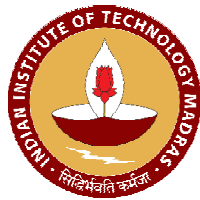


# Annual Report 2010-11



**INDIAN INSTITUTE OF TECHNOLOGY MADRAS**  
**CHENNAI - 600 036**

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Indian Institute of Technology Madras  
Chennai- 600 036

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Chennai- 600 036

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**Shri A Thirunavukkarasu**

Registrar  
Indian Institute of Technology Madras

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# 1. DIRECTOR'S REPORT

The Indian Institute of Technology Madras (IITM) was established in 1959 and declared an institute of national importance by an Act of Parliament in 1961. Its primary objective was to promote higher technical education, research and consultancy. The institute now has 16 Departments and 5 Research Centres and the campus covers an area of 256 hectares of forest land and houses a community of about 13000 people.

The Institute offers several course-based undergraduate and post-graduate programmes as well as research-based masters and doctoral programmes, specially designed user-oriented M.Tech. and continuing education programmes. The Preparatory Course programme for weaker section students offers intensive coaching to eligible candidates to prepare them for entry into IITM on successful completion of this one-year programme.

1 ST and 5 PD candidates have been admitted to this course in 2010.



The Institute also undertakes a large number of research and consultancy projects sponsored by a wide spectrum of funding agencies, including Government and Industry. IITM has active linkages with leading academic and research organizations in Australia, France, Germany, Korea, Japan, Singapore, UK and USA. This Report provides a summary of our activities, achievements and accomplishments during the year 2010-11.

## 1. The Forty-Seventh Convocation:

At this Convocation, a total of 1462 degrees are being awarded: 173 Ph.D., 99 M.S., 365 M.Tech, 85 M.Sc., 63 M.B.A., 30 PGDMEM, 186 Dual Degree (B.Tech. & M.Tech.) and 275 B.Tech. These degrees cover a wide range of disciplines and specializations offered by the eleven Engineering departments, three Science departments, the department of Management Studies and the department of Humanities and Social Sciences. Among the graduands are : 27 QIP candidates (teachers from other colleges), 19 sponsored candidates, 17 External and 49 UoP candidates, 149 ladies, comprising 28 Ph.D., 13 M.S., 46 M.Tech., 17 M.Sc., 11 MBA, 1 PGDMEM, 9 Dual Degree and 24 B.Tech. students.

## 2. Course-Based Programmes:

IITM offers UG, Dual Degree and PG programmes in Aerospace Engineering (AE), Biotechnology (BT), Chemical Engineering (CH), Civil Engineering (CE), Computer Science & Engineering (CS), Electrical Engineering (EE), Engineering Design (ED), Mechanical Engineering (ME), Metallurgical & Materials Engineering (MM), Ocean Engineering (OE) and Physics (PH) departments, an integrated Masters programme in Humanities and Social Sciences (HS) and PG programmes in Applied Mechanics (AM), Chemistry (CY), Humanities & Social Sciences (HS), Management Studies (MS), Mathematics (MA) and Physics (PH) departments. User Oriented M.Tech. programmes are currently offered in CE, ME and OE.

A new UoP PG Diploma programme in Metro Rail Technology and Management in Civil Engineering, an M.Tech Programme in Offshore Structural Engineering in Ocean Engineering and an M.Tech programme in Photonics in Electrical Engineering Department will be introduced from this year.

## 3. Academic Research:

IITM continues to be active in research and during the year under review, 173 Ph.D theses and 99 Master's theses have been completed. Our faculty and research scholars have published 1164 research papers in refereed International (1099) and National (65) Journals and have presented 643 research papers in International (535) and National (108) Conferences. At the risk of over simplification, I will attempt to give a flavour of the results obtained.

### 3.1 M.S. Work

#### Aerospace Engineering

Gaurav Gogate & Job Kurian showed considerable enhancement of the mixing rates of jets in supersonic flow by using strut injection experimentally and numerically.

Ritu Kanchan Dubey & Job Kurian confirmed through experimental and CFD studies the effectiveness of natural ventilation as a boundary layer control device for supersonic intakes.

Roopa Desai & Chakravarthy studied the effect of fuel injection location on combustion instability using acoustic pressure measurements and chemiluminescence imaging and showed there is an optimum distance for upstream injection.

Senthilkumar & Panchapakesan studied the effect of various kinematic parameters such as stroke deviation, Reynold's number and amplitude of pitch oscillations in the context of flapping wings.

Swapnil Bhende & Nagendra Gopal examined the influence of bend-twist coupling on the dynamic response of wind turbine rotor blade, with due consideration for elastic as well as mass coupling and showed that the coupling effects can be used for load alleviation and power enhancement.

Tushar Jadhav & Panchapakesan investigated experimentally and computationally multiple round jets and a single round jet with respect to turbulent mixing and mass entrainment.

Varun & Job Kurian examined the effect of microjet air injection on cavity oscillations in supersonic flow using instantaneous shadowgraph visualization techniques as well as numerical simulation using FLUENT.

Vidhya Sagar & Nagendran Gopal presented a computational approach to predict the rolling resistance of different parts of a radial tyre using different material constitutive models and validated them with experimental results.

#### Applied Mechanics

Bhatt Bhargav Pushpdant & Ramasubba Reddy investigated the suppression of Magnetic field induced ECG Artifacts during MRI. Multivariate statistical signal processing techniques were used to filter and extract the flow artifact signals.

Dasari Nancharaiah & Ramesh carried out a systematic study to identify the role of assembly stresses in a chain assembly and its strengthening mechanisms to enhance chain assembly fatigue life.

Hossain Aziz & Rinku Mukherjee used a lumped vortex model coupled with vortex dissipation and vortex core criteria to study the unsteady flow past two airfoils in configuration, each of which is impulsively set into motion with zero / non-zero relative velocity.

Mohammad Ghouse Pasha, Lakshmana Rao & Nageshwara Rao used a unit cell approach to model failure in cement concrete. Non-linear stress-strain response was predicted for tensile and compressive loading for unit cell with circular and square aggregate.

Prabhakar & Ramasubba Reddy discussed a HVS scheme for image compression incorporating a proposed Rest Peak Average CSF masking and Asymmetric Weighting March Lifting step approach.

Vijaya Senthil Kumar & Baburaj proposed a relation for the sliding velocity of the non wetting drops on inclined planes based on the hypothesis of a boundary layer inside the drop. Dynamic contact angles of drops were measured and, at large Reynolds number, were found to be only a function of capillary number

## Biotechnology

Kapopara Piyush Kumar & Nitish Mahapatra identified the crucial promoter - elements and transcription factors for transcriptional regulation of mouse and human cystathionine gamma lyase gene

Manisha Juneja & Karunakaran showed that some marine alkaloid analogs induce cell death in HeLa (human cervical cancer) cells by apoptosis, a mechanism by which many anticancer agents are thought to act.

Maya & Chakravarthy to understand birdsong learning by computational modeling presented a neural network model based on the actor – critic - explorer framework cast in a reinforcement learning scheme.

Srinivasa Rao & Karunakaran demonstrated the repressive role of mir-22 (micro RNA-22) on the growth promoting WNT signaling pathway in HEK 293 cells and identified the WNT signaling activator BCL9L as a direct target of mir-22.

## Chemical Engineering

Bontapalle Sujitkumar & Upendra Natarajan developed a molecular model for free energy of confined polymers and block copolymers interacting with tethered / end-grafted macromolecules, based on self-consistent field theory and scaling approach.

Mahesh Arigonda, Abhijit Deshpande & Susy Varughese studied the effect of blending poly ether sulfone on the properties of sulfonated poly ether ether ketone for fuel cell applications

Ravi Kumar Gobbaka, Ravi & Anju Chadha studied the kinetics of biodiesel production from non edible local oils- Jatropha and Mahua highlighting the effects of co-solvent and temperature on the transesterification reaction.

## Civil Engineering

Harihara Puthiran & Saravanan implemented a systematic procedure to determine constitutive relations for materials undergoing large deformations, based on biaxial tests and determined and validated a constitutive relation for vulcanized rubber.

Padmapriya & Devdas Menon studied GA based optimization of network arch bridge superstructure and presented recommendations for generating near optimal preliminary design configurations for such superstructures.

Somasundaram, Ligy Philip & Murty studied Cr(VI) reduction by Chromium Reducing Bacteria (CRB), Sulphate Reducing Bacteria (SRB) and Iron Reducing Bacteria (IRB), individually and in combination and proposed a mathematical model for simulating the chromium reduction.

## Computer Science & Engineering

Gurajada Venkata Sairam & Sreenivasa Kumar proposed a new approach for building an index for an information retrieval system that exploits frequency of occurrence of keywords in a given query log.

Haranadh Gavara & Chandra Sekhar proposed the use of hyperparameters of covariance function of a Gaussian process as features to represent a trajectory, and of stationary and non-stationary covariance functions to classify trajectories.

Karthik Raghavan & Kamakoti explored possibilities of salvaging faulty cores in a multi-core chip to perform limited set of operations.

Kunal Kargaonkar & Kamakoti dealt with constructing Hardware Transactional Memory for Multicore architectures and methodologies for Conflict detection and resolution.

Lavanya & Kamakoti studied the impact of temperature on test accuracy in addition to volume yield diagnosis of systematic defects.

Nitin Kumar & Sreenivasa Kumar proposed a new approach for automatically re-designing an extract-transform-load workflow in a data warehouse system.

Shivank Agrawal & Pandu Rangan designed some provably secure desirable extension of digital signature named as sanitizable signature, step-out-ring signature and attribute based signature

Yousuf & Ravindran identified discriminative features for object detection, when presented with different object categories one at a time as opposed to traditional methods which assume that all the categories are available a priori.

## Electrical Engineering

Gaurav Potnis & Devendra Jalihal proposed a new training sequence with high merit factor and low PAPR and a set of new terming and frequency offset estimators with lower MSE in time varying fading channel and evaluated their performance for new set of estimators in terms of timing error in interfere and CRLB for both

Jaganath & Mahesh Kumar explored the methods of current control and capacitor voltage balancing in neutral point clamped inverter for DSTATCOM.

John George & Bijoy Krishna Das demonstrated successfully the design, fabrication and characterization of directional couplers using single-mode silicon rib waveguide structures in SOI platform for optoelectronic applications.

Karthik & Prabhu developed techniques for the reconstruction of uniform samples of a signal from its recurrent nonuniform samples and missing uniform samples

Kulkarni Abhijeet Arvind & Shanti Bhattacharya designed an all fiber interferometer capable of characterizing height variations across structures as those encountered in MEMS devices using a least square technique to maintain the accuracy while reducing the height measurement time

Maheswaran & Karmalkar illustrated the effect of ambient field in the  $i - v$  characteristics of nanowire resistors, junctions and fets using simulation studies and compared them with measurements.

Narayana Bhagirath Thota & Enakshi Bhattacharya reported a simple method to estimate the effect of attaching thiol to gold by monitoring the flat-band voltage of a MOS capacitor with gold as the metal.

Ramnath & Rajagopalan proposed the use of discontinuity adaptive priors to overcome the limitations of commonly used priors for depth modeling in shape from blur using only a few images and employing fast and parallelizable algorithms to estimate detailed depth maps

Shamsudeen Nalakath, Krishna Vasudevan & Jayashankar achieved efficiency improvement of annular linear induction pump(alip) through parametric optimizations and proposed a modified equivalent circuit model of alip by including air leakage reactance.

Sunil Kumar Swain & Hari Ramachandran investigated the effect of a stochastic distribution of micro bends in the fiber on mode coupling and effective attenuation of different guided modes

Venkata Sitaram Avantsa, Manivasakan & Venkatesh proposed Markov chain models for IEEE 802.11 DCF for saturated as well as unsaturated networks under ideal as well as lossy channel conditions presenting analytical and simulation results for throughput and delay. They extended their analysis to IEEE 802.11e EDCA MAC protocol.

Vikas Singh & Nagendra Krishnapura analyzed various techniques to compensate for more than one clock cycle loop delay and successfully proved the idea in a silicon implementation



Vinoth & Bhasakar Ramamurthi presented a distributed, low-feedback precoding technique for interference mitigation in cellular wireless systems.

## Engineering Design

Divya Kannan & Nilesh Vasa proposed superluminescent diode based multiple gas sensing technique and demonstrated it by simultaneous monitoring of water vapor and ammonia using absorption spectroscopy.

Sonawane Dinesh Bhagawant, Shankar Ram & Sandipan Badyopadhyay developed a diagnostic system for air brake systems used on commercial vehicles such as buses, trucks and trailers.

Subhajit Mahanty & Sankararam developed and implemented a nonlinear model based slip controller for heavy commercial vehicles to prevent instabilities in the motion of a commercial vehicle during braking under emergency and wet/icy road conditions.

## Management Studies

Ananthavalli & Prakash Sai showed the transformation of creative ideas to innovative concepts generation in new product development through 'concept exploration process.

Gopinath & Rahul Marathe developed and solved a mathematical model for coordinating raw material discounts across global supply chain for deteriorating items for products that deteriorate and face price-dependent demand.

Sowmya, Arun Kumar & Madhumathi studied the factors affecting the interdependence of stock markets between US & Asian economies.

Subramanian & Narendran analysed closed loop supply chain networks for single and multi-products in single and multi-period settings and developed Integer Linear programming models for each case and methodologies involving Lagrangean relaxation, simulated annealing and goal programming to solve them.

Venugopalan, Ganesh & Prakash Sai proposed a framework for assessing the maturity of organizations germane to the deployment of product lifecycle management systems and applied the same to select firms in Indian automotive, aerospace and hi-tech industries.

## Mechanical Engineering

Annapurna Addagarla & Siva Prasad studied on residual warpage and stress distribution in Flip-chip on board assembly during reflow soldering process.

Kanthasamy, Srinivasan & Raghavan investigated the effect of burner vibrations on diffusion and premixed flames and showed that vibrations are effective in flame control, and stability.

Krishna Nandan Kumar & Govardhan showed that secondary kinetic energy is reduced by an innovative design of stream-wise boundary layer fence when placed in the middle of the turbine blade passage by 28 percent.

Priya, Sivaprasad & Ananda Kumaran Nair developed and patented a cyclo drive for an automobile wiper.

Rajesh Reddy, Srinivasa Murthy & Venkatarathnam developed a method for detecting change in composition of refrigerant mixtures in a J-T refrigerator due to leaks and studied the long term performance of J-T refrigerators operating with mixtures with different flammable and non-flammable mixtures.

Riby Abraham Bobby, Ramamoorthy & Singaperumal identified and classified the various defects in a textile ring component namely 'the ring traveler' which is mass produced in lakhs using machine vision approach making the entire inspection process automatic, faster and reliable.

Rohan Ghogare Sharad & Raghu Prakash investigated the crush behavior of extruded aluminum sections with and without foam fillers, stiffeners through numerical and experimental methods and observed significant improvement in energy absorption characteristics when polymeric foam is filled in the sections.

Sreedhar, Krishnan Balasubramaniam & Krishnamurthy reported the use of infra-red thermography technique for the online monitoring of TIG welding process and demonstrated it successfully during the welding of a 4 meter diameter space tank at ISRO.

Subhadip Roy & Maiya studied theoretically the performance of R134a-DMAC vapour absorption refrigeration system with emphasis on rectifier and liquid vapour heat exchanger. The system performance in terms of refrigeration capacity, COP and second law efficiency has been evaluated at different operating conditions and component efficiencies to bring out the significance of each component.

Suresh & Shankar Krishnapillai simultaneously minimized the wing root stresses (bending and torsional) of a tailless delta wing using multi-objective optimization thus allowing better manoeuvre load alleviation. They predicted significant improvement in the flight envelope is due to reduction in the wing root stresses and increase in payload capacity of the aircraft.

Vinitha Ranganathan, Gopinath & Shankar Krishnapillai developed asbestos free brake liner for high torque application specifically for rotor and yaw brakes of windmill as an import substitution.

## **Metallurgical & Materials Engineering**

Angappan & Sampath attempted to study and establish the use of RRA treatment for 7010 alloy to overcome the loss in mechanical and other properties.

Swetha & Ravi Kumar showed the processing and characterization of syntactic foams based on hollow glass and hollow ceramic reinforced in a polymeric matrix. They designed and developed a biaxial flexural fixture to measure the biaxial flexural strength and hyperbaric capacity of the processed foams.

## **Ocean Engineering**

Mayilvahanan & Panneer Selvam performed static and dynamic analysis on three different types of floater concepts namely barge type floater, semi-submersible type floater and deep drafted column structured floater – for supporting a 5-MW offshore wind turbine. They carried out a response statistical analysis on the best floater under each category for three different sea states and four different loading conditions.

Naga Meghana, Bhattacharyya & Nallayarasu investigated experimentally and numerically the motion responses of a four column floating structure with an articulated deck and compared the responses with a four column floating structure with fixed deck.

Shereena, Idichandy & Bhattacharyya presented a CFD approach to estimate drag reduction of axisymmetric underwater vehicles by air jet injection in the boundary.

## **3.2 Ph.D. Work**

### **Applied Mechanics**

Baskaran & Sivakumar studied analytically and numerically the Shot Peening Process. They evolved enhanced analytical numerical methods that include random variation of locations, properties along with strain-rate properties are evolved. Optimization of peening responses and better prediction of Almen intensity and related stresses are performed.

Benolina Neethi Simon & Ramesh studied biomaterial strips with interface cracks under different mechanical and transient thermal loading conditions using digital photoelasticity. They evaluated transient stress intensity factors of the interface cracks and suggested that they could become benchmark experimental solutions.

Shakthivel, Palaninathan & Velmurugan developed gas turbine compressor blades using AA2618/SiC p metal matrix composites by squeeze casting method.

## Biotechnology

Abhipsa Sarangi & Chandraraj investigated the Cr(VI) detoxification by chromate resistant bacteria isolated from contaminated soil. They showed the presence of a novel Cu<sup>2+</sup> dependant Chromate reductase in addition to NADH dependent reductase enzyme.

Anand Prakash Khandwekar & Mukesh Doble immobilized a variety of hydrophilic and antibacterial species on medical grade polymers and demonstrated *in vitro* and *in vivo* that they were effective in reducing protein adsorption, bacterial attachment, and suppressing inflammatory responses.

Dilli Rani & Chandraraj isolated and characterized a novel catabolite repression resistant promoter of amylase from the genome of soil isolate *B. subtilis*. They demonstrated the use of this promoter for extracellular production of industrial recombinant enzymes with *B. subtilis* as a host.

Garima Jain & Guhan Jayaraman developed chemometric models for correlating on-line multi-wavelength fluorescence data with the experimentally measured process variables during recombinant *Escherichia coli* cultivations expressing human basic fibroblast growth factor.

Kiranmayee & Manoj reported the biochemical and biophysical characterization of AnAEst, a novel eubacterial SGNH hydrolase. The enzyme displayed arylesterase activity and is thermostable under acidic conditions.

Pranav Kumar Prabhakar & Mukesh Doble showed that phytochemicals interact synergistically with commercially available oral drugs in glucose uptake by cells and side effects and toxicity can be reduced by reduction in the quantity of drug, supplemented with phytochemical.

Rajasekhara Reddy Sabbasani & Anju Chadha studied derivatizing glycerol to monitor biodiesel production & selective oxidation of alcohols

Santhosh Kumar & Sathyanarayana Gummadi studied caffeine degradation and caffeine demethylase production in bioreactors using *pseudomonas* sp

Sivakumar & Guhan Jayaraman studied an interesting single-step purification of recombinant streptokinase from an intracellular *E. coli* protein mixture experimentally using a gradient-based SMBC on hydrophobic-interaction (HIC) matrices and validated the theoretical process design calculations based on adsorption isotherms for streptokinase and intracellular protein impurities on HIC matrices.

Sudeshna Sengupta & Chandra suggested an improved riboflavin biosynthesis in *Ashbya gossypii* and *Eremothecium ashbyi* through genetic engineering.

## Chemical Engineering

Ambedkar, Nagarajan & Jayanti investigated ultrasonic washing of coals as a scalable method for de-ashing and de-sulfurization of Indian coals. They compared aqueous and reagent-based methods and developed a mechanistic model of sono-leaching of contaminants from coal.

Ashraf Ali & Pushpavanam analysed experimentally and theoretically the hydrodynamics of a partitioned bubble column reactor and proposed applications in the electrolytic degradation of uric acid and in optimally carrying out series-parallel reactions.

Jagannathan & Nagarajan characterized flow induced by ultrasound and investigated its application for destratification and atomization processes. High-frequency ultrasound was found to be effective in both applications.

Kalluri Ram Satish & Tanmay Basak studied thermal processing during natural convection within cavities via heatline and entropy generation minimization approach.

Kanakasabai, Abhijit Deshpande & Susy Varughese developed novel polymer blends based on crosslinked poly vinyl alcohol and sulfonated poly ether ether ketone for proton conducting membranes.

Krishna Sandilya & Kannan showed that ultrasound at 20 kHz under isothermal conditions intensified mass transfer rates in dispersed systems significantly by enhancing the intrinsic mass transfer coefficient and interfacial area of mass transfer without altering the saturation concentration.

Manivannan & Ramanathan synthesized ceria abrasives by different methods and evaluated their performance, with and without additives for shallow trench isolation chemical mechanical planarization.

Noyal Victoria & Ramanathan proposed a new oxidizing agent for ruthenium, CMP and characterized its performance under various conditions and also electro chemically characterized copper and tantalum chemical mechanical planarization with various complexing agents.

Srinivasarao Modekurti, Shankar Narasimhan & Raghunathan Rangasamy carried Modeling and optimization studies of a polymer electrolyte membrane fuel cell cathode with conventional single catalyst layer and proposed multiple catalyst layers.

Venkata Suresh Patnaikuni, Sreenivas Jayanti & Aphijit Deshpande studied the effect of cross-flow in a fuel cell flow field through computational fluid dynamics simulations proposing a new flow field, which makes effective use of the cross-flow, and improves the performance of the cell.

## Chemistry

Abhishek banerjee & Chandrakumar carried out studies in spatially resolved NMR.

Athilakshmi & Dillip Kumar Chand studied the synthesis, characterization and applications of palladium and silver nanomaterials.

Gomathi Sankar & Baskaran investigated epoxide initiated *domino* olefin-azide cycliation: stereo- and enantioselective synthesis of azapolycyclic ring systems.

Habeeb Muhammed & Pradeep - this thesis presents the synthesis and detailed investigation of photoluminescence of gold quantum clusters. Their use in energy transfer, detection and imaging of cancer cells is also accounted.

Haridharan & Dhamodharan studied the synthesis and characterization of fluorescent polymers via various controlled radical polymerization methods.

Illa Ramakanth & Archita Patnaik studied the self-assembly and fine tuning of surfactant to co-surfactant leading to the construction of wide range supermolecular architectures.

Manjunath & Indrapal Singh Aidhen presented synthetic efforts towards c-glucopyranosides eventually leading to new building blocks and applied the new d-gluco-configured-alpha-hydroxy morpholine amide to the synthesis of natural products.

Manoj Kumar Pandey & Mangala Sunder derived a generalized effective floquet hamiltonian for an interacting n-spin system using the contact transformation method.

Mohamad Akbar Ali, Mangala Sunder & Rajakumar studied computationally the structural and thermodynamic aspects of acetylenic macrocycles using homodesmotic reactions and reaction of OH radicals with HFCs

Niladri Bihari Debata & Dilip Kumar Chand studied the supramolecular chemistry of palladium(II) amine complexes

Podili Koteswaraiah & Chandra studied the antioxidant properties of phenolics in kodomillet and finger millet and their identification

Sajanlal & Pradeep presented the synthesis, characterization and applications of various one, two, and three dimensional nanomaterials

Satyanarayan Sahoo & Sundargopal Ghosh presented the synthesis and characterization of the heterodimetallaboranes of group 6 transition metals and their reactivity towards metal carbonyl fragments.

Senthil Kumar & Archita Patnaik investigated experimentally and computationally the structure property associated with the novel fullerene (C60)-azobenzene electron acceptor-donor system.

Sivaraman & Indrapal Singh Aidhen investigated the application of Weinreb amide in various synthetic strategies.

Sree Prasad & Pradeep described strategies for engineering the properties of one-and-two-dimensional nanosystems post-synthetically through chemical interactions.

Suheel Kumar Porwal & Santosh Gharpure reported the stereoselective approaches to oxa-bowl & cages.

Vijayasree Ulabala & Santhosh Gharpure investigated new synthetic strategies based on vinylogous carbamates.

## Civil Engineering

Bhuvaneshwari & Gandhi & Robinson evaluated the behavior of lime treated expansive soils subjected to cyclic swell-shrink and their response under cyclic traffic loading.

Girija & Devdas Menon studied slender reinforced concrete beams experimentally and theoretically and proposed improved recommendations for estimating limiting slenderness ratio and reduction in flexural moment capacity due to slenderness.

Gowri & Sivanandan evaluated turn lanes at isolated signalised intersection in heterogeneous traffic using microscopic simulation model specially developed for the purpose. They determined optimal lengths of such lanes with practical relevance.

Jacob Chandapillai & Sudheer proposed a novel design procedure and a flow control device for equitable supply in water distribution systems.

Rajasankar & Meher Prasad developed a formulation based on continuum damage mechanics and plasticity theory for nonlinear analysis of reinforced concrete frames, and validates it using numerical studies.

Soundharajan & Sudheer proposed a simulation-optimization framework that uses crop growth simulation models, for developing optimal irrigation schedules under water deficit conditions to maximize the water use efficiency.

Sreenivasa, Devdas Menon & Meher Prasad studied glass fibre reinforced gypsum (GFRG) wall panels subject to axial, eccentric and in-plane lateral loading experimentally and theoretically and proposed recommendations to facilitate the structural design of such wall panels as load bearing walls in buildings.

Venkatesan & Sivanandan studied the parameters influencing the merging characteristics of vehicles at urban uncontrolled major-minor road T-Junctions under heterogeneous traffic conditions and developed models reflecting various types of merging manoeuvres at these intersections.

Yamini Sreevalli & Appa Rao investigated experimentally and analytically the effect of temperature on relaxation of stress in high tensile low relaxation prestressing strands at different initial stresses and time intervals to develop an expression for predicting the long-term relaxation loss.

## Computer Science & Engineering

Abdul Nizar & Sreenivasa Kumar introduced a new framework for representing XPath queries with ordered axes and proposed several improved algorithms for processing such queries on XML data.

Ashish Choudhury & Pandurangan studied two important and fundamental problem in secure distributed computing namely reliable message transmission (RMT) and secure message transmission (SMT) and reported several new/improved/efficient/optimal protocols and answered several significant open problems and provided first solution to several newly formulated problems.

Chandrakala & Chandra Sekhar proposed the example-specific Gaussian mixture model based methods to compute the measures of similarity for long and varying length patterns extracted from speech and audio data, and classified the varying length patterns using the similarity paradigm based approaches.

Guruprasad, Yegnanarayana & Chandra Sekhar demonstrated the importance of processing high SNR regions of speech signals and proposed new methods for extraction of significant excitations from voiced speech and acoustic features that characterize the loudness associated with the significant excitations.

Kovendhan Ponnaivaikko & Janakiram studied the design of scalable distributed file systems using the resources of internet edge nodes and addressed. Issues related to the widening geographic spread of user bases and the increasing computational intensities of applications.

Mirnalinee, Sukhendu Das and Koshy Varghese presented the design of a semi-supervised system to exploit two salient features of roads namely, spectral contrast with respect to the surroundings, locally linear trajectory; for automatic road network detection from high-resolution multi-spectral remotely sensed imagery.

Umadevi & Raghavan developed a non-invasive screening method for Breast cancer based on infrared thermograph imaging by estimating the depth and size of tumor and to determine malignant or benign nature of the tumor.

## Electrical Engineering

Arpita Thakre & Gridhar attempted to solve multidimensional parameter estimation problems using tensor constructs when only a single or few snap shots are available.

Girirdhar & Sarathi characterized and analysed by UHF technique the partial discharge activity caused due to protrusion on conductors, foreign conducting particle and electric stress on the solid insulators in liquid nitrogen insulation medium.

Jayaraj Joseph & Jayashankar presented an automated system for the measurement of arterial compliance, which could be used in cardiovascular screening applications and discussed a novel gain magnetoresistance based transducer for non-invasive detection of the arterial blood flow pulse waveform is also discussed.

Kalyani & Shanti Swarup explored the security assessment of power systems using pattern recognition technique.

Kanakasabapathy & Shanti Swarup developed bidding strategy for pumped-storage power plant to operate in competitive electricity markets. Evolutionary tristate PSO was developed to solve the problem.



Kavish Seth, Kamakoti & Srinivasan explored different hardware and software techniques to tolerate errors in communication of highly compressed video data.

Mala & Jayashankar showed by analysis of twin unidirectional impulse turbine based power module that it is the best choice for the oscillating water column based wave energy plant. Scaling laws showed that it is possible to generate 50 GWh over a year with these twin unidirectional turbine based wave energy plant.

Oliver & Prabhu & Aravind) proposed improved methods for channel estimation in OFDM wireless systems.

Prabu Sankar & Shanthi Pavan analysed integrator nonlinearity on the performance of delta-sigma modulators. Introduction of a technique to mitigate these effects.

Rathnamala Rao, Amitava Dasgupta & Nandita Dasgupta described the use of analytical threshold voltage and subthreshold current models for the study of random dopant fluctuation (RDF) effects in SOI MOSFETs and DG-FinFETs.

Saleem & Karmalkar developed a comprehensive model and parameter extracted algorithm for current-voltage characteristics of solar cells.

Shaktiprasad Rath & Umesh considered the problem of interspeaker speech Variabilities in the field of Automatic Speech Recognition. Existing methods of speaker normalization that aims to account for the detrimental effects of inter-speaker speech variabilities namely, MLLR, CMLLR, SAT and VTLN have complementary strengths and weaknesses.

Srungavarapu Gopalakrishna & Jayashankar proposed improved methods for online assessment of winding deformation during short circuit test in power transformers. These methods help the designer for developmental testing and online assessment at site. They also used model based test with a combination of FEM analysis to establish design margin of a power transformer.

Umamaheshwari & Sarathi attempted to understand different types of partial discharge activities in sf6 gas insulation structure adopting UHF technique and identified the variety of defects present successfully by using a machine learning model.

## Engineering Design

Santhakumar & Asokan developed and tested an improved algorithm for trajectory tracking and station keeping control of an underactuated flat-fish autonomous underwater vehicle.

## Humanities & Social Sciences

Arivanandan & John Bosco Lourdusamy carried out a micro-level study on rural ICT programme its site villages in Tamilnadu and Puducherry

Leena Mary Sebastian & Prema Rajagopalan carried out a comparative study of host community perceptions on tourism development of two destinations in Kerala.

Preethi, Muraleedharan & Kamalanabhan studied the connection between the two divergent factors – the providers' perception of the HR practices as well as the employees' satisfaction – and patient satisfaction in two eye hospitals in Tamil Nadu and showed that HR practices influence patients' satisfaction mediated by employees' satisfaction.

Rafia Kazim & Chaudhary attempted to identify sociolinguistic factors that help promote the learning of English by Muslim women. Some key factors that significantly correlated with the proficiency measures were schooling, socio-economic background, exposure to the English language through various media, patterns of language use and father's occupation.

## Management Studies

Kumara Raja Singh & Srinivasan developed optimal and heuristic algorithms for operator allocation to manufacturing cells in the context of labour intensive and machine intensive cells and showed that some operator allocation formulations are unimodular and can be solved as minimum cost flow problems.

Lawrence Harold & Thenmozhi developed an information system success model for evaluation of Information Technology investment in the banking and non-banking finance companies and validated the model. They developed reliable quantifiable measures to assess net benefits and infrastructural quality, information quality, system quality and service quality of financial services information system.

Mathew Cherian & Srinivasan used a case study and survey to study the critical success factors for cross border alliances between companies in the manufacturing sector. They identified trust and governance as two of the most important critical success factors.

Mayuri Duggirala & Prakash Sai developed a holistic framework to comprehend the effectiveness of Technology-Mediated Learning from the students' perspective and factored in the key roles of learning enablers, namely, teachers, parents, peers and technology. They made measures with respect to student-related outcomes of learning, affect, cognition, metacognition and course satisfaction.

Sapna Poti & Kamalanaban studied using Kirkpatrick's evaluation model the impact of the change factors during an ERP implementation on effectiveness of an ERP user.

## Mathematics

Deepesh & Kulkarni derived many properties of approximation numbers and obtained estimates for their values in a more general setting than those available in the literature.

Jeyaraman & Vetrivel investigated the existence of solutions of complementarity problems involving linear transformations on symmetric cones in Euclidean Jordan Algebras.

Satyanarayana & Srinivasa Rao constructed solutions for a class of nonlinear partial differential equations called generalized Burgers equations, including N-wave solutions, Single hump solutions and periodic solutions.

## Mechanical Engineering

Anandavel, Raghu Prakash studied fretting variables of a dovertail interface having straight and skew dovetail and observed that skew angle increases the slip amplitude and contact stresses. They showed that preloading by interference fit reduced the damage due to fretting fatigue.

Anish & Sitaram investigated computationally impeller diffuser interaction in a low speed low specific speed centrifugal compressor with different types of diffusers at different flow coefficients and different interaction levels. They found the fluctuations due to interaction were negligible with partial vane diffuser.

Arunachalam & Ramamoorthy analysed the grinding process using images of the surfaces of the grinding wheel and the ground components enabling the user to understand grinding wheel wear and the surface finish of the ground component.

Ashok Kumar & Prasad investigated experimentally and computationally the effect of effusion on concave surfaces cooled by array of impinging jets.

Chennamsetti Rama Dasu & Krishnan Balasubramaniam reported the efforts to model and validate (using experiments) the interactions of guided ultrasonic waves with delaminations in composite structures. They discovered "turning modes" at the edges of the delamination which allow for a paradigm improvement in the nondestructive evaluation of hidden regions.



Denis Ashok & Samuel developed new techniques for evaluation of radial errors in high spindles using the data obtained from a capacitive sensor based measurement system.

Dhayalan & Krishnan Balasubramaniam reported the development of a hybrid electromagnetic-elastodynamic Finite Element model for the use of ElectroMagnetic Acoustic Transducers (EMATs) for NDE applications. They reported for the first time on the existence of higher order modes at higher frequency ranges.

Jayakumar Murthy & Gopinath investigated the influence of Chromium carbide  $\{Cr_3C_2-20(Ni_{20}Cr)\}$  coatings by detonation gun spraying technique on the mechanical property, microstructure and solid particle erosion behavior. It is compared with similar coatings produced by High Velocity Oxy Fuel coating technique.

Kathirvel, Krishnan Balasubramaniam & Raghu Prakash used two advanced NDE techniques viz., infrared thermography and pulsed eddy current technique to characterize the damage due to yielding and cold work in materials. They showed that the techniques are complimentary in nature and capture changes in electrical and the thermal conductivity due to residual plastic deformation.

Kulasekharan & Prasad studied the conjugate heat transfer from pin fin arrays in the trailing region of gas turbine blades under different operating conditions.

Lenin Babu & Chandramouli proposed optimal locations of macro porosities in acoustic materials for improved noise control in cavities.

Muralikannan & Velmurugan studied the energy absorption characteristics of metallic and composite tubes of different cross sections when subjected to both impact and static loading in order to find the optimum energy absorption for crashworthiness applications of road vehicles.

Muthuveerappan Nagalingam & Ganesan analysed the flow and combustion in a practical gas turbine combustor using CFD to estimate various performance parameters and to evaluate the pressure loss and pattern factor.

Narayanan, Srinivasan & Sundararajan investigated applications of Hartmann whistles in heating and atomization.

Palani, Vasa and Singaperumal proposed and demonstrated an application of a pulsed Nd:YAG laser for annealing and texturing of amorphous-silicon films via laser beam overlap in order to improve the efficiency of light absorption.

Parikshit Verma & Dhiman Chatterjee worked on the design, development and characterization of piezoelectric valveless micropumps and demonstrated their electronic cooling applications.

Periasamy, Asokan and Singaperumal developed and implemented a robust control strategy to reduce the manipulator trajectory errors due to dynamic coupling in an underwater robotic manipulator system using Bond graph model of coupled dynamics. They designed a six degree of freedom parallel manipulator platform as an experimental facility for underwater vehicle motion simulation.

Purushothama, Ganesan & Mallikarjuna analysed an SI engine under different intake valve timings and compression ratios to improve part-load thermal efficiency upto 35% and reduce HC and NO emissions by about 56 and 45% respectively and efficiently eliminate CO emission.

Raja Kumar, Vijayaraghavan & Mayuram investigated the Tribological responses such as static indentation, sliding indentation, erosion and abrasion of functionally graded D gun sprayed alumina based ceramic composites with zirconia and titania.

Rajamohan & Shunmugham proposed strategies for distributing sample positions depending on the geometrical nature of freeform surfaces and brought out their effectiveness in capturing different types of errors.

Ramachandraiah & Singaperumal investigated theoretically and experimentally active noise control with online feedback path modeling for Square Ducts and developed new ANC adaptive algorithms and established the effectiveness of the algorithms for real time implementation of active noise control in ducts.

Rammohan & Kumaraswamy established experimentally the capacity factor of globe valves with various configurations of the gage and proposed a formula for prediction of critical cavitation index.

Sabu Sebastian & Narayanan characterized the viscoelastic properties of Kevlar fabric strength member used in vibration isolation modules in towed array systems by a five parameter Kelvin-Voight model which takes into account the strain rate during testing and validated the model experimentally through pseudo-static and vibration tests.

Saikumar & Shunmugham based on extensive investigation developed response surface and artificial neural network models and implemented two different control strategies successfully to improve productivity and quality in rough and finish end milling respectively of hardened EN24 steel parts.

Senthil Kumar, Mani & Kumaraswamy analysed numerically and experimentally ejectors for use as vacuum pump in a desalination system. They built and demonstrated a experimental flash evaporation desalination system operating with ocean temperature gradient (simulated heat sources ).

Siva Sankar & Venkatarathnam developed a novel nitrogen liquefier operating on a mixed refrigerant process. They built and tested two different prototypes and achieved a nitrogen liquefaction rate of 0.5 litres/hr with a power input of 1.5 kW.

Sivakumar & Gopinath carried out analytical and experimental studies on high contact ratio gears for the final drive of the battle tank and showed that the high contact ratio gears reduces the weight, increases the load capacity and results in noise reduction.

Suresh & Mani built and demonstrated a vapour absorption refrigeration system with compact plate heat exchangers replacing all the conventional heat and mass transfer components.

Unni Krishnan Nair & Chandramouli developed a novel technique to modify Helmholtz resonator natural frequencies and identified minimum resonator to payload fairing cavity volume ratio for effective noise reduction.

Venkata Ramakrishna & Govardhan explored aerodynamic effects of various design parameters of an axial compressor blade in view of blade stalling/loss mitigation and suggested superior design configurations.

Venkata Timmaraju Mallina, Gnanamoorthy & Krishnakannan experimentally determined the life of polyamide 66 nanocomposites subjected to cyclic flexural loading and estimated dissipated energy per cycle using a simple Euler-Bernoulli type beam assumptions made on the viscoelastic beam subjected to flexural loading.

## **Metallurgical and Materials Engineering**

Amirthan & Balasubramanian prepared silicon carbide ceramics using natural raw materials such as, wood particles and cotton and jute fibres and established the relationship between the microstructure of these SiC ceramics and mechanical and tribological properties.

Babu & Prasanna Kumar carried out modeling and heat transfer studies during quenching heat treatment using inverse heat conduction and finite element method.

Chitta Ranjan Das, Murty & Bhaduri showed that boron addition in modified 9Cr-1Mo steel improved creep strength of its weldments.

Khalid Rafi, Prasad Rao & Phanikumar attempted to understand mechanisms, characteristics and performance of solid state coatings by friction surfacing.

Preetham Kumar & Uday Chakkingal studied the workability of commercial purity titanium processed by equal channel angular pressing.

Santhy & Hari Kumar modeled constitutional and thermochemical properties of industrially relevant Ti containing alloy systems using a combinatorial approach involving Calphad and ab initio first-principle methods.

Satya Prasad & Phanikumar studied the structure and magnetic properties of rapidly solidified Ni-base Heusler alloys.

Sumantra Manda & Subramanya Sarma studied the microstructural evolution during hot working and cold working and annealing with a view to optimize the grain boundary character distribution.

Susila & Subramanya Sarma studied creep properties of nanostructured ferritic and austenitic oxide dispersion strengthened alloys and correlated them with the microstructure.

Vijay, Pratap Haridoss & Seshadri studied Gas Diffusion Layers (GDLs) used for Proton exchange membrane fuel cells and altered them in order to improve the performance of the fuel cells.

## Ocean Engineering

Nanda Kishore Yadla, Mani & Narasimha Rao investigated experimentally and by finite element analysis model piles to study the influence of scour and submergence on lateral capacity of the pile for different soil consistencies and load eccentricity ratios under static and cyclic load conditions.

Sajini, Sundaravadevelu & Anantha Subramanian carried out detailed experimental and numerical investigations of the jacket spar platform for a 10 MLD desalination plant with cold water intake pipes attached to the counter-weight buoyancy chambers.

Sathia, Ganesh Babu & Manu Santhanam studied the effect of activator concentration on the strength and workability of fly ash based Geopolymer and the mechanical, durability and corrosion characteristics of Geopolymer concrete.

Senthil Prakash & Anantha Subramanian reported the combination of CFD and vortex lattice method based analysis of a propeller to interactively optimize the design of a ship's propeller.

Siva Prasad & Nallayarasu carried out experimental and numerical investigations on the proposed Spar Semi-submersible inter-linked system with taut and slack mooring under regular and random waves for motion and mooring force responses and proposed a system that satisfies the performance criteria for practical application in operation of oil/ gas and desalination floating systems.

## Physics

Ashish Mishra & Ramaprabhu synthesised graphite nanoplatelets and graphene and studied their applications in supercapacitor, water purification and carbon dioxide capture.

Benson Money & Hariharan explored lithium ion dynamics and crystallization kinetics on some lithium meta phosphate based systems in order to identify suitable composition for application in a solid state lithium battery.

Gagan Bihari Pradhan & Deshmukh studied the relativistic and many-body effects in multipole photoionization of atoms and ions using relativistic many-body techniques.

Imran Jafri & Ramaprabhu synthesised carbon nanocoils and graphene and showed their use as catalyst support materials for proton exchange membrane fuel cells and direct alcohol fuel cells applications.

Jobin Jose & Deshmukh investigated important many-electron correlation effects in photodetachment processes using relativistic many-body techniques.

Nibedita Ram, Pattabiraman & Vijayan studied the coherence induced transparency and absorption with Hanle configuration in degenerate two level system of atomic Rubidium. They investigated both experimentally and computationally the evolution of Hanle resonances as a function of polarization and intensity of incident optical field.

Rabindra Nath Mahato, Sethupathi & Sankaranarayanan studied some nanocrystalline manganites and bulk double perovskite oxide materials for their magnetic, magneto transport properties and their suitability as magnetic refrigerants.

Ramachandran & Ramachandra Rao demonstrated for the first time direct switchable magnetoelectric effect in doped bismuth ferrite compounds.

Ramanaih & Prem Bisht studied the application of whispering gallery modes of spherical microcavities to time-resolved emission, energy transfer and Raman scattering.

Ramesh Kumar & Harish Kumar showed that  $Mn_2VGa$  is a half metallic ferrimagnet despite the presence of 8% B2 Type atomic antisite disorder and synthesized the fully compensated ferrimagnet  $(Mnco)VGa$  and showed that contrary to theoretical prediction it is not half metallic.

Sandhya Dwevedi & Markandeyulu studied the variation of the Magnetoimpedance, Magnetoinductance and AC Magnetoresistance of the Fe and Co rich nanocrystalline FINEMENT, HITPERM and Metglas ribbons with different annealing techniques viz., conventional, Joule and stress annealing.

### 3.3 New Centres / Facilities

A Centre for Nanoelectromechanical Systems (NEMS) and Nanophotonics sponsored by the Department of Information Technology has been set up in the Department of Electrical Engineering at a cost of 49.5 crores. Dr. Enakshi Bhattacharya and Dr. Nandita Das gupta with 13 co-investigators from the Departments of Applied Mechanics, Biotechnology, Mechanical Engineering and Physics are involved. The proposal addresses two important branches of Nanotechnology: Nanoelectromechanical systems (NEMS) and Nanophotonics. Microelectromechanical systems (MEMS) has been one of the successful Interdisciplinary Research Programmes (IDRP) run by IIT Madras involving Departments of Electrical, Mechanical and Biotechnology. The vibrant Photonics group has successfully developed a wide gamut of photonic devices and systems. Through this Centre, we wish to extend our existing capability in MEMS and photonics into the new and exciting regime of NEMS and nanophotonics. This involves setting up of nanofabrication facilities at IITM to design, fabricate and test devices and systems relevant to Health and Food Safety, Communication and Environment. The facilities, once established, will be made available to external users.

A DBT-IITM Centre for Biodesign and Healthcare Technology Innovation with support from DBT is in the pipeline. The core mission of the DBT-IITM Biodesign Centre is to develop and aid in the development of healthcare technologies to address clinical needs in the country by conducting world class R&D, build human resources capacity and talent in the country, provide top quality R&D services to industry and enable effective collaboration pathways between technologists and clinicians for translational R&D in healthcare technologies. The core of the proposed center is technology R&D driving innovation in biomedical devices in the areas of screening and diagnosis, therapeutics and prosthetics, and rehabilitation. The team comprises of IIT Madras faculty and clinicians from major clinical institutions located around IIT Madras and medical equipment industry. The unique ecosystem of technologist-clinician-industry partnership in the form of IIT Madras, top quality clinical institutions, and one of country's leading clusters of health care and medical equipment industry provides a unique and valuable collaboration platform critical for technology innovation based healthcare technology R&D.

DST has funded the setting up of a Multi-band Time Domain Dynamic Nuclear Polarization (DNP) system at IIT Madras in the MRI centre with the expertise of Prof. N. Chandrakumar. The one of its kind DNP system in the world is to be employed primarily for sensitivity enhanced spatially resolved NMR investigations especially of materials ie. NMR imaging and Microimaging (MRI/MRM), volume localized NMR spectroscopy (MRS), and transport measurements including self-diffusion phenomena.

