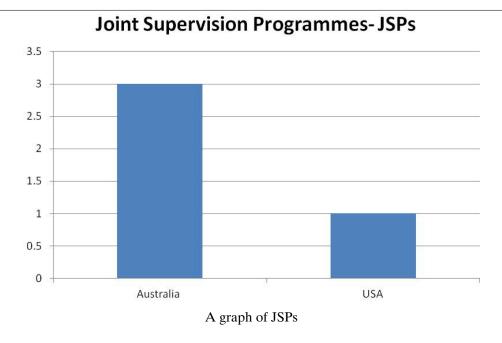


A graph of MoUs



Joint Doctoral Programmes - JDPs





9.6. Mentoring for Individual Transformation (MITr)

The academic year began with the preparation of the Campus Information Booklet, which was distributed to the freshers.

The Year I students and their parents/guardians were received at the railway station by the student counselors.

The counselors also solved problems that arose through individual attention.

The Year I students were assigned to student/faculty counselors for individual attention.

The following also took place in the rest of the year:

- 1. Relaxation training programme—conducted by Medall at regular intervals
- 2. Stress management workshop—conducted by Medall prior to exams
- 3. Crisis management workshop—conducted by Medall
- 4. Presentation by MITr to Medall on academic systems and life at IIT to make Medall understand what it is to be a student at IIT Madras
- 5. An awareness programme for Assistant Wardens was also conducted.
- 6. Faculty mentors/MITr meetings were held once a fortnight to iron out issues of students and faculty members.
- 7. Seminar on suicide prevention by Sneha and Medall—presided over by Mr. Balakrishnan, IPS DCP, Mylapore Range—an eye opener to identify potential cases and prevent them in the campus
- 8. A lecture on drug abuse, presented by Dr. A. Venkadesh Babu, IRS Assistant Narcotics Commissioner from Central Bureau of Narcotics—highlighted the effects and the damage that drug abuse could create
- 9. Saathi branched off from MITr, with the former to play a proactive role and the later a reactive role, with changes in structure and detailed guidelines.
- 10. Mitr/Saathi web site design—a new and more informative web site is in the offing.
- 11. A buddy programme was organized by identifying students who were weak in academics and students who sought assistance/guidance in subjects such as mathematics, physics and chemistry. The classes were conducted by senior students.
- 12. Out-bound training was also conducted for the freshers. This was all fun and at the same time demanded energy. It was something to break the monotony.
- 13. MITr Day was celebrated when the baton was passed on to a newly elected group. Certificates were presented to the outgoing team in appreciation of their efforts.

9.7. National Cadet Corps

9.7.1. Enrolment

A total of 171 Senior Division Air Wing NCC cadets were enrolled during the year 2015–2016.

9.7.2. Training

Training was conducted as per the NCC syllabus.

9.7.3. Participation in Republic Day and Independence Day March Past

A flight of SD cadets joined the march past conducted at the IIT Madras campus on Republic Day and Independence Day.

9.8. National Service Scheme

Enrolment

The National Service Scheme (NSS) Unit, which is dedicated to serving society and bringing about positive change, recorded an enrolment of about 350 volunteers this year.

Activities

The activities of NSS 2015–16 were spread across 28 projects, 10 categories of events and Winter Internships.

Projects

The 30 projects undertaken by volunteers were in teaching, content generation and other outreach initiatives aimed at transforming society. One of the notable projects was the Teach for National Olympiad Project, under which our volunteers mentored 20 students from Standards VI and VII who took the NSO Exam. All of these students secured ranks under 1500.

Events

This year, NSS conducted a host of events, including many new initiatives for driving social awareness, such as general collection drives, movie screenings, panel discussions and health awareness (CPR) workshops.

Wintern

Though the Chennai floods affected the successful completion of the Winter Internships, collaborations were forged with several NGOs including Sevalaya. The Ambattur and Aminjikarai chapters of HOPE Chennai were visited by our volunteers.

Flood Relief and Rehabilitation Efforts

The NSS—IIT Madras Unit upheld its true spirit of social service through commendable efforts for relief and rehabilitation during the floods in Chennai in December 2015.

Open House

NSS Open House 2016 showcased the work done by the volunteers and representatives of IIT Madras in the academic year 2015–2016.