#### 4. Academic Distinctions secured by our Faculty Members and Students:

Several academic distinctions, honours and awards, fellowships of professional societies, memberships on editorial boards of journals have been bestowed on our faculty, staff and students in recognition of their academic achievements during the current year. Our faculty have written books, monographs and earned patents for their inventions. Some of these are listed below:

##### Awards:

- |                               |  |
|-------------------------------|--|
| IIT Madras                    | ● CII Award for the highest number of Patents granted in the last five years among the educational institutes in the country                   |
| Dr. T. Pradeep (CY)           | ● Kerala Sahitya Academy Award for Knowledge Literature  |
| Dr. S. Arul Jayachandran (CE) | ● Dr. Ramaiah Prize, SERC, CSIR  |
| Dr. A. Veeraraghavan (CE)     | ● Viswakarma Award, Construction Industry Development Council  |
| Dr. V. Ganesan (ME)           | ● Eminent Scientist of the Year Award -2010, International Board of Awards of National Environmental Science Academy, India                    |
| Dr. Harish Chandra (LIB)      | ● Bonnie Hilditch International Librarian Award 2011, Science – Technology and Engineering Divisions of the Special Libraries Association, USA |

##### Fellowships

- |                              |  |
|------------------------------|--|
| Dr. N. Raghavan (CE)         | ● INAE Distinguished Visiting Professorship scheme |
| Dr. A. N. Rajagopalan (EE)   | ● Fellow, Indian National Academy of Engineering   |
| Dr. A. V. Jayanthan (MA)     | ● Boyscast Fellowship, University of Missouri, USA |
| Dr. T. S. Sampath Kumar (MM) | ● Fellow, Biomaterials and Artificial Organs       |
| Dr. M. P. Kothiyal (PH)      | ● Fellow, The Optical Society of America (OSA)     |

##### Membership of the Editorial Boards

- |                               |   |
|-------------------------------|---|
| Dr. Ravindra Gettu (CE)       | ● Associate Editor, ASCE Journal of Materials in Civil Engineering<br>● Chairman of the Technical Activities Committee of RILEM and ex-officio Associate Editor, Materials & Structures Journal (of Springer) |
| Dr. S. Arul Jayachandran (CE) | ● Member, Editorial Board, Intl Journal of Advanced Steel Construction  |
| Dr. K. Rajagopal (CE)         | ● Member, Editorial Board, Indian Geotechnical Journal  |
| Dr. P. V. Subrahmanyam (MA)   | ● President, Forum for Interdisciplinary Mathematics  |
| Dr. Harish Chandra (LIB)      | ● President, Special Library Association, Alexandria, USA, Asia Chapter   |

## Best Paper / Thesis / Research Awards

- |  |   |
|--|---|
| Dr. Smita Srivastava (BT)  | <ul style="list-style-type: none"><li>• Best Research Paper Award at the Annual International Conference, BioTech 2011 on Advances in Biotechnology, Singapore</li></ul>  |
| Debakanta Tripaty (CY)   | <ul style="list-style-type: none"><li>• Commonwealth Scholarship, Canadian Bureau for International Education</li></ul>   |
| Kalaiselvi (CE)  | <ul style="list-style-type: none"><li>• Young Scientist Grant, International Conference on Acoustics</li></ul>  |
| Sunitha K. Nair (CE)   | <ul style="list-style-type: none"><li>• Best Paper Award, 4<sup>th</sup> CUSAT National Conference on Recent Advances in Civil Engineering, Cochin</li></ul>  |
| Kannan Divya (ED)  | <ul style="list-style-type: none"><li>• IITD-FOS Photonics Award for Best Research Paper at the Photonics 2010 – International Conference on Fiber Optics and Photonics, IIT Guwahati</li></ul>                                   |
| Dr. C. Rajendran (MS)<br>Dr. L. Prakash Sai<br>Dr. Sayeeda Begum | <ul style="list-style-type: none"><li>• Highly Commended Award as part of the Literati Network Awards for Excellence for their article published in the Intl Journal of Benchmarking</li></ul>                                    |
| Dr. G. Srinivasan (MS)   | <ul style="list-style-type: none"><li>• Dr. N. K. Jaiswal Memorial Award, Operations Research Society of India for Best Theoretical Paper</li></ul>   |
| Dr. G. Srinivasan (MS)<br>Dr. Usha Mohan<br>Dr. Rahul R. Marathe | <ul style="list-style-type: none"><li>• Shared University Research Grant and Award, IBM Inc.</li></ul>  |
| Dr. A. Thillairajan (MS)<br>Sriram Siddhartha                    | <ul style="list-style-type: none"><li>• Highly commended Award as part of the Literati Network Awards for Excellence for their paper published in the International Journal of Energy Sector Management</li></ul>                 |
| Dr. A. Thillairajan (MS)<br>S. P. Mukund<br>R. Siddharth         | <ul style="list-style-type: none"><li>• Highly commended Award as part of the Literati Network Awards for Excellence for their paper published in the Intl Journal of Financial Management of Property and Construction</li></ul> |

## Books / Monographs

- |   |   |
|---|---|
| Shriniwas Arbatkar (CE)<br>Dr. V. Thamizh Arasan                              | <ul style="list-style-type: none"><li>• Quantifying Traffic Flow on Intercity Roads</li></ul>   |
| Dr. K. Srilata (HS)   | <ul style="list-style-type: none"><li>• Table for Four, Penguin India</li></ul>   |
| Dr. N. Sivaprasad (ME)  | <ul style="list-style-type: none"><li>• Engineering Mechanics Volume I &amp; II, Tata McGraw Hill</li></ul>   |
| Dr. M. S. Shunmugham (ME)<br>Dr. N. Siva Prasad<br>Dr. S. Krishnamurthy       | <ul style="list-style-type: none"><li>• Mechanical Engineering Design (in SI Units), Tata McGraw Hill</li></ul>   |
| Dr. Shaligram Tiwari (ME)   | <ul style="list-style-type: none"><li>• Principles of Heat Transfer – 7<sup>th</sup> Edition, Cengage Publications</li></ul>                                    |
| Dr. Somashekhar S. Hiremath (ME)<br>Dr. M. Sngaperumal<br>Dr. R. Krishnakumar | <ul style="list-style-type: none"><li>• Modeling and Analysis of the Jet Pipe Electrohydraulic Servovalve (2010), Lambert Academy Publishing, Germany</li></ul> |



## Patents Filed

- |  |   |
|--|---|
| Dr. T. Pradeep (CY)<br>Mr. Shihabudheen<br>Mr. M. Maliyekkal<br>Mr. Anshup                                     | • An affordable process to remove fluoride from drinking water using nanostructured – boehmite on organic templates   |
| Dr. Loganathan (CY)<br>Mr. Katuri J V Paul<br>Mr. Laxminarayan Sahoo   | • A novel methodology towards the synthesis of N-( $\beta$ -glycosyl) asparagines based on the alkylation of ethyl nitroacetate and equivalents using N-( $\beta$ -glycosyl) haloacetamides |
| Dr. Sreenivas Jayanti (CH)<br>Dr. Abhijit P. Deshpande<br>Dr. Prathap Haridoss<br>Dr. Patnaikuni V. Suresh     | • Enhanced cross-flow serpentine flow fields for fuel cell applications   |
| Dr. T. Pradeep (CY)<br>Mr. Mundampra Maliyekkal<br>Shihabudheen<br>Mr. Theruvakkattil Sreenivasan<br>Sreepasad | • Reduced graphene oxide-based-composites for the purification of water   |
| Dr. T. Pradeep (CY)<br>Mr. M. Udhaya Sankar<br>Mr. Anshup<br>Mr. Amrita Chaudhary                              | • Gravity-fed axial flow filter block for domestic water purifiers and the method of making the same  |
| Dr. V. Jayashankar (EE)<br>Mr. M. K. Illampooran   | • Online assessment of moisture in power transformer insulations  |
| D. Krishnan<br>Balasubramaniam (ME)  | • Technique for imaging using virtual array of n sources using phased excitation  |
| Dr. C. V. Krishnamurthy<br>Mr. S. Alavudeen  |   |
| Dr. Mohanasankar<br>Sivaprakasam (EE)  | • Mobile unit for cataract surgery  |
| Dr. Ligy Philip (CE)   | • A method of removing organic pollutants from water and wastewater   |
| Dr. T. Pradeep (CY)  | • A sustained silver release composition for water purification   |

## Patents Granted:

- |  |  |
|--|--|
| Dr. P. Sasidhara Rao (EE)<br>Ms. M. R. Poonguzhali | • A device for converting single phase AC to three phase balanced AC                           |
| Dr. S. Sankararaman (CY)                           | • Synthesis of various salts of cross-linked polyallylamine polymer by ion exchange metathesis |
| Dr. Sarit Kumar Das (ME)                           | • A multi block heat exchanger   |

## 5. Industrial Consultancy and Sponsored Research:

Industrial consultancy not only provides technological solutions towards industrial development, but also brings a sense of relevance to the teaching-learning processes. Sponsored research is an important part of IITM's activities. Since 1973, we have maintained a steady and sustained growth in our interaction with industry and other agencies, both in terms of the number and value of sponsored research and consultancy projects. The number of active sponsored projects during the year is 113 for a total value of ₹ 1171 million including 10 international projects for a value of ₹ 29 million and 4 Industry projects for ₹ 10 million. Of these were 11 large projects of value exceeding ₹ 10 million each, some of which are listed here:

- ❖ Phase-II of the facility on spatially resolved magnetic resonance by DST for ₹1349.73 lakhs
- ❖ Unit of nanoscience at IIT Madras – Phase II by DST for ₹ 556 lakhs
- ❖ Strengthening of research facilities in the Department (FIST) – ELE by DST for ₹ 478 lakhs

The number of active consultancy projects during the year is 570 for a total value of ₹ 363 million including 72 Research Based Industrial Consultancy projects for ₹ 141 million. 321 faculty members are currently involved in sponsored research and consultancy projects. Six new Innovative Student Projects have been taken up during the year for ₹5.15 lakhs

The ISRO-IITM Space Technology Cell renewed 15 projects and sanctioned 2 new projects during this year. Under the IGCAR-IITM Cell, 6 new projects have been initiated and 10 projects were continued. Joint monitoring and regular technical review of projects have made the cell concept a success and model for other agencies sponsoring R & D. Under the NIOT-IITM Cell 8 on-going projects were continued while 2 new projects have been initiated.

The Industrial Associateship Scheme fostering close interaction with industry has 227 members this year. We have signed 32 Memoranda of Understanding during the year under review with industries such as Amada Co. Ltd.; Amada Soft (India) Ltd.; Nokia-Finland; Indian Oil Corporation Ltd.-Mumbai; Hindustan Unilever Ltd.–Mumbai; Renault Nissan Technology & Business Centre India Private Limited, Nielsen Company-New York.

## 6. Research Park:

The IITM Research Park has been operational since early last year. Thirty eight companies have signed up with the Research Park and the current occupancy is over 90% which is a significant achievement for any research park within one year of its inception. Apart from the R & D clients and incubated companies, IITMRP is also attracting events organized by industry organisations like NASSCOM, CII, MMA and TIE. Research is underway in various areas that include power storage, transmission and management, alternative sources of energy, efficient hydrogen generation technology for fuel cell systems, sensor based networks, semantic web, text mining, green services, cloud computing, web and virtual reality based applications and technologies in the authentication and transactional security space. In the telecom domain, joint research is planned to develop architectures', integrating sensors and mobile applications for health care and energy management, etc. Several patents have been filed within a short time span. The companies received about 200 applications for internship programmes from the students of IIT M of which over 80 interns have been recruited this year. This figure is expected to go up sharply in the coming year. The start-ups in the research park have made commendable progress and have gained significantly through the networks and visibility gained through the research park.

## 7. Continuing Education:

The Centre for Continuing Education (CCE) has been very active in promoting activities for the benefit of faculty members of other technical Institutions and working professionals in Industries. Our faculty members organized 14 AICTE funded Short Term Training Programmes (QIP) for the benefit of engineering college faculties as well as 69 Continuing Education Programmes (CEP) for the benefit of Industrial personnel and 3 programmes under the Curriculum Development Cell which had benefited about 1800 participants. The CCE had generated revenue of Rs.304 lakhs.

As part of Golden Jubilee Celebrations, Golden Jubilee Book Writing Scheme was introduced and under this Scheme, 23 text books, including one e-book were published. Two books by faculty members are under process in this year.



The CCE has been entrusted with the work of allotment of Registration Number for the Conferences/Workshops/Seminars conducted by the Institute and also to allot 13-digit ISBN number to the Proceedings published by IITM. This year so far ten conference registration numbers and four ISBN numbers were allotted.

It is proposed to establish a Teaching Learning Centre. This centre is expected to be a Centre of Excellence and Innovation in the teaching-learning process for a new and sustainable paradigm in higher technical education, resulting in human resources with the highest professional and personal qualities at the service of the nation.

## **8. Our Contributions to the National S&T Educational System:**

IITM plays a lead role in providing guidance and assistance to the other engineering institutions in the country. Deputation to the academic programmes of the institute viz., M.Tech & Ph.D facilitates career development of the faculty of AICTE approved technical institutions in the country. Under Quality Improvement Programme (QIP), 464 faculty from other institutions have obtained their Ph.D degrees and 559 faculty from other institutions have obtained their M.Tech degrees from IITM since its inception. Currently we have a total of 86 QIP Scholars – 63 Ph.D & 23 M.Tech which includes 14 women in Ph.D and 10 in M.Tech in the Institute.

The National Programme on Technology Enhanced Learning (NPTEL) coordinated by IITM is a pioneering joint initiative of 7 IITs and IISc Bangalore and is funded by the Ministry of HRD. It is India's largest online knowledge dissemination programme in the higher technical education sector. Under NPTEL Phase I, 135 video based courses and 125 web based courses in Engineering, Science and Technology have been developed for the benefit of students, faculty and professionals.

Both the web and video course contents are available with free and easy download options from the NPTEL website at <http://nptel.iitm.ac.in> and also distributed to Individuals / institutions. Video lectures are also available for downloads from the YouTube at: <http://www.youtube.com/iit>. They are also broadcast through the Eklavya channel provided by Gyan Darshan (Door Darshan Television, Govt. of India Enterprise) and made available by Ministry of HRD exclusively for this purpose.

Under NPTEL phase II, preparations are underway for the addition of more than 1000 new courses (900 or more under-graduate level and 100 or more post-graduate level web and video courses) in all major branches of Engineering, Physical Sciences, Technology, Humanities and Management. These courses are expected to be completed by 2012 and will also be available to every one freely.

NPTEL is being extensively used by students, faculty members and working professionals. NPTEL website and NPTEL channel in YouTube have received more than 100 million total views since the launch of the programme in September 2006.

IITM's Summer Fellowship Scheme, initiated a few years ago, provides opportunities for summer training to top-ranking engineering and science students all over the country; 191 students participated in the programme this year.

## **9. International Collaboration**

IITM has been interacting with several international organizations for collaborative research, exchange of faculty and students, etc. During the year, we have signed MoUs with international universities in Australia, Canada, France, Germany, Ireland, Korea, Sweden, Singapore, Spain, USA and UK. So far IITM has signed 180 MoUs with international universities. We have also signed 10 MoUs with international companies and research laboratories for collaborative R & D.

Sustainable development has become an indispensable condition for ensuring humanity's future. In September 2008, the German Minister for Education and Research, Dr. Annette Schavan and the then Indian Minister for Science and Technology and Earth Sciences, Mr. Kapil Sibal, signed an agreement on the occasion of the Golden Jubilee of IIT Madras to establish an Indo-German Centre for Sustainability (IGCS) in IIT Madras. In December 2010, the Centre was inaugurated by the German Parliamentary State Secretary, Mr. Thomas Rachel, and Professor M.S. Swaminathan, Member of Parliament, Rajya Sabha.

IGCS' goal is to foster inter-disciplinary research, training and policy advocacy in the broad area of sustainable development. Four thematic areas have initially been chosen for the Centre, including Energy, Land-Use, Waste and Water, with the objective of developing crosscutting problem-solving approaches that are consistent with balancing the needs of economic development, ecological resilience and social accountability. In addition, Climate Change has been identified as a cross-cutting area.

IGCS is managed by a Centre Coordinator and four Thematic Coordinators at IIT Madras, with counterparts in Germany. More than thirty faculty members in IIT Madras will be involved in various aspects of the Centre's activities. Faculty members from Germany and both Indian and German postdoctoral scholars, doctoral researchers and undergraduate students will also be associated with the Centre. A Steering Committee will oversee the operational elements of the Centre, while an Advisory Board comprised of eminent personalities will guide its overall strategic direction over the years. IGCS will offer fellowships for faculty, post-doctoral scholars and PhD students as well as for projects undertaken by undergraduate students engaged in interdisciplinary work on sustainability. It is anticipated that IGCS will eventually offer postgraduate degrees in sustainability. More details on the Centre are available at <http://www.igcs-chennai.org>.

The IITM China Studies Centre was inaugurated by Dr. R Chidambaram, Principal Scientific Advisor to Government of India on the 8<sup>th</sup> of April 2011. The establishment of this Centre is in response to the academic, policy and strategic communities' urgent need to come up with dynamic enough framework that provides an understanding of contemporary China and its global role. The initial infrastructure for the Centre has been created providing the foundation for long term and dedicated study of China at IIT Madras. As one of the first activities of the Centre, a Chinese language course is being introduced from the coming semester as an elective. The Centre will also undertake analysis of foreign policy and strategy with China as its focus. We also hope that the Centre will be a platform for collaborative research between IIT Madras and institutions of a global ranking that produce knowledge on China in varied fields such as environment, development studies and technology. We are fortunate to have former India Ambassador to China, CV Ranganathan as the Chairman of the Advisory Board of the IITM China Studies Centre.

IITM-Lafarge Laboratory for the 'study of long-term performance of concrete' funded by Lafarge Centre De Recherche, France was set up in the Department of Civil Engineering for a value of ₹ 90 lakhs. Indo-Korean project on plasma enhanced coal gasification has been initiated in the Department of Chemical Engineering, that promises to be a source of clean energy and also helps in treating the solid waste disposal problem.

During the summer, as many as 170 faculty members from the Institute visited universities and research laboratories abroad for collaborative research, participation in conferences, visiting assignments, lectures, consultancy, etc.

Over the past few years, the Institute has created several opportunities for international student exchange. The Indo-German Agreement between the seven IITs and seven Technical Universities in Germany continues to promote such an exchange and we have deputed 6 M.Tech. and 2 M.S. scholar to undertake their project / thesis work in these German Universities last year. We have also received 20 students from Germany to undertake their projects in our research laboratories. Under the DAAD sponsored IITM-Bremen Student Exchange programme, 3 MA students will visit the University of Bremen for a semester. Under the MoU with EPFL, 6 students were admitted last year in IITM. Under the student exchange programme, 5 B.Tech/ DD students visited NTU and NUS. This year as many as 45 (including the above 20 German & 6 EPFL students) foreign casual students from various countries have visited us for course / project work.

## 10. Human Resources Training:

Systematic efforts are made to train our technical and administrative staff to help them upgrade and acquire new knowledge, skills and professional orientation through a variety of learning experiences.

A three-day Faculty Development Program (FDP) was organized by the CCE during December 2011 for 32 young faculty of the Institute. Two educational technology experts from Texas A and M University, USA, namely, Dr. Jeff Froyd and Dr. Chandrika Rajagopal of the Centre for Teaching Excellence as well as Dr. Prudence Merton from Dartmouth University Hanover conducted the program.

## 11. Our Quality Initiatives:

We are setting up Review Committees for the various departments of our Institute, on the lines of the best practices obtaining at leading institutions world-wide. Over the last few years, eight Departments (AE, AM, CH, CY, CE, CS, HS, & ME) have been reviewed and the Review Committees have provided us with valuable inputs.

The preliminary work for the Institute's Strategic Plan 2011-2020, or Vision 2020, have been carried out. Five Committees, under the overall guidance of Professor L. S. Ganesh and Professor L. Prakash Sai of the Department of Management Studies have presented drafts on five themes - (a) Governance and Planning, (b) Resources, (c) Internal Environment, (d) Systems and Processes, and (e) Networking and Partnerships. The Strategy Sub-Groups working on each of the five themes have presented interim summaries of their respective proposals. The full plan is expected to be presented to the Board of Governors in December 2011 by the next Director.

International Organization for Standardisation (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 ISO-9001:2000 certification for academic and support processes (QSM-I: Academic Section, Central Library, Central Workshop, Computer Center and Industrial Consultancy & Sponsored Research, and User-Oriented Programmes) since 1999 and for administrative support processes (QSM-II: Administration, Central Electronic Centre, Engineering Unit, Finance & Accounts, Security Section, and Stores & Purchase) since 2001. In the year 2011, all the academic and support units of IIT Madras have been certified as per the new ISO standard ISO 9001:2008. The certificate is valid until August 2014 for QSM-I and January 2014 for QSM-II. In addition to ISO 9001:2008 certification, the Central Electronic Centre in NABL-accredited for its Testing and Calibration Laboratories since 2004."

## 12. Infrastructure Development & Biodiversity Management

Infrastructure expansion consequent to the increase in student intake by 54% is apace. Despite difficulties posed by the state of the construction industry in general and our desire to minimize the adverse impact on our campus ecology, the necessary capacity additions in all segments – academic, hostel as well as residential – is in progress. We expect all projects to be completed in 2012.

A Master Plan has been prepared for the Institute campus to guide it in infrastructure expansion over the next decade. It includes not only additional academic infrastructure to cater to the anticipated increase in faculty strength in the coming years, but also the concomitant support infrastructure in the form of residential accommodation, roads, utility services, and so on.

The major infrastructure works completed in the campus during the last academic year include construction of ninety-six three-bedroom C2 type apartments for faculty and staff members, sixty G-type one-bedroom apartments for married research scholars, and addition of rooms in the hostels by adding extra floors in six hostels. The projects for adding new blocks to eight existing hostels leading to construction of 512 rooms and primary school building for Vana Vani School are nearing completion.

During the next academic year the construction of a number of new buildings will commence. These include, an academic complex (G+6) floors which will house three departments, two new boys and one girl's hostels with 1315 rooms, new block for the Chemistry Department, additional 30 G-type married scholar's apartments, canteen and food court building, community hall, and shopping complex. Other major infrastructure facilities that are being taken up in the campus include a new building that will house the Center for Sustainability, and augmentation of the Himalaya and Krishna hostel messes.

The blackbuck is a sensitive animal that lives in our midst. In many ways, it is an indicator of the health of our ecosystem. It is heartening that, despite the pressures caused by the hectic construction activity, their number has increased from 22 to 26 during the last year. We expect to soon reach our estimated carrying capacity of around 30.

A Workflow Automation System for all administrative processes is being launched beginning with the coming semester. Academic processes related to students from entry to card, as well as all process related to accounts, purchases, funded research projects, and staff administration are captured. We hope this will go a long way to increase productivity, reduce delays, and preserve consistency of records.

The Computer Centre has upgraded the SFS of Vega Super Cluster to MSA2000 arrays with SAS disks to make file system more efficient. Large number of commercial as well as open source software / packages have been loaded in the cluster.

The Central library is well equipped with all modern facilities and rich information resources in the forms of CD-ROMs, e-journals, e-books, e-standards, e-patents, on line access to journals apart from printed information materials.

### 13. Student Co-Curricular and Extra-Curricular Activities:

The academic year 2010-2011 has been very remarkable for the students sector. The co- and extra-curricular activities continued with great enthusiasm and scaled to new heights. Eminent personalities from all walks of life addressed our students in different forums. Several new initiatives were launched for the welfare of the students.

**SHAASTRA**, one of the best and biggest and ISO 9000:2008 certified technical festivals of the country, witnessed a record of 60 events this year hosted alongside workshops, lectures, exhibitions and unique shows such as the radio controlled airshow and the pyrotechnique show built by students. The Automobile Society of IIT Madras showcased a unique programme of building a car from scratch. 'Shaastra Cube Open' created one national record and saw two national records broken.

The astronomy workshop was particularly successful and eight 5" Newtonian telescopes were built by the participants. Lectures by Dr. Lyndon Evans, project leader of Large Hadron Collider, Dr. Raj Chetty, noted young economist from Harvard, Dr. Siddhartha Srinivasa, head of Intel Personal Robotics Research and Dr. Mylaswamy Annadurai, head of missions Chandrayaan I and II were a great success. Research Expo, an opportunity for the research scholars to showcase their research, has been introduced in Shaastra.

SAARANG, the first cultural festival to have been awarded a the ISO 9000:2008 certificate, is arguably one of the best and biggest student organized cultural extravaganza in the country. Notable events of the Saarang 2011 include: World culture show was an exhibition of different art forms and cultures from around the world; an extraordinary lecture series comprising of Dr. Shashi Tharoor, Dr. Mallika Sarabhai, Mr. Nagesh kukunoor, Bombay Jayashree, Suhani Shah and versatile cine artists Nasser, Shriya Saran. The lecture series also comprised classical arts utsav lectures by Mrs. Alarmel Valli and vidwan Sriram Parasuram. The national level 'Indian Sudoku Championship', 'The Model United Nations' *organized in collaboration with the UN Information Centre for India and Bhutan, are a few events introduced this year.*

The EXTRA MURAL LECTURES series team were successful in bringing speakers of national and international repute to the campus like Dr. A.P.J. Abdul Kalam, former President of India, Mr. C.V. Ranganathan, Former Ambassador to China, Mr. N. Gopalaswami, Former Chief Election Commissioner of India, Mr. P. Sainath Rural Affairs Editor, The Hindu, Mr. Nagarajan Vittal, Former Central Vigilance Commissioner. The sustainability Network (S-NET) is a new initiative formed in May 2009, by students with the support of two alumni of 2005 Batch. S-Net works towards development and deployment of solutions for making IIT Madras a sustainable campus. I-VIL – IIT for Villages - started five years ago, is a unique student-initiated club that aims to sensitize the youth towards rural India. I-Vil has conducted a number of educational camps, General Awareness Programmes, health camps and hosted lectures by prominent people active in the field of rural development like Padmashree Dr. Jaya Arunachalam, Dave Wallack from IFMR and Mr. Ramakrishna from Rang De etc. Vivekananda Study Circle, an academic circle maintained and organized by student volunteers, aims at spreading Swami Vivekananda's message and mission, of uplifting and strengthening the nation, through educational and spiritual empowerment of the masses. Eminent personalities like Dr. N.R.Dave, Dr. N. Krishnamoorti, Shri Aravindan Neelakandan, Shri Pramod Kumar, Dr. Nicholas Kazanas, Dr. T. G. K. Murty addressed the students.

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**Reflections**, a forum that enables character building and well-being through reflection and self-awareness in students, conducted several lecture-cum-discussion sessions led by eminent thinkers. An issue of the 'Reflections' magazine, with inspiring articles, was also released last month. The Guidance and Counseling Unit, a group of faculty and students offers help to students in distress or if they face specific difficulties or hardships - academic, emotional or financial problems. Professional help is arranged for students having deeper problems. Our students have also helped in organizing the Terry Fox Run, a charity oriented event whose proceeds are donated to core cancer research, in the campus.

C-TIDES this year primarily focused on incubation and reaching out to the student community with more institute centric events. An incubation team was formed which worked on creating a better support system for institute start-ups as well as producing a book on the subject. Many programmes to foster and inspire the spirit of entrepreneurship among students, like IITMentor Connect-2010', Meet with Mentors etc. Were hosted by IIT Madras Alumni Association Mentoring programme.

PLACEMENT has been exceptionally good this year. With available data, we seem to have done better than most IITs in number of placements, average pay package and the highest pay package. Apart from campus placements, students have also applied for further studies abroad. In fact the number of students heading to Massachusetts Institute of Technology this year stands at eight as of now. Some of the Universities which our students would be heading are, Princeton, Stanford, Berkeley, Cornell, Purdue, Georgia Tech, EPFL, Caltech, UCLA, UT Austin.

A new initiative "food court" has been introduced in the mega messes with a mega success. This is probably the first time in any educational institution, a food court concept is implemented. The students can order the food of their choice. All student transactions, be it a buying T-shirts or tickets for a professional show or extras in the mess are done using cash card facility.

Some of the accomplishments of the students for the year 2010-2011 are : Centre for Innovation won the award for the 'Best Stall' by a college, in ACMEE 2010, International Exhibition on Machine Tools held at Chennai Trade Centre; our team participated in the International Aerial Robotics Challenge, the most prestigious international



competition in its league, held in Puerto Rico, USA; our team was declared the joint winners and won the best design award at the All-Terrain Vehicle challenge organized by Defense Research and Development Organization; our team reached the quarter-final in Robocon 2011; innovative projects like a Robotic Fish, an Accident Prevention System, a Robotic Human Hand were completed by our students; 5 students from Biotechnology won the Gold medal (first Gold Medal by an undergraduate team) at the International Genetically Engineered Machine Competition, organized by MIT; 3 students from Electrical Engineering won (prize of \$ 5000) the first place in Texas Instrument India Analogue design contest 2010 for making a low cost integrated wireless health monitoring system with emergency response; 3 students from CE, ME and EE were finalists in Staples International Eco easy challenge and won \$4000 for making a portable cell phone cutter; 4 students were finalists in NYC next idea International B-plan competition.

The accomplishment in the cultural side are : IIT Madras men's contingent came out as champions in 46<sup>th</sup> Inter IIT Sports meet held in IIT Delhi and thus have the credit of winning 18 General Championships out of the total 46; IIT Madras women's contingent lost out on championship by a whisker of just 2 points to IIT Roorkee; It has received a overwhelming response from the audience; our team won second place in the acoustics competition at MCC Octavia and also won the Best Song and Best Female Vocalist awards; our music band Night-out qualified to the Finals of NXG Rockstar and won the Best Instrumentalist Female in the rock category and Best instrumentalist Male in the acoustics category; our Choreo team reached the finals of live wire (group dance competition in Mood Indigo, IITB); our team was crowned the undisputed champions of the iGATE inter collegiate Scrabble tournament held in Bengaluru.

#### 14. Socially Relevant Activities:

IITM has initiated activities of social relevance in keeping with its vision of being in dynamic equilibrium with the social environment.

Socially Relevant Projects is an initiative started by IITM back in the year 2003, for exploring ways of helping address, through technology intervention, social problems posed by an NGO or a Governmental Agency or concerned citizens. These projects are undertaken by the faculty members of IITM with assistance from the students and supporting staff.

RuTAG is one such project initiated by the Office of the Principal Scientific Advisor to the Government of India in June 2004 and aims at identifying technology gaps through S&T NGOs and improving these for the benefit of its target population utilizing the expertise in IITs and other academic and R&D Institutions in the country. A number of technologies have been identified and upgraded by RuTAG for rural application. Some examples of technology interventions carried out till last year are : a chemical process to extract natural dyes from parts of the trees, an automatic machine for coir ratt, a more efficient process for designing sanitary napkins and baby nappies, design of bridge across small canals using locally available materials, a study to compare nutrients retained after cooking in different kitchen ware, and a study to compare the performance of different kinds of handlooms. Some technology interventions being tried this year are : design of a low-cost multi-speed potter's wheel, design and *field-testing* of pico Hydrel plant (upto 5 kW) with a low-maintenance, design of low-maintenance vertical axis wind-mill, design tricycle with maximum driver comfort, based on both hand cracked and battery driven. The pico hydrel generator needs to satisfy very high regulations (constant output voltage and frequency for large variation in input head and rate) while at the same time not requiring expert maintenance. Our design makes use of pump-as-turbine (PAT) and an AC induction generator and power electronics, all of which contribute towards making the solution easy on maintenance. There is a plan to install the PAT system in Uttarakhand as a proof of concept.

The Center for Social Innovation and Entrepreneurship (CSIE) is a project conceptualized and funded by the alumni of the batch of '84, with additional seed-funding from The Lemelson Foundation, USA. It will focus on teaching and research related to social enterprise in India. CSIE's mission is to build an environment that will facilitate the creation of social enterprise knowledge through research and empower young entrepreneurs to

develop solutions for greater social impact through academia. This will be accomplished by: catalyzing innovation, research, education and collaboration.

The Socially Relevant Projects program, which started in the year 2003, with an initial grant of Rs. 10 lakhs from IIT Madras, is currently being supported by funds received from the IIT Madras alumni. Using the funds provided by The Class of 1981 of the IIT Madras Alumni, three projects have been completed in the year 2010-2011. One of the projects aimed to bring healthcare facilities to doorsteps of rural masses. An innovative cable way system capable of carrying a load of farm produce to the collection point and an economical, reliable, robust and efficient Savonius hydro-turbine capable of producing 0.5 kW @500rpm, at 2 m head and 60 litres/sec flow rate, for generating electricity for use in outlying villages and remote areas have been developed.

The Central Electronics Centre have installed solar photo voltaic powered fans and air coolers at IITM, solar photo voltaic powered seawater desalination (suryajal) systems in standalone as well as hybrid versions and has evaluated "Sollektor", an indoor lighting systems by guiding natural sunlight through polymer optical fibres developed by George Simon Ohm University, Nuerenberg, Germany.

IITM has launched three projects with the participation of the entire campus community with the Ladies Club taking the responsibility for their implementation. The Zero Waste Zone (0WZone) project continues to do yeoman service to the cause of keeping the campus clean. It employs five self-help groups to collect the solid waste on campus on a daily basis and segregate it into organic and non-organic parts. The organic part is returned to the forest areas as manure while the non-organic part is further segregated into various disposable forms of solid waste. The latter is sold every month and the proceeds are distributed as incentive to the self-help groups themselves. The Ladies Club continues to operate "Tech Kids", the Day Care Centre with trained personnel to cater to the needs of the children of working parents. As of now, about 85 campus children are enrolled in the center. The Atma Charity Wing (ACW) of the Ladies Club working with the support of the staff club and the IITM Alumni Charitable Trust conducts a ticketed charity show every year in order to raise funds in support of charitable organizations in the vicinity of Chennai. This annual fund-raiser receives voluntary support from faculty, staff, students and alumni. The chief beneficiaries from last year's fund raiser were: VHS Diabetes Department, Taramani; Atma Charity Wing, IIT Madras; Anbu Thondu Nilayam, Chengleput; Sri Ramakrishna Ashramam, Kottivakkam; Universal Welfare Foundation, Pozhichalur; Kalaiselvi Karunalaya Social Welfare Society, Mogappair; Cancer Institute (WIA), Adyar; Gnana Deepam Special School, Pammal & Avvai Home & Orphanage, Adyar

## 15. Alumni Matters:

Our Institute has so far awarded over 34,000 degrees, ranging from Ph.D. to B.Tech. The quality of education and training that our alumni had received as students of our Institute enabled them to graduate into professionally satisfying and successful careers, and they have distinguished themselves professionally.

Many of them occupy top positions in India and abroad in Industry, Government and Academia. Since 1997, we are honouring selected alumni for their distinguished contribution to society, through Distinguished Alumnus Awards. The names of the awardees for this year (2011), announced on Republic Day 2011 are:

- ❖ Dr. Hota V. S. Ganga Rao, Professor, Dept. of Civil Engineering, West Virginia University
- ❖ Dr. Jayant B. Udgaonkar, Professor, National Center for Biological Sciences, TIFR, Bangalore
- ❖ Dr. V. S. Sunder, Professor, Institute of Mathematical Sciences, Chennai
- ❖ Dr. M. S. Vijay Kumar, Senior Associate Dean & Director, Office of Educational Innovation & Technology, MIT, USA

- ❖ Dr. G. K. Pillai, Home Secretary, Government of India
- ❖ Mr. M. G. Venkatesh Mannar, President, Micronutrient Initiative, Ottawa
- ❖ Ms. S. Sowmya, Carnatic Vocalist, Chennai
- ❖ Mr. Krishnamurthy Sridharan, Founder & President, Shankara Eye Foundation, USA

PANIIT, an umbrella organization formed by IIT alumni to provide networking opportunities for members of the IIT system, not only contributes proactively to nation-building but also enhances alumni involvement in the governance of IITs. This year the PANIIT Conference was held at New Delhi during October 2010. It was attended by eight faculty from IIT Madras, as well as the Director.

Alumni have been continuing to support the Institute through various initiatives. The IITMAANA Travel Grant Program is a highly-successful initiative funded by US based alumni to support travel by IITM students to present papers abroad at conferences, to attend international workshops, summits, competitions etc.

In 2010, nearly 56 MS/ PhD scholars and several M.Tech/ B.Tech. students benefitted by this scheme. The Golden Jubilee Alumni Fund drive launched in 2009 to enable alumni to contribute to the growth of the Institute has been able to raise approximately ₹ 3 crores on an annual basis. The Silver reunion of the '85 batch, and Coral reunion of the '75 batch were held this year. 'Reunion Day' was held in December 2010 this year. The annual "Alumni Day", traditionally held the day after Convocation, was held on July 31, 2010 with about 300 alumni attending along with their families.

## 16. Acknowledgements

For all the achievements and accomplishments enumerated in this report, several people and agencies are responsible - our faculty, students and staff; agencies and industries sponsoring R&D and consultancy projects; professionals from other organizations who have assisted our Institute in several of our endeavours; and our alumni. The Institute is grateful to the Ministry of Human Resource Development, Government of India, for its continued and sustained encouragement and support. Indeed creating such Centres of Excellence in Higher Education such as IITM is inconceivable without such enlightened support. I wish to thank our former Chairman, Dr. R. Chidambaram, for his valuable guidance and encouragement throughout his term and Prof. M. M. Sharma, our current Chairman for his keen interest and commitment to raising the quantum and quality of research at IIT Madras. We look forward to reaching new heights of achievement in all our endeavours with the continued and able guidance of our Board of Governors.



# INDIAN INSTITUTE OF TECHNOLOGY MADRAS

## MAJOR ACHIEVEMENTS

### ANNUAL REPORT 2010-11 AND DEVELOPMENT TILL 31<sup>st</sup> August 2011

#### 1. Courses:

The Institute offers Ph.D. programme in all the 16 departments, M.S. programme in 12 departments, M.Tech programme in 30 streams/ specialisations, M.Sc. programme in 3 branches, B.Tech programme in 10 branches, Dual degree (B.Tech and M.Tech) programme in 20 streams, Dual Degree (BS & MS) in Physics, M.B.A. programme and M.A. Integrated programme in 3 streams besides a preparatory course for SC/ST students during the year.

#### 2. User Oriented Programme:

User oriented M.Tech programmes are currently offered in the Department of Civil Engineering, Mechanical Engineering & Ocean Engineering.

#### 3. New Programmes Started:

A new UoP PG Diploma programme in Metro Rail Technology and Management in Civil Engineering, an M.Tech Programme in Offshore Structural Engineering in Ocean Engineering and an M.Tech programme in Photonics in Electrical Engineering Department have been introduced from August 2011.

#### 4. Preparatory Course for SC/ST:

The Preparatory Course programme for weaker section students offers intensive coaching to eligible candidates to prepare them for entry into IITM on successful completion of this one-year programme. Accordingly, 5 PD candidates have been admitted in B.Tech & Dual Degree in 2011. At present, 2 ST, 1 STPD and 7 PD candidates have been admitted in the Preparatory Course 2011.

#### 5. Convocation:

##### ***The Details of programme-wise degrees awarded:***

Ph.D –3481(175) : MS – 2528 (88) : M.Tech –11825 (422): M.Sc –2666 (115) : MBA –481 (69):M.A – 24: Dual Degree (B.Tech & M.Tech) – 1116 (206) : B.Tech –13548 (286) PGDMEM – 30: B.Sc (Tech) -20 : DIIT - 245 .

So far 37080 degrees were awarded out of which 1591 degrees were awarded during 48<sup>th</sup> Convocation held on 22<sup>th</sup> July 2011.

*( ) indicates of the degrees awarded in the present convocation.*

#### Convocation 2011



## **6. Admission & Students on Roll:**

1895 students (Inclusive of 193 Ph.D and 155 MS Scholars) have joined in various programmes in July 2011. As on 31-8-2011, 6718 students on roll [Foreign Nationals: 8, Women Students 1129: and QIP (Teachers from other Engineering Colleges): 81.

## **7. Research and Development:**

IITM continues to be active in research and during the year under review, 175 Ph.D theses and 88 Master's theses have been completed. Our faculty and research scholars have published 1164 research papers in refereed International (1099) and National (65) Journals and have presented 643 research papers in International (535) and National (108) Conferences. At the risk of over simplification, I will attempt to give a flavour of the results obtained.

## **8. Patents:**

10 patents have been filed in the year 2010-11 and 3 patents were granted.

## **9. Industrial Consultancy and Sponsored Research:**

The number of active consultancy projects during the year 2010-11 was 570 for a total value of ₹ 363 million. The number of faculty members involved in consultancy projects is 146. 113 sponsored projects for a total value to ₹ 1171 millions were taken up by the Institute during 2010 -11 and 319 faculty members are actively involved in sponsored projects. The ISRO-IITM Space Technology Cell renewed 15 projects and sanctioned 2 new projects. The Industrial Associateship Scheme fostering close interaction with 227 Industry members. During the period April to July 2011, 283 Consultancy Assignments and 59 Sponsored Projects were taken up with a total value of ₹ 2666.31 lakhs and ₹ 7684.56 lakhs respectively.

## **10. Centre for Continuing Education:**

The Centre for Continuing Education (CCE) has been very active in promoting activities for the benefit of working professionals in industries and faculty members of other technical institutions. During the year, our faculty members organized several courses/training programmes: 14 under the Quality improvement programme and 69 under Continuing Education which benefited 2792 participants. The CCE generated revenue of ₹ 304 lakhs through its activities.

## **11. Quality Improvement Programme:**

IITM plays a lead role in providing guidance and assistance to the other engineering intuitions in the country. Currently there are a total of 81 QIP scholars – 56 Ph.D & 25 M.Tech.

## **12. National Programme on Technology Enhanced Learning (NPTEL):**

The National Programme on Technology Enhanced Learning (NPTEL) coordinated by IITM is a pioneering joint initiative of 7 IITs and IISc Bangalore and is funded by the Ministry of HRD. It is India's largest online knowledge dissemination programme in the higher technical education sector. Under NPTEL Phase I, 135 video based courses and 125 web based courses in Engineering, Science and Technology have been developed for the benefit of students, faculty and professionals. Both the web and video course contents are available with free and easy download options from the NPTEL website at <http://nptel.iitm.ac.in> and also distributed to Individuals / institutions. Video lectures are also available for downloads from the YouTube at: <http://www.youtube.com/iit>. They are also broadcast through the Eklavya channel provided by Gyan Darshan (Door Darshan Television, Govt. of India Enterprise) and made available by Ministry of HRD exclusively for this purpose.

Under NPTEL phase II, preparations are underway for the addition of more than 1000 new courses (900 or more under-graduate level and 100 or more post-graduate level web and video courses) in all major branches of Engineering, Physical Sciences, Technology, Humanities and Management. These courses are expected to be completed by 2012 and will also be available to every one freely.

## **13. Golden Jubilee Book Writing:**

Under Golden Jubilee Book Writing Scheme, 23 text books, including one e-book have been published during the year.



As a part of expansion of research activities in IITMadras, the Research scholars intake is increased every year. In order to meet the requirements of the married research scholars, a new G type 7 storey building consisting of 60 apartments in the first phase constructed. The building provides aesthetical appearance and all amenities to the inmates.



## 2. ADMINISTRATION

### 2.1 General

Indian Institute of Technology, Madras is an autonomous statutory Organisation functioning within the "Institutes of Technologies Act 1961, "as amended by "The Institute of Technology (Amendment Act, 1963)". The Indian Institutes of Technology (others being at Mumbai, Kanpur, Kharagpur, Delhi, Guwahati, Roorkee, Rupnagar, Bhubaneswar, Gandhinagar, Hyderabad, Patna, Rajasthan, Mandi, Indore and BHU varanasi) are administrated centrally by the Councils of IITs, an apex body established by the Government of India to co-ordinate the activities of these Institutes. The Minister for Human Resource Development, Government of India is the Chairperson of the Council. Each Institute of Technology has a Board of Governors responsible for the overall administration and control.

The Senate decides the academic policies of the Institute. It approves and controls 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. Members of the Senate are listed in the Appendix. Financial advice to the Institute is given by the Finance Committee. The Buildings and Works Committee advises the Institute on matters relating to buildings and works activities.

The compositions of the above Committees and Boards together with a list of other officers are also given in the Appendix.

### 2.2 Staff Position:

As on 31.03.2011, 466 Faculty, 27 Visiting Faculty, 77 Group A Staff, 7 Scientific Staff, 276 Technical Staff and 390 Administrative Staff were in position totaling 1243. During the period under report 82 faculty/staff members comprising 4 Professors, 8 Associate Professors, 49 Assistant Professors, 13 Visiting faculty and 8 other staff were appointed. 52 faculty/staff members were retired from their services. 2 staff members were expired. 26 Faculty/Staff members were on long leave. The details of the above are given below:-

#### 2.2.1 Faculty / Staff appointed from 01.04.2010 to 31.03.2011:

##### List of faculty members appointed during the period April 2010 to March 2011

S.No	Name	Design.	Dept.	Date of Joining
1.	Dr. Gitakrishnan Ramadura (cont.)	AP.	CE	01-06-2010
2.	Dr. Arun Menon (on contract)	AP.	CE	01-06-2010
3.	Dr. Arun Pachai Kannu	AP.	EE	01-06-2010
4.	Dr. Mohanshankar Sivaprakasam	AP.	EE	01-06-2010
5.	Dr. Venkatesh Ramaiyan (on cont)	AP.	EE	01-06-2010
6.	Dr. Lakshminarasamma	AP.	EE	01-06-2010
7.	Dr. Deepa Venkitesh (on contract)	AP.	EE	01-06-2010
8.	Dr. Palaniappan Ramu	AP.	ED	01-06-2010
9.	Dr. Richa Agrawal	AP.	MS	01-06-2010
10.	Dr. Rajiv Sharma	AP	OE	01-06-2010
11.	Dr. Krishna Prasanna	AP.	MS	01-07-2010
12.	Dr. Smita Srivastava (on contract)	AP.	BT	01-09-2010
13.	Dr. G. Radhakrishna G. Pillai (on contract)	AP.	CE	01-09-2010
14.	Dr. Nilanjan Saha (on contract)	AP	OE	01-09-2010
15.	Dr. Somnath Chanda Roy	AP.	PH	01-11-2010
16.	Dr. R. Balaji	AP	MA	01-12-2010
17.	Dr. V. Srinivas	Prof.	PH	01-12-2010
18.	Dr. T. Renganathan	AP.	CH.	20.01.2010
19.	Dr. Arul Jayachandran	ASP	CE	02-07-2010
20.	Dr. G. Aravind	AP.	PH	02-07-2010
21.	Dr. Ramesh L Gardas (on contract)	AP.	CY	02-08-2010
22.	Dr. Jitendra Shital Sangwai	AP	OE	02-08-2010

S.No	Name	Design.	Dept.	Date of Joining
23.	Dr. S. Ramakrishnan	ASP	AM	18-02-2010
24.	Dr. Satya Sundar Sethy	AP.	HS	03-08-2010
25.	Dr. Ananth Krishnan (on contract)	AP.	EE	05.07.2010
26.	Dr. P. V. Manivannan	AP.	ME	05-07-2010
27.	Dr. Rajesh R Nair	AP	OE	05-07-2010
28.	Dr. Srikanth Vedantam	ASP.	ED	24.05.2010
29.	Dr. Shruti Dubey	AP	MA	06-09-2010 A. N
30.	Dr. Prabhu Rajagopal	AP.	ME	06.12.2010
31.	Dr. Kavitha Arunachalam	AP.	ED	14.06.2010
32.	Dr. Abhijit Sarkar	AP.	ME	14-06-2010
33.	Dr. Bobby George	AP.	EE	16-06-2010
34.	Dr. Sudakar Chandran	AP.	PH	21-06-2010
35.	Dr. Arvind Pattamatta	AP.	ME	07-07-2010
36.	Dr. Usha Mohan	AP.	MS	13-07-2010
37.	Dr. C. V. R. Murthy	Prof.	CE	14-07-2010
38.	Dr. Arijit Dey	AP	MA	14-07-2010
39.	Dr. T. N. C. Anand	AP.	ME	15-07-2010
40.	Dr. Mahesh Panchagnula	ASP	AM	16-07-2010
41.	Dr. Abhijit Chaudhari (on contract)	AP.	AM	19-07-2010
42.	Dr. Preeti Aghalayam	ASP.	CH.	19-07-2010
43.	Dr. Sivakumar Palaniappan	AP	CE	23-07-2010
44.	Dr. R. P. Sundarraj	Prof.	MS	23-07-2010
45.	Dr. Abdus Samad (on contract)	AP	OE	16-08-2010
46.	Dr. Biniitha V. Thambi	AP.	HS	30-08-2010
47.	Dr. Saji K Mathew	AP.	MS	23-09-2010
48.	Dr. C. V. Krishnamurthy	ASP.	PH	10.06.2010
49.	Dr. M. N. Jayalal Sarma (on cont.)	AP.	CS	18-10-2010
50.	Dr. Vignesh Muthuvijayan (cont)	AP.	BT	11-10-2010
51.	Dr. K. Kalpana	AP.	HS	12-07-2010
52.	Dr. Srinivasa Rao Bakshi (oncont.)	AP.	MT	16-12-2010
53.	Dr. A. K. Amit	AP.	MS	27-12-2010
54.	Dr. M. Michael Gromiha	ASP.	BT	29.12.2010
55.	Dr. Deepak Kumar (on contract)	AP	OE	29-12-2010
56.	Dr. Rupashree Baral	AP.	MS	01.02.2011
57.	Dr. Basavaraja Madivala Gurappa	AP.	CH.	14-02-2011
58.	Dr. Jhon Moolakkattu Stephen (on contract)	Prof.	HS	03.01.2011
59.	Subhadeep Banerjee	AP.	CE	25-03-2011
60.	Dr. L. Sriramkumar	ASP	PH	30-03-2011
61.	Dr. R. Kothandaramman (on cont.)	AP.	CY	04-03-2011
62.	Ramesh Kumar A.	TO. Gr. I	ME	24.06.2010
63.	Dr. R. Gowri Shanker	MO	Hospital	03.05.2010
64.	Dr. (Mrs.) S. Shanmuga Priya	MO	Hospital	16.06.2010
65.	Sri. K. Om Prakash	Jr. Tech. Supdt.	CE	30.06.2010
66.	Sri. A. Pugazhenth	Jr. Tech. Supdt.	CE	02.08.2010
67.	Sri. G. B. Rajan	Jr. Tech. Supdt.	Physics	02.08.2010
68.	Sri. R. Selva Ganapathy	Jr. Tech. Supdt.	CH	24.08.2010
69.	Sri. R. Parthiban	Jr. Tech. Supdt.	MM	07.10.2010
70.	Dr. B. Ranjit Kumar Nanda	Visiting AP	PH	20.12.2010
71.	Dr. Rainer Lohmann	Visiting ASP	CH	01.01.2011

S.No	Name	Design.	Dept.	Date of Joining
72.	Dr.N.Sivakumar	Visiting ASP	MA	03.01.2011
73.	Dr. Paul Milgram	Visiting Prof.	ED	17.01.2011
74.	Dr. Severine Millet	Visiting AP	MA	21.01.2011
75.	Prof. Ranga Narayanan	Chevron Chair Prof.	CH	22.12.2010`
76.	Dr. Sridhar Krishnan	Visiting Prof.	EE	01.02.2011
77.	Dr. Prafulla Kumar Behera	Visiting ASP	PH	01.03.2011
78.	Dr. K.J. Mukherjee	Visiting Prof.	BT	15.07.2010
79.	Dr. Sriram Narasimhan	Visiting AP	CE	08.11.2010
80.	Dr. E.J. Hopfinger	Visiting Prof.	AM	17.09.2010
81.	Dr. Gaurav Raina	Visiting AP	EE	16.12.2010
82.	Dr. Steven L. Tomsovic	Visiting Prof.	PH	01.06.2010

**No. of Faculty / Staff members resigned/relieved:**

S.No	Name	Designation	Dept.	Date of Resignation
1	Dr. Umesh Ramakant Kadhane	AP	Phy.	31.05.2010
2	Dr. A. J. Tamilmani	Medi. Officer	Ins. Hospital	21.09.2010
3	Sri. P. Y. Sreekumar	TO Gr. I	Computer Centre	04.02.2011
4	Dr. Debashis Acharya	AP	HSS	31.05.2009
5	Dr. Sangamitra Bhattacharya	ASP	Manag. Stu.	31.12.2009

**Faculty / Staff retired from 01.04.2010 to 31.03.2011:**

S.No.	Name	Designation	Dep./sec	D.O.R
1	Sankari N	Jr. Supdt.	Hosp.	01.04.2010 FN (VR)
2	Narayana Rao K	Tech. Officer Gr.I	Ch	30.04.2010
3	Mohan K K	Sr. Technician	ME	30.04.2010
4	Vendhan C P Dr.	Prof.	OE	31.05.2010
5	Srinivasan S Dr.	Prof.	EE	31.05.2010
6	Balachandran Pillai R Dr.	Sci. Off. Gr.II	CY	31.05.2010
7	Lalitha Rajendran	Sr. Lib. Inf. Officer	CLIB	31.05.2010
8	Ravindran V	Tech. Supdt.	MT	31.05.2010
9	Narayanan S Dr.	Prof.	ME	30.06.2010
10	Subramanya Murthy V Dr.	Prof.	PH	30.06.2010
11	Varadarajan T K Dr.	Prof.	CY	30.06.2010
12	Srinivasan Chakra Rajan	AP	AE	30.06.2010
13	Thatchanamoorthy V	Sr. Supdt.	S&P	30.06.2010
14	Madurai Muthu C	Supdt.	EE	30.06.2010
15	Ramanathan P G	Supdt.	Admn	30.06.2010
16	Krishnan M	Jr. Tech. Supdt.	EU	30.06.2010
17	Devadoss M	Sr. Attdt.	EU	30.06.2010
18	Narayana Rao N	Sr. Attdt.	Academic	30.06.2010
19	Umapathy S	Sr. Attdt.	MT	30.06.2010
20	Velu A	Sr. Attdt.	Admn	30.06.2010
21	Kasiammal A	Attdt.	Academic	30.06.2010
22	John George P	Sr. T O	cws	31.07.2010
23	Mary George	Jr. Supdt.	ICSR	31.07.2010
24	Chandrasekaran A V	Jr. Supdt.	ME	31.07.2010
25	Krishnan K	Sr. Technician	EE	31.07.2010
26	Rangasamy A	Jr. Tech. Supdt.	EE	31.07.2010
27	Dooja A	Sr. Driver(SG)	T Cell	31.07.2010
28	Duraiswamy M	Sr. Attdt.	EU	31.07.2010
29	Kalyanaraman V Dr.	Prof.	CE	01.08.2010 FN (VR)



30	Gopalakrishna K	Asst. Professor	CE	31.08.2010
31	Gopal G	Jr. Tech. Supdt.	AE	01.09.2010 FN (VR)
32	Ganesan N Dr.	Professor	ME	30.09.2010
33	Mythili Varadarajan	Jr. Asst.	F & A	30.09.2010
34	Guruvaiah G	Sr. Attdt.	EU	30.09.2010
35	Baliah K	Sr. Attdt.	Admn	31.10.2010
36	Sathiabhama P	JTS	BT	01.11.2010 FN (VR)
37	Srinivasa Murthy S Dr.	Prof	ME	30.11.2010
38	Santhanakrishnan G Dr.	AP	AM	30.11.2010
39	Kumaravel M Dr.	CDE	CEC	30.11.2010
40	Achuthan N	STS	EE	30.11.2010
41	Kalyanaraman K	Sr. Asst.	EU	30.11.2010
42	Ramdass K	TS	OE	31.12.2010
43	David Vincent C	JS	Library	31.01.2011
44	Ramalingam E	Lineman Gr.I	EU	31.01.2011
45	Nandagopal M	Sr. Attdt.	EU	31.01.2011
46	Natarajan R Dr.	Prof	OE	31.01.2011
47	Janakiraman P A	Prof	EE	28.02.2011
48	Shanthi S	STS	MT	28.02.2011
49	Sivakamasundari J	Sr. Attdt.	Admn	28.02.2011
50	Kalyanakrishnan R Dr.	Prof.	CS	31.03.2011
51	Singaperumal M Dr.	Prof.	ME	31.03.2011
52	Kumaraswamy S Dr.	Prof.	ME	31.03.2011
<b>Expired (while in service)</b>				
<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Dept.</b>	<b>Date</b>
1	Natarajan S	Jr. Attendant	Admn.	03.08.2010
2	Sunilkumar C	Sec.Guard Gr.I	SS	11.10.2010

**Faculty/ Officers/ Staff on long leave:**

**I. Faculty/ Staff Members on Extra Ordinary Leave**

Sl. No.	Name, Designation & Department	Period		Remarks
		From	To	
1.	Dr. R. Gnanamoorthy Professor Mechanical Engg.	27.08.2008	26.07.2013	Deputy Director at Indian Institute of Information Technology Design & Manufacturing, Kancheepuram.
2.	Dr. A. Jayakrishnan Professor, Biotechnology	13.12.2008	14.12.2012	Vice Chancellor of the University of Kerala.
3.	Dr. S. Mohan Professor Civil Engg.	05.05.2009	04.05.2014	Director, National Institute of Technical Teachers Training and Research, Taramani, Chennai.
4.	Dr. S. V. Raghavan Professor Com. Sci. & Engineering	21.10.2009	30.06.2011	Scientific Secretary in the Office of the Principle Scientific Advisor to the Govt. of India
5.	Sri V. Veerasamy Public Health Officer Engineering Unit	11.12.2009	10.12.2011	Senior Administrative Officer in National Institute of Technical Teachers Training and Research, Taramani, Chennai.
6.	Dr. T. A. Gonsalves Professor Com. Sci. Engg.	14.01.2010	13.01.2015	Appointment as Director, Indian Institute of Technology, Mandi, Himachal Pradesh.
7.	Dr. P. C. Deshmukh Professor Physics	13.07.2010	12.07.2011	For teaching and guidance assignment at Indian Institute of Mandi, Himachal Pradesh.
8.	Dr. Suresh Babu Assistant Professor Hum. & Soc. Sciences.	01.06.2010	31.05.2011	As Associate Professor at the Institute for Social and Economic Change, Bangalore

9.	Lt. Col. (Retd.) Jayaumar Deputy Registrar (TP&PR) Training & Placement	01.11.2010	31.10.2012	Registrar, Indian Institute of Information Technology Design and Manufacturing, Kancheepuram
10.	Dr. Deepak Khemani Professor, Com. Sci. & Engg.	27.12.2010	26.12.2011	Professor in the Dept. of CSE at IIT Mandi
11.	Shri. K. Rizwan Ali Assistant Executive Engineer (CE) Enng. Unit.	21.01.2011	20.01.2013	Manager (Tech.) at National Highways Authority of India (NHAI) New Delhi
12.	Dr. C. Pandu Rangan Professor, Com. Sci. & Engg.	08.04.2011	07.04.2012	Position of Professor at Indian Statistical Institute, Chennai
13.	Sri. V. Veerasamy, Public Health Officer, Engg. Unit	11.12.2009	10.12.2011	Sr. Administrative Officer at NITTTR, Taramani
14.	Lt. Col. Jayakumar,	01.11.2010	31.10.2012	Position as Registrar in IIITD&M, Kancheepuram
15.	Smt. K. Vijayalakshmi, Jr. Supdt.	28.08.2008	27.08.2011	Superintendent at IIITD&M, Kancheepuram

## II. Faculty Members on Sabbatical Leave

Sl. No.	Name, Designation & Department	Period		Remarks
		From	To	
1.	Dr. V. Jayashankar Professor Electrical Engineering	21.07.2010	20.07.2011	To carryout a sponsored project on "Preparation of Monograph and Publishing the book on Wave Energy Project at National Institute of Ocean Technology, Chennai
2.	Dr. R. Dhamodharan Professor Chemistry	01.08.2010	31.07.2011	To Pursue Literature to enable the Development of research plan - IITM
3.	Dr. Archita Patnaik Professor Chemistry	30.08.2010	29.04.2011	To avail the Fulbright Nehru Senior Research Fellowship at University of California, USA
4.	Dr. Evangeline Manickam Professor Hum. & Soc. Science	01.01.2011	31.12.2011	The Offer of Fulbright-Nehru Visiting Lecture Fellowship & Book Writing -
5.	Dr. S. A. Sanasiraj Professor Ocean Eng.	27.12.2010	10.06.201	The Offer of Fulbright – Nehru Senior Research Fellowship in the School of Civil and Construction Engineering, Oregon, USA
6.	Dr. S. Ponnusamy Professor Mathematics	01.01.2011	30.06.2011	Visiting professor in the School of Mathematical Sciences, University Sains Malaysia, Pulau Pinang, Malaysia
		01.07.2011	31.01.2012	Research assignment (Visiting faculty) at the University of Turku, Finland
7.	Dr. Umakant Dash Associate Professor Hum. & Soc. Engg.	01.01.2011	31.12.2011	Visiting Lecturer (Associate Professor) at UUM College of Arts and Sciences, Sintok, Malaysia
8.	Dr. K. Sridharan Professor Electrical Engg.	02.01.2011	01.06.2011	To write a book (monograph) on digital circuit designs in the quantum dot cellular Automata model
9.	Dr. U. Saravanan Assistant Professor Civil Engg.	12.01.2011	20.06.2011	To take up Research work as Visiting Scholar at the Department of Mechanical Engineering, Texas A & M. University, USA
10.	Dr. Anuradha Banerjee Assistant Professor Applied Mechanics	05.01.2011	04.05.2011	To take up Collaborative Research work at the Institute of Mathematical Sciences, Taramani Chennai - 113
11.	Dr. M. Thenmozhi Professor Management	12.01.2011	24.05.2011	Fulbright-Nehru Visiting Lecture Fellowship in the College of Business Administration San Diego CA, USA

## 2.3 Staff Welfare:

### 2.3.1 Human Resource Development

As part of human resource development activities, the Institute plans and implements programs for providing opportunities to technical and administrative staff to update and upgrade their knowledge and skills in order that they may perform their duties effectively. In addition, the programs are also aimed to enhance the pride and satisfaction they feel in their work. The overall feeling of happiness engendered by these programs also overflows to their home lives and contributes to a sense of well-being for the entire family. These activities also form a part of the training requirements under the ISO dispensation.

The HRD activities were initiated at the Institute in 1997 under the charge of a Professor. In the period of reporting, the total number of in-service training program conducted was 11 and staff members have been nominated for 12 various training programmes organized by other Institutions/Organisations. The impact of the various programs, as seen from the feedback at the end of each program, appears to be advantageous to the Institute as the employees were able to upgrade their knowledge through these programs as the programs were designed on need based.

#### HRD Programmes conducted:

Various types of Programmes attended by our staff members organized by the other organizations during April 2010 to March 2011:

In service training programme for our staff members related to various activities (Academic, Admn., Accounts, Personal Computer and technical:

#### Training calendar for the year 2010 In house training

Sl. No.	No of persons attended	Course Title	Duration	Section/ Dept.	Target Audience	Organisation
1.	-	Athma Gnana Yoga	25.01.2010 to 03.02.2010	All sections & departments	All employees & Students	HSB 133, IIT Madras
2.	22	Athma Gnana Yoga Programme	5.4.2010 to 13.4.2010		Faculty / Students/Staff	Mr. T.S. Narayanan Athma Gnana Yoga Chennai 600 004
3	13	Athma Gnana Yoga Programme	14.6.2010 to 23.6.2010		Faculty / Students/Staff	Mr. T.S. Narayanan Athma Gnana Yoga Chennai 600 004
4	52	Athma Gnana Yoga Programme	20.9.2010 to 29.9.2010		Faculty / Students/Staff	Mr. T.S. Narayanan Athma Gnana Yoga Chennai 600 004
5.	11	Athma Gnana Yoga Programme	8.11.2010 to 17.11.2010		Faculty / Students/ Staff	Mr. T.S. Narayanan Athma Gnana Yoga Chennai 600 004
6.	11	One Day Workshop (Refresher Course) on good driving practice	7.2.2011	Transport Cell	Drivers	Central Workshop, IITM

**Training calendar for the year 2010  
Outside Training :**

Sl. No.	No of persons attended	Course Title	Duration	Section/ Dept.	Target Audience	Organisation
1.	1	Milling Practice(V Block, Helical, Cam milling etc.	From 24.05.2010 2 weeks	HTM Lab	Jr. Technician	The Advanced Training Institute, Guindy
2	1	Excel-2007	12.09.2010	Supdt.	JEE Office	Heuristic Knowledge Base Solution & Services
3	4	International Conference on Green Buildings	7.10.2010 to 9.10.2010	Engineering Unit	EE , AEE, and JE	CII, Hyderabad
4	2	Technical Seminar on HVAC System	24.9.2010 to 25.9.2010	A E & JE Electrical	Engg. Unit	ISHRAE Chennai Chapter
5	7	Seminar – on Service related topics	20.10.2010 to 22.10.2010	Registrar Sr./Jr Supdt. Sr/Jr .Asst.	Administration, Accounts and Audit Sections	SIRC of ICAI Quilong Branch
6	1	Control of Electrical Motors	27.9.2010 to 8.10.2010	Sr. Attendant	Dept. of Civil Engg.	The Advanced Training Institute, Guindy
7	1	Gear Manufacturing Techniques	04.10.2010 to 14.10.2010	Jr. Technician	CWS	The Advanced Training Institute, Guindy
8	10	National Workshop on Sustainable Concrete Pavements, Practices, Challenges and Direction	13.11.2010	Junior Engineers	Engineering Unit	IC & SR, IIT Madras
9	1	Welding & Inspection	22.11.2010 to 03.12.2010	Dept.of Mech. Engg.	Security Inspector	The Advanced Training Institute, Guindy
10	2	Life Saving Skills	28.10.2010	Security Section	SSI & SI	Usha Fire Safety Equipments Pvt., Chennai
11	1	Welding & Inspection	22.11.2010 to 03.12.2010	CWS	Jr. Technician	The Advanced Training Institute, Guindy
12	1	Machine Tool Maintenance	22.11.2010 to 03.11.2010	CWS	Jr. Technician	The Advanced Training Institute, Guindy
13	3	Milling Practice (V Block, Helical, CAM Milling)	15.11.2010 to 26.11.2010	CWS	Jr. Technician	The Advanced Training Institute, Guindy
14	1	Tool & Cutter Grinding Techniques	1.11.2010 to 12.11.2010	CWS	Jr. Technician	The Advanced Training Institute, Guindy
15	1	Advanced Photo-elastic model fabrication	8.11.2010 to 12.11.2010	Applied Mechanics	Jr. Technician	VSSC Trivandrum
16	2	“DELNET” Resources, Services and Facilities	13 <sup>th</sup> November, 2010	Central Library	Jr. Technicians	V.R.Siddhartha Engg. College Vijayawada
17	2	CNC Turn Mill Centre	13.12.2010 to 24.12.2010	CWS	Tech. Assistant & Jr. Technician	The Advanced Training Institute, Guindy
18	1	Maintenance Engineering	6.12.2010 to 16.12.2010	CWS	Jr. Technician	The Advanced Training Institute, Guindy

18	2	Workshop on "Trends & Techniques in Concrete Pavements for 21 <sup>st</sup> Century	12.2.2011	Engg. Unit	Technical Assistant	ICSR Auditorium
19	1	Training programme on Lab View	21.2.2011 to 25.2.2011	CE	Tech. Asst.	NI Instruments, Chennai
20	3	Workshop on Commercials for Operating Managers	9.3.2011	S&P	DR AR Jr. Sudpt.	Savera Hotel, Chennai
21	2	Workshop on "Energy Efficiency"	12.3.2011	EU	JE, Tech. Assistant	Raintree Hotels, Chennai

### 2.3.2 Hindi Coaching

In accordance with the directions of the Government of India, Hindi classes were conducted regularly to both technical and administrative staff members to improve their knowledge in Hindi. In 2010-2011, 67 staff members were attended the Hindi Examination. As on 31.03.2011, 67 staff members were offered this course.

Every year, the Institute celebrates Hindi Day Function. This year Hindi Day Function celebrated on 15.09.2010, where the Deputy Director presided over the function and distributed Certificates, Cash Awards and Personal Pay to the staff members who have passed Hindi Exams.

### 2.3.3 School Fee Concession:

The Institute reimbursed fees paid by the staff members for their children's education as per the Govt. of India norms. During the period under report 714 staff members were benefited.

### 2.3.4 Transport Facilities:

From 10.02.2008, free transport facilities have been provided for the benefit of all users within the campus.

### 2.3.5 Advances:

During the year under report a sum of Rs. 29.66 lakhs was sanctioned for the following :

S.No.	Advance	No. of Employees	Amount Sanctioned in
1.	House Building Advance	2	12,26,350
2.	Car Advance	1	1,76,460
3.	Two Wheeler Advance	23	4,47,000
4.	Personal Computer Advance	16	4,47,738
5.	Festival Advance	223	6,69,000
<b>Total</b>		<b>265</b>	<b>29,66,548</b>

### Insurance:

#### Group Mediclaim Insurance Scheme for the Period from 01.02.2010 TO 31.01.2011:

Sl.No.	Category	No. of Persons covered	Premium Paid Rs.
1	Employees & Dependants	1180 + 3074	1,81,99,500.00
2	Pensioners & Spouses	813 + 719	
3	Family Pensioners	397	
4	Fire Insurance		1,48,439.00
<b>TOTAL</b>		<b>2390 + 3793</b>	<b>1,83,47,939.00</b>
<b>Additional Coverage:</b>			
5	Employees & Dependants	375	36,76,570.00
6	Pensioners & Spouses	521	
7	Family Pensioners	67	
<b>Total Premium paid</b>		<b>963</b>	<b>2,20,24,509.00</b>

**Group Term Insurance Scheme for the Period from 10.02.2010 To 09.02.2011:**

SL.NO	GROUP	No. of Employees covered	Sum Insured per employee (in Rs.)	Annual Premium/employee (in Rs.)	Total Premium Paid (in Rs.)	Death Claims made during period (in Rs.)
1	A	467	30 Lakh	7677	40,30,425.00	30 Lakh
2	B	218	15 Lakh	3839	9,63,589.00	15 Lakh
3	C	388	10 Lakh	2559	7,60,023.00	10 Lakh
		1073			57,54,037.00	55 Lakh

**2.3.6 Meetings of the Authorities:**

Board of Governors	:	Three Meetings were held on 15.04.2010, 30.07.2010 and 23.12.2010
Finance Committee	:	One Meeting was held on 23.12.2010
Buildings & Works Committee	:	One Meeting was held on 15.07.2010
Senate	:	Four Meetings were held on 16.07.2010, 19.10.2010, 14.12.2010 and 15.03.2011

**ISO 9001:2000 in IITM : APRIL 2010 – MARCH 2011**

**ISO Summary**

International Organization for Standardisation (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 ISO-9001:2000 certification for academic and support processes (QSM-I: Academic Section, Central Library, Central Workshop, Computer Center and Industrial Consultancy & Sponsored Research, and User-Oriented Programmes) since 1999 and for administrative support processes (QSM-II: Administration, Central Electronic Centre, Engineering Unit, Finance & Accounts, Security Section, and Stores & Purchase) since 2001. In the year 2011, all the academic and support units of IIT Madras have been certified as per the new ISO standard ISO 9001:2008. The certificate is valid until August 2014 for QSM-I and January 2014 for QSM-II. In addition to ISO 9001:2008 certification, the Central Electronic Centre in NABL-accredited for its Testing and Calibration Laboratories since 2004.

**ISO Activities for the year 2010-2011**

**Internal Audits:**

Schedule ⇔ Unit/Section ↓	First Audit	Second Audit
QSM – I	June 8-10, 2010	Nov. 09-11, 2010
QSM - II	June 21-23, 2010	Nov. 23-25, 2010

**Management Review Meetings:**

Unit/Section	Schedule
QSM – I and QSM-II	July 02, 2010 (27 <sup>th</sup> MR meeting)
QSM – I and QSM-II	December 09, 2010 (28 <sup>th</sup> MR meeting)

**Surveillance Audits (undertaken by M/S TUV India Limited)**

Unit/Section	Schedule
QSM – I	July 08, 2010 (Surveillance Audit)
QSM – II	January 04 -05, 2011 (Recertification Audit)



### **NABL Activities for the year 2010-2011 (for Central Electronics Centre)**

- Management Review Meeting was conducted on February 23, 2011.

#### **2.3.8 List of faculty members and Officers in the Academic and General Administration**

##### **(i) Academic Administration**

**Director**  
**Deputy Director**

**Prof. M. S. Ananth**  
**Prof. V.G.Idichandy**

##### **Deans:**

Academic Courses	Dr. K. Ramamurthy
Academic Research	Dr. K. Krishnaiah
Administration	Dr. M Singaperumal (upto 31.03.2011) Dr. P. Sriram (
Industrial Consultancy & Sponsored Research	Dr. Job Kurian
Students	Dr. M.Govardhan
Planning	Dr. Bhaskar Ramamurthi

##### **(ii) Heads of Departments:**

Aerospace	Dr P Sriram (upto Dr. K. Bhaskar (from 20.04.2011)
Applied Mechanics	Dr. Ramasubba Reddy
Bio-Technology	Dr. K.B.Ramachandran
Chemical Engineering	Dr. S.Pushpavanam
Chemistry & MSRC	Dr. R.Dhamodaran (upto 21.06.2010) Dr. S.Sankararaman (from 22.06.2010)
Civil Engineering	Dr. K.Rajagopal (upto 03.02.2011) Dr. S.R. Gandhi (from 04.02.2011)
Computer Science & Engineering	Dr. C.Siva Ram Murthy
Electrical Engineering	Dr.V.Jagdeesh Kumar (upto 04.07.2010) Dr.Enakshi Bhattacharya ( from 05.07.2010)
Engineering Design	Dr.R.Krishna Kumar (upto 18.08.2010) Dr.Nilesh Jayantilal Vasa (from 19.08.2010)
Humanities & Social Sciences	Dr.V.R.Muraleedharan (upto 31.12.2010) Dr.Sudhir Chella Rajan (from 31.01.2011)
Management Studies	Dr.C.Rajendran
Mathematics	Dr.P.V.Subramanyam
Mechanical Engineering	Dr.S.P.Venkatesan
Metl. & Matl. Engineering	Dr.P.Kesavan Nair (upto 01.01.2011) Dr.T.S.Prasanna Kumar (from 02.01.2011)
Ocean Engineering	Dr.S.K.Bhattacharaya
Physics	Dr.G.Markandeyalu

**(iii) Heads of Research Centre:**

Sophisticated Analytical & Instrumentation Facility Dr.G.K.Suraish Kumar

**(iv) Heads of Special facilities for interaction with other Institutions:**

Centre for Industrial Consultancy & Sponsored Research Dr.Job Kurian  
Chairman, CCE & Central Photographic Section Dr.Ajit Kumar Kolar  
Central Electronics Centre Dr. Ravinder David Koilpillai  
Computer Centre Dr.B.V.S.S.S Prasad

**(v) Central Administration:**

Director Dr.M.S.Ananth  
Registrar Shri. A.Thirunavukkarasu

**Deputy Registrars:**

Internal Audit Dr.T.Suryakumar  
Stores and Purchase Section Shri R.Esakkimuthu  
Training & Placement Lt.Col.Jayakumar (EOL from 01.11.2010 to 31.10.2012)

**Assistant Registrars:**

Academic Sri. G. Ravichandran  
Sri. B. Nagarajan  
Administration Shri S.Sundaravinayagam  
Shri J.Lazar  
Finance & Accounts Section Shri D.Ravee  
Shri.S. Sambasivam  
Stores & Purchase Section Shri A.V.Sudarsanam  
IC&SR Smt. Prema Chakkarapani  
Chief Security Officer Shri G.Selvamani  
Secretary to Director --  
Engineering Unit: --

**(vii) Heads of Central Services, Facilities & Section:**

Central Library Dr.Harish Chandra  
Chief Medical Officer in-charge Dr.Mahalakshmi M. Ravi  
Central Gas Supplies Unit & Central Gas Blowing Section Dr.V.Sankaranarayanan

Professor in-charge, Central Workshop	Dr.V.Jayashankar (upto 22.06.2010) Dr. Ramesh Babu (from 23.06.2010)
National Service Scheme	Dr.Srinivasa Chakravarthy
Advisor, Sports	Dr.M.Kamaraj
Advisor, Cultural	Dr.S.Sundar (upto 10.08.2010) Dr.P.Sarathi (from 11.08.2010)
Foreign & Weaker Section Students	Dr.K.Giridhar
Vigilance	Dr.N. Sivaprasad
Placement & Training	Dr.B.V.S.S.S.Prasad
Guidance & Counselling Unit	Dr.G.Srinivasan
Prof. in-charge (Alumini Affairs)	Dr.R.Nagarajan

**(viii) Engineering Unit:**

Chairman, Engg. Unit	Dr.S.R.Gandhi (upto 27.02.2011) Dr.K.N.Satyanarayana (from 28.02.2011)
Co-Chairman, Engg. Unit	Dr.K.N.Sathyanarayana
Superintending Engineer	Shri. R. Arumugam
Executive Engineers	Shri K.Viswanath Shri L.Venkataraman
Assistant Executive Engineers	Shri V.Seenivasan Shri.K.Dharmaraj Shri M.Ramachandran Shri.M.Murali Prakash Shri.H.Anandram Smt.N.R.Vineetha Shri.K.Rizwan Ali

### 3. ACADEMIC PROGRAMMES AND AWARD OF DEGREES

The Institute offered Ph.D. programme in all the 16 departments, M.S. programme in 12 departments, M.Tech programme in 28 streams/ specialisations, M.Sc. programme in 3 branches, B.Tech programme in 10 branches, Dual degree (B.Tech and M.Tech) programme in 20 Streams/Specialisation, Dual Degree (BS & MS) in Physics, M.B.A. programme and M.A. Integrated programme in 3 streams besides a preparatory course for SC/ST students during the year under report.

#### 3.1 Admissions 2010-11:

Candidates for admission to B.Tech., Dual Degree and M.Tech. programmes were selected through JEE and based on GATE score respectively. Quite a few candidates were also selected for M.Tech. programme under Sponsored, Q.I.P. and User Oriented programmes through interview and/or written test. Selection for Ph.D. and M.S. programmes was done through test/interview. For M.Sc. branches of Mathematics, Physics, and Chemistry, selection was made through a common test JAM 2010 conducted jointly by seven IITs. For M.B.A. programme selection was made through JMET and interview for M.A. Integrated Programme selection was made through HSEE 2010.

The number of students and scholars admitted to various programmes both in July 2010 and in January 2011 are given in Table:

TABLE 1 – Fresh Admission

Sl. No.	Department	B.Tech	Dual Degree	M.Sc	M.Tech	M.B.A	M.A.	M.S	Ph.D	Total
1.	Aerospace Engg.	37	23	-	29	-	-	8	9	106
2.	Applied Mechanics	-	-	-	20	-	-	16	12	48
3.	Biotechnology	44	20	-	08	-	-	5	18	95
4.	Chemical Engg	76	18	-	37	-	-	10	16	157
5.	Chemistry	-	-	47	-	-	-	-	45	92
6.	Civil Engg.	62	36	-	92	-	-	10	28	228
7.	Comp. Sc. & Engg.	30	25	-	68	-	-	17	10	150
8.	Electrical Engg.	50	69	-	71	-	-	52	21	263
9.	Engg. Design.	-	57	-	-	-	-	8	9	74
10.	Hum. & Soc. Sci.	-	-	-	-	-	46	-	7	53
11.	Management Studies	-	-	-	-	70	-	13	10	93
12.	Mathematics	-	-	49	10	-	-	-	8	67
13.	Mechanical Engg.	73	72	-	109	-	-	34	32	320
14.	Met. & Mat. Engg.	38	13	-	18	-	-	2	15	86
15.	Ocean Engg.	38	20	-	34	-	-	17	15	124
16.	Physics	29	6	37	09	-	-	-	27	108
	<b>Total</b>	<b>477</b>	<b>359</b>	<b>133</b>	<b>505</b>	<b>70</b>	<b>46</b>	<b>192</b>	<b>282</b>	<b>2064</b>

In addition to the above, 6 students (ST:1 & PD:5) joined Preparatory Course.

#### OBC/SC/ST Students under Fresh Admission:

Sl.No	Programme	OBC	SC	ST	PD	Female
1.	B.Tech	128	71	48	8	59
2.	Dual Degree	90	53	34	3	36
3.	M.Tech	117	53	19	6	54
4.	M.Sc.	31	18	4	4	32
5.	M.B.A	9	9	2	-	18
6.	M.A.	7	8	3	1	28
6.	M.S	49	4	-	-	30
7	Ph.D	82	11	2	2	66
	<b>Total</b>	<b>513</b>	<b>227</b>	<b>112</b>	<b>24</b>	<b>323</b>

Total no. of students admitted during the year includes the following:

Foreign Nationals	4	User-oriented Programme (M.Tech)	41	
OBC	513			
Scheduled Castes	227	Q.I.P.	M.Tech Ph.D.	13 14
Scheduled Tribes	112	Sponsored	M.Tech.	26
Physically Handicapped	24	Project	M.S. Ph.D.	10 24
Women Students	323	External Registration	M.S. Ph.D.	14 23
Defence Officers (M.Tech)	42			

### 3.2 Students/Scholars Enrolment:

The total numbers of students on roll in various programmes of the Institute in the academic year 2010-11 are given below:

**TABLE 2 – Students on roll**

Sl. No.	Department	B.Tech	Dual Degree	M.Sc.	M.Tech.	M.B.A.	M.A.	M.S.	Ph.D.	Total
1.	Aerospace Engg.	107	85	-	51	-	-	38	51	332
2.	Applied Mechanics	-	-	-	30	-	-	41	50	121
3.	Biotechnology	120	72	-	18	-	-	16	122	348
4.	Chemical Engg.	240	78	-	69	-	-	25	50	462
5.	Chemistry	-	-	88	-	-	-	-	187	275
6.	Civil Engg.	191	142	-	170	-	-	34	118	655
7.	Comp. Sc.& Engg.	111	108	-	134	-	-	74	60	487
8.	Electrical Engg.	184	284	-	122	-	-	112	94	796
9.	Engg. Design	-	198	-	-	-	-	19	24	241
10.	Hum. & Soc. Sc.	-	-	-	-	-	168	-	43	211
11.	Management Studies	-	-	-	-	139	-	38	79	256
12.	Mathematics	-	-	85	18	-	-	-	39	142
13.	Mechanical Engg.	277	284	-	186	-	-	91	147	985
14.	Met. & Mat. Engg	109	53	-	41	-	-	20	65	288
15.	Ocean Engg.	106	60	-	65	-	-	32	43	306
16.	Physics	80	16	75	17	-	-	-	120	308
	<b>Total</b>	<b>1525</b>	<b>1380</b>	<b>248</b>	<b>921</b>	<b>139</b>	<b>168</b>	<b>540</b>	<b>1292</b>	<b>6213</b>

The above total includes the following:

Foreign Nationals	5	QIP	M.Tech Ph.D.	23 63	86
OBC	948	Sponsored	M.Tech M.S.	31 01	32
Scheduled Castes	685	Project	M.S. Ph.D.	56 133	189
Scheduled Tribes	281	External Registration	M.S. Ph.D.	73 157	230
Physically Handicapped	25	Registration Kept Alive	M.S. Ph.D.	06 15	21
Women students	966	Part -Time Programme (Ph.D)	M.S. Ph.D.	6 33	39
Defence Officers (M.Tech)	85	User-oriented Programme (M.Tech)			86

#### OBC/SC/ST Students on roll:

Sl.No.	Course	GE	OBC	SC	ST	Total
1.	B.Tech	930	237	241	117	1525 (180)
2.	Dual Degree	901	160	215	104	1380 (118)
3.	M.Tech	552	230	100	39	921 (105)
4.	M.Sc	160	50	33	5	248 (54)
5.	M.B.A	89	27	19	4	139 (24)
6.	M.A	114	19	26	9	168 (90)
7.	Ph.D	1086	157	46	3	1292 (316)
8.	M.S	467	68	5	-	540 (79)
	<b>Total</b>	<b>4299</b>	<b>948</b>	<b>685</b>	<b>281</b>	<b>6213 (966)</b>

Figures in ( ) show no. of female students

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

**TABLE 3 - B.Tech students on roll**

Sl. No.	Branch	2010	2009	2008	2007	2006 & earlier batch	Total
1.	Aerospace Engineering	36	27	25	15	4	107
2.	Biotechnology	40	31	26	19	4	120
3.	Chemical Engineering	76	60	53	45	6	240
4.	Civil Engineering	57	56	42	31	5	191
5.	Computer Sc. & Engg.	33	27	26	20	5	111
6.	Electrical Engineering	54	46	40	41	3	184
7.	Engineering Physics	23	21	21	14	1	80
8.	Mechanical Engineering	83	67	62	53	12	277
9.	Met. & Mat. Engineering	37	24	23	21	4	109
10.	Naval Architecture	37	25	24	18	2	106
	<b>Total</b>	<b>476</b>	<b>384</b>	<b>342</b>	<b>277</b>	<b>46</b>	<b>1525</b>

**TABLE 4 - Dual Degree (B.Tech & M.Tech) students on roll**

Sl. No.	Branch	2010	2009	2008	2007	2006	2005 & earlier	Total
1.	(i) Aerospace Engineering	14	11	9	13	16	1	64
	(ii) AE (B.Tech) & AM (M.Tech)	7	5	5	4	-	-	21
2.	Biotechnology	18	13	13	15	13	-	72
3.	Chemical Engineering	20	14	13	14	14	3	78
4.	Civil Engineering	13	10	-	-	-	-	23
	Infrastructural Civil Engg.	14	12	22	25	20	1	94
	CE (B.Tech) & AM (M.Tech)	8	6	6	5	-	-	25
5.	Computer Science & Engg.	29	23	19	20	15	2	108
6.	Electrical Engineering							
	(i) Micro Elec. & VLSI Design	26	22	19	18	17	5	107
	(ii) Communication Engg.	22	22	18	18	19	3	102
	(iii) Power Sys. & Power Electronics	14	11	11	9	11	-	56
	(iv) EE (B.Tech) & AM (M.Tech)	7	3	5	4	-	-	19
7.	Engineering Design	57	46	43	26	24	2	198
8.	Mechanical Engineering							
	(i) Energy Technology	26	21	16	15	16	1	95
	(ii) Intelligent Manufacturing	23	20	18	13	17	3	94
	(iii) Product Design	25	20	16	16	17	1	95
9.	Metallurgical & Materials Engg.	12	11	8	11	11	-	53
10.	Naval Arch. & Ocean Engg.	18	14	10	10	8	-	60
11.	Physics (BS & MS)	6	10	-	-	-	-	16
<b>Total</b>		<b>359</b>	<b>294</b>	<b>251</b>	<b>236</b>	<b>218</b>	<b>22</b>	<b>1380</b>

**TABLE 5 - M.Sc students on roll**

Sl. No.	Branch	2010	2009 & others	Total
1.	Chemistry	47	41	88
2.	Mathematics	47	37	84
3.	Physics	36	39	75
<b>Total</b>		<b>130</b>	<b>117</b>	<b>247</b>

**TABLE 6 - M.Tech students on roll**

Sl. No.	Department \ Discipline \ Batch	2010	2009	Extended students	Total
1.	Aerospace Engineering	29	21	1	51
2.	Applied Mechanics	16	14	-	30
3.	Biotechnology – Clinical Engineering	08	10	-	18
4.	Chemical Engineering	30	23	6	59
	- Catalysis Technology	05	05	-	10
5.	Civil Engineering:				
	CE 1 - Building Technology	10	10	1	21
	CE 2 - Environmental Engineering	05	02	1	8
	CE 3 – Geotechnical Engineering	10	06	-	16
	CE 4 - Hydraulic & Water Resource Engg.	01	03	-	4
	CE 5 – Structural Engineering	23	19	-	42
	CE 6 - Transportation Engineering	09	10	1	20
	CE 7 – Construction Technology & Mgmt.	29	30	-	59
6.	CS 1 - Computer Science & Engineering	67	63	4	134
7.	Electrical Engineering:				
	EE 1 - Communication Systems	27	26	-	53
	EE 2 - Power Systems and Power Electronics	13	07	1	21
	EE 3 - Micro Electronics and VLSI Design	15	15	-	30
	EE-4 – control and Instrumentation System	09	09	-	18
8.	Industrial Maths & Scientific Computing	08	09	1	18
9.	Mechanical Engineering:				
	ME 1 - Thermal Engineering	33	32	-	65
	ME 2 - Design	28	29	-	57
	ME 3 - Manufacturing Engineering	20	13	-	33
	ME 4 - Automotive Engine Technology	10	07	-	17
	ME 5 - Nuclear Engineering	06	07	-	13
10.	MM - Metallurgical & Materials Engg.	18	22	1	41
11.	OE - Ocean Engineering	14	12	-	26
	- Ocean Technology & Management	11	9	-	20



	- Petroleum Engg.	9	10	-	19
12.	Physics: PH - Solid State Technology	9	8	-	17
<b>Total</b>		<b>472</b>	<b>431</b>	<b>17</b>	<b>920</b>

Extended semester students are given ()

**TABLE 7 – M.B.A. students on roll**

Sl. No.	Branch	2010	2009	Total
1.	Management Studies	69	70	139

**TABLE 8 – M.A. students on roll**

Sl. No.	Branch	2010	2009	2008	2007	2006	Total
1.	Humanities and Social Sciences	45	39	29	27	28	168

**TABLE 9 – M.S scholars on roll**

Sl. No.	Branch	I Year	II Year	III Year	IV Year	V Year & others	Total
1.	Aerospace Engg.	7	9	16	6	-	38
2.	Applied Mechanics	16	9	10	5	1	41
3.	Biotechnology	6	9	1	0	-	16
4.	Chemical Engg	10	8	6	1	-	25
5.	Civil Engg.	9	15	7	3	-	34
6.	Comp. Sc. & Engg.	17	26	18	13	-	74
7.	Electrical Engg.	53	34	18	7	-	112
8.	Engineering Design	2	6	7	3	1	19
9.	Management Studies	13	17	6	2	-	38
10.	Mechanical Engg.	30	31	18	12	-	91
11.	Met. & Mat. Engg.	3	9	5	3	-	20
12.	Ocean Engg.	17	11	4	0	-	32
	<b>Total</b>	<b>184</b>	<b>187</b>	<b>108</b>	<b>61</b>	<b>13</b>	<b>540</b>

**TABLE 10 – Ph.D scholars on roll**

Sl. No.	Branch	I Year	II Year	III Year	IV Year	V Year & others	Total
1.	Aerospace Engg.	8	12	8	12	11	51
2.	Applied Mechanics	14	10	6	8	12	50
3.	Biotechnology	26	32	26	18	20	122
4.	Chemical Engg	16	7	7	9	11	50
5.	Chemistry	49	29	29	22	58	187
6.	Civil Engg.	28	33	10	16	31	118
7.	Comp. Sc. & Engg.	10	15	11	7	17	60
8.	Electrical Engg.	19	21	15	22	17	94
9.	Engineering Design	7	3	6	6	2	24
10	Hum. & Soc. Sci.	7	6	7	4	19	43
11	Management Studies	12	26	12	7	22	79
12	Mathematics	8	9	8	4	10	39
13	Mechanical Engg.	32	36	24	17	38	147
14	Met. & Mat. Engg.	15	15	8	8	19	65
15	Ocean Engg.	16	12	5	4	6	43
16	Physics	28	24	11	21	36	120
	<b>Total</b>	<b>294</b>	<b>287</b>	<b>201</b>	<b>179</b>	<b>318</b>	<b>1292</b>

### 3.3 Courses Offered:

In the academic year 2010-11, 1304 courses were offered of which 672 courses in July–Nov. 2010 and 632 courses in Jan–May 2011. The Department-wise details of the courses offered are given below:

**TABLE 11 – No. of Courses offered**

Sl. No.	Department	No. of courses offered in July – Nov 2010				No. of courses offered in Jan – May 2011			
		Core	Elect.	Lab.	Total	Core	Elect.	Lab	Total
1	Aerospace Engineering	10	11	7	28	6	15	4	25
2	Applied Mechanics	5	7	2	14	9	8	4	21
3	Biotechnology	12	8	3	23	7	10	2	19
4	Chemical Engineering	12	20	4	36	14	15	3	32

5	Chemistry	5	10	6	21	6	13	4	23
6	Civil Engineering	30	29	8	67	24	22	11	57
7	Computer Sc. & Engg.	12	13	6	31	6	21	5	32
8	Engineering Design	13	3	4	20	12	6	4	22
9	Electrical Engineering	16	32	9	57	15	36	8	59
10	Hum. & Soc. Science	37	36	0	73	30	26	1	57
11	Management Studies	27	41	0	68	6	45	0	51
12	Mathematics	15	19	3	37	12	21	2	35
13	Mechanical Engineering	42	34	7	83	51	24	9	84
14	Met. & Mat. Engineering	9	23	5	37	9	23	8	40
15	Ocean Engineering	20	14	5	39	18	8	5	31
16	Physics	20	10	8	38	18	21	5	44
<b>Total</b>		<b>285</b>	<b>310</b>	<b>77</b>	<b>672</b>	<b>243</b>	<b>314</b>	<b>75</b>	<b>632</b>

### 3.4 Convocation:

The 47<sup>th</sup> Convocation was held on 30<sup>th</sup> July 2010. Shri Gopalkrishna Gandhi delivered the Convocation address. 1462 candidates were awarded various degrees 1029 candidates received degrees in person. The department-wise details of degrees awarded are given below:

**TABLE 12 – Degrees awarded**

Sl. No	Department	B.Tech	Dual Degree		M.B.A	PGDM EM	M.Sc	M.Tech	M.S	Ph.D	Total
			B.Tech	M.Tech							
1.	Aerospace Engg.	20	15	15	-	-	-	20	1	3	<b>74</b>
2.	Applied Mechanics	-	-	-	-	-	-	14	2	3	<b>19</b>
3.	Biotechnology	20	16	16	-	-	-	-	6	7	<b>65</b>
4.	Chemical Engg.	34	9	9	-	-	-	26	4	11	<b>93</b>
5.	Chemistry	-	-	-	-	-	32	-	-	26	<b>58</b>
6.	Civil Engg.	40	13	13	-	-	-	78	6	19	<b>169</b>
7.	Computer Sc.& Engg.	22	10	10	-	-	-	50	13	6	<b>111</b>
8.	Electrical Engg.	46	44	44	-	-	-	56	19	12	<b>221</b>
9.	Engineering Design	-	24	24	-	-	-	-	4	-	<b>52</b>
10.	Humanities & Social Sciences	-	-	-	-	-	-	-	-	6	<b>6</b>
11.	Management Studies	-	-	-	63	30	-	-	11	9	<b>113</b>
12.	Mathematics	-	-	-	-	-	26	8	-	11	<b>45</b>
13.	Mechanical Engg.	49	42	42	-	-	-	73	23	33	<b>262</b>
14.	Metallurgical & Materials Engg	19	9	9	-	-	-	16	3	11	<b>67</b>
15.	Ocean Engg.	15	4	4	-	-	-	18	7	5	<b>53</b>
16.	Physics	10	-	-	-	-	27	6	-	11	<b>54</b>
<b>Total</b>		<b>275</b>	<b>186</b>	<b>186</b>	<b>63</b>	<b>30</b>	<b>85</b>	<b>365</b>	<b>99</b>	<b>173</b>	<b>1462</b>

With this Convocation, the total number of degrees awarded so far by the Institute is 35,518, the details of which are given below:

S.No.	Programme	No.	
1	Ph.D.	3306	
2	M.S.	2440	
3	M.Tech	11403	
4	M.Sc.	2551	
5	M.B.A.	412	
6	Dual Degree	B.Tech	910
		M.Tech	910
7	B.Tech	13262	
8	PGDMEM	59	
9	B.Sc(Tech)	20	
10	DIIT	245	

### 3.5 Award of Prizes to the students:

#### 3.5.1 Convocation Prizes:

The following are the details of Prizes awarded to the students at the 47<sup>th</sup> Convocation:

- President of India Prize ... Swarun Kumar Suresh Kumar, B.Tech, Computer Science Engg.
- Governor's Prize ... Chinmoy Venkatesh Mandayam Nayak, B.Tech Electrical Engg.