Student Placement

10.1. Introduction

Details of the number of students placed during 2015–2016 are provided below:

Branch	B.Tech.	Dual Degree	M.Tech.	M.A.	M.Sc.	M.S.	Ph.D.	Total
Aerospace	15	12	5	_	_	5	0	37
Applied Mechanics	_	_	4	_	_	2	0	6
Biotechnology	3	12	3	_	_	0	0	18
Civil	39	28	22	_	_	1	_	90
Chemical	39	15	11	_	_	2	2	69
Chemistry	_	_	_	_	1	_	0	1
Computer Science	20	23	39	_	_	12	0	94
Electrical	42	47	27	_	_	15	2	133
Engineering Design	_	32	_	_	_	5	0	37
Engineering Physics	10	_	_	_	_	_	_	10
Humanities and Social Sciences	_	_	_	5	_	_	_	5
Mathematics/IMSC	_	_	5	_	_	_	0	5
Mechanical	45	41	47	_	_	13	4	150
Metallurgical	13	5	7	_	_	2	2	29
Ocean Engineering	20	11	1	_	_	0	0	32
Physics	_	1	2	_	_	_	0	3
Pre-placement offers								54
Total	246	227	173	5	1	57	10	773

During the year, 773 students/scholars (excluding M.B.A. students) were placed in various organizations.

Financial Assistance to Students

Financial assistance, in the form of scholarships and fellowships, is provided to meritorious students who are pursuing engineering, technology and science education at IIT Madras. Details of the scholarships and fellowships sanctioned to the students of the different programmes during 2015–2016 are provided here.

11.1. Assistance to B.Tech./Dual Degree Students

Twenty-five percent of the students admitted to the B.Tech./Dual Degree programmes whose parental incomes are less than ₹4.5 lakhs were sanctioned merit-cum-means (MCM) scholarships (that is, they were exempted from payment of tuition fees of ₹45,000 per semester and provided a pocket allowance of ₹1000 per month). During the period under report, 742 students benefited. The year-wise details of the number of the students who benefited are provided in Table 11.1(b).

SC/ST students admitted to the B.Tech./Dual Degree programmes whose parental incomes are less than ₹4.5 lakhs were sanctioned the concession of free messing and given a pocket allowance of ₹250 per month. They were exempted from payment of tuition fees and the hostel seat rent as per GoI post-matric scholarship rules. As on 31 March 2016, 273 students benefited.

Institute free studentship scholarships for the B.Tech./Dual Degree programmes were sanctioned to the students. These scholarships comprise exemption from payment of tuition fees.

The batch-wise details of the numbers of students who benefited are also given here:

Table 11.1(a)

SI. No.	Scholarship	No. of Students
1	GoI Ministry of Tribal Affairs SC/ST Scholarship	20
2	Ministry of Social Empowerment	48

Table 11.1 (b): No. of MCM and SC/ST scholarships

Batch	MCM Scholarship	SC/ST Scholarship	Free Studentship
2015	156	55	-
2014	182	60	_
2013	202	64	40
2012	210	88	61
Total	750	267	101

In addition, the institute sanctioned notional prizes of ₹1000 for the 29 top-ranking B.Tech. students (in JEE (Adv.) 2015) whose parental income is more than ₹4.5 lakhs.

11.2. M.Tech.

Students who joined the M.Tech. programme through GATE were awarded half-time teaching assistantships (HTTAs) of ₹12,400 per month. During the period under report, 423 fresh assistantships and 13 renewed assistantships were given. The discipline-wise details are given in the following:

No. of HTTAs awarded

Sl. No.	Discipline	Fresh—2015 Batch		Renewal —2014
		Semester I	Non-HTTA Converted to HTTA	Batch
1	Aerospace Engineering	11	2	1
2	Applied Mechanics	14	3	1

Sl. No.	Discipline	Fre	sh—2015 Batch	Renewal —2014
		Semester I	Non-HTTA Converted to HTTA	Batch
3	Biotechnology—Clinical Engineering	8	0	0
4	Chemical Engineering	34	5	1
5	Civil Engineering	42	12	1
6	Computer Science and Engineering	54	0	3
8	Electrical Engineering	61	0	3
9	Industrial Mathematics and Scientific Computing	11	3	1
10	Mechanical Engineering	71	12	1
11	Metallurgical and Materials Engineering	18	4	0
12	Ocean Engineering	38	1	0
13	Solid State Technology	10	2	1
	Total	372	44	13

11.2.1. M.Tech Dual Degree

Students of the 2011 batch who joined the M.Tech. programme under the Dual Degree were awarded HTTAs at ₹12,400 per month from 1 June 2015 onwards on the basis of their obtaining a valid GATE score or securing a CGPA of 8.0 or above (CGPA of 7.5 and above for SC/ST). During the period under review, 305 students were awarded fresh assistantships from June 2015 to December 2016, and 305 renewed assistantships were awarded in January 2016, out of which 284 students were renewed HTTAs at a rate of ₹6950 per month since they obtained a CGPA of less than 6.5 in the July–November 2015 semester. The department-wise details are given here:

Sl. No.	Discipline	:	2011 Batch
		Fresh (Semester IX)	Renewal (Semester X)
1	Aerospace Engineering	24	24
2	Biotechnology	18	18
3	Chemical Engineering	19	19
4	Civil Engineering	36	36
5	Computer Science and Engineering	24	24
6	Electrical Engineering	66	66
7	Engineering Design	33	33
8	Mechanical Engineering	58	58
9	Metallurgical and Materials Engineering	13	13
10	Naval Architecture and Ocean Engineering	12	12
11	Physics	2	2
	Total	305	305

11.3. M.Sc.

Students admitted to the M.Sc. programme were sanctioned ₹1000 per month merit scholarships as per rules. Exemption from payment of tuition fee was also granted to certain students. During the period under report, 136 students benefited. The department-wise details are given here:

No. of merit scholarships and freeships awarded

Sl. No.	Course	Merit Scholarship		Freeships (Freeships (Tuition Fee Waivers)		ips (50% Tuition Fee Waivers)
		Year I	Year II	Year I	Year II	Year I	Year II
1	Chemistry	14	14	6	5	12	13
2	Mathematics	13	12	5	5	1	4
3	Physics	11	11	4	4	_	1
	Total	38	37	15	14	13	18

11.4. M.A.

Twenty-five percent of the students admitted to the M.A. programme whose parental income is less than ₹4.5 lakhs were sanctioned merit scholarships (that is, exempted from payment of tuition fees of ₹3000 per semester and paid a pocket allowance of ₹1000 per month).

SC/ST students admitted to the M.A. programme whose parental income is less than ₹4.5 lakhs were sanctioned the concession of free messing and given a pocket allowance of ₹250 per month. They were exempted from payment of tuition fees and the hostel seat rent as per GoI post-matric scholarship rules.

Institute free studentship scholarships for the M.A. programme, which comprise exemption from payment of tuition fees, were sanctioned to the students.

Batch-wise details of the number of students who benefited follow:

Batch	Merit Scholarship	SC/ST Scholarship	
2015	2	1	
2014	3	1	
2013	1	2	
2012	6	_	
2011	5	1	
Total	17	5	

11.5. M.S.

The scholars admitted to M.S. programme through GATE are given half-time teaching research assistantships (HTRAs) of ₹12,400 per month for 2 years, later extended to a third year on the recommendation of the GTC. During the period under report, 794 scholars received these assistantships, 278 of them being fresh scholars. Departmentwise details of the assistantships awarded and renewed are given here:

No. of HTRAs awarded

Sl. No.	Discipline	Fresh	Renewal	Total	
1	Aerospace Engineering	24	41	65	
2	Applied Mechanics	22	43	65	
3	Biotechnology	4	14	18	
4	Chemical Engineering	15	26	41	
5	Civil Engineering	13	42	55	
6	Computer Science and Engineering	20	54	74	
7	Engineering Design	10	9	29	
8	Electrical Engineering	41	97	138	
9	Management Studies	14	34	48	
10	Mechanical Engineering	48	128	176	
11	Metallurgical and Materials Engineering	4	23	27	
12	Ocean Engineering	17	50	67	
13	Inter-disciplinary	9	_	9	
	Total	241	571	812	

11.6. Ph.D.

The scholars admitted to the full-time Ph.D. programme in engineering are sanctioned HTRAs of ₹25,000 per month for the first 2 years and ₹28,000 per month for the next 3 years. During the period under report, 1443 scholars obtained assistantships, 469 of them being fresh scholars. Department-wise details of the assistantships awarded and renewed are given here:

No. of HTRAs awarded SI. No. Discipline Fresh Renewal Total Aerospace Engineering Applied Mechanics Biotechnology Chemical Engineering Chemistry Civil Engineering Computer Science and Engineering **Engineering Design Electrical Engineering Humanities and Social Sciences** Management Studies Mathematics Mechanical Engineering Metallurgical and Materials Engineering Ocean Engineering Physics Inter-disciplinary

Ph.D. scholars of science departments who are able to submit their theses within 4½ years and Ph.D. scholars of engineering departments who are able to submit their theses within 4 years from the date of admission are sanctioned pre-doctoral fellowships of ₹45,000 for 6 months.