#### □ Other Prizes:

Sl.No.	Donor	Department	Name of student
<b>Doctor of Philosophy – Ph.D.</b>			
1.	Prof. V Ramamurti Award	Applied Mechanics	Malathi R
2.	Prof C N Pillai Prize Prof G Sundararajan Endowment Prize	Chemistry	Senthil Kumar
3.	Prof Werner Prize	Chemistry	Pardha Saradhi Maram
4.	Prof Langmuir Prize	Chemistry	Samanwita Pal
5.	Shree Gaayathree Devi Award	Civil Engineering	Vijayalakshmi D P
6.	Sudharshan Bhat Memorial Prize	Metal. & Materials Engg.	Md Imteyaz Ahmad
7.	Prof A L Lashkar Prize	Physics	Biju K P Sunil Kumar S [Joint Winners]
8.	Bhagyalakshmi and Krishna Ayengar Award	Biotechnology	A Trishul
<b>Master of Science by research – M.S</b>			
1.	Bhagyalakshmi and Krishna Ayengar Award	Engineering Design	Dilip K V
<b>Master of Technology – M.Tech.</b>			
1.	Air India Prize	Aerospace Engineering	Nitesh Shan
2.	Prof B V A Rao Endowment Prize Indira Sivasailam Merit Prize	Applied Mechanics	K Muralidharan
3.	Usha Kothandaraman Memorial Prize		
4.	Dr K Subba Raju Memorial Prize	Chemical Engineering	Sheril Mary Mathew
5.	Valli Anantharamakrishnan Merit Prize K Devarajan Memorial Prize	Civil Engg. – Transportation Engg.	Alagappan P
6.	L & T Endowment Prize		
7.	CMC Prize	Computer Science & Engg.	Suchith Rajagopal
8.	Prof H N Mahabala Endowment Prize	Computer Science & Engg	Surendra Sharma
9.	Siemens Prize	Electrical Engineering	Hariharan R
10.	Prof. Achim Bopp Endowment Prize	Electrical Engineering	Jitesh Mohanan
11.	Prof Helmut Neunzert Endowment Prize	Industrial Mathematics & Scientific Computing	Durga Prasad Challa
12.	Mico-Bosch Prize	Mechanical Engineering	Balaji Bandaru
13.	S Anantharamakrishnan Merit Prize	Mechanical Engineering	Giri K
14.	Prof B Sengupto Prize	Mechanical Engineering	Soham Ghosh
15.	Prof Ramamohana Rao Memorial Prize	Mechanical Engineering	Kusa Swethaghnya

16.	Dr S Vaidyanathan Memorial Prize	Mechanical Engineering	S S Arunhasanth Pulavarthy
17.	Delphi-TVS Diesel Systems Ltd. Prize	Mechanical Engg. - Automotive Engine Tech.	Alaguvel Armstring R Havale Vrushabha Bhupal [Joint Winners]
18.	Sudharshan Bhatt Memorial Prize	Metallurg. & Mat. Engg	Pragna Bhaskar
19.	American Bureau of Shipping Prize	Ocean Engineering	Greeshma Ravindran
20.	Institute Merit Prize	Ocean Technology & Mgmt.	Karunakar Kintada
21.	Institute Merit Prize	Solid State Technology	Amartya Awasthi
<b>Master of Science – M.Sc</b>			
1.	Dr. S R Ramadas 60 <sup>th</sup> Birthday Commemoration Award and Ratna Rao Memorial Prize	Chemistry	Sourav Maiti
3.	Mira Paul Memorial Prize	Mathematics	Pavani Aedutla Bala Lakshmi
4.	Prof Chilukury Ramasastry Memorial Prize	Physics	Sinha Kishan Kumar
<b>Master of Business Administration - M.B.A.</b>			
1.	K V Arunkumar Memorial Prize	Management Studies	Saurabh Kiran Smruti Ranadive
2.	Coka Parthasarathy Prize	Management Studies	Sarang Shyam Bhutada
<b>PG Diploma in Management for Executives in Manufacturing – session (2009-10) Jointly offered by IIMC, IITK &amp; IITM</b>			
1.	NMCC Gold Medal	Management Studies	Rishi Gangwar
2.	JICA Gold Medal	Management Studies	Debadatta Mishra
3.	IIMC Alumni Association Gold Medal	Management Studies	Subhasis Mohanty
<b>Dual Degree - B.Tech. &amp; M.Tech.</b>			
1.	Dr. V Mohan Raman Prize	Aerospace Engineering	Mohith M
2.	Mayan Prize	Aerospace Engineering	Rajesh G
3.	Institute Merit Prize	Biotechnology	Hotkar Parshuram Sambhajirao
4.	B Ravichandran Memorial Prize	Chemical Engineering	Ankit Bhatnagar
5.	Institute Merit Prize	Civil Engineering	Palukuri V S Seshanka
6.	Alumni Association Prize	Computer Science & Engineering	Aashish A Dattani
7.	Phillips India Prize	Electrical Engineering	Karthikeyan Shanmugam
8.	Institute Merit Prize	Engineering Design	Deepan Raj Prabhakar M
9.	Prof G V N Rayudu Memorial Prize } Giri Brothers Prize	Mechanical Engineering	Koushik Viswanathan
10.	S Anantharamakrishnan Memorial Prize	Metallurg. & Materials Engg	Mayur Vaidya
11.	Dr. Shankar Dayal Sharma Prize	Metallurg. & Materials Engg	Mathew Joseph
12.	Goodearth Shipbuilding Pvt. Ltd Prize	Naval Architecture & Ocean Engineering	Sudha Kishore Reddy K
<b>Bachelor of Technology - B.Tech.</b>			
1.	HAL Prize	Aerospace Engineering	Shreesh V
2.	Institute Merit Prize	Biotechnology	B Harshvardhan Swathi Ayloo [Joint Winners]
3.	C A Sastry Endowment Prize	Chemical Engineering	K Kaushik Anand
4.	Reliance Heat Transfer Pvt. Ltd. Prize	Chemical Engineering	Sivaraman Ramaswamy

5.	Larsen & Toubro ECC Endowment Prize	Civil Engineering	Varun Ramakrishna Pattabhiraman
6.	Bharat Ratna M Visvesvaraya Memeorial Prize B Ravichandran Memorial Prize	Computer Science & Engineering	Swarun Kumar Suresh Kumar
7.	Siemens Prize Motorola Prize		
8.	Institute Merit Prize	Engineering Physics	Ananda Theertha Suresh
9.	Banco Foundation Prize	Mechanical Engineering	Parw Sharma
10.	Sivasailam Merit Prize S.R.I Prize	Mechanical Engineering	Aakash Gupta
11.	Dr Dhandapani Memorial Prize		
12.	American Bureau of Shipping Prize	Naval Architecture and Ocean Engineering	Georgy George

### 3.5.2 Institute Day Prizes (Silver medal & cash award of Rs.1000/-)

On the basis of performance during the academic year 2009-10, the following students were awarded Merit Prizes on the 51<sup>st</sup> Institute Day held on 16.4.2010 at the Central Lecture Theatre (CLT). Shri B S Sudhir Chandra, Director (Project & Planning), Metro Rail Corporation Ltd., Bangalore was a Chief Guest.

#### I. Institute Merit Prizes:

##### B.Tech / Dual Degree (5<sup>th</sup> & 6<sup>th</sup> Semesters)

Aerospace Engineering	AE06B006	Joseph George
Biotechnology	BT06B043	Srivats Venkataramanan
Civil Engineering	CE06B027	Prajwal B V S
Computer Science & Engineering	CS06B038	Swarun Kumar Suresh Kumar
Engineering Design	ED06B026	Viswanath K S
Engineering Physics	EP06B002	Ananda Theertha S
Mechanical Engineering	ME06B090	Ketan Anand Nayak
Naval Architecture	NA06B009	Georgy George

##### Dual Degree (7<sup>th</sup> & 8<sup>th</sup> Semesters)

Aerospace Engineering	AE05B029	Ravichandran S
Biotechnology	BT05B042	Vantharam V Hemanth Giri Rao
Chemical Engineering	CH05B054	Harshit Kulin Desai
Civil Engineering	CE05B055	Palukuri V S Seshanka
Computer Science & Engineering	CS05B033	Karthik Jayanthi
Engineering Design	ED05B004	Astitva Tripathi
Electrical Engineering	EE05B111	Kiran Kumar Reddy C
Mechanical Engineering	ME05B092	Koushik Viswanathan
Mechanical Engineering	ME05B074	Arvind Kumar Jain
Mechanical Engineering	ME05B059	C Praveen
Metallurgical & Materials Engineering	MM05B032	Mayur Vaidya
Naval Architecture	NA05B023	Sudha Kishore Reddy K

##### M.Tech (First Two Semesters)

Aerospace Engineering	AE08M011	Nitesh Shah
Applied Mechanics	AM08M005	Muralidharan K
Biotechnology	BT08M003	Janani Venugopalan

Chemical Engineering	CH08M029	Sheril Mary Mathew
Civil Engineering	CE08M121	Alagappan P
Civil Engineering	CE08M141	Adil Eshack
Compute Science & Engineering	CS08M051	Suchith Rajagopal
Electrical Engineering	EE08M079	Radha S
Mathematics	MA08M003	Durga Prasad Challa
Mechanical Engineering	ME08M032	Soham Ghosh
Automotive Engine Technology	AT08M001	Alaguvel Armstrong R
Metallurgical & Materials Engineering	MM08M008	Pradeep K G
Ocean Engineering	OE08M003	Greeshma Ravindran
Ocean Engineering	OE08M032	M Chilambarasan
Physics	PH08M002	Amartya Awasthi

#### M.Sc. (First Two Semesters)

Chemistry	CY08C032	Sourav Maiti
Mathematics	MA08C016	Pavani Aedutla Bala Lakshmi

#### MBA (1<sup>st</sup> and 2<sup>nd</sup> Semesters)

Management Studies	MS08A044	Sarang Shyam Bhutada
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#### MA (5<sup>th</sup> and 6<sup>th</sup> Semester)

Management Studies	HS09H029	Vaishnavi Surendra
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## II. Donors Prizes:

#### B.Tech (First seven semesters)

Dr. Dinesh Balagangadhar Prize	ME06B030	Parw Sharma
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#### B.Tech (First Six Semester)

Dr S Chandrasekharan Memorial Prize	ME06B033	Priyank Gullipalli
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#### B.Tech / Dual Degree (1<sup>st</sup> & 2<sup>nd</sup> Semesters)

Sri S Subramanian Prize	CS07B006	Mrinal Kumar Shaileshh B V [Joint Winners]
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#### B.Tech / Dual Degree (3<sup>rd</sup>, 4<sup>th</sup> & 7<sup>th</sup> Semesters)

K Srinivasan & Indira Srinivasan Prize (Cash Prize of Rs.5,000/- with a certificate and Silver Medal)	CS06B038	Swarun Kumar Suresh Kumar
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#### B.Tech / Dual Degree (5<sup>th</sup> & 6<sup>th</sup> Semesters)

Sri Ramasarma V Kolluri Memorial Prize	EE06B095	Ujwal R Krishna
Ratna Award	MM06B029	Venkata Siva Varun S
Dr R K Viswanath Memorial Prize	CH06B043	Sivaraman Ramaswamy

#### B.Tech / Dual Degree (7<sup>th</sup> & 8<sup>th</sup> Semesters)

D Ananda Subramanian Memorial Award	EE05B107	Karthikeyan Shanmugam
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**Dual Degree (1<sup>st</sup> to 9<sup>th</sup> Semesters)**

Prof V Radhakrishnan Endowment Award	ME05B092	Koushik Viswanathan
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**B.Tech / Dual Degree (Best Project)**

ClassNK-100 Award - First Prize (Cash award of Rs.10,000/- with a silver medal)	NA05B014	Shitesh Ranjan
ClassNK-100 Award – Second Prize (Cash award of Rs.5,000/- with a silver medal)	NA05B017	V Swetha

**M.Tech – Best Academic Record (upto 3<sup>rd</sup> Semester)**

LVKV Sarma Prize	MA08M003	Durga Prasad Challa
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**M.Tech – Best Academic Record (First Two Semesters)**

Prof N Venkatarayulu Memorial Prize	ME08M032	Soham Ghosh
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**M.Tech – Best Academic Record (1<sup>st</sup> to 3<sup>rd</sup> semesters)**

Sushruta Award	AM08M005	K Muralidharan
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**M.Tech (Best Project)**

Lucas–TVS Limited Prize	AT07M004	R Ramaraj
Bhagyalakshmi & Krishna Ayengar Award (Cash Prize of Rs.30,000/- for faculty having guided the project work of G Vincent, Ph.D & Aniket Baheti, DD)	G Vincent EE05D021	Dr. Mahesh Kumar
	Aniket Baheti ME04B070	Dr. Ajit Kumar

**M.Sc – Best Academic Record (upto 3<sup>rd</sup> Semester)**

LVKV Sarma Prize	MA08C016	Pavani Aedutla Bala Lakshmi
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**M.Sc. (First Two Semesters)**

Chilukuri Ramasastry Memorial Prize (A Silver Medal & Cash Award of Rs.1,500/-)	PH07C016	V Ranjini
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**M.Sc – Lowest parental income with CGPA above 7.0 (at the end of 2<sup>nd</sup> semester)**

R Padmanabhan Memorial Prize	CY08C001	Abir Bhattacharjee
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**M.S (Best Thesis)**

Sri K Sreeharsha Memorial Prize	CE05S003	P Nandini
Sri Biswajit Sain Endowment Prize	CS07S004	Kiran Kumar R

## DEPARTMENT LEVEL PRIZES

### I. Institute Merit Prizes:

#### B.Tech/Dual Degree (3<sup>rd</sup> & 4<sup>th</sup> Semesters)

Aerospace Engineering	AE07B029	Shahani Varun Kishore
Biotechnology	BT07B011	Gara Nitesh Kumar
Chemical Engineering	CH07B020	Naveen Kartik C K
Civil Engineering	CE07B017	Kanmani C
Computer Science & Engg.	CS07B037	Bhargav P N
Electrical Engineering	EE07B087	Avinash K Krishnakumar
Engineering Design	ED07B003	Arun Srivatsan R
Engineering Physics	EP07B017	Sripoorna Bharadwaj P K
Mechanical Engineering	ME07B074	Sameer Bardapurkar
Metallurgical & Materials Engineering	MM07B018	Sivaraman R
Naval Architecture	NA07B001	Aarthy Adityan K

#### M.A (1<sup>st</sup> and 2<sup>nd</sup> Semesters)

Management Studies	HS08H027	Soumya Mishra
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#### M.A (3<sup>rd</sup> and 4<sup>th</sup> Semesters)

Management Studies	HS07H011	Irene Baby
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#### B.Tech (First Four Semesters)

Sri Raghavendra Memorial Prize	ME07B094	Sreenath K
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#### B.Tech / Dual Degree (3<sup>rd</sup> and 4<sup>th</sup> Semesters)

Rajalaskhmi Krishnamurthy English Prize	CE07B037	Srinath K
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**Notional Prize** – Certificate and cash award of Rs.1,000/- awarded to the following students for having secured high position in the merit list of JEE 2009.

1	CS09B017	Prashant V	15	EE09B015	Girish Ramkrishnan
2	CS09B013	Gunaa A V	16	CS09B002	Arijit Banerjee
3	EE09B023	Milind M Rao	17	CS09B010	Gholap Sujeet Gokul
4	EE09B010	Celestine Preetham L	18	EE09B018	Kamineni Sreeteja
5	EE09B004	Amit M Warriar	19	EE09B041	Vimal M
6	EE09B028	Nithin K	20	CS09B016	Nitin Motiani
7	EE09B002	Akshay Rangamani	21	CS09B018	Prateek Agrawal
8	EE09B008	Bande Meghana	22	CS09B011	Godhane Saheel Ram
9	EE09B017	Himaja K	23	EE09B005	Anand Krishnamurti Rao
10	EE09B035	Sidharth K V	24	EE09B037	Sunaina V Donimath
11	EE09B042	Yamjala Pranav	25	EE09B025	Nalla Harsha Vardhan Reddy
12	EE09B014	Dowlagar Deepak	26	EE09B034	Saurabh Sunil Sawlani
13	CS09B007	T Devanathan	27	EE09B011	Chandrasekhar N
14	EE09B032	Rajkumar Karthik			

## 4.1 DEPARTMENT OF AEROSPACE ENGINEERING

### 4.1.1 Introduction:

The Department of Aerospace Engineering was established in 1969 and has been offering B.Tech./ M.Tech / M.S / Ph.D. Programmes. The areas of teaching and research of the Department are Aerodynamics, Propulsion and Structures.

### 4.1.2 Academic Programmes:

B.Tech. / Dual / M.Tech. / M.S. & Ph.D.

#### New Courses introduced:

Sl. No.	Course No.	Title
1	AS 2100	Introduction to Aerospace Lab- July – Nov. 2010.
2.	AS 5470	Unsteady of Aerodynamics of Moving Bodies introduced by Dr. Sunetra Sarkar during July-Nov, 2010.
3.	AS 6015	Aerodynamic of Missiles and Launch Vehicles July-Nov. 2010
4	AS 6342	Spectroscopic Technique for Reacting Flow Diagnostics – July – Nov. 2010

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	37	27	24	15	4	107
Dual Degree	23	16	14	11	16	80
M.Tech.	28	21	0	0	-	49
M.S.	7	9	16	6	-	38
Ph.D.	8	12	8	12	11	51
<b>Total</b>	<b>103</b>	<b>85</b>	<b>62</b>	<b>44</b>	<b>31</b>	<b>325</b>

#### Endowment Prize Instituted:

S.No.	Name of the Student	Name of Prize/Awards
1.	Shreesh V, AE06B018	HAL Prize
2.	Mohith, AE05B024	Dr. V.Mohan Raman Prize
3.	G.Rajesh, AE05B028	Mayan Prize
4.	Nitesh Shah, AE08M011	Air India Prize

#### Names of Student/Scholar who attended Conference/ Workshops /Seminar and Symposia Abroad/India:

S.No.	Name of the Scholar	Roll No.	Name of the Conf./Seminar/ Symposium/ Workshop	Date & Venue	Fin. Asst. from
<b>INDIA</b>					
1	Ishitha Kumar	AE08D019	8 <sup>th</sup> Asia Pacific Conference on combustion	10-13 Dec. 2010 Hyderabad	Institute
2	Rajiv Kumar	AE07D008			
3.	Sumit Verma	AE07D011			
4.	Gaurav	AE10S004			
5	L.Kabiraj,	AE07DO12			
6	David Bhatt	AE06D004			
7	Balaji C	AE04D008			
8	Mulla Irfan Ahmed,	AE07D014			
9	Mayank sachan	AE09S019			
10	M.G. Sreenath	AE07D002			
11	Roopa Desai	AE06S014			
12	S.Ramgopal	AE07D015			
13	Ayan Nath	AE09S011			
14	Sunil Kumar Yadav				

S.No.	Name of the Scholar	Roll No.	Name of the Conf./Seminar/Symposium/ Workshop	Date & Venue	Fin. Asst. from
15	Tushar Jadhav	AE11D002	National Conference on Fluid Mechanics and Fluid Power	16-18 Dec, 2010, IIT M	Institute
16			ICTACEM 2010 - IIT Kanpur	27-29 Dec10.	Institute
17	G. Senthil Kumar	AE08S002	National Conference on Fluid Mechanics and Fluid Power	16-18 Dec, 2010, IIT M	CEMILAC
18	Ajit N Desai	AE08S010	Int. Conf. on Theoretical, Applied Computational, Experimental Mechanics	December 2010, IIT KGP	Institute
19	Lalit K Chandravanshi	AE08S020			
20	Rajarshi Das	AE07D010	13th Asian Congress of Fluid Mechanics" held in Dhaka, Bangladesh to present their papers	17-21 Dec 2010 – Dhaka, Bangladesh	Institute
21	Satheesh .Mariappan,	AE07D005			
22	Balaji C	AE04D008			
23	Ramgopal S,	AE07D015			
24	Ignatius J, K.,	AE07D003			
25	Y.S. Rammohan	AE07D014	5 <sup>th</sup> International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010) held at IIT Kharagpur to present their papers	27-29 December 2010. – IIT KGP	Institute
26	Vinayak Malhotra,	AE09S018			
27	Vijay Kumar Kadli	AE10S003			
28	Abshiek Kumar Pateria	AE09S020			
29	G.Balaganesan	AE08D013			
30	K. Vadivuchezhian	AE04D008			
31	Paresh S Ghangrekar	AE08S027			
32.	Sono K Thomas	AE08D021			
33	Md. Yousuf Ali	AE08S005			
34	M. Mahendran	AE08S003			
35	C. Palani Kumar	AE06D005			
36	K. Chenthil Kumar	AE06D002			
37	Mohamed Yousuf Ali	AE08S005			
38	Sonu K Thomas	AE08D021			
39	Lalit K Chandravanshi	AE08S020			
40	S. Priya	AE05D003	"Perspective in Non Linear Dynamics (PNLD) 2010	26-29 July'10 IISc, Blore	Institute
41	S.K. Mohammad Khaja Mohideen	AE09S003	"International Workshop on "Damage Tolerance and Fatigue in Composites"	14-18 Sep 2010. Blore	Institute
42	Manish R Wankhede	AE09S010	24 <sup>th</sup> National Convention of Aerospace Engineers & National Seminar on "New Vistas in Aviation and Aerospace"	10-15 Nov. 2010	Institute
43	M.Mahendran	AE08S003	National Conference Electric Propulsion Systems	23-24 Feb 2011	Institute
44	Md. Yousuf Ali	AE08S005			
<b>ABROAD</b>					
1.	Ajit N Desai	AE08S010	ASME 7 <sup>th</sup> International Symposium on Fluid Structure Interactions, Flow Sound Interactions, and Flow Induced Vibrations& Noise"	Aug 1-5 2010 – Montreal, Canada	Boeing Travel
2	Rahul Singh Sikarwar		To present his paper "Analytical Modeling for Ballistic Perforation of Angle –ply and Hybrid Composite Laminates" in IMPLAST 2010 organized by SEM	12 <sup>th</sup> – 14 <sup>th</sup> October at Providence, Rhode Island , USA	

S.No.	Name of the Scholar	Roll No.	Name of the Conf./Seminar/ Symposium/ Workshop	Date & Venue	Fin. Asst. from
3	Chenthil Kumar		Attended the 63rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics 2010 to his present his paper titled "Water Mist Interaction with Flame Spreading Against Gravity	21-23 November 2010 at Long Beach, California	

#### 4.1.3 Faculty and their Activities:

Prof. Job Kurian has taken over as the Coordinator of the Propulsion Panel of AR & DB, DRDO from January 2011.

#### Faculty and their Speciliasation

Name and Qualifications	Major area of specialization (only 3 areas)
<b>Professors:</b>	
Gokhale S. S., Ph.D. (Univ. of Illinois, USA) Director, VNIT Nagpur	Aircraft and missile propulsion, computational methods, simulation and optimization, computer aided instructions
Job Kurian, Ph.D., (IIT Madras)	Gas Dynamics, Combustion, Shock tube flows and measurements
Santhakumar S., Ph.D., IIT Madras	Aerodynamics, flight mechanics, instrumentation
Ramakrishna M., Ph.D., Univ. of Texas at Arlington	Fluid Mechanics, numerical methods, computer solutions
Sriram P., Ph.D. Georgia Inst. Of Technology	Structural mechanics, fatigue & fracture, Parallel computing
Bhaskar K., Ph.D., (IIT Madras)	Structural mechanics, Plants & Shells, composite structures
Sujith R.I., Ph.D., Georgia Inst. Of Technology	Acoustics and Combustion Instability Optical Flow Diagnostics
Chakravarthy., S.R. Ph.D., Georgia Inst. Of Technology	Propulsion, Combustion & Fluid Mechanics
R. Velmurugan., Ph.D. , IIT Delhi	Composite Structures Analysis and Design, Impact Mechanics, 3-D Composites
<b>Visiting Professor:</b>	
Luoyi Tao, Ph.D. University of Pittsburgh	Continuum mechanics and its applications (fluids, solids, multiphase flows, etc.)
<b>Associate Professor:</b>	
Panchapakesan N.R, Ph.D Cornell University, USA	Fluid Mechanics, Stability and Transition of Fluid flows Turbulence.
H.S.N. Murthy, Ph.D Purdue University	Fatigue and Fracture, Non-destructive evaluation, Tribology, Advanced Materials., Elasticity
Amit Kumar, Ph.D Case Western Reserve Univ.	Combustion, Propulsion, fine research, CFD
P.A. Ramakrishna, Ph.D., Indian Institute of Science,	Combustion, Propulsion & Fuel Cells
Nandan Kumar Sinha, Ph.D IIT Bombay	Non linear dynamics, Bifurcation Theory and Continuation methods, Flight Dynamics and Controls
<b>Assistant Professor:</b>	
K.V. Nagendra Gopal, Ph.D. Ph.D. (Aero) Indian Institute of Science	Computational Mechanics and Multi-scale Modelling, Fracture Mechanics, Structural Dynamics and Aeroelasticity
T.M. Muruganandam Ph.D., Georgia Institute of Technology	Combustion, Blowout dynamics, Optical diagnostics, Spectroscopic methods, Vortex breakdown, Dynamics of mode shifting

Dr. Sunetra Sarkar, Ph.D. Indian Institute of Science	Insect Aerodynamics, Fluid Structure Interaction, uncertainty quantification
Dr. A. Sameen, Ph.D. Indian Institute of Science	Stability, Transition and Turbulence, Computational Fluid Dynamics
<b>Visiting Faculty:</b>	
Dr. S. Panneerselvam, Ph.D. IIT Madras	Aerodynamic Design of Missile Systems (Tactical and Strategic systems), System Design of Hypersonic Vehicles.

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Workshop:</b>			
1.	Prof. R.I. Sujith	Indo European Workshop and Meeting of the Advanced Instability Network (AIM) on Thermo Acoustic Instabilities ; funded by EPSC, UK organized at IIT Madras	10-15 Feb 2011.

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Period
<b>Workshop:</b>			
1.	Dr. P.A. Ramakrishna	Propulsion Systems for Future UAV'S held ADE Bangalore	<b>26.03.2010</b>
2.	Prof.M. Ramakrishna & Dr. Luoyi Tao	To submit a paper "Multi Scale Turbulence Modeling and the Maximum Information Principle "in the workshop of Recent Advances in Mechanic – Festschrift Volume for Prof. K.R.Rajagopal on the occasion of his Sixtieth Birthday	25.11.2010
3.	Prof.S.R. Chakravarthy	Non-Normality and Non linearity in Aero and Thermoacoustics – Technische Universitat Munchen, Germany	17-20 May 2010
4.	Prof.S.R. Chakravarthy	3 <sup>rd</sup> Indo European Workshop on Thermo acoustics – IIT Madras	10-15 Jan 2011
5.	Prof.S.R. Chakravarthy	Brainstorming Session on Mars Science and Explorations – Physical Res. Lab Ahmadabad	24-25 March 2011
6.	Prof. R. I. Sujith	Workshop on Aero acoustics of Low Maer Number Internal Flows, KTH, Sweden	June 3-5, 2010
<b>Seminar:</b>			
1	Prof. S.R. Chakravarthy	International Conference on Tech-nological Trends – College of Engg. TVM	25-27 Nov. 2010
2	Prof. S.R. Chakravarthy	Workshop on Propulsion; Sustainable Energy and Green Environment – Mohandas Coll. Of Engg. – TVM	4-6 Dec. 2010
<b>Symposia:</b>			
1	Prof. S.R. Chakravarthy	International Symposium on Combustion – Tsinghua Univ. Beijing, China	1-6 Aug. 2010
<b>Conference:</b>			
1	Dr. TM Muruganandam	Paper accepted for oral presentation titled “ Characterization of Cone-Cylinder Fluidic Diodes in the 37 <sup>th</sup> National & 4 <sup>th</sup> International Conference on Fluid Mechanics & Fluid Power, IIT Madras	16-18 Dec, 2010
2	Dr. TM Muruganandam	8 <sup>TH</sup> Asia Pacific Conference on Combustion – Combustion Institute, Indian Chapter	10-13 Dec. 2010
3	Dr. TM Muruganandam	National Conference on Electric Propulsion System – ISAC Bangalore	23-24 Feb 2011
4	Dr. Amit Kumar	National Conference on Electric Propulsion System – ISAC Bangalore	23-24 Feb 2011

5	Dr. N,R.Panchapaeksan	Paper accepted for presentation "Numerical Simulation of Flapping Airfoil using Arbitrary Langrangian Eulerian (ALE) Method" in the 37 <sup>th</sup> National and 4 <sup>th</sup> International Conference on Fluid Mechanics & Fluid Power, IIT Madras	-do-
6	Prof. R. Velmurugan	Attended the ICTACEM 20-10 Conference in IIT Kharagpur to present his paper titled "Dynamic Analysis & Damage Studies on non rotating shafts.	27-29 Dec 2010
7	Prof. R.I. Sujith	Delivered invited talk "Non-normal and Non Linear Dynamics of Flame Acoustic Interaction" – Asia Pacific Conference in Combustion, Hyderabad.	Dec.10-13, 2010
8	Prof. R.I. Sujith	Delivered invited talk "Non Normally and Non Linearity in Thermo acoustic Interaction" – Asian Congress in Fluid Mechanics – Bangladesh.	Dec. 17-21, 2010
9	Prof. R.I. Sujith	n <sup>3</sup> I – "Non-normal and non linear Effects in Aero and Thermo-acoustics, Munich, Germany	May 17-20, 2010
10	Prof. R.I. Sujith	16 <sup>th</sup> AIAA/CEAS Aero Acoustics Conference, Stockholm, Sweden	June 7-9, 2010
11	Prof. E.G. Tulapurkara	Optimization of the Fuel Manifold Locations Inside a Jet Engine After burner " in the 37 <sup>th</sup> National and 4 <sup>th</sup> International Conference on Fluid Mechanics and Fluid Power at IIT M	16-18 Dec 2010.
12	Dr.P.A. Ramakrishna	Attended the Eighth Asia Pacific Conference to chaired a session on "Combustion in Micro Devices"	10-13 Dec. 2010.
13	Dr. S. Panneerselvam	Presented his paper technical paper in "Anti Satellite Weapons ASAT : A Status Review and Perception for Indian ASAT : In the International Conference on "Space Science and Security : The Role of Regional Expert Discussion Organised by Stockholm International Peace Research Institute SIPRI, Secure World Foundation (SWF) Jawaharlal Nehru University (JNU) Observer Research Foundation (ORF) .	New Delhi 19-20 Jan 2011.
14	Dr. Nandan K Sinha	Attended the AIAA Aerospace Sciences Meeting and Exhibit, Orlando – AIAA	4-7 Jan 2011
15	Dr. Sunetra Sarkar	"International Conference on Theoretical, Applied Computational, Experimental Mechanics	IIT Kgp. Dec. 2010.
16	Dr.KVN Gopal	5 <sup>th</sup> International Conference on Theoretical, Applied Computational and Experimental Mechanics (ICTACEM).	IIT Kgp, Dec. 2010
17	Prof. S.R. Chakravarthy	8 <sup>th</sup> Asia Pacific Conference on Combustion	Combustion Instt. (Indian Science) 10-13 Dec.
<b>Training:</b>			
1	Prof S.R. Chakravarthy	Continuing Education Programme	SF Complex, Jagdalpur – 21-21 Feb 11
<b>Meeting:</b>			
1.	Dr. KVN Gopal participated as representative from IIT Madras in the Indo Scotland and Seminar on Offshore Wind Energy, organized by Ministry for New and Renewable Energy Resources (MNRE) at C-Wet Chennai, June 23, 2010.		
2	Dr. KVN Gopal attended the 6 <sup>th</sup> International Training Course on Wind Energy Technology at C-Wet Chennai during 18 <sup>th</sup> Oct to 3 <sup>rd</sup> November 2011.		
3.	Prof. S.R.Chakravarthy attended Board of Studies in Aerospace Engineering at Amrita VishwaVidhyapeetham at Coimbatore on 28 <sup>th</sup> July 2010.		
4.	Prof. P.Sriram visited Andal Azhagar Engineering College, Mamandur to inaugurate the ME Programme on 7 <sup>th</sup> October 2010.		
5	Dr. S. Panneerselvam, Visiting Faculty participated in the following meetings as member of the committee:		
	a)	National Committee on the Comprehensive Review of Mission Stragies and Integrated Systems Design for Reusable Launch Vehicle Technology Demonstrator (RLV-TD) meeting was conducted at VSSC Trivandrum during October 2010	

	b)	Expert Committee to assess the strategies for (1) Life Extension of existing 1.2m Trisonic Wind Tunnel and (2) The need for establishment of a new high speed trisonic tunnel in NAL, Bangalore – Meeting was conducted at NAL Bangalore during October 2010.
	c)	Attended the “Comprehensive Review on Aerodynamics Characterization of RLV-TD’ at Hqrs, Bangalore on 10.11. 2011
	d)	Wind Tunnel Test Plan review for RLV on 14.11.2010 at NAL Bangalore- Meeting convened by VSSC.
	e)	Aerodynamic Design Review Meeting of an Air-to-surface Missile at RCI Hyderabad on 16 <sup>th</sup> December 2010.
	f)	Participated as Chief Guest and inaugurated the activities of the student’s chapter of Aeronautical Society of India of the college for the 2010-11 organised by Jaya Engineering College on 11.08.2010.
	g)	Participated in the Aerodynamic Design Review Projects as Chairman of the Review Committee held on 21 <sup>st</sup> August 2010 in Research Centre Imatath (RCI) Hyderabad.
6.	Prof. Job Kurian attended the following meetings :	
	a)	Faculty Selection Committee Meeting on 2 <sup>nd</sup> to 4 <sup>th</sup> November 2010 at 11T Kanpur and 15 <sup>th</sup> and 16 <sup>th</sup> November at IIT Bombay
	b)	Academic Council Meeting at Bannari Amman Institute of Technology, Erode during 12 <sup>th</sup> and 14 <sup>th</sup> November 2010.
	c)	Discussion Meeting on Aerodynamics at NAL Bangalore on 8 <sup>th</sup> November 2010,
	d)	Academic Council Meeting of Aeronautical Society of India, New Delhi on 27 <sup>th</sup> November 2010.
	e)	To serve as an External Member in the Selection Scientist (Lateral) in Bangalore on 29 <sup>th</sup> Dec 2010.
7	Prof. S.S. Gokhale attended the following meetings :	
	a)	The Governing Council of FCRI nominated him as a Chairman of the Committee for construction of International Trainees Hostel building at FCRI.
	b)	Attended the Computer Based Testing mode for AIEEE 2011 at CBSE New Delhi on 28 <sup>th</sup> December 2010.
8	Prof. R.I. Sujith attended the 48 <sup>th</sup> AIAA Aerospace Sciences Meeting held at Orlando, USA during 4-7 Jan 2010.	

#### Special Lectures delivered by the faculty in other Institutions:

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Prof. S.R. Chakravarthy	“Multi Staging of Rocket for Space Mission”	Periyar Science & Tech, Ch 85	19.07.2010
2.		Production on Nano-Aluminium by electrical wire explosion, its characterization and application in rocket propulsion	Madras Univ.	7.12.2010
3.		Effect of Combustion instability on solid Rocket performance	MIT, Anna Univ.	15.03.2011
4.	Dr.Nandan K Sinha	Two day invited lecture series on” Dynamical Stability Analysis and Trajectory Tracking Control”	ISAC, Bangalore	30 <sup>th</sup> June -1 <sup>st</sup> July 2010
5.	Dr. KVN Gopal	“Aerodynamics of Wind Turbine Blades”	C-WET – Chennai	21.07.2010
		The Aerodynamic of Wind Turbines		21.11.2010
6	Dr. P.A. Ramakrishna	Solid Propellant Rockets	KSGI Bangalore	30.02.2011
7		Fast Burning AP-HTPB Based propellants for solid, hybrid and air breathing applications	VSSC Trivandrum	14.02.2011
8		“Introduction to Computational Combustion”	IIST Trivandrum	16.07.2010
9		5 day Summer Training Course in “ Computational Methods in Fluid Flow & Heat Transfer”		
10	Dr. S. Panneerselvam	Flow Interactions in Hypersonic Air-inlets in the Seminar Aerodynamics of High Speed Aerospace Vehicle : Challenges an Direction.	NAL Bangalore,	9.11.2010
11		Hypersonic Air Breathing Vehicle Technologies	Association, Neyveli Lignite Corporation	27.02.2011



12		Missile Technologies	PB College of Engg. Chennai	06.03.2011
13		Missile Aerodynamic Design	Jaya Engg. College	11.08.2010
14		Hypersonic Vehicle Technologies	SRM Univ.	16.09.2010
15	Prof. Job Kurian	"R&D of High Speed Aerospace Vehicles"	NAL Bangalore.	9.11.2010
16	Prof. S.R. Chakaravarthy	"Propulsion" in the National Seminar & Workshop " Sustainable Energy & Green Environment	Mohandas Col. of Engg. Trivandrum	4-6 Dec 2010
17	Dr.Nandan K Sinha	"Dynamic Stability Analysis and Control	ISAC , Bangalore	July 2010
18	Prof. S.Santhakumar	To interact with faculty and staff	PSG College, Coimbatore	02.11.2011
19		"Spacious International in connection with efforts for getting International School Award" for Vana Vani Mat. Hr. Sec. School.	Vana Vani Mat Hr. Sec. School	10.01.2011

**Visits abroad by faculty:**

1. Prof. S.R. Chakravarty as attended the International Summer School and Workshop on Non Normal and Non Linear Effects in Aero and Thermo Acoustics to be held in Germany from 17<sup>th</sup> to 21<sup>st</sup> May 2010.
2. Dr.Sunetra Sarkar has to take part in Collaborative Research work in the Department Mathematical Science, Chalmers University of Technology and Gothenburg University, Sweden from May 10-June 7, 2010
3. Dr. Sunetra Sarker attended a summer School and Workshop at TU Munich Germany from 17<sup>th</sup> May to 20<sup>th</sup> May 2010.
4. Dr. Sunetra Sarkar has attended the conference and takes part in project meeting in Bali, Indonesia from November 2-6, 2010.
5. Dr. Luoyi Tao visited the department of Mechanics, Peking University, China from 10<sup>th</sup> May to 9<sup>th</sup> June 2010. The research topic is Thermodynamics for Environmental Flows and Global Climate China.
6. Prof. S.R. Chakravarty attended the 33<sup>rd</sup> International Symposium on Combustion held in Tsinghu University, Beijing China to present his paper title "Quench Collection of Nano Aluminium Agglomerates from Solid Propellant Combustion" during 1<sup>st</sup> August to 6<sup>th</sup> August 2010. The above paper has also been accepted in the Proceedings of the Combustion Institute. The impact factor is around 3.26.
7. Prof. S.Santhakumar visited the 40<sup>th</sup> Anniversary celebrations of Universite Francois Rabetais De Tours, France from 7<sup>th</sup> to 10<sup>th</sup> October 2010 has a representative of IITM and also he visited LMR Polytech Tours from 4<sup>th</sup> to 6<sup>th</sup> October 2010.
8. Dr. Nandan K Sinha "Aircraft Maneuver Design using Bifurcation Analysis and Nonlinear Control Techniques" accepted for presentation in the 49<sup>th</sup> AIAA ASM Conference to be held in Orlando Florida during 4-7 Jan 2011.
9. Prof. R.I. Sujith visited University College London, UK and Mechanical Engineering , Technical University of Munich, Germany.
10. Prof. R.I. Sujith delivered invited talk titled " Non Linear Dynamics of Thermo – Acoustic Systems" at the following Universities:
  - i) Department of Engineering, UK "Nonlinear Dynamics of Thermo acoustic Interactions" on 26<sup>th</sup> Nov. 2010
  - ii) Department of Mathematics, Keele, UK, "Non-normality and Non Linearity in Thermo acoustic Interactions" 24<sup>th</sup> Nov. 2010
  - iii) Department of Mathematics, Imperial College, UK, "Non Normality and Non Linearity in Thermoacoustic Interactions" 2<sup>nd</sup> Dec. 2010
  - iv) Department of Physics, Technical University of Munich, Germany on 7<sup>th</sup> December 2010.
  - v) Von Karman Instt, Brussels, Belgium, "Non-normality and Nonlinearity in Thermo acoustic Interactions" June 23, 2010.
  - vi) Ecole Centrale Paris, France, "Non Normality and Non Linearity in Thermo acoustic Interactions" June 22, 2010.

- vii) RWTH Aachen, Germany, "Non Normality and Non Linearity in Thermo acoustic Interactions" June 25, 2010.
10. Dr. Nandan K Sinha's paper accepted for publication titled "Aircraft Maneuver Design Using Bifurcation Analysis and Non Linear Control Techniques" in AIAA Aerospace Meeting held during 4-7 Jan 2011 in Orlando, USA.
11. Prof. Job Kurian visited the Indo-UK Innovation Forum has IIT M Representative of IITM held at London, UK from 8<sup>th</sup> to 12<sup>th</sup> September 2010.
12. Prof. Job Kurian attended the Annual Meeting of Association of University Research Parks held at Minneapolis, USA from 15<sup>th</sup> to 17<sup>th</sup> September 2010.

#### Honours and Awards:

S.No.	Name of the Faculty	Name of Award
1.	Prof. S.R. Chakravarthy	DRDO Excellence Award 2008
2.	Prof. R.I. Sujith	Hans Fischer Senior Fellowship of the Institute of Advanced Study, Technische Universitat Munchen, Germany, 2010
3.	Dr. HSN Murthy	Young Faculty Recognition Award 2010
4.	Prof. S.S. Gokhale	18 <sup>th</sup> Business School Affaire & DEWANG MEHTA Business School Awards

#### Books, Monographs authored/co-authored:

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	Dr. Sunetra Sarkar	Wind Turbines : Types Economics and Development	NOVA Publisher	Ajit N Desai
2.	Dr. Sunetra Sarkar	"Unsteady Aerodynamics of a flapping Airfoil	Lambert Academic	Kartik Venkatraman

#### Fellowships of Academic and Professional Societies

S.No.	Name of the Faculty	Name of Award
1	Prof. R.I. Sujith	1. Humboldt Fellowship 2000 2. INAE 2007
2	Dr.S. Panneerselvam	1. Fellow of Aeronautical Society of India . 2. Fellow of Institution of Engineers. 3. Member of Astronautical Society of India. 4. Member of Indian National Society for Aerospace & Related Mechanism (INSARM). 5. Member of Society for Shock Wave Research (SSWR)

#### Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	Prof. R.I. Sujith	Editor in Chief of <i>International Journal of Spray and Combustion Dynamics</i>	Multi Science Publishing, UK

#### 4.1.4 Design and Development Activities:

##### New facilities added or major equipment procured through project funds:

Sl. No.	Name of Equipment	Value (Rs. In lacs)
1.	Wind Tunnel Built in GD Lab	Rs. 4.05 lakhs
2.	GPU Based Server System for High Performance Computing	Rs. 5.5 lakhs
3	Planar Laser induced fluorescence	Rs. 68 lakhs
4.	Particle Image Velocimetry	Rs. 21 lakhs

#### Patent Awarded :

S.No.	Name of the Faculty	Topic of Patent
1	S. Panneerselvam	1. Aerobic Vehicle (Germany) 2. Single Stage to Orbit Aerospace Vehicle (China)

#### 4.1.5 Research and Consultancy:

##### Sponsored Research Projects:

S. No.	Title	Period	Funding Agency	Amount (Rs. In lacs)	Co-ordinators
1.	Computational Studies on Regression Rate enhancement in hybrid rocket motors	2008 onwards	ARDB	12.3 lakhs	Amit Kumar & P.A Ramakrishna
2.	Experimental Studies on Hybrid Rocket Motors	2009 onwards	ARDB	17.2 lakhs	Amit Kumar & P.A. Ramakrishna
3.	Hybrid Rockets for VTP applications	2010 onwards	DRDL	9.95 lakhs	P.A. Ramakrishna
4.	Aircraft Maneuver Design using Bifurcation Analysis and Non linear Control Techniques	2010 onwards	ARDB	11.75 lakhs	N.K. Sinha
5.	Numerical Simulation of Flapping Wings	2008 onwards	ARDB	14 lakhs	Sunetra Sarkar
6.	A Lagrangian Solver to Simulate Bi0mimetic Propulsion	1 yr	AOARD	8 lakhs	
	Improvement Of S&T Infrastructure In Universities And Higher Educational Institutions	5 yrs	DST		Job Kurian
7	Swarnajayanthi Fellowship	5 yrs	DST	1,92,68 lacs	R.I. Sujith
8	Experimental Studies On High Speed Air Intakes	3 yrs	ISRO	23 lakhs	Muruganandam T M
9	Tunable Diode Laser Absorption Spectroscopy (TDLAS) for measurement of Temperature pattern factor in gas turbine combustor	3 yrs	ARDB	23 lakhs	Muruganandam TM
10	Power Modules for wave energy plans	3 yrs	NIOT	36 lakhs	TM Muruganandam & V. Jayashankar, EE
11	Numerical Studies on Effect of Coke Deposition on Heat Transfer in Regenerative Cooling of Kerosene Based Liquid Rocket	3 yrs	ISRO	3.7344 lacs	Amit Kumar
12	National Mission For Virtual Laboratories	1 yr	IITM	23 Lacs	P.Sriram
13	Dynamic response of Nano hybrid composites due to Impact loading	3 yrs	ARDB	7.20 lacs	R. Velmurugan
14	Estimating of damping and analysis of damage effects in composite rotors	3 yrs	ARDB	14 lakhs	R. Velmurugan
15	Hybrid rockets for VTP applications	2010 onwards	DRDL	9.95 lakhs	P A Ramakrishna
16	Investigation of multiple scales in separated shear layers	2009 onwards	ARDB	17.08 lakhs	S. R. Chakravarthy N. R. Panchapakesan
17	Investigation of mixing in confined co-flowing subsonic jets by acoustic excitation	2009 onwards	ARDB	17.50 lakhs	N. R. Panchapakesan S. R. Chakravarthy
18	Investigation of mixing in gas turbine cooling rings with porous medium approach	2010 onwards	ARDB	17.29 lakhs	Arunn Narasimhan S. R. Chakravarthy
19	Generation and characterization of stainless nano-powder by wire explosion process	2010 onwards	IGCAR	11.04 lakhs	R. Sarathi S. R. Chakravarthy
20	Investigation of combustion instability in swirl stabilized gas turbine combustors	March 2011 onwards	ARDB	14.96 lakhs	S. R. Chakravarthy R. I. Sujith

**Industrial Consultancy projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. In lacs)
1	Velmurugan R	Composite Technology Facility	AAAA	15.613 lakhs

**RBIC projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. In lacs)
1.	Prof. SR Chakravarthy & Prof. R.I. Sujith	"Turbulent Combustion Diagnostics & Modeling for GE Energy Fuel Nozzel using Single Nozzle Rig (SNR)	RBIC	78.87 lakhs
2	K.V.N. GOPAL	Development Of Computational Models For Predictive Analysis Of Dynamic Response And Rolling Tyres	MRF Ltd, Chennai	22.2 lacs
3	K.V.N. GOPAL	Development Of Computational Models For Predictive Analysis Of Three Dimensional Dynamic Stall In	Vestas Wind System Denmark	23.9 lacs
4.	KVN Gopal	Constitutive Modeling of Rubber and Simplified Analysis Procedure for Tyre Design	MRF Ltd, Chennai	12.1 lakhs
5	SR Chakravarthy & R.I. Sujith	Characterization Of The Fuel Film And Spray Ensuing From A Dual –orifice Swirter	RBIC	32.84 lacs
7	T.M. Muruganandam	Development of a laser extinction based saensor for soot volume fraction measurement	DRDL	7.49 lakhs
8	TM Muruganandam, Nandan K Sinha, Amit Kumar & Sunetra Sarkar	Studies on Debris Pattern Analysis Code	ITR Chandipur	7.62 lakhs

**Retainer Consultancy : (On going & New ) projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. In lacs)
1.	P.A.Ramakrishna	Design & Development of a new injector for molten aluminium	Sri Kallswari Metal Powder Pvt. Ltd.	6.5lkhs

**Research Publications:**

- Total No. of papers published in Refereed National Journals : 05
- Total No. of papers published in Refereed International Journals : 20
- Total No. of papers presented in National Conferences : 19
- Total No. of papers presented in International conferences : 45

**In Refereed National Journals:**

1. Dr. Sunetra Sarkar and Ajit Desai "Analysis of Non-Linear Aero elastic System with Parametric Uncertainties using Polynomial Chaos Expansion, Mathematical Problems in Engineering Vol 2010, Article ID 379472, 21 pages, 2010, do 10,1155/2010/379472.
2. Dr. Sunetra Sarkar, S.Gupta andl Rychilk "Wiener Chaos Expansion for Estimating Rain-Flow Randomly Vibrating Structures with Uncertain Parameters" journal – Probabilistic Engineering Mechanics – September 2010.
3. Dr.Nandan K Sinha"Aircraft Spin Reovery using a sliding Controller" published in AIAA Journal of Guidance an Dynamics, Vol. 33, No.5, Sept.- October 2010.
4. Bork, B., Boehm, B., Heeger, C., Chakravarthy, S. R., and Dreizler, A., "1D High-speed Rayleigh Measurements in Turbulent Flames," *Applied Physics B*, Vol. 101, pp. 487-491, 2010.
5. Sarathi, R., Shankar, B., and Chakravarthy, S. R., "Influence of Nano-Aluminium Powder Produced by Wire Explosion Process at Different Ambience on Hydrogen Generation," *Journal of Electrical Engineering*, Vol. 61, No. 4, 2010, pp. 215-221.

### In Refereed International Journals:

1. Dr. Sunetra Sarkar's paper accepted for oral presentation titled "Numerical Simulation of Flapping Airfoil Aerodynamics using Lagrangian Particle Based Techniques" on Intelligent Unmanned System (ICIUS) Bali, Indonesia .
2. Rao, D.M.K.V. and Sinha NK "Aircraft Spin Recovery using a Sliding Mode Controller, "Journal of Guidance, Control and Dynamics, Vol. 33, No.5, September 2010, pp 1675-1678.
3. S.Sarkar, "Comparing pure-pitch and pure plunge kinematics for a symmetric airfoil" – AIAA Journal, Vol. 48, No. 12, ppp 2962-2969, 2010.
4. A.Desai, A and S. Sarkar, "Analysis of a nonlinear aero-elastic system with parametric uncertainties using polynomial chaos expansion" Mathematical Problems in Engineering 2010, ID 379472, 2010.
5. S.Sarkar, S. Gupta and I Rychilk, "Wiener Chaos Expansion for Estimating Rain flow Fatigue damage in randomly vibrating structures with uncertain parameters", Probabilistic Engineering Mechanics, Vol 26, Issue 2, pp 397-398, 2010.
6. H.S.N.Murthy, K. Vadivuchezhian and S Sundar "Effect of variable Friction Coefficient on Contact Traction". Accepted for publication in Tribology international.
7. Chentil Kumar and Amit Kumar "A Computational Study on Opposed Flow Flame Spread Over Thin Fuels with side edge Burning "Combustion Science and Technology 182(9), 1321-1340, 2011
8. Manoj B and R. Velmurugan, " A Smeared stiffener model for buckling analysis of composite Hexagonal lattice cylindrical Shell" , Defence Science Journal 59 (3), 230-238, 2009.
9. Rajesh K.R, Gnanamoorthy R and R. Velmurugan, "Effect of Humidity on the Indentation Hardness and Flexural Fatigue Behaviour of Polyamide 6 Nano Composite", Materials Science and Engineering 527, 2826-2830.
10. Rajesh K.R, Gnanamoorthy R and R. Velmurugan, "Effect of moisture content on tensile behaviour of polyamide 6 nano composites" Journal of Materials; Design and Applications (2010).
11. Ankit Gupta, Alwan, T.S. Sekhar and R. Velmurugan, "Dynamic Analysis of shafts of Composite Materials" International Journal of Reinforced Plastics, 29(22) 3364 -3379, 2010.
12. Manoj B and R. Vel,murugan, "Study of filament wound grid stiffened composite cylindrical structures, Composite Structures, 92(2), 1031-1038, 2011.
13. R.Velmurugan and G. Balaganesan "Model Analysis of pre and post impacted nano composite laminates" Latin American Journal of Solids and Structures, 8 (2011) 9-26.
14. Prof. R.I. Sujith "Bifurcation Analysis of Thermo acoustic Instability in a Horizontal Rijke Tube, *International Journal of Spray and Combustion Dynamics, Volume 2 (4) 2010.*
15. Prof. R.I.Sujith "thermoacoustic Instability Solid Rocket Motor – Non Normality and Non Linear Instabilities, *Journal of Fluid Mechanics*, 653, 2010, 1-33.
16. Luoyi Tao, M. Ramakrishna and K.R. Rajagopal "Turbulence Modeling from a new perspective, *Nonlinear Analysis ; Real World Application*, 11,39-54, 2010
17. Dr. Sunetra Sarkar "Comparing Pure-pitch and pure – plunge Kinematics for a symmetric, airfoil accepted 2010, AIAA Journal
18. Jayaraman, K., Chakravarthy, S. R., and Sarathi, R., "Quench Collection of nano-aluminium agglomerates from combustion of sandwiches and propellants," *Proceedings of the Combustion Institute*, Vol. 33, Issue 2, 2011, pp. 1941-1947.
19. Jayaraman, K., Chakravarthy, S. R., and Sarathi, R., "Behaviour of Nano-Aluminum in the Combustion of Composite Solid Propellant Mixtures," *Combustion, Explosion and Shock Waves*, Vol. 46, No. 1, 2010, pp. 21-29.
20. Antony, J. K., Vasa, N. J., Chakravarthy, S. R., and Sarathi, R., "Understanding the Mechanism of Nano-Aluminium Particle Formation by Wire Explosion Process Using Optical Emission Technique," *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol. 111, Issues 17-18, November 2010, pp. 2509-2516.

### In Proceedings of National Conferences:

1. Multiple round jets – An experimental and Computational Study, Tushar Jadhav and N.R. Panchapakesan, 37<sup>th</sup> National and 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power, December 16-18, 2010, IIT Madras, India
2. Numerical Simulation of flapping airfoil using Arbitrary Lagrangian – Eulerian (ALE) method, G. Senthil Kumar and N.R. Panchapakesan, 37<sup>th</sup> National and 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power, December 16-18, 2010, IIT Madras, India
3. Numerical Investigation of Single Round Jet and Multiple Round Jets, Proceedings of ICTACEM 2010 International Conference on Theoretical, Applied, Computational and Experimental Mechanics December 27-29 2010, IIT Kharagpur, India.
4. S.Pannerselvam “Flow Interactions in Hypersonic Air Inlets” Seminar on Aerodynamics of High Speed Aerospace Vehicles: Challenges and Directions 09.11.2001 , NAL Bangalore.
5. S. Panneerselvam “ Hypersonic Air Breathing Vehicle : CFD, the Primary Design Support’ National Conference on Advances in Applied Mathematics, 20 Jan 2011, Bharathiar Univ. Coimbatore
6. S. Panneerselvam, Vehicle Integrated Scramjet Design for Air Breathing Hypersonic Vehicle’ National Workshop on Recent Trends in Aerospace Propulsion, 16.3.2010, MIT Anna Univ. Chennai
7. Mahendran M, Amit Kumar “Numerical Study on Performance Characteristics of Self-field Cylindrical MPD Thruster” for presentation at the National Conference Electric Propulsion Systems -2010 , February 2011.
8. Md Yousuf Ali and T. M. Muruganandam, “Electro hydrodynamic propulsion for near space operations”, Proceedings of the National Conference on Electric Propulsion Systems (NCEPS 2011), Liquid Propulsion Systems Center, ISRO, Bangalore, Feb 23-24, 2011.
10. Mayank Sachan and T.M. Muruganandam, “Visualization of flame loss and precursor events in a stagnation point stabilized burner”, Proceedings of 8<sup>th</sup> Asia-Pacific conference on Combustion, Dec 11-13, 2010, Hyderabad, India, pp 806-813.
- 11 Md Yousuf Ali and T. M. Muruganandam, “Influence of geometry of electrode in electrohydrodynamic pump”, Proceedings of the 37<sup>th</sup> National & 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power (FMFP2010), December 16-18, 2010, IIT Madras, Chennai, India.
13. Ashish Mittal and T.M. Muruganandam, “Characterisation of cone-cylinder fluidic diodes”, Proceedings of the 37<sup>th</sup> National & 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power (FMFP2010), December 16-18, 2010, IIT Madras, Chennai, India.
14. Sonu K Thomas and T. M. Muruganandam, “Resonant Gas Oscillations in Variable Area onv Axisymmetric Closed Ducts”, Proceedings of the 37<sup>th</sup> National & 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power (FMFP2010), December 16-18, 2010, IIT Madras, Chennai, India.
15. Md Yousuf Ali and T. M. Muruganandam, “Dependence of velocity in electrohydrodynamic pump on electrode geometry factor (egf) of electrode”, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010), December 27-29, 2010, IIT Kharagpur, India.
16. Sonu K Thomas and T M Muruganandam, “Harnessing The Power Of Sound Using Resonant Macrosonic Synthesis”, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010), December 27-29, 2010, IIT Kharagpur, India.
17. Abhishek kumar Pateria and T.M. Muruganandam, “Shock movement in a supersonic tunnel with increment in pressure”, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010), December 27-29, 2010, IIT Kharagpur, India.
18. Balaji, C., Gaduparti, T., Katreddy, R. K. R., and Chakravarthy, S. R., “A Mathematically Sound Framework for Studying Thermoacoustic Instabilities,” 3<sup>rd</sup> Indo-European Worksop on Thermoacoustic Instabilities, Chennai, India, 10-12 January 2011.
19. Rajarshi Das and Job Kurian Experimental And Numerical Study Of Supersonic Flow Over Three Dimensional Cavities Proceedings of the 37<sup>th</sup> National and 4<sup>th</sup> International Conference on Fluid Mechanics and Fluid Power, Chennai, December 2010.IITMadras

**In Proceedings of International Conferences:**

SI.No.	Name of faculty	Title	Institution	Period
1.	Prof. S.R. Chakravarthy	"Quench Collection of Nano Aluminum Agglomerates from Solid Propellant Combustion"	Beijing China	1 <sup>st</sup> – 6 <sup>th</sup> Aug 2010.,
2	Balaji, C. and Chakravarthy, S. R	A Simultaneous Multiple Space-/Time-Scale Formulation of Fluid Flow Problems with Application to Combustion Thermoacoustics," $n^3l$ —International Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics	Munich, Germany	17-20 May 2010
3	Jayaraman, K., Chakravarthy, S. R., and Sarathi, R	Quench Collection of nano-aluminium agglomerates from combustion of sandwiches and propellants," 33 <sup>rd</sup> International Symposium on Combustion	Beijing, China, 1-7 August 2010	1-7 August 2010
4	Bork, B., Boehm, B., Heeger, C., Chakravarthy, S. R., and Dreizler, A.,	High-speed Rayleigh Measurements in Turbulent Flames," Work-in-Progress Poster, 33 <sup>rd</sup> International Symposium on Combustion	Beijing, China, 1-7 August 2010	1-7 August 2010
5	Balaji, C. and Chakravarthy, S. R	Numerical Simulation of Flame Acoustic Interaction with Consideration of Multiple Time and Length Scales Including Acoustic Damping," 13 <sup>th</sup> Asian Congress on Fluid Mechanics,	Dhaka, Bangladesh,	17-21 Dec. 2010
6	Ramgopal, S., Katreddy, R. K. R., Chakravarthy, S. R., Boehm, B., and Dreizler, A.,	Investigation of Multiple Scales in the Shear Layer of Backward-Facing Step Flow by High Speed Particle Imaging Velocimetry," 13 <sup>th</sup> Asian Congress on Fluid Mechanics	Dhaka, Bangladesh,	17-21 Dec. 2010
7	Ignatius, J. K., Sankaran, S., and Chakravarthy, S. R.,	Supersonic Jet Noise and Suppression Characteristics During Launch Vehicle Liftoff," 13 <sup>th</sup> Asian Congress on Fluid Mechanics	Dhaka, Bangladesh,	17-21 Dec. 2010
8	Balaji, C. and Chakravarthy, S. R.,	Nonlinear Flame-Acoustic Interaction in Combustion Instability with Consideration of Multiple Time and Length Scales" 8 <sup>th</sup> Asia-Pacific Combustion Conference	Dhaka, Bangladesh,	17-21 Dec. 2010
9	Bhatt, D. and Chakravarthy, S. R.,	Thermo-Diffusive Instability of Laminar Flames with Varying Premixedness," 8 <sup>th</sup> Asia-Pacific Combustion Conference	Dhaka, Bangladesh,	17-21 Dec. 2010
10	Roy, A., Anand, K. V., Mulla, I., Chakravarthy, S. R., and Balbudhe, K	Aluminium Agglomerate Size Measurements and Modelling in Composite Solid Propellants," 8 <sup>th</sup> Asia-Pacific Combustion Conference	Dhaka, Bangladesh,	17-21 Dec. 2010
11	Rajarshi Das and Job Kurian	Pressure Oscillations and Wave Structure in Supersonic Flow over Three Dimensional Cavities' Proceedings of the 13 <sup>th</sup> Asian Congress of Fluid Mechanics	Dhaka, Bangladesh,	17-21 Dec. 2010
12	Thangamani, Varun and Job Kurian	Control of cavity oscillations in a supersonic flow by leading-edge microjet injection' Proceedings of the Asian Congress of Fluid Mechanics	Dhaka, Bangladesh,	17-21 Dec. 2010
13	Dr. Nandan K Sinha	"Aircraft Maneuver Design using Bifurcation Analysis and Non Linear Control Techniques" – AIAA ASM Conference	Orlando, USA	4-7 Jan 2011
14	Dr. P.A. Ramakrishna	"Development of low burn rate pressure index composite solid propellant – 8 <sup>th</sup> Asia Pacific Conference on Combustion	Hyderabad	10-13 Dec. 2010
15	Dr. P.A. Ramakrishna	"Sandwich Propellant Studies to determine the action site of activated charcoal" – 8 <sup>th</sup> Asia Pacific Conf. on Combustion	Hyderabad	10-13 Dec. 2010

16	Rajiv Kumar and P A Ramakrishna,	Issues Related to the Regression Rate of the Fast Burning Hybrid Fuels", Eighth Asia Pacific Conference on Combustion	Hyderabad	10-13 Dec. 2010
17.	Dr. S. Panneerselvam	"Anti Satellite Weapons (ASAT) : A Status Review and Perception for Indian ASAT" – Space Science And Security :The role of Regional Expert Discussion	New Delhi	19-20 Jan 2011
18	Dr. KVN Gopal	"Analytical Study of Active Structural Acoustic Control on a Typical Aircraft Panel" ICTACEM 2010	IIT KGP	27-29 Dec 2010
19	Dr. Amit Kumar	"Numerical Study on Opposed Flame Spread in Partial and Elevated Gravity:	IIT Madras	16-18 Dec. 2010
20		"Numerical Study of Self-field MPD Thrusters"		
21		"Effect of Oscillating Gravity on the Convection Flow inside a Thermally Driven Cavity"		
22		"Mixed Hybrid Concept for the Enhancement of Regression Rate of Hybrid Rocket Motors		
23		Numerical Modeling of Flame Extinction by Poly disperse Water Mist"		
24		"Numerical Study on Coke Deposition in an Electrically Heated Tube Carrying Liquid Hydrocarbon Rocket Propellant"		
25		"Water Mist Interaction with flame Spreading Against Gravity"	APSD, Long Beach California	Nov. 21-23 , 2010
26		Effect of surface Orientation on Downward Flame spread over Thin Solid Fuels"	SRM	Mar1-5 2010
27	Dr. R. Velmurugan	"Impact Studies on Glass/epoxy Laminates with nano fillers" – Theoretical, Applied, Computational & Experimental Mechanics (ICTACEM 2010/0139)	IIT KGP	Dec 27-29
28		"Dynamic Analysis and Damage Studies on Non Rotating Composite Shafts"-ICTACEM – 2010		
29		Dynamic response of woven riving glass fibre/epoxy composite laminates" APM		
30		"Effect of nano alumina addition on the mechanical properties of glass / epoxy composites" – APM	CIPET Chennai	25-27 Mar 2011
31		"Performance study of composite tubes in quasi static and impact loading "Implast	Univ. of Rhodes, USA	2010
32		"Analytical modeling of ballistic perforation of angleply and hybrid composite laminates		
33	Dr. T.M. Muruganandam	Visualization of flame loss and precursor events in a stagnation point stabilized burner", - 8 <sup>th</sup> Asia-Pacific conference on Combustion	Hyderabad,	Dec 11-13, 2010
34		Simultaneous Determination of Temperature Non-uniformity and Concentration from TDLAS Sensor Absorption Data for a step variation temperature distribution – ASPACC -10		
35		"Influence of geometry of electrode in electro hydrodynamic pump", Proceedings of the 37 <sup>th</sup> National & 4 <sup>th</sup> International Conference on Fluid Mechanics and Fluid Power	IIT Madras	December 16-18, 2010
36		Characterisation of cone-cylinder fluidic diodes",		
37		Resonant Gas Oscillations in Variable Area Non Axisymmetric Closed Ducts",		



38	Dr. T.M. Muruganandam	Dependence of velocity in electro hydrodynamic pump on electrode geometry factor (egf) of electrode”, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010),	IIT Kharagpur	December 27-29, 2010
39		“Harnessing The Power Of Sound Using Resonant Macrosonic Synthesis”,		
40		Harnessing The Power Of Sound Using Resonant Macrosonic Synthesis”,		
41	R. I. Sujith	Non-normal and Nonlinear Dynamics of Flame-Acoustic Interaction, 10 <sup>th</sup> Asia Pacific Conf. on Combustion, ASPACC	Hyderabad	December 10-13, 2010,
42		Non-normality and Nonlinearity in Thermoacoustic Instabilities -13 <sup>th</sup> Asian Congress in Fluid Mechanics [ACFM],	Dhaka, Bangladesh	December 17-21, 2010
43	S. Mariappan, R. I. Sujith & P. Schmid	Subcritical transition to thermoacoustic instability in a horizontal Rijke tube: non-normal and nonlinear effects – 13 <sup>th</sup> Asian Congress in Fluid Mechanics [ACFM],	Dhaka, Bangladesh	,
44	S. Mariappan, P. Schmid & R. I. Sujith	Role of Transient Growth in Subcritical Transition to Thermoacoustic Instability in Rijke Tube – 16 <sup>th</sup> AIAA/CEAS Aeroacoustics Conference	<i>Article Number</i> 2010-3857	June 7-9, 2010
45	V. Gupta & R. I. Sujith	Applicability of Describing Function in Obtaining Bifurcation Plots for Thermoacoustic Instability – 16 <sup>th</sup> AIAA/CEAS Aeroacoustics Conference	<i>Article Number</i> 2010-3860	

#### Distinguished Visitors to the Department:

S.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1.	Dr. Dhanushkodi Mariappan, CEO, Tech Passion Techs	19.02.2010	‘Doing Core Engineering in India’
2.	Dr.S.R. Viswamurthy, Scientist, ACD, NAL Bangalore	19.03.2010	“Ongoing Activities at Advanced Composites (NAL- CSIR)”.
3.	Dr. Sajeer Ahmed, Head, Experimental Aerodynamics, NAL Bangalore	09.04.2010	“Research & Technology Developments for Aerospace Industry”
4.	Dr. Dhinagaram, Honeywell Techs, Bangalore	10.04.2010	“Industrial CFD”
5.	Dr. P. Sreekumar, Head, Space Astronomy & Instrumentation Division, ISAC, Bangalore	13.04.2010	“Space Astronomy & Small Satellites”
6.	Shri Osamu Takagi, EM Marketing Specialist, Hitachi High Technologies, Japan	13.07.2010	“Tech Adv in Field Emission Scanning Elec Micro & An Over view on FE-SEM”
7.	Prof. N. Ranganathan, Universite Francois Rabelais De Tours, Labatoire De Meccanique et Rhelogie Polytech Tours, France	09.08.2010	“Fatigue Crack Growth in Aluminum Alloys – Mechanics, Mechanisms and Modeling”
8.	Dr. George Schmidt, MIT USA	27.10.2010	1. INS and GPS Technology Trends. 2. INS/GPS Integration Architectures and performance Analyses.
9.	Dr. Subhasish Mohanty, Post Doctoral Researcher, Argonne National Lab, Argonne	26.11.2010	“Condition Based Health Management (Structural Health Monitoring)”
10.	Dr. Shreekrishna & Dr. Vishal Acharya, Georgia Institute of Technology, USA	23.12.2010	“Response Mech in Premixed Flames subjected to Flow Field Perturbations”
11.	Mr. A. Venkataraman Graduate Student Purdue Univ. USA	14.01.2011	A Short Term Course on Rarefied Dynamics : Chapman – Enskog Theory”
12.	Prof. Wolfgang Polifke, TU Munich, Germany	15.01.2011.	Collaborative Research
13.	Dr. Mather Juniper, Dr. Simon Illingworth, Mr. Iain Waugh of Cambridge	28.01.2011	- do -

14.	Dr. Yannis Hardalupas	17.01.2011	- do -
15.	Prof Joseph Mathew, IISc Bangalore	15.02.2011	"Processes a Turbulent – Non turbulent Interfaces"
16.	Dr. N. Ananthkrishnan, Director, IDEA Research Ltd, Pune	15.02.2011	"Spin-The Final Frontier and other Forays into Thinking Differently"
17.	Dr. Suryanarayana A.N. Prasad Ashok Leyland Group (Nissan Ashok Leyland )	21.03.2011	"Noise and Vibration control in different fields of Engineering"
18.	Dr. Bandi Subba Reddy, Honey Well Fellow. Honey Well Labs, Bangalore	25.03.2011	" Int Modular Avionics for Civil Aviation – Current Trends and Challenges"
19.	Dr. Sankaran, ISRO, SDSC- Shar	26.03.2011	1.Supersonic Jet Noise and sup through water injec Simulating GSLVM - lift off " 2. Dem Supersonic Film Cooling using GH2 injec in higher area ratio nozzles simulating High Altitude..diffusers

#### 4.1.6 Other Activities:

- Lecture Programme on Aerospace Technology for Higher Secondary School Studies organized the Chennai Branch of the Aeronautical Society of India and Children's Club Society conducted by Prof. S.R. Chakravarthy from 3<sup>rd</sup> May to 15<sup>th</sup> May 2010.
- 13 candidates have joined in the IITM Summer Fellowship Programme during May-July 2010.
- TEN Students have joined in our department to do course work under the Foreign Exchange Programme. HOD is the Mentor.
- Prof. R. Velmurugan earned Rs. 7.6 lakhs through Composite Test Facility during March 2010-March 2011.
- Prof. S.S. Gokhale was a Director, VNIT, Nagpur from March 2005 to October 2010.
- Prof. S.Santhakumar has taken over as Chairman for Assessment and Utilization of 75kw Ammonia Turbine at Saga University.
- Prof. S.Santhakumar serves as an external member for Joint Policy Committee of NIOT-IITM Ocean Technology Cell.
- Prof. Job Kurian has taken over as the Coordinator of the Propulsion Panel of AR & DB, DRDO from January 2011.

## 4.2 DEPARTMENT OF APPLIED MECHANICS

### 4.2.1 Introduction:

The Department of Applied Mechanics has been in existence since 1959 and has grown into a full fledged interdisciplinary graduate research department over the years. The department focuses on academic activities in three broad areas viz., Biomedical Engineering, Fluid Mechanics and Solid Mechanics.

The Department also offers minor streams to undergraduate students.

Biomedical scholars are exposed to research involving Brain Computer Interface, 3D Echocardiography, Electrical Impedance Tomography, Electrical Imaging of Heart, Visually Evolved Potential analysis, and Image compression, Virtual Reality with Touch Feedback, Telemedicine, Medical Simulation, and Intelligent Prosthesis Design.

Students specializing in Fluid Mechanics get exposed to research involved in solving fundamental and applied problem in: Bluff Body Aerodynamics, Flow Control of Shear Layer, Mixing of Multiple Jets, Investigation of wakes, Transition and Turbulence, Buoyancy Driven Turbulence, Interfacial Phenomena, Boundary Layer Studies, Natural Convection and Coherent Structures, Bio-fluid Mechanics, Fluid Structure Interaction. The studies include computational, experimental and analytical efforts, as the problem demands.

Scholars specializing in Solid Mechanics get exposed to a wide spectrum of research problems in: Structural and Experimental Mechanics, Digital Photoelasticity, Composites, Smart and Nanostructures, Fatigue and Fracture, Finite Element Method, Boundary Element method, Plates and Shells, Granular Materials, Continuum Mechanics, Biomechanics and Constitutive Modeling. Various Experimental, Computational and Analytical methods are used for the above. The scholars also gain expertise by assisting in theoretical, computational and laboratory courses and lab related activities.

### 4.2.2 Academic Programmes:

The Department of Applied Mechanics has programmes leading to M.Tech. M.S. and Ph.D. in three disciplines of Applied Mechanics.

The M.Tech programme consists of two semesters of course work and two semesters of project work. The M.S. programme has five courses followed by a dissertation. The doctoral programme (Ph.D) trains the candidate to pursue original research ideas and prepares them for academic as well as research and development careers.

#### New Courses introduced:

Sl. No.	Course No.	Title
1.	AM 5112	Computational Mechanics for smart Systems
2.	AM 5111	Fluid Dynamics of Flow Control
3.	AM 6511	System Identification in Vibrating Structures

#### Students on roll as of September 2010+M.S. & Ph.D admission in Jan. 2011:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
M.Tech.	16	14	-	-	-	30
M.S.	16	9	10	5	1	41
Ph.D.	14	10	6	8	12	50
<b>Total</b>	46	33	16	13	13	121

#### Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1	A.K.Jayanthi	AM07D009	ICCESSE 2010 "Laser speckle contrast imaging based blood flow analysis in normals and in patients with skin diseases".	Aug. 25-27, 2010	Singapore

2	Hossain Aziz	AM08S003	ICMAE, 2010 – “Unsteady aerodynamics of multiple airfoils in configuration”	27-29, September 2010	Paris
3	M.B.Shyam Kumar	AM06D010	13th Asian Congress of Fluid Mechanics – “Numerical simulation of flow past two square cylinders in side-by-side arrangement using LES”	December 17-21, 2010,	Bangladesh, Dhaka
<b>India:</b>					
1.	P. Mahalakshmi	AM08D004	8 <sup>th</sup> Annual Conf. on Cochlear Implant Group of India (CIGION 2010) “The coding of sound for a Cochlear Prosthesis”	18-20 Nov. 2010	PGIMER, Chandigarh
2.	Sandhya Mohan	Project	Workshop on Recent advances in Mechanics, “Electromechanical Characterization of PVDF”	25-27 Nov. 2010	IIT Madras
3.	Deepak Kumar Jha	AM09S002	Influence of bell mouth angle of volute casing on the performance of small size centrifugal fan	December 16-18 2010	IIT Kharagpur
4.	Rajesh Sahu	AM09S006	Momentum Injection control of flow past an aerofoil	December 16-18 2010	IIT Madras
5.	S. Kalyanaraman K. Arul Prakash S. Vengadesan	AM08S003	37 <sup>th</sup> Natl.&4 <sup>th</sup> Intl.Conf.on Fluid Mech.& Fluid Power, “Effect of Axis Ratio on Fluid Flow around an Elliptic Cylinder using Immersed Boundary Method”	December 16-18 2010	IIT Madras
6.	Srihari Dodla	AM09M009	5 <sup>th</sup> Intl.Conf. on Theoretical, Applied, Computational & Experimental Mech. “Experimental studies on non-linear effects of piezoelectric materials”.	December 16-18 2010	IIT Kharagpur
7.	Esuff Khan	AM09S012	5 <sup>th</sup> Intl.Conf. on Theoretical, Applied, Computational & Experimental Mech. “Pull out strength evaluation of shape memory wire actuator in GFRP composite”.	December 16-18 2010	IIT Kharagpur
8.	P. Mahalakshmi	AM08D004	Signal Analysis by using FIR filter banks in Cochlear Implant Prosthesis”	December 16-18, 2010	IIT Kharagpur
9.	Trideep Singh	AM09S015	5 <sup>th</sup> Intl.Conf. on Theoretical, Applied, Computational & Experimental Mech. Title:Studies on non-linear Temperature Temperature-dependent effects Ferro- electric materials	December 27-29, 2010	IIT Kharagpur
10.	Shajil N.	AM08D003	Title: An experimental study on recentering ability of shape memory alloy fibre reinforced cement mortar subjected to cyclic loading	December 27-29, 2010	IIT Kharagpur
11.	B.S. Suresh Anand	AM08D002	Photonics 2010 – Quantification of tissue oxygenation levels using diffuse reflectance spectroscopy.	December 2010	Assam
12.	V.Srinivasan	AM08S004	ICTACEM, “Analytical simulation of buckling control of aluminium columns using PZT actuators including inertia effects	25-30 December 2010	IIT Kharagpur
13.	Hossain Aziz	AM08S003	ICTACEM, “Unsteady aerodynamics of multiple airfoils suddenly set into motion with different chord lengths	25-30 December 2010	IIT Kharagpur
14.	S. Athmanathan	Project	ICTACEM, “Biaxial testing of SS316 L(N) pipes used in FBR structures”	25-30 December 2010	IIT Kharagpur
15.	Ms.Sandhya Mohan	Project	ICTACEM, “Characterization of Polymeric thin films in biaxial extension”	25-30 December 2010	IIT Kharagpur

16.	Sunir Hasan	AM09D002	ICC-CFT 2011 "Mesoscale modeling of Glass fiber"	January 4-7, 2011	IISc, Bangalore
17.	Rajesh P. Nair	AM06D009	ICC-CFT 2011 "Numerical simulation of Ballistic / Impact using DEM (I-D & 2-D models)"	January 4-7, 2011	IISc, Bangalore

## 2.7 Names of students/scholars who won outside prizes and awards:

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	Abhijit Biswas	AM10D009	Mr. Steve Sanghi at a ceremony in Bangalore on 22 <sup>nd</sup> February 2011	Microchip Student Scholarship award
2.	K. Hemalatha, M. Manivannan	AM06D007	Best Paper award Valsalva Maneuver for the analysis of interaction hemodynamic-Model study, Int. Conf on Recent Trends in Information, Telecommunication and Computing	IEEE 2010, India, 28-32.

## 4.2.3 Faculty and their activities:

### Faculty:

#### Name and Qualifications

#### Major area of specialization

#### Professor:

Prof. M. Ramasubba Reddy[Head]	Biosignal and Image Processing, Bio Instrumentation
Prof. K. Ramesh	Digital photoelasticity, Fracture Mechanics
Prof. C. Lakshmana Rao	Fracture mechanics, Modeling of materials, Piezoelectric materials
Prof. M.S. Sivakumar	Smart Materials & Structures, Plasticity

#### Associate Professor:

Dr. S. Vengadesan	Fluid Mechanics, Turbulent flows and modeling, CFD
Dr. S. Ramakrishnan	Biomedical Instrumentation, Enhancing Diagnostic Relevance of Medical Equipment
Dr. Mahesh Panchagnula	Spray combustion and atomization, surface tension phenomena, Multi-phase flows.
Dr. B.S.V. Prasad Patnaik	Flow Control, CFD, Flow Induced Vibrations
Dr. M. Manivannan	Haptics, Medical simulation

#### Assistant Professor:

Dr. Anuradha Banerjee	Fracture Mechanics, Composites
Dr. A. Arockiarajan	Smart Materials, Finite Elements, Mesh Free Methods
Dr. Arul Prakash	Large Eddy Simulation (LES) and Related Techniques, CFD and Thermal Hydraulics.
Dr. A. Baburaj Puthanveetil	Turbulent convection, Interfacial phenomena
Dr. Rinku Mukerjee	Applied Aerodynamics, CFD
Dr. Sayan Gupta	Dynamics & Random Vibration, Structural reliability, Probabilistic mechanics
Dr. N. Sujatha	Biomedical Imaging, Speckle Metrology
Dr. Abhijit Chaudhuri	Modeling of geo-thermal system, stochastic groundwater hydrology

#### Adjunct Faculty:

Dr. V.B.N. Murthy	Plastic Surgery, Diabetic foot
Dr. S. Thanikachalam	Cardiology, Structural reliability

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Workshop:</b>			
1.	Dr. M. Manivannan	Dec 19 <sup>th</sup> Workshop on “Varma Naadi Based Clinical Diagnosis for Siddha doctors - In this workshop we scientifically proved that three different pulse exist in radial artery.	19 <sup>th</sup> December 2010 ICSR auditorium IIT Madras
2.	Dr. B S V Prasad Patnaik	AICTE Short Term Training Programme on “Introduction to turbulent flows and their prediction”	19 <sup>th</sup> – 23 <sup>rd</sup> March 2011 Newton Hall, Applied Mechanics, IIT Madras
<b>Short term Course:</b>			
1.	Dr. A. Arockiarajan Dr. M.S.Sivakumar	QIP-HTTP Program on “Introduction to Smart Materials and Structures”	Jan 4-8, 2011 Newton Hall, IITM

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Symposia:</b>				
1.	Dr. K. Arul Prakash	ARDB Symposium Aerodynamics Panel	IIT Delhi	May 10-11 2010
2.	Dr. C. Lakshmana Rao	ARDB Symposium	IIT, Gauhati	May 12-14 2010
3.	Dr. S.Vengadesan	37 <sup>th</sup> National and 4 <sup>th</sup> Intl.Conf. on Fluid Mech. & Fluid Power, “A study on the influence of gap ratio on turbulent flow past two equal sized square cylinders placed side-by-side”	IIT Madras	December 16 – 18, 2010
4.	Dr. B.S.V.Prasad Patnaik	37 <sup>th</sup> National and 4 <sup>th</sup> Intl.Conf. on Fluid Mech.and Fluid Power	IIT Madras	December 16 – 18, 2010
5.	Mr.S. Kalyanraman Dr. K. Arul Prakash and Dr. S. Vengadesan,	37 <sup>th</sup> Natl.&4 <sup>th</sup> Intl.Conf.on Fluid Mech.& Fluid Power, “Effect of Axis Ratio on Fluid Flow around an Elliptic Cylinder using Immersed Boundary Method”	IIT Madras	December 16 – 18, 2010
6.	Dr. K. Arul Prakash & Mr. Prasanth Anand Kumar Lam	13 <sup>th</sup> Asian Congress of Fluid Mechanics – “A SUPG Finite Element study for conjugate heat transfer analysis in two dimensional ribbed passages”	Bangladesh, Dhaka	December 17- 21, 2010,
7.	Dr. Rinku Mukherjee & Mr. Hossain Aziz	13 <sup>th</sup> Asian Congress of Fluid Mechanics – “Unsteady aerodynamics of suddenly accelerated multiple airfoils”	Bangladesh, Dhaka	December 17- 21, 2010,
8.	Dr.C.Lakshmana Rao & Dr. G.Santhana-krishnan	Intl. Conf. on Theoretical, Applied, Computational & Experimental Mech. (ICTACEM 2010) – “Biaxial testing of enhanced SS316L(N) characterization polymeric thin films in biaxial extension	IIT Kharagpur	December 27- 29 2010
9.	Mr.M. Sakthivel & Dr. A.Arockiarajan	Intl. Conf. on Theoretical, Applied, Computational & Experimental Mech. (ICTACEM 2010) – “An analytical model for predicting the effective poling characteristics of 1-3-2 piezoelectric composites”	IIT Kharagpur	December 27- 29 2010
<b>Conference: [National / International Conference]</b>				
1.	Dr.A.P. Baburaj	High Ra correction Euromech Colloquim # 520	Les Houches Franch	Jan 24-29, 2010
2.	Dr. N. Sujatha	International conference on optics and photonics :OPTICS 11	NIT, Calicut	23-25 May 2011
3.	Dr. Sayan Gupta	29 <sup>th</sup> International Conference on Ocean, Offshore and Arctic Engg (OMAEE 2010)	Grand Hyatt, Shanghai China	June 6-11, 2010

4.	Dr. B.S.V. Patnaik	National Conference on Modelling and Simulation in Heat Transfer and Fluid Flow	NIT, Jamshedpur	June 10-12, 2010
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**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Dr. S. Ramakrishnan	Biomedical Instrumentation – Key note address	Medical College, Mangalore	27-29 May 2010
2.	Dr. K Arul Prakash	Temperature Wall Modeling for LFS	Helmut-Schmidt-Universitaet Hamburg, Germany.	June 4, 2010
3.	Dr. A. Arockiarajan	Generalised continua modeling towards Electro active polymers	TU Dortmund, Germany	09. June 2010
4.	Dr. M. Ramasubba Reddy	Faculty Development Program	NIT, Trichy	June 28, 2010
5.	Dr. Prasad Patnaik BSV	Split schemes and application to flow control problems	IIST, Tiruvananthapuram	14 <sup>th</sup> July 2010
6.	Dr. Prasad Patnaik BSV	Active control of bluff body flows	NAL, Bangalore	16 <sup>th</sup> July 2010
7.	Dr.M.Ramasubba Reddy	Keynote lecture on ICCNT'10	Chettinadu College of Engg, Karur	31 <sup>st</sup> July 2010
8.	Dr. Mahesh Panchagnula	,"Eulerian multiphase population balance modeling of bubble swarm dynamics	IGCAR	
9.	Dr.A.P.Baburaj	Some fascinating problems of Fluid interfaces	NIT Calicut	17 <sup>th</sup> Aug 2010
10.	Dr. M. Ramasubba Reddy	Wavelet transforms	Rajalakshmi Engg College, Chennai	19 Aug 2010.
11.	Dr. M.Ramasubba Reddy	Biomedical Signal Processing	National Workshop on Biomedical Signal and Image Proc, Anna University, Chennai	23-24 Sept.2010
12.	Dr. M.Ramasubba Reddy	Biomedical Engineering Workshop	Gokaraju Rangaraju Institute of Engg & Tech, Hyderabad	25 & 26 Sept.2010
13.	Dr.A.P.Baburaj	Issues in near wall dynamics in turbulent convections	DLR, Gottingen	9 <sup>th</sup> Dec 2010
14.	Dr. M.Ramasubba Reddy	Intl Workshop on Biomedical Sciences and Technologies (IWBST-2011) – Biomedical Instrumentation	Anna University	2 March 2011
15.	Dr. Sayan Gupta	Advanced Facility for Research in Reliability Engineering (AFRRE)	IIT Kharagpur	March 21-23 2011

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1.	Dr. Sayan Gupta	Mathematical Sciences, Chalmers University of Technology, Sweden	May 7 to June 3, 2011.	Collaborative research.	Host University
2.	Dr. A. Arockiarajan	Germany	23.05.10 to 19.06.2010	TU Dortmund Research forum meet	TU Dortmund

3.	Dr. K.Arul Prakash	Helmut-Schmidt-Universitaet Hamburg, Germany.	May 24, 2010 to July 07, 2010.	DAAD "Research Stay" Fellowship,	DAAD
4.	Dr. Sayan Gupta	Grand Hyatt, Shanghai, China	6-11, June 2010	Attending conference	CPDA
5.	Dr. K. Ramesh	Germany	2-8, August 2010	SIMUGLASS	Project
6.	Dr. A.P.Baburaj	Germany	25.11.10 to 25.12.2010	STAR-DAAD Programme	DAAD

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Date of award
<b>Awards:</b>				
1.	Dr. A.P.Baburaj	Included in MARQUIS WORLD WHO'S WHO	MARQUIS WHO'S WHO	Nov 2010
2.	Dr. A.P.Baburaj	Included in MARQUIS WORLD WHO'S WHO	MARQUIS WHO'S WHO	Nov 2010

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Monographs:</b>				
1.	Dr A. Arockiarajan	Mechanics of Generalized Continua	Springer	Carlo Sansour, and Sebastian Skatulla
2.	Lakshmana Rao, C.	Modelling of Engineering Materials	Ane Books India Pvt. Ltd.,2010.	Abhijit P. Deshpande

**Journal Editorial Boards/ Membership:**

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name / Board
1.	Dr. K. Ramesh	Member, Editorial Board	Strain

**Design and Development Activities:**

**New facilities added or major equipment procured:**

Sl.No.	Name of Equipment	Value (Rs. In lakhs)
1.	GPU server for high end parallel computations in The Uncertainty Lab	Rs 5.1 lakhs
2.	Jinan Equipment 50 KN- UTM	Rs. 8 lakhs
3.	SIOS Laser Interferometer	Rs. 12 lakhs
4.	High voltage amplifier	Rs. 10 lakhs
5.	Electro-mechanical measuring setup	Rs. 10 lakhs

**Research and Consultancy:**

**Sponsored Research Projects:**

Sl. No.	Title	Period	Amount (Rs. In lakhs)	Co-ordinators
1	CFD Prediction of Vortex formation and suppression during the draining of liquid from toroidal tanks	2010-2012	8.8 lakhs	Dr. B S V Prasad Patnaik

**Industrial Consultancy projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. In lakhs)
1	Dr. C.Lakshmana Rao	FEA for structural stability of column under operations / wind / seismic load	Vijaya Tanks & Vessels Ltd, Vadodara	1.50 lakhs



**Research Publications of the faculty members & research scholars:**

- Total No. of papers published in Refereed National Journals : 03
- Total No. of papers published in Refereed International Journals : 60
- Total No. of papers presented in National Conferences : 01
- Total No. of papers presented in International conferences : 29

**In Refereed National Journals:**

Sl.No.	Name of the faculty	Title of the paper	Name of the Journal
1	B. Neethi Simon, and K. Ramesh	A simple method to plot photoelastic fringes and phase maps from finite element results.	Journal of Aerospace Sciences and Technologies, 63(2), 174–182, 2010.
2.	Kavitha & Ramakrishnan S.	Identification and Classification of retina objects using Ant Colony Optimization and Naive Bayes Classifier	Journal of the Instrument Society of India, 2010
3.	Ebenezer Priya, Subramanian Srinivasan, Swaminathan Ramakrishnan, Sriram Krishnan and Tania S. Douglas	Segmentation of bacilli in sputum smear images using ant colony optimization based hybrid method	Journal of the Instrument Society of India, Vol. 40, No. 3, 2010

**In Refereed International Journals:**

Sl.No.	Name of the faculty	Title of the paper	Name of the Journal
1.	A. Arockiarajan M. Sakthivel	An analytical model for predicting thermo-electromechanical response of 1-3 piezoelectric composites.	Computational Materials Science, Volume 48, Issue 4, June 2010 Pages 759-767
2.	B. Bhuvanaraghan, S.M. Srinivasan, Mafeo, Bob and Om Prakash	Constrained Probabilistic Multi-objective Optimization of Shot Peening Process,	Engineering Optimization, 2010.
3.	Venkateswara Rao.P, Maniprakash.S, Srinivasan. S.M, Srinivasa, A.R	Functional Behavior of Isotropic Magnetorheological Gels	Smart Materials and Structures, vol.19, 085019 (9pp), 2010.
4.	B. Bhuvanaraghan, S.M. Srinivasan, Mafeo, Bob & Om Prakash	Shot Peening Simulation using Discrete and Finite Element Methods	Advances in Engineering Software, Vol. 41(12), pp.1266-1276, 2010.
5.	B. Baskaran, S.M. Sivakumar and B. Maffeo,	Optimization of the fatigue strength of materials due to shot peening: A Survey	International Journal of Structural Changes In Solids, Vol.2(2), pp. 33-63, 2010.
6.	Venkateswara Rao.P, Maniprakash.S, and Srinivasan. S.M	A modified free decay test apparatus for the characterization of soft magnetic gels in the presence of magnetic fields	Intl J of Engineering, vol. 4(2), pp.179-190, 2010.
7.	B. Bhuvanaraghan, S.M. Srinivasan, Mafeo, Bob and Om Prakash	Analytical Solution for Single and Multiple impacts with Strain-rate Effects for Shot Peening	Computer Modeling in Engineering Sciences CMES, vol.1550(1), pp 1-22, 2010.
8.	D Thomas, D. Ebenezer, and S.M. Srinivasan	Power dissipation and temperature distribution in piezoelectric ceramic slabs	JASA, vol.128( 4) , pp.1700–1711, 2010.
9.	Arun, C. O., Rao, B. N., Srinivasan, S. M.	Continuum Damage Growth Analysis Using Element Free Galerkin Method	Sadhana, vol.35(3), pp.279-301, 2010.
10.	C. O. Arun, B.N. Rao And S M Srinivasan	Stochastic Meshfree Method for Elasto-Plastic Damage Analysis	Computer Methods In Applied Mechanics And Engineering, vol.199, pp.2590-2606, 2010.
11.	N. Ashok Kumar, C.Lakshmana Rao, S.M.Srinivasan	Large deflection of constant curvature cantilever beam under follower load	International Journal of Mechanical Sciences, 52, 440-445, 2010.