11.7. Financial Assistance to Research Scholars/Students for Presentation of Papers Abroad

IIT Madras encourages research scholars to present papers at international conferences, for which they are given financial assistance. M.S. and Ph.D. scholars are provided up to ₹1,50,000, including registration fees.

11.8. National/International Conferences in India

Research scholars and students of course programmes are given the following financial assistance for presentation of papers at national/international conferences in India:

- Registration fees for national conferences: ₹5000
- Registration fees for international conference: Actual amounts
- Travel: Third class AC train fare

Total

• Daily allowance: ₹250 per diem subject to a maximum of 10 days

Weaker Section and Foreign National Students

12.1. B.Tech. Programme

In accordance with the orders of the GoI, 27%, 15% and 7.5% of the seats are reserved for OBC, SC and ST students, respectively, in the B.Tech. programme. These students are admitted through the Joint Entrance Examination (JEE) with a relaxation. These students have to score only 60% of the marks obtained by the last student of the general category to qualify for admission. During the counselling session, prior to admission, an adviser explains to each student the requirements of the different branches. This helps the students choose suitable branches on the basis of their capabilities and interest. If a student finds the chosen branch tough after admission, he or she is allowed to switch over to a branch with a lower JEE cut-off at the end of the first semester.

Details of the numbers of SC/ST students admitted to the B.Tech. programme through JEE and the preparatory course in July 2015

Programme	Total Intake	Sanctioned Intake		No. Joined Through JEE		No. Joined Through Preparatory Course		
		SC	ST	SC	ST	sc	ST	PD
B.Tech.	446	70	35	69	32	1	2	3
Dual Degree	372	56	28	55	19	_	_	_

SC/ST students admitted against reservation are given the following benefits:

- Travelling allowance (Class II train fare/ordinary bus fare) from the place of residence to Chennai to join the B.Tech. programme
- · Tuition fee waiver
- Free lodging and messing (basic menu only) and pocket allowance of ₹250 per month, provided their parents'income is ₹4,50,000 net per annum or less.
- The Book Bank, a part of the Central Library, is maintained for the benefit of SC/ST students. The students are issued 12 tickets for borrowing books from the Book Bank. Books are issued for a semester.
- Drawing instrument (mini-drafter) free of cost
- Help in getting placement. Wherever possible, industries are requested to conduct separate interviews for SC/ST students, and the requirements for these students are lower than those for the general category.

12.2. Preparatory Course for Admission to B.Tech Programme

A preparatory course with a duration of one academic year was initiated by the Ministry of Human Resource Development, GoI during the year 1983–1984 exclusively for SC/ST students. Selection for this course is made from the JEE list of SC/ST students who did not qualify for admission. Upon successfully completing the preparatory course at IIT, they are eligible to join the B.Tech. programme, and they are not required to write JEE again. Details of the admissions made in July 2015 are provided here:

	Offers Issue	ed for PC		No. Joined				
SC	ST	PD	ST	SC	GE			
_	12	8	9	_	8 (PWD)			

Five candidates of the preparatory course of the 2014–2015 batch were offered admission to the B.Tech./Dual Degree programme in July 2015 as they had successfully completed the preparatory course.

12.3. M.Tech. Programme

Seats are reserved for SC and ST candidates according to the orders of the GoI. They are admitted through GATE by a separate merit list. The following are the details of the admissions made in July 2015:

	Offers Issued		No. Joined (HTTA)			
SC	ST	SC	ST			
60	29	51	26			

12.4. M.Sc. Programme

Admissions were made to the M.Sc. programme only through entrance examinations. A total of 23 SC and 10 ST students were admitted to the M.Sc. programme. These students were given tuition fee waivers.

M.Tech. and M.Sc. students admitted against reservation were given the following benefits:

- Book Bank facility with 12 library tickets. Books are issued for one 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 these categories of students.
- Scholarships were given to these students as per GoI norms.

12.5. Admission of Foreign National Students and Indian Nationals Residing Abroad

In July 2015, one Ethiopian student joined the M.Tech. programme.

At the end of March 2015, five foreign nationals were on the rolls of the institute. The following are the programmeand country-wise details:

Country	Year I	Year II	Year III	Year IV	Year V	Total	
M.Sc.							
Mauritius	_	1	_	_	_	1	
M.Tech.							
Ethiopia	3	1	_		_	4	

Foreign students are also permitted to use the Book Bank. Books are issued for a semester.

In addition to the foregoing, the IIT Madras Alumni Association provides financial assistance under the IITMAANA Travel Grant Programme for IIT Madras students to visit the USA and present their papers at internationally recognized technical conferences. The grants cover airline ticket charges and visa fees but exclude conference registration fees.

Campus Amenities

13.1. Engineering Unit

The Engineering Unit, IIT Madras is entrusted with the responsibility of construction and maintenance of buildings and services in the institute. The unit has carried out works through contracts by calling for tenders and quotations in a transparent manner.

The unit has used the expertise of faculty members for maintaining outstanding quality in the construction of buildings. The Engineering Unit holds review meetings periodically with the stakeholders to complete projects in time.

The Engineering Unit has introduced new materials and technologies in the construction and maintenance activities.

Major works completed

Sl. No.	Name of the Work	Value (in lakhs of ₹)
1	Construction of new boys' hostel blocks (Tunga & Bhadra; ground + 6 floors)	4958
2	Additional floors over the MSRC building	200
3	Construction of additional wing (ground + 2 floors) for Chemistry Department	1210
4	Construction of new canteen block (ground + 1 floor)	1400
5	Supply and erection of fire escape in existing hostel blocks (Godavari, Narmada, Saraswathi, etc.)	132
6	Construction of substation and demolishing existing barracks near Krishna Hostel gate	34
7	Re-carpeting minor roads and constructing new roads at various locations in the campus	392
8	Construction of eight-lane synthetic track at stadium	403
9	Renovation of playfields for the Inter-IIT Sports Meet (tennis court, stadium)	112
10	Repair and rehabilitation of basketball court and supplying and fixing synthetic interlocking flooring for three courts	88
11	Construction of new compressor building at NCCRD	74
12	Construction of additional rooms for doctors in ground floor and extension of in-patients ward at first floor at the institute hospital	41
13	Repair and rehabilitation of Sharavathy Hostel Phase-I	490
14	Construction of new culverts (10 nos.) at various locations in the campus	108
15	Construction of boundary wall and laying outer boundary roads at new IIT Madras campus at Thaiyur	1000
16	Design, construction, supply, installation, testing and commissioning of water treatment plant and laying supply mains from lake to main pump	245
17	Provision of additional solar power of 1 megawatt	700
18	Construction of lift room for the Department of Aerospace Engineering	9
19	Housekeeping services (Academic and Hostel zones)	311
20	Provision of 50 TR chiller plant and associated downside work in second floor of IC&SR building	40
21	Revamping/upgrading old industrial-type MV panels into cubicle panels in Academic Zone and substation	60
22	Provision of ductable split air conditioners in instructional computer lab of Department of Management Studies at DoMS 403	46

Major works in progress Work SI. Value (in lakhs of ₹) 1040 1 Supply, design, construction, installation, testing and commissioning of 4 MLD sewage water plant 2 Construction of new B Type quarters (96 nos; 3 blocks–ground + 8 floors–32 flats in each block) 6700 3 Construction of Biotechnology and Centre for Sustainability building (ground + 6 floors) 2956 4 Construction of new dining facility at Krishna Hostel (ground +1 floor) 1070 Construction of Academic Complex (ground + 6 floors), replacing dilapidated Workshop and Stores buildings 5 12,940 Construction of National Centre for Combustion R&D (NCCRD) building 6 1415 7 Supplying, laying, testing and commissioning treated sewage water supply pipe line and construction of 375 underground sump in Academic and Residential zones 8 Repair and rehabilitation of Sharavathi Hostel (Phase-II) 365 Construction of two new classroom complexes (B blocks—ground +3 floors), replacing the existing 1310 Chemistry and Physics lecture theatres 10 Construction of additional building for IC&SR (ground + 3 floors) 304 Construction of Shopping Centre annexe 25 11 12 RCC box culvert Phase-II 31 13 Box culvert—Adyar Avenue, storm water drains, etc. 15

35

Major works being planned

Construction of lift room for the Department of Computer Science

	O.	
SI. No.	Name of the Work	Value (in lakhs of ₹)
1	Construction of two-lane overbridge connecting the IIT Madras campus with IIT Madras Research Park	1200
2	Construction of girls' hostel, replacing existing rear wing of Sarayu Hostel	2159
3	Construction of G1 Type quarters (64 nos.) for married research scholars	747
4	Construction of new D Type quarters (48 nos.; 1 block—ground + 8 floors—6 flats in each floor)	1747
5	Construction of additional rooms at Taramani Guest House	447
6	Supply, installation, testing and commissioning of 1 MW grid-connected solar PV cell array	1000
7	Construction of additional floor at Engineering Design building	510
8	Providing grey water delivery line and tanks	240
9	Upgrading water supply in the campus Phase-I	850
10	Construction of additional floor at Structural Engineering Department	_
11	Construction of additional floor at Metal Forming Lab	_
12	Construction of additional floor at CSD	_
13	Construction of additional floor at CEC	_

13.2. Housing Facilities

A total 457 faculty quarters, 412 staff quarters and 232 students' quarters are available in the campus for accommodation. In addition, there are 167 servants' quarters in the campus.