12.	Anup, S., Sivakumar, S.M. and Suraishkumar, G.K	Influence of viscoelasticity of protein on the toughness of bone	Journal of the Mechanical Behaviour of Biomedical Materials, 3, 260-267, 2010.
13.	K.R Pradeep, B Nageswara Rao, S.M. Sivakumar and K.Balasubramaniam, ,	Interface Fracture Assessment on Sandwich DCB Specimens	Jl of Reinforced Plastics and Composites, Vol.29(13), pp.1963- 1977, 2010 .
14.	K.Hemalatha L.Suganthi M.Manivannan	Hybrid cardiopulmonary model for analysis of valsalva maneuver with radial artery pulse	Accepted in the Annals of Biomedical Engineering. [DOI: 10.1007/s10439-010-0069-4]
15.	S. Mohamed Yacin, M. Manivannan, and V. Srinivasa Chakravarthy	Non-invasive Measure- ment of Gastric Motility from Finger Photo- plethysmographic Signal	Accepted in the Annals of Biomedical Engineering. [DOI: 10.1007/s10439-010-0113-4]
16.	S. Mohamed Yacin, M. Manivannan and V. Srinivasa Chakravarthy,	Effect of Gastric Myoelectric Activity on Pulse Rate Variability in fasting and Postprandial Conditions,	Accepted for publication in International Journal of Healthcare Technology and Management.
17.	M Sridhar and B.S.V. Patnaik	An assessment of turbulence models for prediction of flow past a circular cylinder with momentum injection	J. Wind Engineering and Industrial Aerodynamics, 98, 575-591 (2010)
18.	M Sridhar and B.S.V. Patnaik	An active flow control strategy for the suppression of vortex structures behind a circular cylinder	European Journal of Mechanics B – Fluids, 29, 93-104, (2010)
19.	N.P. Rayapati, S. Bhamidipati, J. Peddieson and M.V. Panchagnula	Analytical solutions for particulate pipe flows with fragmentation, evaporation, and diffusion	Mechanics Research Communication, 37(6) pp. 604-610, 2010
20.	M Sakthivel and Arockiarajan,.	Thermo-electro mechanical response of 1-3-2 type piezoelectric composites,	International Journal of Smart Materials and Structures, 19 (2010) 105033
21.	S. Mohamed Yacin, M. Manivannan and V. Srinivasa Chakravarthy	On Non-Invasive Measurement of Gastric Motility from Finger	Photoplethysmographic Signal, <i>Annals of Biomedical Engineering</i> , Vol.38, 3744-3755, 12, 2010 (December)
22.	S. Mohamed Yacin, V. Srinivasa Chakravarthy and M. Manivannan	Reconstruction of Gastric Slow wave from Finger Photoplethysmographic Signal using Radial Basis Function Neural Network	Journal of Medical Biological Engineering and Computing.
23.	P. Pavankumar, K. Jayabal, And A. Arockiarajan	Comparative Study Between Finite Element & Polygonal Finite Element Approaches for lectromech.Coupled Linear Problems	International Journal of Integrated Ferroelectrics, 120:90–101, 2010.
24.	K.Hemalatha, L.Suganthi and M.Manivannan	Hybrid cardiopulmonary model for analysis of valsalva maneuver with radial artery pulse	Annals of Biomedical Engineering, Volume 38, Number 10 , pp 3151- 3161
25.	T. Galtier, Sayana Gupta, I Rychlik	"Crossings of second order responses subjected to LMA loadings"	Journal of Probability and Statistics, 2010, 752452 ( 22pages) doi: 10.1155/2010/752452
26.	S. Sarkar, Sayana Gupta, I. Rychlik	"Wiener chaos expansions for estimating rain-flow fatigue damage in randomly vibrating structures with uncertain parameters"	Probabilistic Engineering Mechanics, 2010, In press (doi: 10.1016/j.probengmech.2010.09.002
27.	A Arockiarajan, S M Sivakumar and C Sansour	A thermodynamically motivated model for ferroelectric ceramics with grain boundary effects	International Journal of Smart Materials and Structures, 19 (2010) 015008
28.	M.Yacin, Manivannan.M, S.Chakravarthy	Effect of gastric mvoelectric activity on Pulse Rate Variability in fasting and postprandial conditions	Int. J. Healthcare Technology and Management.
29.	L.Suganthi, M.Manivannan	Modelling the effects of upper arm cuff pressure on pulse morphology	Int. J. Healthcare Technology and Management.
30.	K.Hemalatha, M.Manivannan	Cardiopulmonary Model to Study Interaction Hemodynamics In Muller Maneuver	International Journal for Numerical Methods in Biomedical Engineering.

31.	K. Hemalatha, M. Manivannan	A study of Cardiopulmonary interaction haemodynamics with detailed lumped parameter model.	Accepted for publication in International Journal of Biomedical Engineering and Technology (Inderscience).
32.	V. Anand, N. Dasari and K. Ramesh	Innovative use of transmission and reflection photoelastic techniques to solve complex industrial problems	Experimental Techniques, DOI: 10.1111/j.1747-1567.2010.00641.x, 2010.
33.	B. Neethi Simon and K. Ramesh	Colour adaptation in three fringe photoelasticity using a single image	Experimental Techniques DOI: 10.1111/j.1747-1567.2010.00646.x, 2010.
34.	B. Neethi Simon and K. Ramesh	Identification of inconsistent zones in digital photoelasticity	Strain DOI:10.1111/j.1475-1305.2010.00780.x, 2010.
35.	Ashok Kumar Nallathambi, C. Lakshmana Rao, Sivakumar M. Srinivasan	Large deflection of constant curvature cantilever beam under follower load	International Journal of Mechanical Sciences 52 (2010) 440–445.
36.	K.Srinivasan, M.R Reddy	Efficient pre-processing technique for real-time lossless EEG compression	IET Electronics Letters vol. 46, No. 1,26–27 January 2010
37.	Kavitha A, C. M. Sujatha and S. Ramakrishnan	Prediction of Spirometric Forced Expiratory Volume Data Using Support Vector Regression	Measurement Science Review, Volume 10, No. 2, 2010
38.	K. Kamalanand, B. T. N. Sridhar, P. M. Rajeshwari and S. Ramakrishnan	Correlation Of Dielectric Permittivity With Mechanical Properties in Soft Tissue-Mimicking Polyacrylamide Phantoms	Journal Of Mechanics In Medicine And Biology, Vol. 10, No. 2 353–360, 2010
39.	Kavitha A & C.M. Sujatha and S. Ramakrishnan	Evaluation of Flow–Volume Spirometric Test Using Neural Network Based Prediction and Principal Component Analysis	Journal Of Medical System”, Vol. 35, Pp. 127-133, 2011
40.	Kavitha A, C. M. Sujatha and S. Ramakrishnan	Evaluation of forced expiratory volume prediction in spirometric test using Principal Component Analysis	Int. J. Biomedical Engineering And Technology, 2011
41.	Kavitha A and S. Ramakrishnan S.	Comparison of prediction of Forced Expiratory Volume in Flow-Volume Spirometric measurements using Radial Basis Function Neural Networks and Support Vector Machines	Journal Of Mechanics In Medicine And Biology, Vol.10, No.4, Pp 1-11, 2010.
42.	K.Srinivasan, J.Dauwels, M.R Reddy	A Two-Dimensional approach for lossless EEG compression	Journal of Bio-medical Signal processing and control, 2011.
43.	M. Sakthivel, A. Arockiarajan,	An effective matrix poling characteristics of 1-3-2 piezoelectric composites	“Sensors and Actuators- A” 167, 34-43, 2011.
44.	G.V.Ramareddy and Puthenveetil, B.A. ‘	The Pe~1 regime of convection across a horizontal permeable membrane’	Journal of Fluid Mechanics, 2011 (in press)
45.	R.S. Priyadarsini, V. Kalyanaraman, S. M. Srinivasan	Numerical and Experimental Study of Buckling of Advanced Fibre Composite Cylindrical Shells Under Axial Compression	International Journal of Structural Stability and Dynamics, 2011
46.	K. Jayabal, A. Menzel, A. Arockiarajan and S.M. Srinivasan,	Micromechanical mode modeling switching phenomena in polycrystalline piezoceramics. Application of a polygonal finite element approach	Computational Mechanics, 2011.
47.	B. Bhuvanaraghan, S.M. Srinivasan, and Mafeo, Bob	Numerical simulation of Almen strip response due to random impacts with strain-rate effects	International Journal of Mechanical Sciences, 2011.
48.	K. Ramesh, T. Kasimayan and B. Neethi Simon	“Digital photoelasticity – A comprehensive review	Journal of Strain Analysis for Engineering Design, DOI: 10.1177/0309324711401501

49.	K. Ashokan, R. G. R. Prasath, and K. Ramesh	Noise free determination of isochromatic parameter of stereolithography built models	Experimental Techniques, DOI:10.1111/j.1747-1567.2010.00695.x
50.	B. Neethi Simon, T. Kasimayan and K.Ramesh	Influence of ambient illumination on colour adaptation in three fringe photoelasticity	Optics and Lasers in Engineering, 49, 258–264, 2011.
51.	M.D. Ghouse, C. Lakshmana Rao and B.N. Rao	Numerical Simulation of Fracture Process in Cement Concrete Using Unit Cell Approach	Mechanics of Advanced Materials and Structures, Vol. 17, Issue 7, 2010, pp. 481-487.
52.	R. Suresh Kumar, C. Lakshmana Rao and P. Chellapandi	Biaxial Ratcheting Response of SS316 Steel”,	Applied Mechanics and Materials, Vols. 24-25 (2010), pp. 207-211.
53.	Mini Remanan, R. Indira Priyadarshini, C. Lakshmana Rao and Srinivasan M. Sivakumar	Experimental Studies on Buckling Load Enhancement of Rectangular Columns and Thin Plates Using Piezoelectric Actuators	International Journal of Applied Engineering Research, ISSN 0973-4562, Vol. 6, Number 2 (2011), pp. 131-146.
54.	M.D. Ghouse Dr.C. Lakshmana Rao Dr. B.N. Rao	Numerical Modeling of failure of cement concrete using a unit cell approach	Sadhana Indian Academy of Sciences
55.	J. Dauwels, Srinivasan. K, M.R Reddy, T. Musha, A. Cichocki, F. Vialatte, C.Latchoumane, J. Jeong	Slowing and loss of complexity in Alzheimer's EEG:	Two sides of the same coin?, vol. 2011, Article ID 539621, 10 pages, 2011.
56.	A. K. Jayanthy N. Sujatha M.Ramasubba Reddy	Laser speckle contrast imaging for analyzing static scatterer concentration in body fluids	Optics and lasers in Engg., vol 49(4), 553-556
57.	A. K. Jayanthy N. Sujatha M. Ramasubba Reddy,	Measuring blood flow: techniques and applications – A review	International journal of research and review in applied sciences, Vol 6 (2)
58.	B. S. Suresh Anand and N. Sujatha	Effects of Intralipid-10% in fluorescence distortion studies on liquid tissue phantoms in UV range	Journal of Biophotonics, 2011, 4 (1-2),92-97.
59.	G Kavitha S Ramakrishnan	Detection of blood vessels in human retinal images using Ant Colony Optimization method	International Journal Of Biomedical Engineering And Technology Vol. 5, No.4 Pp. 360 - 370, 2011
60.	Udhayakumar G, Sujatha C M and Ramakrishnan S	Analysis of Trabecular Structure in Radiographic Bone Images Using Bi-Dimensional Empirical Mode Decomposition	American Journal Of Biomedical Sciences Instrumentation, Volume 47, Pp. 82-87, 2011

#### In Proceedings of National Conferences:

Sl.No.	Name of the faculty	Title of the paper	Institution	Period
1.	S. Sajitha N. Sujatha	Vocal dose measurements and its potential applications	Proceedings of National Systems Conference, Dec 10-12, 2010	NIT Suratkal

#### In Proceedings of International Conferences:

Sl. No.	Name of the faculty	Title of the paper	Institution	Period
1.	Majid Hameed, Praveen Kumar, Praneeth Kumar, M Manivannan, and S K Saha	Gravity Compensation for Phantom Omni Haptic Interface	First Joint International Conference on Multibody System Dynamics, Lappeenranta, Finland	May 25 - 27, 2010.
2.	S. Mohamed Yacin, M. Manivannan and V. Srinivasa Chakravarthy,	Measurement of Gastric Oscillations from Finger Photoplethysmographic Signal using Autoregressive Model	Proceedings of IEEE International Conference on Computer, Control and Communication Technologies (ICCCCT 2010), pp 514-517	Oct 7-9, 2010, India.

3.	K. Hemalatha, M. Manivannan	A study of Respiratory Induced Variations of Breath Patterns on Cardiopulmonary System Dynamics	Int. Conf on Challenges and Applications of Mathematics in Science and Technology CAMIST-	India, 751-759. 2010
4.	K. Hemalatha, M. Manivannan	A detailed cardiopulmonary model for the study of interaction hemodynamics	Int. Conf. on Recent Advancements in Electrical Sciences, 320-332.	ICRAES 10, India
5.	K. Hemalatha, M. Manivannan, S. Thanikachalam	Numerical simulation of cardiac valves flow velocity patterns in normal and abnormal conditions	Int. Conf. on computer, control and communication technologies, IEEE 98-101, ICCCT	India, 2010
6.	L. Suganthi, M. Manivannan	Modeling the Effects of Upper Arm Cuff Pressure on Pulse Morphology	Proceedings of the International Conference on Recent Advancements in Electrical Sciences (ICRAES 10) pp285-295.	2010, India,
7.	K. Hemalatha, M. Manivannan, Valsalva	Maneuver for the analysis of interaction hemodynamic-Model study	Int. Conf on Recent Trends in Information, Telecommunication and Computing, IEEE 28-32,	India, 2010
8.	B. S. Suresh Anand N. Sujatha	Quantification of tissue oxygenation levels using diffuse reflectance spectroscopy	Proceedings of Photonics 2010	IIT Guwahati. Dec 11-15 2010
9.	J. Dauwels, Srinivasan. K, M.R Reddy, A. Cichocki	Compression of Electroencephalograms using tensor decompositions	Workshop on Tensors, Kernels, and Machine Learning, Neural Information Processing Systems (NIPS), only internet proceedings	December 2010
10.	H.C. Shashidhara and K. Ramesh	Digital photoelastic assessment of biomaterial V-notch specimen	Proceedings of the Fifth International Conference on Theoretical, Applied, computational and Experimental Mechanics (ICTACEM)	IIT Kharagpur, 27 <sup>th</sup> – 29 <sup>th</sup> December 2010.
11.	Dr.A.P. Baburaj and M. Narayana	Flux scaling from near-wall wherent structures in turbulent convection	13 <sup>th</sup> ACFM DHAKA	December 17-21, 2010
12.	Dr.A.P. Baburaj and Vijaya Senthil Kumar	Shape & motion of drops in the inestial regime	13 <sup>th</sup> ACFM DHAKA	December 17-21, 2010
13.	Dr.A.P. Baburaj and G.S. Gunasegarane	Mesging of sheet plenuls in turbulent convection	37 <sup>th</sup> National & 4 <sup>th</sup> International Conference on Fluid Mechanics & Fluid Power	IIT Madras, December 16-18, 2010
14.	Dr.A.P. Baburaj and Vijaya Rama Reddy	The Transition from advection to diffusion in convection across a horizontal permeable membrane	37 <sup>th</sup> National & 4 <sup>th</sup> International Conference on Fluid Mechanics & Fluid Power	IIT Madras, December 16-18, 2010
15.	Kamalanand AND S. Ramakrishnan	A Method For Classification Of normal and Myopathic Emg Signals Using Chaos Theory	Proceedings Of Icammm, Sultan Qaboos University, Oman	13-15 December 2010
16.	A K Jayanthi, N Sujatha and M. RamaSubba Reddy	Laser speckle contrast imaging based blood flow analysis in normals and in patients with skin diseases	Proceedings of ICCCESS, WASET 69, 2010	Singapore
17.	T. Christy Bobby and S. Ramakrishnan	Slantlet Transform Based Analysis of Femur Bone Strength Using Radiographic Images	International Conference on Power, Control and Embedded Systems-ICPCES	pp 395-400, 2010

18.	Ebenezer Priya, Subramanian Srinivasan, Swaminathan Ramakrishnan, Sriram Krishnan and Tania S. Douglas	Characteristics and classification of TB images using optimization method based feature extraction	International Conference on Power, Control and Embedded Systems-ICPCES	pp 388-394, 2010
19.	Kamalanand and S. Ramakrishnan	A Method for Classification Ofnormal and Myopathic EMG Signals Using Chaos Theory	Proceedings of ICAMMM , Sultan Qaboos University	Oman,,2010
20.	J. Philip, D. Swain, R Vijayakumar, S. A. Pillai, K. Ramesh	Digital Photoelastic Stress Analysis of a Wing to Fuselage joint Used in Aerospace Vehicle	”, XXXV OSI Symposium International Conference on Contemporary Trends in Optics and Opto Electronics	January 17-19, 2011 Thiruvananthapuram,
21.	J.Dauwels, A.Cichocki, Srinivasan. K, M.R Reddy	Signal Processing for Telemedicine:Key Challenges	Proc. on first international symposium on Bioengineering vol. 1 244–255	January 2011
22.	J.Dauwels, Srinivasan. K, M.R Reddy, A.Cichocki	Multi-channel EEG compression based on matrix and tensor decompositions	International conference on Acoustics, Speech and signal processing, ICASSP	2011.
23.	N. Sujatha B S Suresh Anand A K Jayanthi V B Narayanna Murthy	Non invasive assessment of tissue oxygenation and blood flow as a tool for staging diabetes	Proceedings of Optics 11	NIT Calicut
24.	S. Gayathri and N. Sujatha	Fractal Dimension Characterization of in vivo Laser Doppler Flowmetry signals	Proceedings of ICOPEN 2011	Singapore
25.	K. Kamalanand, S. Srinivasan and S. Ramakrishnan, ”,	Analysis of Normal And Atherosclerotic Blood Vessels Using 2D Finite Element Models	5 <sup>th</sup> Kuala Lumpur International Conference on Biomedical Engineering and 8 <sup>th</sup> Asian Pacific Conference on Medical and Biological Engineering,	Kuala Lumpur, 2011
26.	Ebenezer Priya, Subramanian Srinivasan and Swaminathan Ramakrishnan	Differentiation of Digital TB Images Using Multi-Fractal Analysis		2011
27.	T. Christy Bobby, S. Ramakrishnan , ”,	Evaluation Of Human Femur Bone Radiographic Images Using Adaboost and Support Vector Machines	International Mechanical Engineering Congress & Exposition (Accepted)	ASME 2011
28.	Sri Madhava Raja N, Kavitha G and Ramakrishnan S	Assessment of Retinal Vasculature Abnormalities using Slantlet Transform based Digital Image Processing	48 <sup>th</sup> International Rocky Mountain Bioengineering Conference, Denver,	Colorado, 2011
29.	E. Priya, S. Srinivasan, S. Ramakrishnan, D. Manamalli and Tania S. Douglas	Texture Based Identification and Classification of TB Objects in Digital Images”	Proceedings of Trends in Industrial Measurements and Automation, pp. 478-483	2011

#### Distinguished Visitors to the Department:

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1.	Prof.S.Thanikachalam, SRMC, Porur, Chennai.	May 12 , 2010.	Talk on Engineering Outlook of a Cardiologist
2.	Dr. E. J. HOPFINGER Visiting Faculty, LEGI-INPG, Grenoble, France	October 20, 2010	Gas-Assisted Break-up and Atomization of a Liquid Jet, LEGI-INPG, Grenoble, France
3.	Dr.Sasha Panfilov Netherlands	October 26, 2010	Visit to Biomedical Group, Netherlands
4.	Dr. Satya Sundar Sethy Humanities Department, IITM	October 27, 2010	Guidelines for Designing and Using PowerPoint Slides Effectively, Department of

			Humanities & Soc. Sciences, IIT Madras
5.	Dr. P. Nithiarasu Professor, College of Engineering, Swansea University	December 15, 2010	Talk on "Non-Invasive human arterial property estimation"
6.	Prof Igor Rychlik, Professor, Mathematical Sciences, Chalmers University of Technology, Sweden, (host: Sayan Gupta)	January 8-15, 2011	Collaborative research
7.	Dr. Andreas Menzel Professor, TU Dortmund Germany	February 7- 11, 2011	Modeling of Smart materials
8.	Dr. Rajiv Ranganathan, PhD Research Associate, Rehabilitation Institute of Chicago, Chicago IL, USA	01 March 2011	Talk on Exploiting Multiple Solutions in Human Motor Learning
9.	Dr. Avranil Tah and Dr. Prasanth Menon	08 March 2011	Talk on Virtual Reality- Technology of the future

#### Other Activities of the Department/Centre:

1.	Dr. M.Ramasubba Reddy	Expert Member in the selection committee for Faculty recruitment at JNTU, Hyderabad. April 19-20, 2010.
2.	Dr .M.Ramasubba Reddy	Expert Member in the selection committee for Faculty recruitment at JNTU, Hyderabad. April 19-20, 2010.
3.	Dr. M.Ramasubba Reddy	Expert Member in the selection committee for Faculty recruitment at JNTU, Kakinada. May 10-11, 2010.
4.	Dr. S. Ramakrishnan	To attend DST Expert Committee Meeting at Vellore, May 21, 2010
5.	Dr. R. Palaninathan	Expert Member in the Assessment Board for Scientists, DRDO, Hyderabad May 31 – June 1, 2010
6.	Dr. R. Palaninathan	External Expert Member Departmental Promotion Committee VSSC, Thiruvananthapuram, June 16-17, 2010
7.	Dr. M.Ramasubba Reddy	To participate as Member of Board of Studies Committee to formulate UG syllabus at JNTU, Hyderabad, June 18-20, 2010
8.	Dr. K. Ramesh	Academic Council Meeting, SCSUM, Enathur, 28 Aug 2010.
9.	Dr. M.Ramasubba Reddy	UG Board of Studies Meeting, JNYU, Anantapur, 18 & 19 Sept.2010
10.	Dr.M.Ramasubba Reddy	Expert Member in the interview of UPSC, UPSC, Delhi, 06.10.2010
11.	Dr.M.S.Sivakumar	AR&DB Structures Panel Meeting, DARE, Bangalore, 22.10.2010
12.	Dr. K. Ramesh	Selection committee Meeting, IIT Rajasthan, 21.11.2010
13.	Dr. M.S. Sivakumar	Ph.D Examiner, IISc, Bangalore, 3-4.11.2010
14.	Prof. K. Ramesh	SIMUGLASS IIT Delhi, 08.12.2010.
15.	Prof. K. Ramesh	SIMUGLASS – International meeting of Global partners, IIT Delhi, 16-18 March 2011.
16.	Prof. M.S.Sivakumar	Workshop on Shape Memory Alloys - Development of SMA – Defence applications, IISc, Bangalore, 18-19 March 2011.
17.	Dr.A.P.Baburaj	M S Examiner, JNCASR, Bangalore

#### 4.2.6 Other Activities:

##### Student visit

SI.No.	Name of the Faculty / Guide	Exchange Programme	Institute	Name of the Scholar
1.	DR. A.P. BAURJAJ	Star-DAAD	DLR Gottingen	G.S. Gunasegarane

##### Faculty visit

Dr.A.P.Baburaj                      Star-DAAD                      DLR Gottingen

**Activities initiated:-** Collaborative work in Near-wall Dynamics in Convection

## 4.3 DEPARTMENT OF BIOTECHNOLOGY

### 4.3.1 Introduction:

The department of Biotechnology at this institute came in to formal existence in July 2004 but has grown rapidly in the past seven years. The first batch of B.Tech students graduated in July 2006, and the first dual degree batch students graduated in July 2007.

The vision of the department is to make international impact through research, teaching, technology transfer and service to society. At present, we have 27 faculty members and two adjunct faculties. The thrust areas of research are Bioprocess Engineering, Computational Biology, Chemical Biology and Medical Biotechnology related 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 numerous industries and the department also has collaborative research projects with hospitals. We have set up a Center of Excellence in "Bioprocess Engineering" to develop knowledge and expertise in this domain and a DST funded "National Facility to identify potential drug targets through cellular dynamics". We have funding from DBT for program support on Cancer Biology. A Bioinformatics Center has also been set up with funding from DBT. Three of the dual degree students who graduated in 2010, along with one of our project student have set up a start up company, "Sea6 Energy", for developing technology to grow and convert seaweeds into biofuel. This company is incubated in the Biotechnology Department

We offer B.Tech., Dual degree, M.S., and Ph.D programmes in Biotechnology. In addition, we offer M.Tech (Clinical Engineering) and Ph.D (Major: Biomedical Devices and Technology) programmes, jointly with Sree Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum and Christian Medical College, Vellore. The aim of the department is to produce talented graduate and undergraduate students who are confident to provide solutions to the technological problems faced by Indian Biotechnology industries. The undergraduate program in Biotechnology has strong emphasis on modern biology and engineering and on several laboratory experiences. M.S and Ph.D programmes emphasize research excellence. The M.Tech (Clinical Engineering) programme is designed to train students to address the complete management of the technology aspects in a hospital as well as the medical technology need of the country.

### 4.3.2 Academic Programmes:

B.Tech, Dual Degree, M.S and Ph.D in Biotechnology, M.Tech in Clinical Engineering and Ph.D in Biomedical Devices and Technology.

#### New Courses introduced:

Sl. No.	Course No.	Title
1	BT6901	Vascular Biology
2	BT5320	Metabolic Engineering

#### Students on roll as of September 2010+M.S. & Ph.D admission in Jan. 2011:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	40	31	26	19	4	120
Dual Degree	18	13	13	15	13	72
M.Tech.	8	10	0	-	-	18
M.S.	6	9	1	-	-	16
Ph.D.	26	32	26	18	20	122
<b>Total</b>	<b>98</b>	<b>95</b>	<b>66</b>	<b>52</b>	<b>37</b>	<b>348</b>

#### Names of Student/Scholar who attended Conference/ Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1	V. Poornima	BT07D008	American society for cell biology	Dec 12-15, 2010 Philadelphia	IITM



Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
2.	S. Hemaiswarya	BT05D007	58th International Congress and annual meeting of Natural Products and Medicinal Plants Research.	Aug 27- Sept 2, 2010 Berlin, Germany	DST
3	Geetha Venkatchalam	-	ICBBB "2011 international conference on Bioscience, Biochemistry and Bioinformatics".	Feb 26-28, 2011 Singapore	DST
4	V. Prabhawathi	-	International Conference on Antimicrobial Research (ICAR 2010) Formatex research center	Nov 3-5, 2010 Valladolid, Spain	DST
5	Sandip M, Swain	-	Collaborative work	May 10-28, 2010 Russia	DST
6	Dillip Kumar Bishi	-	NUS Singapore (Three months Training program on stem cell)	Feb – April, 2011	FLL
7	Santosh Madapati	-	NUS Singapore Three months Training program on stem cell)	Feb – April, 2011	FLL
8	Tarjan Kaliaperumal	-	Enzymes and Biocatalysis 2010, Shanghai, China	April 22-24, 2010	Shanghai Everbright Convention & Exhibition Center
9	Yoganathan.R.K	BTT095007	DAAD Fellowship	Aug 2010- May 2011	DAAD
10	Shashi Bala Prasad	BT05D016	14th International Biotechnology Symposium and Exhibition 14-18 September 2010 Rimini, Italy.	September 14- 18, 2010	IITM
<b>India:</b>					
1	Sowmya Lipsa Rath	BT09D043	Theoretical Chemistry Symposium 2010	Dec 5-12, 2010 IIT Kanpur	IITM
2	Debestuti Ghoshdastidar	BT10D015	Theoretical Chemistry Symposium 2009	Dec 5-12, 2010 IIT Kanpur	IITM
3	Aneesh C.N.A.	BT06D004	Royal Society of Chemistry West India Symposium	Sept 3-4, 2010 Univ of Goa	IITM
4	N. Kathiresan	BT06D012	Royal Society of Chemistry West India Symposium	Sept 3-4, 2010 University of Goa	IITM
5	N. Kathiresan	BT06D012	Imdo-US workshop on modern trends in macromolecular structures	Feb 21-24, 2011 IIT Mumbai	IITM
6	P K Prabhakar	BT06D001	RSC West India Ph.D. students symposium 2010	Sep 3-4, 2010 University of Goa	IITM
7	P V Padma Priya	-	RSC UK-India MedChem Congress - 2011	Feb 25– 26, 2011 Indian Institute of Chemical Technology, Hyderabad	IITM
8	Sugapriya DM	-	International conference on Stem Cells and Cancer (ICSCC-2010): Proliferation, Differentiation and Apoptosis	Dec 11 -14, 2010 International Institute of Information Technology, Pune	DBT

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
9	Sreejit P	-	International conference on Stem Cells and Cancer (ICSCC-2010): Proliferation, Differentiation and Apoptosis	Dec 11 -14, 2010 International Institute of Information Technology, Pune	DBT
10	S. Stella	-	Chennai Chemistry Conference	Feb 11-13, 2011 IITM	IITM
11	P. Mahajabeen	-	13 <sup>th</sup> National Symposium in Chemistry, Chemical Research Society of India	Feb 4- 6, 2011 NISER, Bhubaneswar	IITM
12	P. Mahajabeen	-	National conference on Recent Trends in Organic Synthesis-2011	Feb 24- 26, 2011, Tiruchirappally	-
13	Lakshmi Subramanian	BT10D008	36th Annual conference of Indian Society of Human Genetics (ISHG) and International Symposium on Genomics, Genetic Diseases and Diagnostics	February 14-16, 2011, Manipal University	DBT
14	Prasanna Kumar Reddy Allu	BT08D019	36th Annual conference of Indian Society of Human Genetics (ISHG) and International Symposium on Genomics, Genetic Diseases and Diagnostics	February 14-16, 2011, Manipal University	DRDO
15	Anshu Agarwal	BT09S005	36th Annual conference of Indian Society of Human Genetics (ISHG) and International Symposium on Genomics, Genetic Diseases and Diagnostics	February 14-16, 2011, Manipal University	IITM
16	Bhavani Shankar Sahu	BT09D004	4th World Congress of International Academy of Cardiovascular Sciences	February 1 – 3, 2011, Vadodara	DRDO
17	Binu K Sasi	BT08D009	4th World Congress of International Academy of Cardiovascular Sciences	February 1 – 3, 2011, Vadodara	DRDO
18	Parshuram J Sonawane	BT07D013	4th World Congress of International Academy of Cardiovascular Sciences	February 1 – 3, 2011, Vadodara	DRDO
19	Piyushkumar Kapopara	-	Indo-US workshop on Translating Molecular Cardiology into Clinical Practice	August 6-8, 2010, Rajiv Gandhi Centre for Biotechnology Thiruvananthapuram	IITM

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
20	Binu K Sasi	BT08D009	Indo-US workshop on Translating Molecular Cardiology into Clinical Practice	August 6-8, 2010, Rajiv Gandhi Centre for Biotechnology Thiruvananthapuram	DST

**Names of students/scholars who won outside prizes and awards:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	Geetha Venkatachalam	-	Women Scientist Scheme	DST
2.	Sugapriya	-	Poster Presentation	ICSCC-2010
3.	Bhavani Shankar Sahu	BT09D004	Dr. N. K. Ganguly Young Investigator Award in Clinical Cardiology	4th World Congress of International Academy of Cardiovascular Sciences

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1	Trishul Artham	BT05D001	Bhagyalakshmi Krishna lyengar award for Environmental research	Sudir Krishna (IITM alumini)

**4.3.3 Faculty and their activities:**

**3.1. Faculty:**

**Name and Qualifications**

**Major area of specialization**

**Professor:**

K.B. Ramachandran [Head]

Biorefinery, Bioprocess modeling, simulation and control, Metabolic engineering, Enzyme Engineering

G. K. Suraishkumar

Algal bio-energy, Reactive species, Microbial deactivation in drinking water

D. Karunakaran

Cancer Biology, Signal transduction, Apoptosis

V. S. Chakravarthy

Computational neuroscience, computational cardiology, Pattern recognition and neural networks

S. Mahalingam

Molecular virology, Cell biology

Mukesh Doble

Biomaterials, Drug design and biodegradation

Rama Shanker Verma

Stem cell biology and Tissue regeneration, Cancer therapeutic development, Molecular biology, Receptor biology

Anju Chadha

Biocatalysis, Enzyme mechanisms, biosensors

Guhan Jayaraman

Biochemical and Bioprocess Engineering

A. Jayakrishnan

Biomaterials Science and Technology

T.S. Chandra

Microbiology and Genetics

**Associate Professor:**

A. Gopala Krishna

Signal transduction and Protein biochemistry

N. Manoj

Protein structure and function, Computational molecular evolution

Sanjib Senapati	Computational biophysics, Computational green chemistry
M. Michael Gromiha	Bioinformatics, Protein structure and function, protein interactions
K. Chandraraj	Biomass conversion, Biorefinery, Bioremediation
Rayala Suresh Kumar	Cancer biology
Amal Kanti Bera	Electrophysiology
Nitish R. Mahapatra	Cardiovascular genetics, Molecular medicine
Satyanarayana Gummadi	Bioprocess engineering

**Assistant Professor:**

Madhulika Dixit	Vascular Biology, Diabetic Vasculopathy and Cell Biology
R. Murugan	Theoretical Biophysics, Computational Biology, Systems Biology
R. Baskar	Developmental Genetics
V. Kesavan	Chemical Biology
Smita Srivastava (on contract)	Biochemical and bioprocess engineering, Plant cell technology
Vignesh Muthuvijayan	Biomaterials and Biomedical Engineering
Karthik Raman	Computational System Biology

**Visiting Faculty:**

K. G. Mukherjee	Bioprocess Engineering
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**Adjunct Faculty:**

Dr. Shree Kumar Suryanarayanan	Bioprocess Engineering, Algal Biofuels
Dr. Venil Sumantran	Cancer Biology

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl.No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1.	Rama S Verma	Healthcare outlook 2050	May 3, 2010
2.	Rama S Verma	Heart Failure and Arrhythmia	Feb 5-6, 2011
<b>Short Term Courses:</b>			
1.	Rama S Verma	Enviromental Management system in Pharma and Chemical Sector	March 22-24, 2011
2.	Satyanarayana Gummadi and Mukesh Doble	Bioprocess Technology	July 12-12, 2010

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Smita Srivastava	Faculty development program-2010, centre for continuing education, IIT Madras in collaboration with Texas A & M University	IIT Madras	Dec 8-10, 2010
2	Smita Srivastava	Hands-on workshop on Labview by National Instruments at Electrical Engineering department,	IIT Madras	Dec 15-16, 2010
3	Smita Srivastava	Workshop on knowledge economy and manpower development in biotechnology, at Department of Biotechnology, IIT Madras	IIT Madras	Feb7, 2011
4	Madhulika Dixit	JAX-Mouse Workshop	Instem, Bangalore	March 7-9, 2011

5	D. Karunakaran	Indian Association For Cancer Research Satellite Meeting	Amala Cancer Research Centre, Thrissur	Feb 11-12, 2011
6	D. Karunakaran	International Cancer Research Symposium 2010	Rajiv Gandhi Centre For Biotechnology, Trivandrum	Dec 20-22, 2010
7	M. Michael Gromiha	Workshop On "Techniques In Bioinformatics"	Dept Of Biotechnology, IIT Mdras	Jan 21, 2011
8	M. Michael Gromiha	National Workshop On "Molecular Simulations And Cheminformatics Approaches Towards New Drug Development"	Karunya University, Coimbatore	Feb 26, 2011
9	M. Michael Gromiha	National Seminar On "Structural Bioinformatics"	Manonmanium Sundaranar University, Tirunelveli	March 4, 2011
10	Vignesh Muthuvijayan	Manpower Development in Biotechnology	IIT Madras	Feb 7, 2011
<b>Seminar:</b>				
1.	Rama S Verma	28 <sup>th</sup> Small meeting on Yeast Transport and Energetics (SMYTE)	JNU New Delhi	Sep 23-27, 2010
<b>Symposia:</b>				
1.	Smita Srivastava	International symposium for research scholars-2010 on metallurgy, materials science and engineering	IITMadras	Dec 20- 22, 2010
2.	Rama S Verma	"Stem Cell and Development of cell lines " in Frontier and application of Biotechnology	C.S.R.D., Peoples Groups Bhanpur Bhopal MP	June 20, 2010
<b>Conference:</b>				
1	Sanjib Senapati	Self-assembled inverted micelles in CO2 stabilize ionic liquid domains	Chennai Chemistry Conference, IIT Madras	Feb 11-13, 2011
2	Sanjib Senapati	In-silico structure of free tubulin dimer from simulations	Biomolecular simulations: Algorithms and applications, JNU, Delhi	March 15-16 2011 March 15-16 2011
3	Rama S Verma	International conference on Genomic Sciences- Recent Trends (ICGS-2010)	Madurai Kamaraj University Madurai TN	Nov 11-14 2010
4	Rama S Verma	National Conference on Genomics: Tool for bio prospecting	MNIT Bhopal MP	Nov 20 2010
5	Rama S Verma	International Conference on Stem cell and Cancer (ICSCC 2010):Proliferation, Differentiation and Apoptosis	School of Biotechnology, International Institute of Information Technology ,Pune India	Dec11-14 2010
6	Smita Srivastava	Advances in Biotechnology, Biotech 2011	Global Science and Technology Forum, Singapore.	Feb 28-March1 2011
7	D. Karunakaran	International Conference on Stem Cells and Cancer	International Institute of Information Technology, Pune	Dec 11-14 2010
8	D. Karunakaran	International Conference on Genomic Sciences-2010	Madurai Kamaraj University, Madurai	Nov 12-14 2010
9	S. Mahalingam	International Conference On Genomic Sciences	Madurai Kamaraj University, Madurai	11-13 Nov 2010

10	K. Chandraraj	International Conference on Genomic Sciences-2010	Madurai Kamaraj University, Madurai	Nov 12-14 2010
11	Anju Chadha	5 <sup>th</sup> International symposium on Environment	ATINER, Athens, Greece	May 20-23 2010
12	Anju Chadha	International Conference on Environmental Management (ICEM-2010)	JNTU, Hyderabad	Oct25- 28 2010
13	Anju Chadha	Indo-Canada workshop on "Exploitation of agro-industrial biomass for integrated biofuel and novel products through sustainable production systems	IICT, Hyderabad	Jan 27-28 2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Madhulika Dixit	Chronic Hyperinsulinemia induces endothelial Inflammation via increased expression of cell adhesion molecules.	RCGB, Trivandrum	Aug 6 2010
2.	Madhulika Dixit	Stem Cells and regenerative Medicine	INSPIRE SCIENCE CAMP, Organized by DST at MDRF, Chennai	Dec 31 2010
3	D. Karunakaran	Role of micrnas in cancer	AU-KBC centre, Anna University	March 21 2011
4	D. Karunakaran	Molecular biology of cancer	University of Madras	Feb 22, 2011
5	D. Karunakaran	Mechanisms of curcumin-induced apoptosis	University of Mysore	Jan 26, 2011
6	Rama S Verma	Application of Bioinformatics for Developing Fusion Toxins	University of Allahabad	March 20-22 2011
7	Rama S Verma	Stem Cell and Development of cell lines	C.S.R.D. peoples Group, Bhanpur, Bhopal	June 20-06 2010
8	Rama S Verma	Development of Cardiomyocyte cell line	Indian Institute of Toxicological Research (IITR). Lucknow	July 24 2010
9	Rama S Verma	Identification of new transport systems for folic acid and methotrexate to normal human T lymphocytes and leukemic cell	Jawaharlal Nehru University, New Delhi	Sept 23-27 2010
10	Rama S Verma	Understanding the Behavior of Methotrexate Transport in Rheumatoid Arthritis	Madurai Kamaraj University, Madurai	Nov 12 2010
11	Rama S Verma	Identification of biomarkers in Fanconi Anemia using microarray analysis	MANIT, Bhopal.	Nov 20 2010
12	Rama S Verma	Stem cells and development of Cardio-myogenic cell lines	School of Biotechnology, International Institute of Information Technology, Pune	Dec 11-14 2010
13	Rama S Verma	Stem cells and development of Cardio-myogenic cell lines	Dhana Lakshmi college of Art and Science for Women,Perambalur, TN	Feb 10 2011
14	Anju Chadha	Over a decade of Organic Transformations with <i>Candida parapsilosis</i> ATCC 7330: Where do we go from here?	Max-Planck-Institut für Kohlenforschung Kaiser-Wilhelm-Platz 1 45470 Mülheim / Ruhr Germany	May 26 2010

15	Nitish R Mahapatra	The catecholamine storage vesicle protein chromogranin A plays crucial roles in the regulation of blood pressure.	Division of Molecular and Developmental Biology at the National Institute of Genetics, Mishima, Japan	May 17, 2010
16	Nitish R Mahapatra	Chromogranin A-derived peptide catestatin: implications for cardiovascular disease states	AU-KBC Research Centre, Anna University, Chennai	January 20, 2011
17	Nitish R Mahapatra	Pancreastatin: a novel biomarker for metabolic disorders.	Hindustan Uniliver Research Centre, Bangalore	March 25, 2011
18	K.B.Ramachandran	Research Opportunity in Biotechnology	IP Dome, Chennai	March 22, 2011

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	Amal Kanti Bera	Russia	May 10-28 2010	Research collaboration	DST
2	Amal Kanti Bera	Japan	June 14-18 2010	Scientific meeting	IIT Madras
3	G. K. Suraishkumar	USA	May 2010	Joint project work	Indo-US forum
4	Sanjib Senapati	University of Edinburgh	June 2010	Conference	IIT Madras
5	VS Chakravarthy	Japan	May-June 2010	Visiting researcher	RIKEN Brain Science Institute, Wako-shi, Japan
6	Madhulika Dixit	Sweden and Germany	June 12-21 2010	Kickstart meeting of Indo-EU Functional food consortium	DBT, Government of India
7	D. Karunakaran	Universitas Klinikum at Mannheim, Germany	July19-Aug1 2010	DAAD research visit program	DAAD
8	Mukesh Doble	Beijing, China	Oct 23-26 2010	Attend conference titled Intern Drug design S&Techn, IDDST 2010	IIT Madras
11	R. Baskar	UK	Aug1-6 2010	International Dictyostelium meeting	IIT Madras
12	Anju Chadha	Greece	May 19-24 2010	Invited to deliver a lecture at the 5 <sup>th</sup> International symposium on Environment	IIT Madras
13	Anju Chadha	Germany	May 24-30, 2010	Invited by DAAD: Gave a lecture in MPI, Muelheim	DAAD
14	Rayala Suresh Kumar	USA	Dec 2010	Training	ICMR
15	Nitish R Mahapatra	Japan	May 12-19, 2010	Paper presentation in the 20 <sup>th</sup> World Congress of the International Society for Heart Research, International Conference Center, Kyoto	IIT Madras

16	K.B.Ramachandran	Brazil	October 5-9, 2010	To present an invited talk in the 4 <sup>th</sup> International Congress on Bioprocesses in Food Industry ICBF	IIT Madras
17	Guhan Jayaraman	Italy	September 14-18, 2010	Paper presentation in the 4th International Biotechnology Symposium and Exhibition 14-18 September 2010 Rimini, Italy	IIT Madras

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>i. Honours:</b>					
1	Mukesh Doble	Fellow of Royal Society of Chemistry	Royal Soc of London, UK	Life time Research contribution	Jan 2011
2	G.K. Suariaskumar	Faculty Selection Committee Member (Biotechnology)	IIT Guwahat	Member	2010
3	G. K. Suraishkumar	Member Academic Committee	Sree Chitra Tirunal Institute for Medical Sciences & Tech. Trivandrum	Member	2010
4	G. K. Suraishkumar	Member	SASTRA University, Thanjavur	Curriculum Committee	2010
<b>ii. Awards:</b>					
1.	Smita Srivastava	Best Research Paper Award	Global Science and Technology Forum	Paper presentation in the International Conference, BIOTECH 2011	March 1 2011
2	Mukesh Doble	Shining World Inventor Award	Supreme Master Ching Hai International Association, Taipei, Formosa	Safe Plastic Disposal Technology Helps Create a Sustainable Environment	June 9 2010
3	Anju Chadha	International Women's Day	University of Madras	Outstanding Contribution in the field of Science	March 8 2011

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	Doble M.	"Biosorption of metals by soil bacteria" under the book entitled "Soil Microbes and Environmental Health" edited by Dr. Mohammad Miransari, Shahed University, Tehran, Iran	Nova Publishers, USA	Prabhawathi.V