13.3. Horticulture

The Horticulture Unit functions under the Engineering Unit. It maintains 30,000 m² of lawns and hedges. It also takes care of tree-planting and maintenance and associated activities.

13.4. Public Health

The Public Health Division takes care of mosquito control and termite control in the campus. The unit carries out disposal of garbage and hazardous waste generated in the departments through Tamil Nadu Waste Management Limited.

13.5. Telephone Facilities

A new telephone exchange has been commissioned by BSNL, Chennai Telephones Division in the campus. All the direct lines of the institute, which were linked to the Raj Bhavan Telephone Exchange, have been linked to this exchange.

13.6. Central Supplies Unit

The Central Supplies Unit functions under the administration of a Warden. The unit procures milk from the Tamil Nadu Co-operative Milk Producers' Federation (TCMPF) and distributes it to the student hostels. The unit procures major items from wholesale suppliers through the Provision Selection Committee and Provision Purchase Committee and provides them to hostels, thus economising the mess expenses. The unit also procures branded cosmetics and eatables from wholesale dealers and makes them available to the students through Students Amenities Centres at reduced prices.

13.7. Hospital

Providing healthcare is a noble occupation and calls for a holistic approach. Our focus has been to provide accurate diagnosis, the best approved medical care and appropriate patient guidance and follow-up in tertiary centres. This is the dedicated team:

Chief Medical Officer-i/c	Senior Medical Officers	Medical Officers
Dr. Mahalakhsmi M. Ravi, DGO	Dr. B. Rebecca Punithavalli, MD (O&G) Dr. N. Porchelvi, MBBS	
	Dr. Sabitha Selvam, DMRD	Dr. V. Thenral, MBBS
		Dr. D. Saraswathi, MBBS
		Dr. R. Gowri Shanker, MBBS, DA
		Dr. P. Kavitha, MBBS
		Dr. H. Anand, MBBS (Contract)
		Dr. J. Siva, MBBS (Contract)

The consultants at the hospital are listed here:

Specialists

Dr. Vishwanath Jayasankar	Orthopaedic surgeon
Dr. Amit Kumar Sharma	Orthopaedic surgeon
Dr. D. Sankar	Oral surgeon
Dr. Sharada Mani	Dentist
Dr. K. Balamurugan	ENT surgeon
Dr. A.J. Tamilmani	ENT surgeon
Dr. Fathima Hyder	Paediatrician
Dr. Indira Chaturvedi	Paediatrician
Dr. A. Chandan	Dermatologist
Dr. Shobana Priya	Obstetrician/gynaecologist
Dr. A. Mohan Rao	General surgeon
Dr. Anamay K. Bidwai	General surgeon
Dr. V. Ganesan	Radiologist
Mr. Aparaajith	Physiotherapist
Dr. Karthic	Ophthalmologist
Dr. Rajaram	Anaesthesiologist
Dr. Harish Bhat	Urologist
Dr. Shashi Umesh	Dentist
Super specialists	
Dr. S. Manoj	Cardiologist
Dr. N. Mahesh	Neurologist
Dr. Ramanan	Diabetologist

Dr. Kumaravel Endocrinologist Dr. Shiv Prakash Psychiatrist

Dr. G. Manoharan Gastro-enterologist

Dr. Gnanasambandam Cardiologist
Dr. Venkatesh Nephrologist
Dr. V.B.N. Murthy Plastic surgeon

On call at theatre

Dr. Sornam Obstetrician/gynaecologist
Dr. Vasantha Kumar Senior laparoscopic surgeon

Dr. Subha Paediatric surgeon

They are assisted by paramedics and the supporting staff.

Academic activities

The following continuing medical education (CME) programmes were conducted last year.

Topic

Endosphere on Thyroid Disorders

Systematic Approach to Common Cancers

Lifestyle and Liver Disease

Chronic Pain

Use of Calcium Supplements in Primary Care

SGLT I Myths & Facts

Conferences convened

BRIDGE 2015 was conducted on 28 and 29 November, with the theme "Medicine Updates", for the benefit of the doctors and budding post-graduates (IC&SR).

Conferences attended

Dr. Mahalakshmi	International Diabetes Updates 15
Dr. Rebecca Punithavalli	International Diabetes Updates 15
Dr. Porchelvi	Form 2015—Respiratory Medicine
Dr. Sabitha	Form 2015—Respiratory Medicine
Dr. Rebecca Punithavalli	Form 2015—Respiratory Medicine
Dr. Saraswathi	Form 2015—Respiratory Medicine
Dr. Thenral	Form 2015—Respiratory Medicine
Dr. Rebecca Punithavalli	Sixth World Congress of Diabetes-

Dr. Gowri Shankar 43rd Annual Conference of Research Society for the Study of Diabetes in India

Dr. Gowri Shankar COPD Hands-on Workshop

Events

- Epilepsy—Complexity and Guidelines—talk given by Dr. Dinesh Nayak on 15 October 2015 at IC&SR
- Cancer Awareness Programme—speech given by Dr. Ramanan on 25 February 2016 at CLT
- Two phases of the Oral Polio Drops campaign were conducted on 17 January and 21 February 2016 with the Corporation of Chennai.
- A cardiac camp was conducted on 26 September 2015 at Global Hospital.
- In view of Women's Day, a health camp was conducted over 3 days for 168 women, and 66 Pap smears were taken.
- A preliminary oral screening was conducted on 29 March 2016 for 64 participants, and four biopsies were recommended.
- World Nurses' Day was celebrated at the Institute Hospital on 12 May 2015.
- Doctors' Day was celebrated on 1 July 2015.

Surgeries

A total of 69 major surgeries and 327 minor surgeries and diagnostic procedures were performed, including emergency Caesarean sections and laparoscopic appendicectomies.

Training programmes for hospital staff

As part of their in-service education, the staff nurses and other paramedics were sent to conferences:

- 1. "Wound Care Management," 13–14 June 2015, Hotel Residency Tower
- 2. State-level nursing seminar, "Safe Medication Practices", 22 July 2015, SMF

Free medical check-up camps for institute employees and their dependents

- A health check-up camp was conducted for Kendriya Vidyalaya students from 13 to 20 July 2015 for 1534 students.
- A health check-up camp was conducted for the CCW catering staff (307 employees) from 24 August to 2 September 2015.

The number of out-patients at the hospital increased to 92,613 this year. This was understood to be due to an increased number of students and staff members, as well as due to the rains.

The total claim for in-patients admissions at the Institute Hospital through insurance companies was ₹67,28,806. The year saw the hospital scaling the clinical value proposition, with the introduction of several new initiatives across super specialties.

Non-communicable diseases are being handled according to international guidelines and protocols.

Communicable diseases are aptly handled as per guidelines and with special attention to prevention of cross-infections.

Emergencies and patients brought in a moribund state are promptly and efficiently handled by the medical officers of the hospital, who are regularly trained in the relevant and required areas.

13.8. Guest Houses

The institute has two guest houses within the campus. The guest house near the Administrative Building is called the Bose–Einstein Guest House, and the guest house in the hostel zone is called the Taramani Guest House (TGH). 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.

TGH has 83 rooms, of which 18 are suites and 65 are air-conditioned rooms. The guest house provides board and lodging facilities for institute guests and visitors, newly appointed faculty members, staff members, delegates and participants attending conferences, seminars, symposia and workshops.

13.9. Bank

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.

13.10. 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 of the campus.

13.11. Schools

Vanavani 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 Standard XII, and the KV offers courses from Standard I to Standard XII.

13.12. Open Air Theatre

The Open Air Theatre is used by the Film Club to screen films during weekends. It is also used for other functions of the institute and the schools.

13.13. 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.

13.14. Cafeteria

There are two canteens, the IIT Staff Canteen and the IRTC Restaurant, on campus to cater to the needs of the employees and students.

13.15. Crèche

A crèche is functioning on the campus for the benefit of the staff and working women. There were about 50 children in the crèche during the period under report.

13.16. Transport Services

The institute has eight LYNX buses, which provide transport facilities for the staff, students and residents of the campus. Transport facilities are also available for official work.

13.17. Campus News

Campus News, published every Friday, highlights the important events of the institute.

Finance and Accounts

The financial year of the institute corresponds with that of the Government of India (1 April to 31 March of the following year). The accounts of the institute are annually audited by the Principal Accountant General (Tamil Nadu & Pondicherry), Chennai on behalf of the Comptroller & Auditor General of India.