**Fellowships of Academies and Professional Societies:**

<b>Others:</b>		
1	Mukesh Doble- Fellow of Royal Soc of Chemistry	2011



**Journal Editorial Boards:**

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1	Mukesh Doble	Editorial Board member	Chemical Engineering, McGraw Hill, USA
2	Mukesh Doble	Editorial Board member	Open Journal of Enzyme Engineering, Bentham publ
3	M. Michael Gromiha	Associate Editor	BMC Bioinformatics
4	M. Michael Gromiha	Editor-in-Chief	The Open Structural Biology Journal
5	M. Michael Gromiha	Member	Nature Reader Panel
6	M. Michael Gromiha	Member	Current Computer Aided Drug Design
7	Rama S. Verma	Associate Editor	Australian Journal of Basic and Applied Sciences
8	Rama S. Verma	Associate Editor	Bioinformation
9	Nitish R Mahapatra	Editorial Board Member	International Journal of Biosciences and Technology
10	K.B. Ramachandran	Member Editorial Board	Bioresource Technology
11	K.B. Ramachandran	Member Editorial Board	Preparative Biochemistry & Biotechnology
13	K.B. Rramachandran	Guest Editor	Enzymes in Biofuel Production, Special Issue

**4.3.4 Design and Development Activities:****New facilities added or major equipment procured:**

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1.	Multi-mode microplate reader	22.00
2	National facility on functional cell Dynamics: Ultra centrifuge	45.00
3	Barnacle tester	2.00
4	Langmuir Blodgett Film coater	10.00
5	Perkin Elmer Spectrophotometer	7.00
6	Berthold spectrophotometer	8.00
7	Typhoon	40.00
8	VersaDoc 5000	38.00
9	Perkin Elmer Liquid Scintillation Counter	15.00

**Patents - Patents filed:**

Sl.No.	Name of faculty	Topic of patent
1	Mukesh Doble	New Antituberculosis antibiotic from marine actinomycetes strain R2, 247/DEL/2011, February 2, 2011

**Research and Consultancy:****Sponsored Research Projects: (on going & new)**

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Structural and functionall analysis of GABAA receptor	2008-2011	CSIR	23.91	Amal K. Bera
2	Study of mechanism of NO action on acid sensing ion channel	2009-2011	DST	19.08	Amal K. Bera
3	Modulation of voltage dependent anion channel by the proteins of BCl2 family	2009-2011	DRDO	24.21	Amal K. Bera
4	Mechanisms of P2x7 receptor mediated pore formation in neuron	2010-2013	DAE	19.89	Amal K. Bera
5	Role of pannexin in neuro-glia signaling and its modulation by nitric oxide	2010-2013	ICMR	23.88	Amal K. Bera

6	A photobioreactor for algal bio-fuel	2009-2011	DBT	13.00	G. K. Suraishkumar, Shrikumar Suryanarayan
7	Reactive Oxygen Species and Chlorine based inactivation of microbes	2008-2010	Indo-US forum	USD 30000	G. K. Suraishkumar, Jeanne VanBriesen (CMU)
8	Relating nucleotide-dependent conformational changes in tubulin dimers to microtubule dynamic instability	2011-2014	CSIR	19.66	Sanjib Senapati
9.	The properties of protein hydration water and their connection to protein motions	2008-2011	DST	20.38	Sanjib Senapati
10	Exploring the basis of differential binding of inhibitors to active and inactive CDK2	2008-2011	DBT	30.22	Sanjib Senapati D. Karunakaran V. Kesavan
11	A multi-disciplinary, systems-level investigation into neurobiology of Parkinson's disease	2010-2013	DBT	19.79	VS Chakravarthy (PI) B Ravindran (Co-PI) N Gupte (Co-PI)
12	On dynamical conditions for optimal neurovascular interaction in cerebral circulation	2010-2012	DST	12.97	V Chakravarthy (PI) Anil Prabhakar (Co-PI)
13	Development of online handwriting recognition system for Indian language (OHWR) – Phase II – Deployment of an application and improvement of engine performance	2010-2013	DIT	58.20	V Chakravarthy (PI) C. Chandrasekhar (Co-PI)
14	Regulation of Endothelial Barrier Function by Chronic Hyperinsulinemia and ipotoxicity.	2008- 2011	DST	33.63	Madhulika Dixit
15	Characterization of Gab1 (Gab2- associated binder protein-1) for therapeutic neovascularization	2008- 2011	DBT	26.87	Madhulika Dixit
16	Vascular complications of type2 diabetes: tyrosine phosphorylation of the endothelial nitric oxide synthase.	2010 -2012	DST	15.91	Madhulika Dixit
17	Exploring gab1 in the endothelium	2009 -2012	DST	13.44	Madhulika Dixit
18	Analysis of angiopoietin2 expression and its regulation in endothelial cells	2009 -2012	CSIR	26.26	Madhulika Dixit
19	Impact of agents with potential use in functional foods on biomarkers for induction on age related diseases	2010 -2014	DBT	126.00	Indian Co-ordinator: Dr. S. Nagini, Annamalai University, Chidambaram IITM PI: Madhulika Dixit
20	Program support in cancer biology	2008-2011	DBT	352.60	D. Karunakaran S. Mahalingam V. Kesavan Nitish Mahapatra Sanjib Senapati

21	Cytomodulins in oral cancer therapy	2009-2011	DBT	23.10	Raj Bhatnagar, Raj Bioengineering, New Delhi and S. Nagini, Annamalai University
22	Host cell MAPK/ERK-2 on HIV pathogenesis	2007-2011	DBT	91.71	S. Mahalingam
23	Development of surrogate virus system to understand HIV pathogenesis	2008-2011	DBT	48.308	S. Mahalingam
24	Role of Nucleolar GTPases on Tumorigenesis	2008-2011	DBT	66.07	S. Mahalingam
25	National facility to identify drug targets through functional cell dynamics	2008-2011	DST	664.42	S. Mahalingam
26	Outstanding research investigator award	2009-2014	DAE	100.00	S. Mahalingam
27	HCV-HIV-1 coinfection: immune mechanism, viral interaction and pathogenesis	2009-2012	ICMR	65.25	S. Mahalingam
28	Production of recombinant glycosyl hydrolases by fed batch fermentation of <i>Bacillus subtilis</i> and application in biomass conversion to fuel-ethanol	2010-2013	DBT	33.58	K. Chandraraj
29	Prostaglandin E Synthase (PGES) inhibitor: Computational Studies	2009-2010	DST	9.40	Mukesh Doble
30	Potential tuberculosis drugs from marine actinomycetes	2008-2010	DST	3.50	Mukesh Doble (co-PI)
31	Enhance biodegradation of polypropylene using biosurfactants	2007-2010	DST	29.00	Mukesh Doble
32	Performance of polymers (ldpe,hdpe,pp,pu,and pc) in marine environment	2008-2010	NRB	34.58	Mukesh Doble
33	Cost effective enzyme immobilized active food packaging	2010-2011	DBT	17.39	Mukesh Doble
34	Pharmaceuticals form marine and marine-derived fungi associated with seagrasses and seaweeds	2008-2011	DBT	5.55	Mukesh Doble (co-PI)
35	Bio compatibility studies on nano particle coated polymer surface	2008-2011	BRNS	19.07	Mukesh Doble
36	In vitro study on the bio-toxicity of nano-silver as anti-bacterial material	2010-2013	DBT	15.11	Mukesh Doble
37	Production of cyclic 1,2 B-glucans and its use as an anticancer drugs delivery system	2010-2013	DST	10.56	Mukesh Doble
38	Bioprocess development for production of linear and cyclic glucans	2010-2013	DBT	19.52	Mukesh Doble
39	Genetic dissection of pattern formation in the cellular slime mold Polysphondylium	2009-2012	DST	39.82	R. Baskar V. Kesavan
40	Chemical genetics approaches towards dissecting pattern formation in Polysphondylium	2009-2012	DST	39.65	R. Baskar V. Kesavan S. Baskaran (Dept. of Chemistry)

41	Live cell analysis of plant reproductive barriers	2009-2011	DST-JSPS	7.24	R. Baskar V. Kesavan
42	Cell fate determination in cellular slime molds'	2008-2011	CSIR	15.00	R. Baskar
43	Efficacy of E <sub>p</sub> CAM conjugated drug loaded biodegradable nano particle for drug therapy in Retinoblastoma.	2008-2011	DBT	24.05	Rama S Verma
44	Studies on proliferation and differentiation of stem cells and cancer cells under microgravity	2009-2012	DRDO	25.00	Rama S Verma
45	Studying the proliferation and differentiation potential of an engineered cardiac biomaterial: a natural matrix for cardiac support and regeneration	2010-2013	DST	33.74	Rama S Verma
46	Identification of novel biomarkers and elucidation of molecular basis of phenotypic features of Fanconi anemia using micro array analysis	2010-2013	DBT	34.80	Rama S Verma
47	Characterization and transdifferentiation of mesenchymal stem cells into hepatocytes by HNF-3beta gene	2010-2013	DST	19.00	Rama S Verma
48	Development and Assessment of Functionalized Biomaterials to Improve Haemocompatibility	2011- 2014	IC&SR	15.00	Vignesh Muthuvijayan
49	Targeting Pak1 in alcohol induced liver cancer	2009-2012	DBT (Rapid Grant for Young Investigators)	25.42	Rayala Suresh Kumar
50	Characterization of KIBRA	2010-2013	DBT	84.00	Rayala Suresh Kumar
51	Molecular mechanism behind UV induced Skin Cancer	2010-2013	DRDO	30.00	Rayala Suresh Kumar
52	Targeting IGF1-R in Head and Neck Cancers	2010-2013	DBT	65.00	Rayala Suresh Kumar
53	Pak1 in Head and Neck Cancers	2010-2013	DAE (Young Investigator Grant)	14.50	Rayala Suresh Kumar
54	PDAC and signaling kinases	Feb 2011	DBT	75.00	Rayala Suresh Kumar
55	PELP1 and Inflammation	2010-2013	DST(Fast track for Young Investigator)	22.00	Rayala Suresh Kumar
56	Cellular and molecular studies on interaction of the physiological anti-hypertensive peptide catestatin at the neuronal nicotinic acetylcholine receptor	2009-2012	DST	38.85	Nitish R. Mahapatra Amal K Bera
57	Identification and functional characterization of regulatory elements in the mouse Hspa1a gene	2009-2012	DRDO	40.96	Nitish R. Mahapatra

58	Polymorphisms in the physiological anti-hypertensive peptide catestatin in an Indian population	2008-2011	DBT	48.48	Nitish R. Mahapatra
59	Molecular characterization of functional polymorphisms in mouse HMG-CoA Reductase gene	2008-2011	CSIR	21.22	Nitish R. Mahapatra
60	A structure-function correlation study to unravel the mechanism of action of human catestatin	2010-2013	DBT	50.00	Nitish R. Mahapatra Sanjib Senapati V Sureshbabu (Bangalore University)
61.	Development of a bioprocess for the production of Polyhydroxy butyrate (PHB) from bio-diesel industry generated glycerol	2008-2011	DBT	40.04	K. B. Ramachandran (PI) T.S. Chandra (Co-PI)
62	Production of hyaluronic acid by metabolically engineered <i>L. Lactis</i>	2009-2012	DST	17.14	K.B. Ramachandran (PI) Ms. Shashi Bala Prasad (Co-PI)
63	Production of humanized immunotoxins	2010-2012	DBT	16.81	Ramashankar Verma (PI) K.B. Ramachandran (Co-PI)

**RBIC projects: (on going & new)**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1.	Krishnan Balasubramanian (PI) VS Chakravarthy (CoPI)	Automatic defect recognition algorithm	BHEL	10.00
2.	Mukesh Doble	Biodegradation of polypropylene	RIL, Mumbai	15.00
3.	K.Chandraraj & K.B. Ramachandran	Microbial analysis during detergent washing of fabrics	Henkel AG&Co, Germany	30.00
4.	K.Chandraraj & K.B. Ramachandran	Screening of microorganisms producing lactone based bio-pesticide	Sree Ramcide Chemicals Pvt Ltd, Chennai	15.00
5.	Rama S Verma	Evaluation of Phyto- Pharmaceutical using nano particles	Laila Pharmaceutical Chennai	2.00

**Retainer Consultancy: (on going & new)**

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	K.B. Ramachandran	Biotransformation/ bioprocessing technologies for the manufacture of Cephalosporin derivatives.	Orchid Chemicals and Pharmaceuticals Ltd	4.20

**Exchange programme with other Universities including Institutions/Universities under MOU;**

G.K. Suraishkumar, Institute Coordinator, Joint Post-graduate Programmes with Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum and Christian Medical College, Vellore.

**Faculty members participation with other institution under MoU:**

Sl.No.	Name of faculty	Participation details	Name of University/Institution which has MoU
1	Dr. Rama S Verma	MOU - Dr. Jeffery Smart Professor Ajay Kapoor	Swinburne University, Melbourne, Australia

### Research Publications of the faculty members & research scholars:

Total No. of papers published in Refereed National Journals	: 01
Total No. of papers published in Refereed International Journals	: 53
Total No. of papers presented in National Conferences	: 01
Total No. of papers presented in International conferences	: 04

### In Refereed National Journals:

1. Santosh Mathapati, Satish Galla, Rama Shanker Verma, Kotturathu Mammen Cherian, Soma Guhathakurta (2010) Qualitative and Quantitative Detection of Sodium Deoxycholic Acid in Decellularized Tissue. *Ind J of Thoracic Cardiovascular Surgery*, **26**:129–131.

### In Refereed International Journals:

1. S. Anup, S.M. Sivakumar and G.K. Suraishkumar (2010) Influence of Viscoelasticity of Protein on the Toughness of Bone. *Journal of Mechanical Behaviour of Biomedical Materials*,**3**:260-267
2. Aneesh Chandran, Karthigeyan Prakash, and Sanjib Senapati (2010). Structure and Dynamics of Acetate Anion-based Ionic Liquids from Molecular Dynamics Study. *Chem. Phys*,**374**:13, 46 - 54.
3. Aneesh Chandran, Karthigeyan Prakash and Sanjib Senapati (2010). Self-assembled Inverted Micelles Stabilize Ionic Liquid Domains in Supercritical CO<sub>2</sub>. *J. Am. Chem. Soc*,**132**:12511– 12516.
4. S. Srivastava and A. K. Srivastava (2010) Application of NADH fluorescence sensing in plant cell bioreactor for Azadirachtin (a biopesticide) production. *AsPac J. Mol. Biol. Biotechnol.***18**:23-25
5. Ranjan K.Pradhan and V. S.Chakravarthy(Feb2011) Informational dynamics of Vasomotion in Microvascular Networks: A Review. *Acta Physiologica (Oxf)*, **201**:193-218
6. V. Deepesh, R.J. Pardikar, A. Sricharan, V.G. Ramanathan, S.Chakravarthy and K. Balasubramaniam (2010). Automatic Defect Recognition System for Real Time Radioscopy of Hancock Valve Welds. *Journal of Non destructive Testing & Evaluation*, **9**:12-16
7. V.S.Chakravarthy, Denny Joseph Raju S.Bapi (2010) What do the Basal Ganglia Do? A modeling perspective. *Biological Cybernetics*, **103**:237-53.
8. S. Mohamed Yacin, M. Manivannan, V. Srinivasa Chakravarthy (2010) On non-invasive measurement of Gastric motility from finger photoplethysmographic signal. *Annals of Biomedical Engineering*,**38**: 3744-3755
9. M.Magdoom D.Subramanian, V.S.Chakravarthy, B.Ravindran, Shunichi Amari, N.Meenakshisundaram (2011) Modeling Basal Ganglia for understanding Parkinsonian Reaching Movements, *Neural Computation*, **23**: 477-516
10. Anuradha.S Mohan, V.Gokulkrishnan, K.and Dixit M.(2010) *Metabolism- Clinical and Experimental*, **59**: 774-779.
11. Vidya Priyadarsini, R Senthil Murugan, R.Maitreyi, S.Ramalingam, K.Karunakaran, D.and Nagini, S. (2010) The flavonoid quercetin induces cell cycle arrest and mitochondria-mediated apoptosis in human cervical cancer (HeLa) cells through p53 induction and NF-κB inhibition. *Eur J Pharmacol*, **649**:84-91.
12. Murugan, R. S. Priyadarsini, R. V., Ramalingam, K Hara, Y Karunakaran, D. and Nagini, S. (2010) Intrinsic apoptosis and NF-κB signaling are potential molecular targets for chemoprevention by black tea polyphenols in HepG2 cells in vitro and in a rat hepatocarcinogenesis model in vivo. *Food Chem Toxic.***48**:3281-3287.
13. Dahai, G.Chundawat, S.P.Chandraraj, K.Balan, V.Dale, B.E. (2010) Mixture optimization of six core glycosyl hydrolases for the hydrolysis of ammonia fiber expansion (AFEX) pretreated corn stover. *Bioresource Technology*,**101**:2770-81.
14. Chandraraj K, Leonardo da Costa S, Mingjie J, Linpei C, Dale, B.E. Balan, V. (2010) Alkali-Based AFEX Pretreatment for the Conversion of Sugarcane Bagasse and Cane Leaf residues to Ethanol. *Biotechnology and Bioengineering*,**101**: 441-450.
15. Qianjun, S. Chundawat, S.P.Chandraraj, K. Bals, B. Leonardo da Costa S,Thelen, K.D.Dale,B.E.and Balan,V. Enzymatic digestibility and ethanol fermentability of AFEX-treated starch-rich lignocellulosics such as corn silage and whole corn plant. *Biotechnol Biofuels*, **3**:12.
16. Sumith Retnamma Panicker, Prethish Sreenivas, Mani Sankar Babu, Devarajan Karunakaran and Chandrasekharan Cheranellor Kartha (2010) Quercetin attenuates Monocyte Chemoattractant Protein-1 gene expression in glucose primed aortic endothelial cells through NF-κB and AP-1. *Pharmacol Res* ,**62**:328-336.
17. Vidya Priyadarsini, R.Senthil Murugan, R. Sripriya, P. Karunakaran, D. and Nagini, S. (2010) The neem limonoids azadirachtin and nimbolide induce cell cycle arrest and mitochondria-mediated apoptosis in human cervical cancer (HeLa) cells. *Free Radic Res*, **44**:624-634.

18. M. Michael Gromiha\* and K. Fukui. (2011). Scoring function based approach for understanding the recognition mechanism of protein-DNA complexes. *J. Chem. Inf. Model*, **51**:721-729
19. R Murugan. (2010). Theory on the mechanism of distal-action of transcription factors: Looping of DNA versus tracking along DNA. *J. Phys. A: Math. & Theor*, **43**:415002–17.
20. R. Murugan (2010) Theory of site-specific DNA-protein interactions in the presence of conformational fluctuations of DNA binding domains. *Biophys. J*, **99**:353-359.
21. R Murugan (2010) Theory of site-specific interactions of the combinatorial transcription factors with DNA. *J. Phys. A: Math. & Theo*, **43**:195003–23.
22. Prabhakar, P. K. Doble M. (2011) Interaction of phytochemicals with hypoglycemic drugs on glucose uptake in L6 myotubes. *Phytomedicine*, **18**:285-291
23. Artham, T. Mohanalakshmi, N. Paragi-Vedanthi, PP; Doble, M. (2011) Mechanistic investigations of lipase-catalyzed degradation of polycarbonate in organic solvents. *Enzyme and Microbial Technology*, **48**: 71-79
24. Suryanarayanan TS, Venkatachalam A, Thirunavukkarasu N, Doble M, Venkatachalam G (2010) Internal mycobiota of marine macroalgae from the Tamilnadu coast: distribution, diversity and biotechnological potential. *Botanica Marina*, **53**: 457-468.
25. Hemaiswarya S, Doble M, (2010) Synergistic interaction of phenylpropanoids with antibiotics against bacteria. *Journal of Medical Microbiology*, **59**:1469-1476
26. Sivakumar PM, Ganesan S, Veluchamy P, Doble M, (2010) Novel chalcones and 1, 3, 5-triphenyl-2-pyrazoline derivatives as antibacterial agents. *Chemical Biology and Drug*, **76** : 407-411.
27. Khandwekar AP, Patil DP, Hardikar AA, Shouche YS, Doble M. (2010) In vivo modulation of foreign body response on polyurethane by surface entrapment technique. *Journal of Biomedical Materials Research Part A*, **95A**: 413-423
28. Sivakumar, PM; Prabhawathi, V; Doble. M 2-Methoxy-2',4'-dichloro chalcone as an antimicrofoulant against marine bacterial biofilm. *Colloids and Surfaces b-Biointerfaces*, **81**: 439-446
29. Shanmugam, H; Doble, M, (Dec 2010) Combination of ferulic acid and antibiotics as effective antibacterial agents. *Planta Medica*, **76**:1191-1191
30. Sangeetha, R; Kumar, R; Doble, M, Venkatesan R, (2010) Barnacle cement: An etchant for stainless steel 316L?. *Colloids and Surfaces b-Biointerfaces*, **79**:524-530
31. Arkatkar, A; Juwarkar, AA; Bhaduri, S, Uppara, PV; Doble M, (2010) Growth of Pseudomonas and Bacillus biofilms on pretreated polypropylene surface. *International Biodeterioration and Biodegradation*, **64**: 530-536
32. Sawant, SN; Kulshreshtha, SK; Yakhmi, JV, Doble M; Miyazaki A ;Enoki T (2010) Langmuir-Blodgett films of ethylenedithiotetrathiafulvalene derivative containing hydroxyl groups. *Thin Solid films*, **518** : 5820-5826
33. Karthikeyan, K. Sivakumar, P. M. Doble, M. Perumal, PT (2010) Synthesis, antibacterial activity evaluation and QSAR studies of novel dispiropyrolidines. *European Journal of Medicinal Chemistry*, **45**: 3446-3452
34. Arutchelvi, J, Doble, M (2010) Characterization of glycolipid biosurfactant from *Pseudomonas aeruginosa* CPCL isolated from petroleum-contaminated soil. *Letters in Applied Microbiology*, **51**:75-82
35. Sivakumar, PM. Iyer, G. Natesan. L, Doble. M (2010) 3'-Hydroxy-4-methoxychalcone as a potential antibacterial coating on polymeric biomaterials. *Applied Surface Science*, **256** : 6018-6024
36. Sivakumar, PM; Prabhawathi. V, Doble. M (2010) Antibacterial activity and QSAR of chalcones against biofilm-producing bacteria isolated from marine waters. *Journal SAR and QSAR in Environmental Research*, **21**:247-263
37. Sivakumar, PM; Seenivasan, SP Kumar V, Doble .M (2010) Novel 1,3,5-triphenyl-2-pyrazolines as anti-infective agents. *Bioorganic & Medicinal Chemistry Letters*, **20**: 3169-3172
38. Sreejit P and R S Verma (2011) Cardiogel supports adhesion, proliferation and differentiation of stem cells with increased oxidative stress protection. *European Cell and Material Journal (eCM)*, **21**:107-121
39. Moutushy Mitra, Fahima Dilnawaz, Ranjita Misra, Anju Harilal, Rama Shanker Verma, Sanjeeb K. Sahoo and Subramanian Krishnakumar (2010) Toxicogenomics of nanoparticulate delivery of etoposide: potential impact on nanotechnology in retinoblastoma therapy. *Cancer Nano*, DOI 10.1007/s12645-010-0010-4.
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41. Potala Sirisha and Verma Rama S (2010) Targeting head and neck squamous cell carcinoma using a novel fusion toxin-diphtheria toxin/HN-1. *Molecular Biology Report*, **38**: 1389-1397.

42. Potala Sirisha and Verma Rama S (2010) Modified DT-IL2 fusion toxin targeting uniquely IL2R alpha expressing leukemia cell lines -Construction and characterization. *Journal of Biotechnology*,**148**:147-155
43. Moutushy Mitra, Mallikarjuna Kandalam, Rama Shanker Verma, Uma Maheswari and Subramanian Krishnakumar (2010) Genome wide Changes accompanying the knockdown of EpCAM in retinoblastoma. *Molecular vision*, **16**:828-84.
44. Pavithra P. S. Jannani S., Charumathi R., Indumathi J., and Verma Rama S. (2010) Antibacterial activity of Plants Used in Indian Herbal Medicine. *International Journal of Green Pharmacy*, **4**: 22-28.
45. Rayala SK, Reddy SDN, Ohshiro K, Pakala SB, Kobori N, Dash P, Yun S, Qin J, O'Malley B and Kumar R.( 2011) Multiple coregulatory control of tyrosine hydroxylase gene transcription. *Proceedings of National Academy of Sciences (PNAS).USA*,**108**: 4200-5.
46. Rayala SK, Ohshiro K, Holm C, Pakala SB, Devijendra SR, Gururaj AE, Molli PR, Mansson SS, Ramezani A, Hawley RG, Landberg G, Lee NH and Kumar R.( 2010) Acetylation-dependent oncogenic activity of MTA1 coregulator. *EMBO Reports*,**11**:691-7.
47. Ganesan K, Banerjee S, Gunasekaran P, Tan P and Rayala SK\*(.2010) Integrative functional genomics in cancer research and its clinical implications. *J Cancer Molecules*,**5**:65-71.
48. Kumar R, Balasenthil S, Manavathi B, Rayala SK and Pakala SB.( 2010) Metastasis associated protein 1 and its short form variant stimulates Wnt1 transcription via promoting its derepression from Six3 corepressor. *Cancer Res*,**70**: 6649-6658.
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51. Abdul Khaliq R, Sonawane PJ, Sasi BK, Sahu BS, Pradeep T, Das SK, Mahapatra NR. 2010. Enhancement in the efficiency of polymerase chain reaction by TiO<sub>2</sub> nanoparticles: crucial role of enhanced thermal conductivity. *Nanotechnology* **21**: 255704 (1-11). (Featured in Nature India: <http://www.nature.com/nindia/2010/100614/full/nindia.2010.79.html>)
52. Jirout ML, Friese RS, Mahapatra NR, Mahata M, Taupenot L, Mahata SK, Křen V, Zidek V, Fischer J, Maatz H, Ziegler MG, Pravenec M, Hubner N, Aitman TJ, Schork NJ, O'Connor DT. 2010. Genetic regulation of catecholamine synthesis, storage and secretion in the spontaneously hypertensive rat. *Hum Mol Genet* **19**: 2567-2580.
53. Sonawane PJ, Sahu BS, Sasi BK, Geedi P, Lenka G, Mahapatra NR. 2011. Functional promoter polymorphisms govern differential expression of HMG-CoA reductase gene in mouse models of essential hypertension. *PLoS ONE* **6**: e16661 (1-16).

#### **In Proceedings of National Conferences:**

- 1 S. Mohamed Yacin, M. Manivannan, and V. Srinivasa Chakravarthy (8-9thJan 2010) Effect of Gastric Myoelectric Activity on Pulse Rate Variability in Fasting and Postprandial Conditions, Proceedings of the International Conference on Recent Advancements in Electrical Sciences (ICRAES 10), India, pp296-304.

#### **In Proceedings of International Conferences:**

1. Hemaiswarya, S; Doble, M (2010) Synergistic interaction of cinnamic acid with amikacin against Escherichia coli under in vitro conditions, *Advances in Biomedical Research, Proceedings*,95-98.
2. Sivakumar, PM; Kumar, V; Seenivasan, SP, Mohanapriya; Doble, M (2010) Anti tubercular Activity of Chalcones -Experimental and QSAR studies, *Advances in Biomedical Research, Proceedings*, 168-172.
3. Rama S Verma (11-14th Dec 2010) Invited talk on “ Stem cells and development of Cardiomyogenic cell lines” In the Proceedings of the International Conference on Stem cell and Cancer (ICSCC-2010): Proliferation, Differentiation and Apoptosis held on, Pune India.
4. Mahapatra NR, Subramanian L, Sahu BS, Reddy Allu PK. 2010. Functional polymorphisms in the Chromogranin A gene in an Indian population. In the Proceedings of the 20<sup>th</sup> World Congress of the International Society for Heart Research, May 13-16, International Conference Center, Kyoto, Japan.



**Distinguished Visitors to the Department:**

<b>Sl.No.</b>	<b>Name of the visitor and Designation</b>	<b>Date of visit</b>	<b>Purpose of visit</b>
1	Prof. Ralf. P. Brandes, Director Institute of Cardiovascular Medicine, Goethe University, Frankfurt am Main, Germany	2 <sup>nd</sup> Dec 2010	Invited Talk and collaboration discussions
2	Dr. Beate Fisslthaler, Senior Scientist, Institute of Vascular Signalling, Goethe University, Frankfurt am Main, Germany	15 <sup>th</sup> Feb 2011	Indo-German Joint DFG-DST project
3	Prof. Ajit Varki, Distinguished Professor of Medicine and Cellular & Molecular Medicine Co-Director, Center for Academic Research and Training in Anthropogeny (CARTA) Co-Director, Glycobiology Research and Training Center (GRTC) University of California, San Diego, USA	10-12, January 2011	To deliver special lectures on Glycobiology

**Other Activities of the Department/Centre:**

Incubating a start-up company "Sea6Energy", founded by the dual degree students graduated in 2010.

## 4.4 DEPARTMENT OF CHEMICAL ENGINEERING

### 4.4.1 Introduction:

The Department of Chemical Engineering was established in 1959. The department has 28 faculty members who carry out research in state of the art areas. The focus of the research is geared towards: energy, materials and environment. Faculty work towards analyzing these systems by understanding their behavior at the molecular level as well as using a systems approach.

### 4.4.2 Academic Programmes:

#### New Courses introduced:

Sl. No.	Course No.	Title
1	CH5520	Mathematical methods for Chemical Engineers
2	CH5530	Process Simulation Lab.
3	CH5531	Advanced Chemical Engineering Lab.
4	CH2082	Computational Programming and Process Simulation Lab.

#### New lab(s) established:

Particle Characterization using HR-SEM.

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	76	60	53	45	6	240
Dual Degree	20	14	13	14	17	78
M.Tech.	35	28	6	-	-	69
M.S.	10	8	6	1	-	25
Ph.D.	16	7	7	9	11	50
<b>Total</b>	<b>157</b>	<b>117</b>	<b>85</b>	<b>69</b>	<b>34</b>	<b>462</b>

#### Endowment prize instituted:

- Prof. R. Nagarajan has instituted prizes for the best girl students in all disciplines of IIT Madras.
- Prof. M. Ramanujam endowment prize was instituted for (i) best performance in course on Mechanical Operations and (ii) best M.Tech. / D.D. thesis in the area of Particle Technology.
- Smt. D.L. Saraswathi Memorial Prize was instituted for the best M.Tech. / D.D. thesis in the area of Environmental Engineering / Reaction Engineering.

#### Names of Student/Scholar who attended Conference/ Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1	Venkat Reddy Regatte	CH08D004	International Congress on Chemical and Process Engineering (CHISA-19), Prague, Czech Republic	28.8.2010 – 1.9.2010	IIT Madras
2	Venkata Suresh Patnaikuni	CH07D001	International Congress on Chemical and Process Engineering (CHISA-19), Prague, Czech Republic	28.8.2010 – 1.9.2010	IIT Madras
3	R. Anandalakshmi	CH08D017	AJTEC 2011, Hawaii, USA	13 – 17.3.2011	IIT Madras
4	V. Prabu	CH08D011	241st ACS National Meeting and Exposition 2011, California, USA	27 – 31.3.2011	IIT Madras

India:					
1	Sujitkumar Bontapalle	CH08S003	ICPPC 2010, MG University Kottayam, Kerala	15 – 17.1.2010,	IIT Madras
2	B. Ashraf Ali	CH06D001	Chromatography Tips Trichy	17.5.2010	IIT Madras
3	Venkat Reddy Regatte	CH08D004	ChEmference 2010, IIT Kanpur	13 – 14.7.2010	IIT Madras
4	R. Anandalakshmi	CH08D017	ChEmference 2010, IIT Kanpur	13 – 14.7.2010	IIT Madras
5	M. Kranthi Kumar	CH09D001	ChEmference 2010, IIT Kanpur	13 – 14.7.2010	IIT Madras
6	Sujitkumar Bontapalle	CH08S003	ChEmference 2010, IIT Kanpur	13 – 14.7.2010	IIT Madras
7	Sarvani Kuchibhotla	CH09S004	ChEmference 2010, IIT Kanpur	13 – 14.7.2010	IIT Madras
8	B. Ashraf Ali	CH06D001	ICMOC – 2010, NIT - Durgapur	26 – 31.10.2010	IIT Madras
9	P. Kanagasabai	CH05D010	REACH 2010, IIT Madras	2 – 4.12.2010	
10	B. Ashraf Ali	CH06D001	REACH 2010, IIT Madras	2 – 4.12.2010	
11	Hemanth K. Bilihalli	CH05D008	REACH 2010, IIT Madras	2 – 4.12.2010	
12	Srinivasarao Modekurti	CH06D005	REACH 2010, IIT Madras	2 – 4.12.2010	
13	Suresh Krishnan	CH07D002	REACH 2010, IIT Madras	2 – 4.12.2010	
14	N.P. Dhanalakshmi	CH08D002	REACH 2010, IIT Madras	2 – 4.12.2010	
15	Venkat Reddy Regatte	CH08D004	REACH 2010, IIT Madras	2 – 4.12.2010	
16	V. Prabu	CH08D011	REACH 2010, IIT Madras	2 – 4.12.2010	
17	M. Sudhakar	CH08D013	REACH 2010, IIT Madras	2 – 4.12.2010	
18	K. Sivagami	CH08D015	REACH 2010, IIT Madras	2 – 4.12.2010	
19	A. Seenivasan	CH08D016	REACH 2010, IIT Madras	2 – 4.12.2010	
20	M. Kranthi Kumar	CH09D001	REACH 2010, IIT Madras	2 – 4.12.2010	
21	M. Nabil	CH09D004	REACH 2010, IIT Madras	2 – 4.12.2010	
22	Subin Poullose	CH09D006	REACH 2010, IIT Madras	2 – 4.12.2010	
23	Mahesh Arigonda	CH07S011	REACH 2010, IIT Madras	2 – 4.12.2010	
24	Sujitkumar Bontapalle	CH08S003	REACH 2010, IIT Madras	2 – 4.12.2010	
25	Abhijnan Sarkar	CH08S006	REACH 2010, IIT Madras	2 – 4.12.2010	
26	S. Arun Srikanth	CH09S001	REACH 2010, IIT Madras	2 – 4.12.2010	
27	Sarvani Kuchibhotla	CH09S004	REACH 2010, IIT Madras	2 – 4.12.2010	
28	M. Anandhan	CH09S005	REACH 2010, IIT Madras	2 – 4.12.2010	
29	V. Goutham Polisetty	CH10S004	REACH 2010, IIT Madras	2 – 4.12.2010	
30	Mercy Anna Philip	CH08D014	ICFANT 2010, Jadavpur University, Calcutta	9 – 11.12.2010	IIT Madras
31	V. Prabu	CH08D011	ASPACC 2010, Hyderabad	10 – 13.12.2010	IIT Madras
32	Sujitkumar Bontapalle	CH08S003	Macro 2010, IIT Delhi	15 – 17.12.2010	IIT Madras
33	N.P. Dhanalakshmi	CH08D002	FMFP 2010, IIT Madras	16 – 18.12.2010	IIT Madras
34	Mercy Anna Philip	CH08D014	ICMF 2011, GEC Thrissur	23 – 25.2.2011	IIT Madras
35	A. Seenivasan	CH08D016	ICMF 2011, GEC Thrissur	23 – 25.2.2011	IIT Madras
36	Subin Poullose	CH09D006	ICMF 2011, GEC Thrissur	23 – 25.2.2011	IIT Madras
37	M. Anandhan	CH09S005	ICMF 2011, GEC Thrissur	23 – 25.2.2011	IIT Madras

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1	B. Ashraf Ali	CH06D001	Agilent Lap Top Bag – Rs.1500/- worth	Agilent Gas Chromatography
2	R. Anandalakshmi	CH08D017	Best oral presentation award	IIT Kanpur
3	N.P. Dhanalakshmi	CH08D002	Most popular poster award, REACH	IIT Madras
4	V. Prabu	CH08D011	Most popular poster award, REACH	IIT Madras
5	Sujitkumar Bontapalle	CH08S003	Second Prize	MG University, Kerala
6	Sujitkumar Bontapalle	CH08S003	First Prize, REACH	IIT Madras

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1	C.K. Naveen Karthik	CH07B020	Institute Merit Prize 2011	Dr. R.K. Viswanath Memorial Prize
2	B Tanmay	CH07B037	Institute Merit Prize 2011	Dr. Dilip Veeraraghavan Memorial Prize
3	Waseem Siddiqui	CH06B063	Institute Merit Prize 2011	IIT Madras
4	K. Rajalakshmi	CH09M003	Institute Merit Prize 2011	IIT Madras
5	Shah Shalaka Hasmukh	CH09M044	Institute Merit Prize 2011	IIT Madras
6	Ankit Bhatnagar	CH05B051	Institute Merit Prize 2011	Smt. D.L. Saraswathi Memorial
7	N.V.S. Anuraag	CH06B064	Institute Merit Prize 2011	Prof. M . Ramanujam Memorial Award
8	C.K. Naveen Karthik	CH07B020	Institute Merit Prize 2011	K.M. Ramamurthi Prize
9	Rohit Kannan	CH08B036	Institute Merit Prize 2011	Prof. M . Ramanujam Memorial Award

**4.4.3 Faculty and their activities:**

**Faculty:**

Name and Qualifications	Major area of specialization
<b>Professor:</b>	
Dr. S. Pushpavanam <b>[Head]</b>	Modeling and simulation, non linear dynamics, flow visualization
Dr. Abhijit Deshpande	Rheology of complex fluids, polymers and polymeric composites Processing flow visualization
Dr. A. R. Balakrishnan	Transport Processes, Energy Conservation
Dr. M. Chidambaram	Process Control
Dr. A. Kannan	Rate enhancement of Reaction and Transport Processes
Dr. K. Krishnaiah	Chemical reactor analysis and design fluidization
Dr. R. Nagarajan	Particle Science & Technology , Ultrasonic Processing Statistical Quality Control
Dr. T. Panda	Bioprocess Optimization, bioprocess technology and enzyme design
Dr. V. S. Ramachandra Rao	Advanced Control strategies, Neuro Fuzzy Control
Dr. R. Ravi	Applied statistical mechanics, foundations of thermodynamics and mechanics, process dynamics and control
Dr. P.S.T. Sai	Chemical reactor analysis and design
Dr. Shankar Narasimhan	Process design, data mining, fault diagnosis

Dr. Sreenivas Jayanti	Fuel cells, Combustion, Energy systems
Dr. T.Swaminathan	Environmental Management, Biotechnology, Membrane technology, Environmental risk assessment
Dr. Tanmay Basak	Microware application, mathematical modeling and simulation
<b>Associate Professor:</b>	
Dr. Arun K. Tangirala	System identification and parameter estimation
Dr. Preeti Aghalayam	Chemical Reaction Engineering,
Dr. S. Ramanathan	Semiconductor processing, Electrochemistry, Chemical Reaction Engineering
Dr. Susy Varughese	Physics & mechanics of polymeric materials, polymeric nano composites
Dr. Upendra Natarajan	Polymer Science & Engineering, Molecular simulation, statistical thermodynamics of complex fluids, nanostructured hybrid composite materials.
<b>Assistant Professor:</b>	
Dr. M.G. Basavaraja	Directed assembly of colloids, Microstructure and rheology of colloids, surfactants, polymer and their mixtures, Interfacial rheology, Ionic liquids, Particulate gels
Dr. Niket S. Kaisare	Microreactor Technology, Multiscale modeling , Process control, Fuel Processing, Fuel cells.
Dr. Raghuram Chetty	Electrocatalysis, Fuel cells, Wastewater treatment
Dr. R. Ramnarayanan	Integrated Chemical Systems, Photoelectrochemistry, Solidstate synthesis.
Dr. R. Ravikrishna	Contaminated Sediment remediation, contaminant fate and Transport, Air Pollution process and control.
Dr. T. Renganathan	Multiphase reactors, Computational Fluid Dynamics
Dr. Sridharakumar Narasimhan	Process System Engineering, optimization, Process Control, Fault diagnosis.
<b>Scientific Officers / Engineers:</b>	
Dr. K. Krishnamurthy	

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Symposia:</b>			
1	Dr. S. Pushpavanam Dr. R. Nagarajan Dr. Abhijit P. Deshpande	"Advances in Thermodynamics & Transport Processes", under the theme of "Recent and Emergent Advances in Chemical Engineering (REACH)	2 – 4.12.2010
<b>Workshop:</b>			
1	Dr. Arun K. Tangirala	AICTE Sponsored STTP Workshop on "Time-Series Modelling & Spectral Analysis"	12 – 17.7.2010
<b>Short term Course:</b>			
1	Dr. P.S. Mehta (ME) Dr. Niket S. Kaisare Dr. Preeti Aghalayam	STTP on Automotive Emissions and Control	4 – 9.10.2010
2	Dr. Ravi Krishna	Environmental Chemodynamics	17 – 22.1.2011
3	Dr. S. Pushpavanam	SERC School on Pattern Formation in Material and Biomedical Science	24 – 28.1.2011
4	Dr. Abhijit P Deshpande	RESEARCH IN CHEMICAL ENGINEERING: FUTURE PERSPECTIVES	5 – 6.2.2011

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Dr. Sreenivas Jayanti Dr. Raghuram Chetty	Fuel Cells	DST EPSRC (UK)Chennai	15 – 17.9.2010
2	Dr. Raghuram Chetty Dr. Preeti Aghalayam	Emerging Issues in Energy and Environment Security: Challenges and Research Opportunities	DST, IIT Delhi (IUSSTF)	13 – 15.12.2010
<b>Conference:</b>				
1	Dr. Sreenivas Jayanti	Asia Pacific Combustion Conference	Hyderabad	10 – 12.12.2010
2	Dr. R. Nagarajan	PanIIT 2010 Conference	New Delhi	29 – 31.10.2010
3	Dr. S. Pushpavanam	EDGE 2011 Conference	New Delhi	9.3.2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Dr. Sreenivas Jayanti	CFD for Two-phase Flow	BHEL Engineers, Hyderabad	10 – 11.11.201
2	Dr. Niket S. Kaisare	Transient Modeling and Control of Microreactors	NCL, Pune	27.1.2011
3	Dr. Niket S. Kaisare	Process Intensification using Microreactors: Theoretical Modeling and Control	Institute of Chemical Technology (UDCT), Mumbai	29.1.2011
4	Dr. R. Nagarajan	Nanoparticle dispersion behavior in colloidal suspensions & composites	VIT University	18.2.2011
5	Dr. T. Panda	Strategies for down stream operations of PHB from microbial cells	ICME, 2011 at GEC, Thrissur	23.2.2011

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	Dr. R. Nagarajan	Bangkok, Penang (Malaysia), Singapore & USA	19.4.2010 – 25.5.2010	Professional visit, present paper at ESTECH 2010	CPDA
2	Dr. S. Pushpavanam	Univ. of Ghent, Belgium	15.5.2010 – 15.7.2010	Professional visit	
3	Dr. R. Ramnarayanan	Sweden	8 –11.6.2010	Conference and partner meet	EUFP7
4	Dr. R. Ramnarayanan	Germany	12 –16.6.2010	TUM and Wolfgang Goethe Business School for research	EUFP7
5	Dr. Arun K. Tangirala	Leuven, Belgium	5 – 7.7. 2010	DYCOPS 2010	CPDA
6	Dr. Shankar Narasimhan	Singapore	24 – 28.7. 2010	PSE-ASIA 2010 Conference	CPDA
7	Dr. Sridharakumar Narasimhan	Singapore	24 – 28.7. 2010	PSE-ASIA 2010 Conference	CPDA
8	Dr. Niket S. Kaisare	Singapore	25 – 28 .7.2010	PSE Asia 2010 conference	CPDA
9	Dr. R. Ramnarayanan	USA	13 –26.8.2010	Conference and Research	EUFP7 and CPDA
10	Dr. A. R. Balakrishnan	Washington DC, USA	8 –13.8. 2010	14th International Heat Transfer Conference	

11	Dr. S. Pushpavanam	Prague, Czech Republic	28.8. – 1.9.2010	International Congress on Chemical and Process Engineering (CHISA-19)	CPDA
12	Dr. S. Ramanathan	Las Vega, USA	10 – 15.10.2010	Electrochemical Society Conference (ECS) Presentation Published – “High Selectivity slurries for STI CMP	CPDA
13	Dr. Shankar Narasimhan	Tehran, Iran	25 – 27.10.2010	To deliver lecture at National Iranian Oil Company (RIPE)	
14	Dr. S. Ramanathan	Salt Lake City, USA	8 – 12.11. 2010	To present Papers at AIChE Conference	CPDA
15	Dr. Tanmay Basak	Salt Lake City, Utah, USA	8 – 12.11.2010	AIChE Conference	CPDA
16	Dr. Niket S. Kaisare	Salt Lake City, Utah, USA	5 – 12.11. 2010	AIChE Conference	CPDA
17	Dr. R. Ramnarayanan	France	24 – 31.1.2011	EUFP7 meet and Theme4 Researcher Exchange Program proposal defense	EUFP7
18	Dr. S. Pushpavanam	USA	13 – 17.3.2011	ASME/JSME 8 <sup>th</sup> Thermal Engineering Joint Conference	CPDA
19	Dr. Tanmay Basak	USA	13 – 17.3.2011	ASME/JSME 8 <sup>th</sup> Thermal Engineering Joint Conference	CPDA
20	Dr. Sreenivas Jayanti	California, USA	27 – 31.3.2011	241st ACS National Meeting & Exposition,	CPDA

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>i. Honours:</b>					
1.	Dr. Niket S. Kaisare	Young Faculty Recognition Award (YFRA)	IIT-Madras	Excellence in research and teaching	5.9.2010
2.	Dr. Arun K. Tangirala	Young Faculty Recognition Award (YFRA)	IIT-Madras	Excellence in research and teaching	5.9.2010

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	Dr. Abhijit P. Deshpande	Rheology of Complex Fluids	Springer	Dr. J. Murali Krishnan Dr. P.B. Sunil Kumar
<b>Monographs:</b>				
1.	Dr. S. Pushpavanam	PIV Techniques in Experimental measurement of Two Phase (Gas–Liquid) Systems	Springer	B. Ashraf Ali

2.	Dr. R. Nagarajan	Megasonic Cleaning	Elsevier	S. Awad
3.	Dr. R. Nagarajan	Ultrasonic Cleaning	Elsevier	S. Awad

#### Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1	Dr. A.R. Balakrishnan	Editor	International Journal of Heat and Mass Transfer
2	Dr. A.R. Balakrishnan	Editor	International Communications in Heat and Mass Transfer.
3	Dr. A.R. Balakrishnan	Editor	Journal of Energy, Heat and Mass Transfer
4	Dr. Shankar Narasimhan	Editorial Board Member	ICE, Advances in Chemical Engineering
5	Dr. Shankar Narasimhan	Editor	International Journal on Advances in Engineering Sciences and Applied Mathematics (IITM Journal)
6	Dr. Tanmay Basak	Associate Editor	International Journal of Heat and Mass Transfer