The 83rd Finance Committee of the institute, in its meeting held on 30 November 2015, recommended non-plan revised estimates of ₹305.42 crores (gross) for the year 2015–2016 and budget estimates of ₹332.99 crores (gross) for the year 2016–2017. The committee also recommended a revised estimate of ₹257.63 crores for the year 2015–2016 and budget estimates of ₹245.00 crores under the plan head. The same were approved by the Board of Governors of the institute in their 227th meeting, held on 30 November 2015.

The following is a summary of the revised estimates for 2015–2016 and budget estimates for 2016–2017 under the non-plan and plan heads as approved by the Board of Governors of the institute in their 227th meeting, held on 30 November 2015.

(Figures in crores of ₹)

Item	Budget Estimate 2015-2016	Revised Estimate 2015-2016	Budget Estimate 2016–2017		
Non-plan account	Non-plan account				
Non-plan grant expected	230.00	264.50	283.00		
Institute income projected	55.10	49.51	49.99		
Grant projected for salary	142.50	158.56	163.75		
Grant for pension and retirement benefits	58.20	66.50	73.60		
Grant for non-salary component	29.30	39.44	45.65		
Total	285.10	314.01	332.99		
Plan grant account					
Grant expected from MHRD	300.00	257.63	245.00		
Grant for scholarships OH-31	42.00	70.00	75.00		
Grant for asset creation OH-35	258.00	187.63	170.00		
Total	300.00	257.63	245.00		

Audit

The annual accounts of the institute for the year 2014–2015 were audited by the Principal Accountant General (Tamil Nadu & Pondicherry) during June–July 2015, and a certified copy of the annual accounts with the audit report was sent to MHRD after the annual accounts were duly adopted by the Board of Governors of this institute on November 2015 to enable MHRD to arrange for placing the same before both the Houses of Parliament during the winter session.

Summary of plan and non-plan grant utilization for 2015-2016

(Figures in crores of ₹)

Item	Amount	
Plan grant account		
Opening balance	-10.91	
Plan grant received	177.50	
Total funds	166.59	

	(Figures in crores of ₹)
Item	Amount
Plan expenditure	
Building and construction	74.70
Academic equipment	18.09
Equipment for specialized centre	_
Infrastructure (furniture/computers, etc.)	14.25
Periodicals/journals/books for library	14.61
Scholarship payments (HTTA/HTRA/PDF)	70.54
Total plan expenditure	192.19
Non-plan account	
Opening balance	1.81
Grant received during 2015–2016	240.00
Total funds available	241.81
Non-plan expenditure	
Salary and related items	154.91
Pension and other terminal benefits	67.18
Non-salary, non-pension items (other components)	98.66
Total non-plan expenditure	320.75

The balance of the Corpus Fund as on 31 March 2016 is $\stackrel{?}{=}$ 166.69 crores, and the balance of the Institute Endowment account as on 31 March 2016 is $\stackrel{?}{=}$ 74.10 crores.

CHAIRMAN

Prof. Bhaskar Ramamurthi

1	Prof. Amit Kumar	46	Prof S Pushnayanam
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	Prof. K. Bhaskar	40 47	Prof. S. Pushpavanam Prof. Raghunathan Rengasamy
$\begin{vmatrix} 2 \\ 3 \end{vmatrix}$	Prof. S.R. Chakravarthy	47	Prof. Ramanathan Srinivasan
4	Prof. Luoyi Tao	40 49	Prof. R. Ravi
	Prof. Murthy Haradanahalli S.N	50	Prof. P.S.T. Sai
5	Prof. Nandan Kumar Sinha	51	Prof. Shankar Narasimhan S.
6	Prof. M. Ramakrishna	52	
7	Prof. P.A. Ramakrishna	52 53	Prof. Sreenivas Jayanti
8		55 54	Prof. Susy Varughese
9	Prof. P. Sriram		Prof. Tanmay Basak
10	Prof. R.I. Sujith	55 56	Prof. Upendra Natarajan
11	Prof. R. Velmurugan	56	Prof. Archita Patnaik
12	Prof. C. Lakshmana Rao	57	Prof. S. Bhaskaran
13	Prof. Mahesh Panchagnula	58	Prof. P. Bhyrappa
14	Prof. M. Manivannan	59	Prof. N. Chandrakumar
15	Prof. Prasad Patnaik B.S.V.	60	Prof. R. Dhamodharan
16	Prof. Ramakrishnan Swaminathan	61	Prof. Dillip Kumar Chand
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