#### 4.4.4 Design and Development Activities:

##### New facilities added or major equipment procured:

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1	HR-SEM	200
2	GC-MS	40
3	GC	25

#### 4.4.5 Research and Consultancy:

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. In lakhs)	Co-ordinators
1	Transient Modeling, Design And Control Of An Integrated Fuel Processing –fuel Cell System	1.8.2007 to 31.5.2011	IIT Madras	5	Dr. Niket S. Kaisare
2	Electrogenenerated Chemiluminescence In Integrated Chemical Systems Using Modified Electrodes	6.6.2008 to 5.6.2011	Council of Scientific and Industrial Research	7.92	Dr. R. Ramnarayanan
3	Renovation Of The Undergraduate Laboratory	8.8.2008 to 7.8.2011	Chevron	99.59	Head, Chem. Engg.
4	Convex Optimization	8.9.2008 to 7.9.2011	IIT Madras	5	Dr. Sridharakumar Narasimhan
5	Hierarchical Modelling And Transient Analysis Of Thermally Integrated Catalytic Microreactors	29.9.2008 to 28.9.2011	Department of Science and Technology	17	Dr. Niket S. Kaisare Dr. Abhijit P. Deshpande
6	Polymer-based Evanescent Wave Chemical Sensors.....	21.10.2008 to 20.10.2011	Department of Science and Technology	33.53	Dr. R. Ramnarayanan
7	Titanium Compounds Of Interest Electrochemical Titanium Production	9.2.2009 to 8.2.2012	Defense Research and Development Organization, India	14.97	Dr. R. Ramnarayanan
8	Ruthenium Based Electrocatalysts Supported On Carbon Nanotubes For Oxygen Reductin Reaction	17.2.2009 to 16.2.2012	IIT Madras	5	Dr. Raghuram Chetty



9	Development Of Non-platinum Cathode Catalysts For Direct Methanol Fuel Cells.	30.4.2009 to 29.4.2012	Department of Science and Technology	20.36	Dr. Raghuram Chetty
10	Strengthening Of Research/post Graduate Teaching Facilities.....	30.4.2009 to 29.4.2014	Department of Science and Technology FIST	275	Head, Chem. Engg.
11	Integrating Nanomaterials In Formulations	1.7.2009 to 30.6.2012	European Union Framework Program 7	24.01	Dr. R. Ramnarayanan
12	Characterizing Metal Loss Defects From De-noised Radial Influx Leakage Signals	7.7.2009 to 6.7.2011	Board of Research in Nuclear Sciences	19.5	Dr. Arun K. Tangirala
13	Megasonic Cleaning	1.8.2009 to 31.7.2011	Crest Ultrasonics Corporation, USA	6.63	Dr. R. Nagarajan
14	Atomistic molecular dynamics simulation of the interaction between anionic polyelectrolytes and surfactants	9.10.2009 to 8.10.2012	Department of Science and Technology	12.24	Dr. Upendra Natarajan
15	Rheology Of Ionic Polymers Near Gelation.	12.11.2009 to 11.11.2012	Department of Science and Technology	37.44	Dr. Abhijit P. Deshpande
16	Center for Social Innovation & Entrepreneurship (CSIE)	1.4.2010 to 31.3.2011	The Lemelson Foundation & Batch of '84 alumni	27.44	Dr. R. Nagarajan
17	Inkjet Printing Of Conducting Polymers For Optoelectronic Devices - Processability.....	12.4.2010 to 11.4.2012	Department of Science and Technology	19.2	Dr. Susy Varughese
18	Office of Alumni Affairs (OAA)	1.5.2010 to 31.3.2015	IIT Madras	61.69	Dr. R. Nagarajan
19	Eco Friendly Disposal Methods For Sanitary Napkins	16.3.2011 to 15.9.2011	RUTAG	1	Dr. Susy Varughese
20	Understanding Mixing And Reaction Processes In Micro-reactors	4.3.2011 to 3.3.2013	Council of Scientific and Industrial Research	11.34	Dr. S. Pushpavanam

**Industrial Consultancy projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. S. Pushpavanam	Modeling Coal Gasification	BPCL	50.81
2	Dr. A. Kannan	Tea Extraction Studies In Vending	Tata Tea Limited	7.02
3	Dr. S. Ramanathan	Dynamic Light Scattering (dls) Testing Facility	Orchit Pharma	.50
4	Dr. P. Sessa Talpa Sai	Modeling Of Scrubber System For Alkali Removal from Flue Gas In Igcc	BHEL	2.76
5	Dr. Susy Varughese	Preparation And Characterization ... .. Carbon Dioxide Separation	Bloom Energy Ltd., USA	8.7
6	Dr. P. Sessa Talpa Sai	Study Of Mercury Emission And Control Options For Coal Fired Power Plants	BHEL	2.5

**RBIC projects:**

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. B. Viswanathan (PI) Dr. R. Ramnarayanan (Co-PI)	Solar radiation induced photo-electrochemical method for hydrogen generation	Tata Chemicals	5.79

2	Dr. R. Nagarajan	Modelling of Counter-Current Spray Drier	Hindustan Unilever Limited	6.6
3	Dr. R. Nagarajan	Anti-Fouling Strategies for Coal-Fired Power Plants	BHEL Trichy	20.76
4	Dr. T. Renganathan Dr. S. Pushpavanam	Development of Simulators and Optimizer for Plasma Enhanced Integrated Gasification Combined Cycle Plant	Korea Institute of Science and Technology Korea	39.3
5	Dr. Preeti Aghalayam Dr. Niket S. Kaisare	Predictive models for PGM-based Catalytic Convertors	General Motors	13.22

#### Research Publications of the faculty members & research scholars:

- Total No. of papers published in Refereed National Journals : Nil
- Total No. of papers published in Refereed International Journals : 86
- Total No. of papers presented in National Conferences : 02
- Total No. of papers presented in International conferences : 33

#### In Refereed International Journals:

1. Title: Analysis of entropy generation for distributed heating in processing of materials by thermal convection  
Author(s): Kaluri RS, Basak T, Source: International Journal Of Heat And Mass Transfer Volume: 54 Issue: 11-12 Pages: 2578-2594 Published: MAY 2011
2. Title: Feasibility of using ultrasound-assisted process for sulfur and ash removal from coal; Author(s): Ambedkar B, Chintala TN, Nagarajan R, Jayanti S; Source: Chemical Engineering and Processing Volume: 50 Issue: 3 Pages: 236-246 Published: MAR 2011
3. Title: Effect of ultrasound on bubble breakup within the mixing chamber of an effervescent atomizer; Author(s): Jagannathan TK, Nagarajan R, Ramamurthi K; Source: Chemical Engineering and Processing Volume: 50 Issue: 3 Pages: 305-315 Published: MAR 2011
4. Title: Effect of Composition on Chain Dimensions of Styrene-Methylmethacrylate Random Copolymers under Theta Condition; Author(s): Karyappa RB, Natarajan U; Source: Journal Of Macromolecular Science Part B-Physics Volume: 50 Issue: 5 Pages: 996-1005 Published: 2011
5. Title: Electrochemical characterization of copper chemical mechanical polishing in L-glutamic acid-hydrogen peroxide-based slurries; Author(s): Selvam NV, Srinivasan R; Source: Journal Of Solid State Electrochemistry Volume: 15 Issue: 4 Pages: 837-844 Published: APR 2011
6. Title: Leak detection in gas pipeline networks using an efficient state estimator. Part-I: Theory and simulations  
Author(s): Reddy HP, Narasimhan S, Bhallamudi SM, Bairagi S  
Source: Computers & Chemical Engineering Volume: 35 Issue: 4 Pages: 651-661 Published: APR 2011
7. Title: Role of entropy generation on thermal management during natural convection in porous square cavities with distributed heat sources  
Author(s): Kaluri RS, Basak T  
Source: Chemical Engineering Science Volume: 66 Issue: 10 Pages: 2124-2140 Published: MAY 15 2011
8. Title: Finite element based heatline approach to study mixed convection in a porous square cavity with various wall thermal boundary conditions; Author(s): Basak T, Pradeep PVK, Roy S, Pop I; Source: International Journal of Heat and Mass Transfer Volume: 54 Issue: 9-10 Pages: 1706-1727 Published: APR 2011
9. Title: On the occurrence of two-stage combustion in alkali metals  
Author(s): Subramani A, Jayanti S  
Source: Combustion and Flame Volume: 158 Issue: 5 Pages: 1000-1007 Published: MAY 2011
10. Title: Crosslinked poly(vinyl alcohol)/sulfonated poly(ether ether ketone) blend membranes for fuel cell applications-Surface energy characteristics and proton conductivity  
Author(s): Kanakasabai P, Vijay P, Deshpande AP, Varughese S  
Source: Journal of Power Sources Volume: 196 Issue: 3 Special Issue: Sp. Iss. SI Pages: 946-955 Published: FEB 1 2011

11. Title: Propane combustion in non-adiabatic microreactors: 1. Comparison of channel and posted catalytic inserts  
Author(s): Regatte VR, Kaisare NS  
Source: Chemical Engineering Science Volume: 66 Issue: 6 Pages: 1123-1131 Published: MAR 15 2011
12. Title: Ultrasonic coal-wash for de-sulfurization  
Author(s): Ambedkar B, Nagarajan R, Jayanti S  
Source: Ultrasonics Sonochemistry Volume: 18 Issue: 3 Pages: 718-726 Published: MAY 2011
13. Title: Effect of potential drifts and ac amplitude on the electrochemical impedance spectra  
Author(s): Victoria SN, Ramanathan S  
Source: Electrochimica ACTA Volume: 56 Issue: 5 Pages: 2606-2615 Published: FEB 1 2011
14. Title: Experimental and theoretical investigation on microwave melting of metals  
Author(s): Chandrasekaran S, Basak T, Ramanathan S  
Source: Journal of Materials Processing Technology Volume: 211 Issue: 3 Pages: 482-487 Published: MAR 1 2011
15. Title: Analysis of unsteady gas-liquid flows in a rectangular tank: Comparison of Euler-Eulerian and Euler-Lagrangian simulations  
Author(s): Ali BA, Pushpavanam S  
Source: International Journal of Multiphase Flow Volume: 37 Issue: 3 Pages: 268-277 Published: APR 2011
16. Title: Synthesis of Fe<sup>3+</sup> doped TiO<sub>2</sub> photocatalysts for the visible assisted degradation of an azo dye  
Author(s): Sathishkumar P, Anandan S, Maruthamuthu P, Swaminathan T, Zhou M F, Ashokkumar M  
Source: Colloids And Surfaces A-Physicochemical and Engineering Aspects Volume: 375 Issue: 1-3 Pages: 231-236 Published: FEB 5 2011
17. Title: Macroscopic properties of liquid-solid circulating fluidized bed with viscous liquid medium  
Author(s): Vidyasagar S, Krishnaiah K, Sai PST  
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22. Title: Multivariable optimization studies of cathode catalyst layer of a polymer electrolyte membrane fuel cell  
Author(s): Srinivasarao M, Bhattacharyya D, Rengaswamy R, Narasimhan S  
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Author(s): Venkatesan M, Das SK, Balakrishnan AR  
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Author(s): Cherlo SKR, Pushpavanam S  
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Author(s): Rene ER, Murthy DVS, Swaminathan T  
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Author(s): Koley MK, Manoharan PT, Koley AP  
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Author(s): Pavuluri CM, Kawamura K, Swaminathan T  
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Author(s): Fu PQ, Kawamura K, Pavuluri CM, Swaminathan T, Chen J  
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Author(s): Chetty R, Scott K, Kundu S, Muhler M  
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Author(s): Jagannathan TK, Srijith Mohanan, Nagarajan R  
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#### **In Proceedings of National Conferences:**

1. "The role flow configuration in microreactors with catalytic inserts", Regatte, V.R., Kaisare, N.S. ChEmference, Annual Research Symposium, IIT Kanpur, India, July 13-14, 2010.
2. "Electrodeposited Palladium For Oxygen Reduction Reaction in Direct Methanol Fuel Cells", Kranthi Kumar maniam, Raghuram chetty, ChEmference, Annual Research Symposium, IIT Kanpur, India, July 13-14, 2010.

#### **In Proceedings of International Conferences:**

1. "Synthesis, luminescent and electrical characterization of two ruthenium complexes", Manickam Sundar, Sivasankaran Sowmya, Varghese Bonney John, Ramanathan Ramnarayanan, INOR-153, Abstracts of Papers, 240<sup>th</sup> ACS National Meeting, Boston, MA, August 22-26, 2010.
2. "Magneli phases from ilmenite and rutile at lower temperature", Sivasankaran Sowmya, B Shubhamangala, Ramanathan Ramnarayanan, INOR-162, Abstracts of Papers, 240<sup>th</sup> ACS National Meeting, Boston, MA, August 22-26, 2010.
3. "Numerical analysis of fractal catalyst structuring in microreactors", Reddy V. R., A. Mukherjee and N. S. Kaisare, CHISA: 19th International Congress of Chemical and Process Engineering, Prague, Czech Republic, August 2010
4. "State Estimation in Presence of Infrequent and Delayed Primary Measurements", Kaisare N. S. and S. Narasimhan, PSE-Asia 2010: 5th International Conference on Design, Operation and Control of Chemical Processes, July 2010, Singapore
5. "Approximate Dynamic Programming based Control of Distributed Parameter Systems", Joy M. and N. S. Kaisare, PSE-Asia 2010: 5th International Conference on Design, Operation and Control of Chemical Processes, July 2010, Singapore
6. "Sono-Synthesis and Study of Polystyrene/Alumina Nanocomposites", M.A. Philip, R. Nagarajan and U. Natarajan, International Conference on Materials for the Future (ICMF 2011), 23-25 February 2011, Thrissur, Kerala.



7. "Acoustic enhancement of heat transfer in furnace tubes", N.P. Dhanalakshmi, N.Sivagaminathan, R.Nagarajan and BVSSS Prasad, IIT Madras, Chennai.L.M. Subramanian, R. Dhanuskodi and K. Narayanan R & D, BHEL Trichy, Proceedings of the 37th National & 4th International Conference on Fluid Mechanics and Fluid Power, December 16-18, 2010, IIT Madras, Chennai, India.
8. "Ultrasound-Assisted Formulation of Nano-Composites: Functional Property Evaluation", M.A. Philip, R. Nagarajan and U. Natarajan, International Conference on Fundamentals & Applications of Nanoscience & Technology (ICFANT 2010), 9-11 December 2010, Jadavpur, Kolkatta.
9. "Process Intensification of mass transfer via power ultrasound", N.P. Dhanalakshmi and R.Nagarajan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
10. "Molecular thermodynamics of polymer chains confined between surfaces containing end-tethered polymer molecules", B.Sujithkumar, U. Natarajan, 2<sup>nd</sup> International Conference on Polymer Processing and Characterization (ICPPC), 15<sup>th</sup>-17<sup>th</sup> Jan., Kottayam (2010). Presenting student received 2<sup>nd</sup> Prize.
11. "Molecular thermodynamics of polymer chains confined between surfaces containing end-tethered polymer molecules", B.Sujitkumar, U. Natarajan, Macro 2010 (New Delhi).
12. "Molecular thermodynamics of diblock copolymer chains confined between surfaces bearing end-tethered molecules", B.Sujitkumar, U. Natarajan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India. Presenting student received 1<sup>st</sup> Prize.
13. "Synthesis of Polystyrene-clay nanocomposites by in situ RAFT", R. Bharathwaj, U Natarajan, R. Dhamodharan, First International Conference on Composites and Nanocomposites (ICNC 2011) at January 7-9, 2011, Kottayam, Kerala, India.
14. "Modeling and simulation of Integrated Gasification Combined cycle", Ravikiran, A., Renganathan, T. and Pushpavanam, S. Chemcon(2010), 63<sup>rd</sup> Annual Section of Indian Institute of Chemical Engineering. International Level Symposium, Annamalai University, Chidambaram, Tamil Nadu.
15. "Water Sorption Characteristics of Ionic Polymer Blend Membranes", P Kanakasabai, Mahesh Arigonda, BVR Prasad, Abhijit P Deshpande, Susy Varughese, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
16. "Dynamics of Water Diffusion in Sulfonated Poly Ether Ether Ketone Membranes", V Goutham Polisetty, Amala M Mathai, Abhijit P Deshpande, Susy Varughese, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
17. "Model Order Reduction and Design of MPC for Hyperbolic Distributed System", M. Sudhakar, Niket S. Kaisare, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
18. "A Population Balance Model for Vulcanization of Natural Rubber", M. Anandhan, Niket S. Kaisare, K. Kannan, Bijo Varkey, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
19. "Modelling and Optimization Studies of a Polymer Electrolyte Membrane (PEM) Fuel Cell", M. Srinivasarao, D. Bhattacharyya, R. Rengaswamy, S.Narasimhan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
20. "Model of Pre-Cooling Process in a LPG Terminal", S. Arun Srikanth, Sridharakumar Narasimhan, Shankar Narasimhan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
21. "Sensor Network Design", Nabil.M, Sridharakumar Narasimhan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
22. "Propane Combustion in Microreactor With Catalyst Inserts", Venkat Reddy Regatte, Niket S. Kaisare, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
23. "Electrodeposited Palladium Nanoparticles on Modified Graphite Electrodes for Oxygen Reduction Reaction", Kranthi Kumar Maniam, Raghuram Chetty, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT

Madras, Chennai, India.

24. "Enhancement of Esterification Reaction Using Ionic Liquids" , Sarvani Kuchibhotla, P. Sessa Talpa Sai, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
25. "Photo Catalytic Degradation of Pesticides in a Slurry Reactor", K. Sivagami, R. Ravi Krishna, T. Swaminathan, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
26. "Bubble column reactor: Comparison of Euler- Eulerian and Euler- Lagrangian simulations", B.Ashraf Ali, S.Pushpavanam, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
27. "Transport and Thermodynamic Properties of sp bonded Liquid Metals: Molecular Dynamics Simulations and Hard Sphere Perturbation Theories" , Hemanth K. Bilihalli, R. Ravi, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
28. "Influence of Non-Newtonian Fluid Hydrodynamics on Thermal Food Sterilization", Suresh Krishnan, Kannan.A, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
29. "Synthesis And Characterization Of Carbon Nanotubes-Supported Ruthenium-Based Cathode Catalyst For Fuel Cells", Abhijnan Sarkar, Raghuram Chetty, Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
30. "Nano-assisted drug delivery system", Seenivasan A., Panda T., Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
31. "Eco-friendly Synthesis of Silver Nanoparticles", Subin Poulouse, Praseetha P. Nair, Panda T., Recent and Emerging Advances in Chemical Engineering (REACH), International symposium on 'Thermodynamics and Transport Processes, Dec 2-4, 2010, IIT Madras, Chennai, India.
32. "Nano-assisted carriers for lovastatin oral delivery system", Seenivasan A., Panda T., International Conference on Materials for the Future (ICMF 2011), 23-25 February 2011, Thrissur, Kerala.
33. "Silver Nanoparticles through greener way", Subin Poulouse, Praseetha P. Nair, Panda T., International Conference on Materials for the Future (ICMF 2011), 23-25 February 2011, Thrissur, Kerala.

#### Distinguished Visitors to the Department:

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Dr. A. Chowdhury Bruker Analytical Instruments	9 <sup>th</sup> April 2010	To give a Seminar talk
2	Dr. S. Ramakrishna FSU	4 <sup>th</sup> August 2010	- do -
3	Dr. Balaji Iyer Post Doctoral Fellow, UCSD	21 <sup>st</sup> September 2010	- do -
4	Dr. Kris Villez Post Doctoral Research Associate Purdue University	7 <sup>th</sup> January 2011	- do -
5	Prof. Sirish L. Shah University of Alberta, Edmonton Canada	5 <sup>th</sup> January 2011	- do -
6	Mr. D. Chandrasekhar Distinguished Alumnus	4 <sup>th</sup> February 2011	- do -
7	Dr Rainer Lohmann University of Rhode Island	18 <sup>th</sup> February 2011	- do -
8	Dr. S.Gowri sankar Additional General Manager & Team Leader BHEL R&D Gateway, IITM-RP	25 <sup>th</sup> February 2011	- do -
9	Dr. Prabhakar Ranganathan Department of Mechanical and Aerospace Engineering	11 <sup>th</sup> March 2011	- do -

	Monash University, Australia		
10	Dr. Nandakumar R. Dave Distinguished Alumnus	25 <sup>th</sup> March 2011	- do -
11	Dr. Young Sang Cho, Korea Institute of Science and Technology, Korea	11 <sup>th</sup> May & 25 <sup>th</sup> Aug. 2010	Project on simulation of plasma enhanced integrated gasification combined cycle plant
12	Dr. BongJu Lee, National Fusion Research Institute Korea	6 <sup>th</sup> - 9 <sup>th</sup> Sep 2010	Project on construction of pilot scale plasma enhanced integrated gasification combined cycle plant

#### 4.4.6 Activities of the Department/Centre:

##### a. Results obtained in research work (from M.S. & Ph.D thesis) of the scholar/faculty (last year sample enclosed from Director's Speech)

Modifications in bubble column reactor have been analysed with a view to exploit mixing characteristics. This can be used to release reactants from one chamber to another in a controlled manner and optimise selectivity in a consecutive-competitive reaction system. Fuel supply manifold in a PEMFC fuel cell has been investigated and adopted to ensure good flow characteristics of hydrogen in the serpentine channel to prevent water flooding.

##### b. Inter disciplinary group achievements of the Departments.

A training program for NGO's and college students in the rural areas was conducted at the Vivekananda Kendra, Kanniyakumari to increase awareness on water conservation through grey-water recharging.

##### c. Socially relevant activities carried out by the Department

Prof. S. Pushpavanam visited the University of Ghent, Belgium to further collaboration with the Mathematics Department. The interaction is in the area of micro-fluidics and its applications in mass-transfer and chemical reactions.

##### d. International collaboration achievements by the Department

Several high end equipments have been purchased to improve the analytical instrumentation ability in the department. These include a High Resolution Scanning Electron Microscope (HR\_SEM), Gas-Chromatograph (GC) and a Gas Chromatograph with Mass Spectroscopy (GC-MS). This has improved the accessibility of these instruments to research scholars enabling them to carry out state of the art research.

## 4.5 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 the year 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 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 MSc and PhD programs in chemistry. As on date 765 students have graduated with MSc degree and 566 students with PhD degree. It is also involved in teaching various aspects of Chemistry at the preparatory level (for weaker section students) and BTech (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 performing quality teaching and research in frontier areas.

### 4.5.2 Academic Programmes

The Department has revised MSc Curriculum and Syllabus and will be implemented from July 2011 for the fresh batch of M.Sc students.

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
M.Sc.	47	41	-	-	-	88
Ph.D.	49	29	29	22	58	187
<b>Total</b>	<b>96</b>	<b>70</b>	<b>29</b>	<b>22</b>	<b>58</b>	<b>275</b>

#### Names of Student/Scholar who attended Conference/ Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance
<b>Abroad:</b>					
1	S.K. Meher	CY05D040	XXXVII Congresso Nazionale della Divisione di Chimica Inorganica della Società Chimica Italiana	13-16, September 2010, Trieste, Italy	DST
<b>India:</b>					
1	U.K. Sarangi	CY07D002	13 <sup>th</sup> CRSI National symposium in chemistry Chennai Chemistry Conference 2011	Feb. 4-6, 2011, NISER, Bhubaneswar Feb. 11-13, 2011 IIT -Madras	Dept of Chemistry IIT Madras DST
2	B. Vijayakumar	DST Fast-Track Young Scientist	Indo-Hungarian Workshop on Future Frontiers in Catalysis	Feb. 16-18 2010, IIT-Madras	DST
			International Congress on Analytical Science 2010	24 <sup>th</sup> -27 <sup>th</sup> Nov 2010 at IMA House, Kochi	DST
			20 <sup>th</sup> National Symposium on Catalysis	19-22 Dec 2010; NCCR, IIT Madras	DST
3	S.K. Meher	CY05D040	9 <sup>th</sup> International Symposium on Advances in Electrochemical Science and Technology	24 <sup>th</sup> -26 <sup>th</sup> Feb 2011 at Bharatidasan University, Tiruchy	DST
			20 <sup>th</sup> National Symposium on Catalysis for Energy Conversion and Conservation of Environment,	December 19-22, 2010, Department of Chemistry, IIT Madras	--

4	S.C. Naidu	CY09D010	3 <sup>rd</sup> SERC Summer School on Solid State and Materials Chemistry	June 17 - July 7, 2010; SSU, IISc	IISc Bangalore
5	P. Gopinath	CY07D001	Organic Synthesis & Human Well Being: Emerging Opportunity & Challenges	IICT Hyderabad 01.08.2010 – 04.08.2010	
6	K. Kumar	CY09D039	3rd Asia Pacific Symposium on Radiation Chemistry & 10th Biennial Trombay Symposium on Radiation & Photochemistry (APSRC – TSRP-2010)	Lonavala, Maharashtra 14.09.2010 – 17.09.2010	
7	M. Mohapatra	CY06D024	Junior National Organic Symposium Trust (JNOST)	Hyderabad 28.01.2011-31.01.2011	
8	P. M. Pandi	CY07D006			
9	N. J. Victor	CY08D008			
10	J. V. K. Prasad	CY07D029			
11	K. Harikrishna	CY08D014			
12	R. Saravanakumar	CY06D010			
13	U.K. Sarangi	CY07D002	13th CRSI National Symposium in Chemistry 5th CRSI-RSC Symposium in Chemistry	Bhubaneswar 04.02.2011–06.02.2011	
14	J.C. Prasad	CY07D038	Chennai Chemistry Conference 2011	IIT, Madras 11.02.2011–13.02.2011	
15	M.R. Das	CY09D027			
16	K. R. Krishnadas	CY11D016	National Review Meeting on Nanoscience & Nanotechnology, NSNT 2011	IIT Delhi 23.02.2011 – 01.03.2011	
17	A. Srivastava	CY06D016	Recent Trends in Organic Synthesis 2011	Trichy 24.02.2011-26.02.2011	
18	P.M. Pandi	CY07D006			

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1	Debakanta Tripathy	CY08D028	Canadian Common wealth Scholarship Programme	University of Montreal , CANADA
2	Dr. Senthil Kumar and Prof. S. Baskaran (Guide)	CY09D051	Outstanding Thesis Award.	1st Prize of 2010 ELI LILLY & Co ASIA
3	Dr. Ajay Babu Naidu and Dr. G. Sekar (Guide)	CY05D029	Outstanding Thesis Award.	2nd Prize of 2010 ELI LILLY & Co ASIA
4	Prof. Jayant B Udgoankar TIFR, Bangalore (1981 M.Sc.)		Distinguished Alumni Award	Academic Excellence
5	Ms. Sowmya, Carnatic Music Singer, (1992 M.Sc.)		Distinguished Alumni Award	Excellence in Other Walk of Life
6	Mr. G.K. Pillai Home Secretary, Gol, (1970 M.Sc.)		Distinguished Alumni Award	Managerial Excellence

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes
1	Dr. Samanwital Pal	CY04D035	Langmuir Prize
2	Dr. Paratha Saradhi Maram	CY04D027	Prof. Werner Prize
3	Dr. Senthil Kumar M	CY03D030	Prof. C.N. Pillai & Prof. G. Sundararajan Endowment Prize
4	Sri Prem Kumar Chanani	CY09C025	Prof. G Sundrarajan Merit Scholarship
5	Sri Supriya Atta	CY10C045	Prof. G Sundrarajan Merit Scholarship
6	Sourav Maiti	CY08C032	Dr.S.R. Ramadoss 60 <sup>th</sup> Brithday Commemoration Award Ratna Rao Memorial Memorial Prize

### 4.5.3 Faculty and their activities:

#### Faculty

##### Name & Qualification

##### Professors:

Sankararaman, S (Victoria, Canada)  
(Head of the Department)

Aidhen, Indrapal Singh (Pune)

Baskaran S (IIT Kanpur)

Bhyrappa P (IISc Bangalore)

Chandrakumar, N (IIT Kanpur)

Dhamodharan, R (U Mass, Amherst)

Kumar, Sanjay (IIT Kanpur)

Loganathan, D (IIT Bombay)

Mangala Sunder K (McGill Canada)

Mishra, A K (IIT Kanpur)

Patnaik, Archita (BHU Varanasi)

Pradeep, T (IISc, Bangalore)

Ranga Rao, G (IISc Bangalore)

Sangaranarayanan, M V (IISc Bangalore)

Selvam, Parasuraman (IIT Madras)

Sudheendra Rao, M N (IISc Bangalore)

Varadaraju, U.V (IISc Bangalore)

Vidyasagar K (IISc Bangalore)

##### Associate Professor

Murthy, N N (IISc Bangalore)

Chand, Dillip Kumar (IIT Kanpur)

Sekar, G. (IIT Kanpur)

##### Assistant Professor

Chakraborty, Debashis (Göttingen, Germany)

Dua, Arti (IISc Bangalore)

Gharpure, Santosh J (IISc Bangalore)

Ghosh, Sundaragopal (IIT Bombay)

Madhavan, Nandita (PhD /

Muraleedharan, K M, (RRL Trivandrum)

Prasad, Edamana (RRL Trivandrum)

Rajakumar, B (IISc Bangalore)

Vijay, Amrendra (IISc Bangalore)

##### Emeritus Professor

Viswanathan, B (IIT Madras)

##### Major Area of Specialization

Synthetic and Mechanistic Organic Chemistry

Synthetic Organic Chemistry

Organic Synthesis & Asymmetric Synthesis

Bioinorganic & Supramolecular Chemistry, Materials Chemistry

Magnetic Resonance Imaging & Spectroscopy

Chemistry of Macromolecules

Theoretical Chemistry, Quantum Chemistry

Synthetic & Structural Carbohydrate Chemistry,

Bio-organic & Medicinal Chemistry and Structural Glycobiology

Theoretical Spectroscopy

Fluorescence Spectroscopy

Colloid & Interface Science, Nanoscience & Nanotechnology

Nanomaterials, Spectroscopy, Ion Chemistry

Heterogeneous Catalysis and Surface Science

Electrochemistry

Solid State and Catalysis, Nano- & Nanoporous Materials

Main Group Inorganic Chemistry

Solid State Chemistry, Materials Science

Solid State Chemistry

Bioinorganic chemistry, Inorganic Chemistry, Spectroscopy

Supramolecular Chemistry, Inorganic Chemistry

Enantioselective Organic Synthesis

Synthetic Organometallic Chemistry

Statistical Mechanics, Polymer Theory, Stochastic Processes

Organic Synthesis, New Synthetic Methods

Organometallic and Metalloborane Chemistry

Oligopeptide Synthesis, Polymer Chemistry, Organic Materials

Medicinal Chemistry, Bio-organic Chemistry

Divalent Lanthanide and Dendrimer Chemistry

Atmospheric Chemistry, Gas Phase Kinetics & High resolution  
Cavity Ring Down Spectroscopy, Computational Chemistry

Theoretical Physical Chemistry

Heterogeneous catalysis, Energy systems

**Short-term Courses / Workshops / Seminars/ Symposia / Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1	T. Pradeep	Chennai Chemistry Conference 2011	Feb. 11-13, 2011
<b>Symposia:</b>			
1	B. Viswanathan	20 <sup>th</sup> National Symposium on Catalysis	Dec. 19-21, 2010
<b>Workshop:</b>			
1	B. Viswanathan	Indo-Hungarian Workshop on Catalysis	Feb. 16-18, 2010
<b>Short term Course:</b>			
1	B. Viswanathan	11 <sup>th</sup> Orientation Programme in Catalysis	Nov. 17- Dec. 5, 2010

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	G. Ranga Rao	Indo-Italian Workshop on Electrochemistry	University of Delhi	30 - 31 Aug 2010
2	P. Selvam	Workshop on Materials Science	R.K.M. Vivekananda College, Chennai	February 11, 2011
		Workshop on Frontiers in Catalysis Research	National College, Trichy	October 01, 2010
<b>Seminar:</b>				
1.	P. Selvam	National Seminar on Modern Trends in Chemistry	Vivekananda College, Madurai	January 25, 2011
<b>Symposia:</b>				
1.	P. Selvam	Indo-French Symposium	National Chemical Laboratory, Pune	July 12-14, 2010
2.	G. Ranga Rao	9 <sup>th</sup> International Symposium on Advances in Electrochemical Science and Technology	SAEST and Central Electrochemical Research Institute, Karaikudi	December 2-4, 2010
<b>Conference:</b>				
1.	N. Chandrakumar	INSA Sectional Committee Meeting	New Delhi	28 - & 9.04.2010
		NMR Meeting	IISER, Mohali	29.11.2010 – 30.11.2010
		CSIR SRF / RA Selection Committee Meeting Physical Chemical Science	New Delhi	07.01.2011
		NMR Workshop , Organized by STIC	CUSAT, Cochin	14.01.2011
2	A. K. Mishra	46th FMC Meeting SAIF	IIT, Bombay	16.09.2010
		CSIR Confidential Meeting	IICT, Hyderabad	17.09.2010
		Selection Committee Meeting	IIT, Rourkela	01.10.2010
		International Conference on Emerging Trends in Chemistry	Panjab University, Chandigarh	11.02.2011 - 12.02.2011
3	T. Pradeep	5th Nanotechnology Conclave 2010	New Delhi	15.04.2010
		Conference JNCASR	JNCASR Bangalore	26.04.2010
		INSPIRE Summer Camp	University of Kerala	03.05.2010 – 07.05.2010
		6th JNC Conference	Cochin	02.10.2010 – 04.10.2010
		International Conference On Nanotechnology	IIST, Trivandrum	28.10.2010 – 30.10.2010
		DST Winter School IISC	Bangalore	21.01.2011
		UGC Expert Committee Meeting	Varanai	04.02.2011
		Kerala Sahitya Academy Award Function & Symposium	Trichy	13.02.2011 – 14.02.2011

4	M.V. Sangaranarayanan	INDO- Russian Project Under DST St. Peterburg University	Russia	17.05.2010 - 24.05.2010
		Research Fellowship under Alexander von Humboldt Foundation University of Ulm	Germany	08.06.2010 – 07.07.2010
		Research Council Meeting At CECRI	Karaikudi	19.08.2010
		“Contemporary Non-equilibrium Thermodynamics and Statistical Mechanics”	Nagpur	20.10.2010 – 21.10.2010
		Electrochemistry and Corrosion camp conducted by IGCAR	Kalpakkam	29.10.2010
		International Conferences on Electrochemical Science & Technology	Karaikudi	02.12.2010 – 04.12.2010
		Assessment Committee Meeting, CECRI	Karaikudi	20.12.2010
		4th ISEAC International Discussion Meet on Electrochemistry & its Application	Thiruvananthapuram	06.02.2011 - 08.02.2011
		Research Council Meeting, CECRI	Chennai	15.02.2011
5	K. Mangalasunder	Visiting Professor, Dept. of Inorganic & Physical Chemistry	IISc Bangalore	11.01.2010 – 31.05.2010
		National Workshop NPTEL	IIT Kanpur	11.07.2010 – 13.07.2010
		NPTEL Development by National Labs	Dugapur, Kolkata	11.08.2010
		NPTEL / NMEICI Workshop.	Coimbatore	03.09.2010
		NPTEL Workshop for Kerala Govt. Engineering	Thiruvananthapuram	05.09.2010 – 07.09.2010
		IL&FS Workshop	Hyderabad	27.10.2010 – 28.10.2010
		NPTEL, IIT Kanpur	Nodia , U.P	29.10.2010 – 30.10.2010
		NPTEL Workshop for Teachers	IIT Kharagpur	18.01.2011 – 19.01.2011
Launch National Video server in Shastri Bhvan	New Delhi	08.02.2011 - 09.02.2011		
6	P. Selvam	Project Discussion & Planning of Indo-Australian Joint Project at The University of Queensland	ARC Centre of Excellence for Functional Nanomaterials, Brisbane, Australia	10.05.2010 – 30.05.2010
		BOS Meeting Kalasalingam University	Krishnankoli	03.06.2010
		Invited Talk Indo-French Symposium	National Chemical Laboratory, Pune	12.07.2010 – 14.07.2010
		9th Conference on Solid State Chemistry	Prague, Czech Republic	10.09.2010 – 15.09.2010
		3rd International Conference	Bucharest, Romania	16.09.2010 – 18.09.2010
		Invited Talk at Institute of Nanochemistry & Catalysis	Hungarian Academy of Sciences, Budapest, Hungary	21.09.2010 – 23.09.2010
		20th National Symposium on Catalysis Plenary Lecture	IIT Madras	19.12.2010 – 22.12.2010
		Modern Trends in Chemistry –MTC 15 Key Note Address	Madurai	25.01.2011
Recent Advances of Nanomaterials in Chemistry and Environmental Research	Kongu Engineering College, Perundurai, Erode	18.02.2011		



7	Indrapal Singh Aithen	Alexander von Humboldt Foundation	Germany	01.06.2010 – 30.06.2010
		Invited Lecture	IICT, Hyderabad	03.08.2010 – 05.08.2010
		International Conference & Humboldt Kollege	IICT, Hyderabad	22.09.2010 – 23.09.2010
		Deliver Talk at CARBO XXV	Univ of Shimla, Himachal Pradesh	11.10.2010 – 13.10.2010
		Selection Committee Meeting	IIT Rajasthan , Jodhpur	18.11.2010 – 19.11.2010
		CSIR Confidential Work	New Delhi	22.02.2011 – 25.02.2011
8	U.V. Varadaraju	Promotion Assessment Committee Meeting, CECRI	Karakudi	16.07.2010
9	G. Sekar	Proposal for Swarna Jayanti Fellowship, IISER	Pune	19.07.2010 – 21.07.2010
		International Conference & Humboldt Kollege	IICT, Hyderabad	21.09.2010 – 23.09.2010
		Special Lecture on “Cu-Binam Complex as an Efficient Catalyst for Organic Synthesis”	Maraimalai Campus University of Madras	27.01.2011
		XIV Conference of National Organic Symposium Trust (NOST),	Goa	05.12.2010 – 08.12.2010
10	B. Rajakumar	Proposal for Swarna Jayanti Fellowship, IISER	Pune	19.07.2010 – 21.07.2010
		Program Monitoring Meeting of CSIR Complex	New Delhi	09.08.2010
		Invited Lecture in “State Level Seminar on GREEN CHEMISTRY”	Vizag	29.10.2010 – 01.11.2010
11	S. Sankararaman	FIST Meeting	Delhi	11.08.2010
		Annual Meeting of Indo-French Center for Organic Synthesis (IFCOS- VI)	Grenoble, France	14.09.2010 – 17.09.2010
		International Conference & Humboldt Kollege	IICT, Hyderabad	21.09.2010 – 22.09.2010
		“DST – PAC Meeting”	Lucknow	15.11.2010 – 16.11.2010
		XIV Conference of National Organic Symposium Trust (NOST) ,	Goa	05.12.2010 – 08.12.2010
12	G. Ranga Rao	Frontiers of Fundamental & Industrial Electrochemistry: A Challenge for a Better World	Delhi	30.08.2010 – 01.09.2010
		University of Trieste Framework of Indo-Italian Collaborative Project	Italy	21.09.2010 – 30.09.2010
		International Conference on Analytical Science (ICAS – 2010)	Ernakulam	24.11.2010 – 27.11.2010
		RGUKT Faculty Recruitment Selection Committee Meeting	Hyderabad	14.12.2010 – 15.12.2010
		20th National Symposium on Catalysis	Chennai	19.12.2010 – 22.12.2010
		Refresher Courses on Modern Teaching Trends in Applied Chemistry	Hyderabad	07.02.2011
13	Santosh J Gharpure	“Gregynog Synthesis Workshop 2010” and Visit to Cardiff University	U.K.	24.09.2010 – 01.10.2010
		Special Lecture on “New Strategies for the Synthesis of Oxa-and Aza-Cycles”	University of Madras	27.01.2011
		CSIR Confidential Work	New Delhi	22.02.2011 – 25.02.2011

		XIV Conference of National Organic Symposium Trust	Goa	05.12.2010 – 08.12.2010
14	S. Baskaran	Meeting of the Assessment Board	New Delhi	21.09.2010
		Brain Storming Session on EMCBB by ARMREB	Pune	01.02.2011 - 02.02.2011
		National Conference on RTOS - 2011	Trichy	24.02.2011 – 26.02.2011
15	Edamana Prasad	3rd Asia –Pacific Symposium on Radiation on Chemistry (APSRC-TSRP 2010)	Lonavala	14.09.2010 – 17.09.2010
		Invited Lecture	NIIST, Trivandrum	23.09.2010 – 24.09.2010
16	Ramesh Gardas	“5th National Conference on Thermodynamics of Chemical and Biological Systems”	Canchipur, Imphal	18.11.2010
17	S. Ghosh	National Conference on Frontiers in Chemical Science (FICS – 2010)	IIT Guwahati	03.12.2010 – 04.12.2010
		Collaboration work IACS	Kolkata	15.02.2011 - 17.02.2011
18	K.M. Muraleedharan	Refresher Course in Chemistry for College Teacher	Kannur	17.01.2011 – 18.01.2011
19	Sanjay Kumar	National Conference on SDMC 2011	Uttarakhand	18.02.2011 - 20.02.2011
20	Nandita Madhavan	Third Indian Peptide Symposium 2011	Pune	23.02.2011 - 28.02.2011

#### Special Lectures delivered by the faculty in other Institutions:

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	P. Bhyrappa	Substituted porphyrins with tunable properties	Panjab University, Chandigarh	11 Feb. 2011
2	G. Ranga Rao	Oxide and sulphide materials for electrochemical energy storage applications Surface dynamics and microscopy, Ceria supported POMs as promising catalytic materials	University of Delhi	31 Aug 2010
			JN Technological University Hyderabad University of Trieste	7 Feb. 2011 28 Sept. 2010
3	P. Selvam	Platinum supported ordered mesoporous carbons: Promising electrocatalyst for DMFC application	Royal Melbourne Technological Institute	16 May 2010
		Nanoporous Carbons and Their Applications in Catalysis	Monash University, Melbourne	17 May 2010
		Nanoporous Materials and their Applications in Catalysis	University of Western Sydney, Sydney	19 May 2010

#### Visits abroad by faculty:

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit
1	S. Baskaran	Germany	04.10.2010 - 07.10.2010	2nd INDIGO Conference
2	D.K. Chand	Japan	15.11.2010 - 14.12.2010	JSPS Bridge Fellowship Program at Tokyo Institute of Technology, Yokohama
3	A. Patnaik	USA	25.08.2010 - 24.04.2011	Fulbright – Nehru Senior Research Fellowship
4	T. Pradeep	Singapore	11.08.2010 – 13.08.2010	MRS-s Trilateral Conference in Nanoscience
		Korea	17.08.2010 – 20.08.2010	10 <sup>th</sup> International Conference on Nanotechnology (IEEE Nano 2010)
		USA	21.08.2010 – 27.08.2010	Development of an Instrument Relating to DST Project

	T. Pradeep	Germany	05.10.2010 – 06.10.2010 07.10.2010 – 08.10.2010	Symposium on Confocal Raman Imaging Technical University of Munich (STAR Programme)
5	S. Sankararaman	Germany	04.10.2010 – 07.10.2010	2nd INDIGO Conference
		France	14.09.2010 – 17.09.2010	Annual Meeting of Indo-French Center for Organic Synthesis (IFCOS- VI)
6	P. Selvam	Australia	10.05.2010 - 30.05.2010	The University of Queensland, Brisbane Monash University, Melbourne Royal Melbourne Institute of Technology, Melbourne University of Western Sydney, Sydney
		Czech Republic	10.09.2010 - 15.09.2010	9 <sup>th</sup> Conference on Solid State Chemistry, Prague
		Romania	16.09.2010 - 18.09.2010	3 <sup>rd</sup> International Conference on Advanced Materials and Systems, Bucharest
		Hungary	19.09.2010 - 22.09.2010	Institute of Nanochemistry and Catalysis, Budapest
		Japan	01.12.2010 - 04.12.2010 05.12.2010 - 12.12.2010	Tohoku University, Sendai National Institute of Materials Science, Tsukuba
		USA	27.03.2011 - 31.03.2011	241 <sup>st</sup> ACS National Meeting, Anaheim

#### Honours and Awards obtained by faculty:

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>i. Honours:</b>					
1	P. Selvam	Eminent Visitor (Research)	University of Western Sydney (uws), AUSTRALIA	UWS EMINENT RESEARCH VISITOR SCHEME	2011-2012
2	P. Selvam	Hon. Chairman & Treasurer	The Royal Society of Chemistry (South India)		2010 onwards
3	Archita Patnaik	Fulbright –Nehru Senior Research Fellowship	USIEF CiES, USA	Research Fellowship	August 2010
<b>ii. Awards:</b>					
1	Dr. Santosh J Gharpure	Young Faculty Recognition Award (YEAR)	IIT Madras	Excellence in Teaching / Research	2010

#### Fellowships of Academies and Professional Societies:

S.No.	Name of Faculty	Year of admission
<b>AvH:</b>		
1	Chand , Dillip Kumar	1998
2	Patnaik, Archita	1987
<b>FNA:</b>		
1	Chandrakumar, N	
<b>FASc:</b>		
1	Chandrakumar, N	
<b>FRSC:</b>		
1	Selvam, P	2002
<b>JSPS:</b>		
1	Patnaik, Archita	2002
2	Chand , Dillip Kumar	2000
<b>Others:</b>		
1	Mishra (FNASc)	
2	Patnaik, Archita (USIEF)	2010

**Journal Editorial Boards:**

S.No.	Name of Faculty	Position (Editor/Member)	Journal Name
1	Chand, Dilip Kumar	Member	Open Catalysis Journal
2	Loganathan, D	Member	Open Glycoscience
3	Muraleedharan K M	Editorial advisory board member	Recent patents on anti-infective drug discovery

**4.5.4 Design and Development Activities:**

**Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:**

**New facilities added or major equipment procured:**

SI. No.	Name of Equipment	Value (Rs. in lakhs)
1	JASCO UV Vis spectrophotometer Model V 660	10.7
2	CEM Benchmate Microwave Reactor	7.0

**Patents - Patents filed:**

SI. No.	Name of faculty	Topic of patent
1	T.Pradeep	Gravity-fed axial flow filter block for domestic water purifiers and the method of making the same A Sustained silver release composition for water purification Reduced graphene oxide-based-composites for the purification of water An affordable process to remove fluoride from drinking water using nanostructured $\gamma$ -boehmite on organic templates
2	D.Loganathan	A novel methodology towards the synthesis of N-( $\beta$ -glycosyl) asparagines based on the alkylation of ethyl nitroacetate and equivalents using N-( $\beta$ -glycosyl) haloacetamides

**Patents awarded:**

SI.No.	Name of faculty	Topic of patent
1.	S Sankararaman	Synthesis of variour salts of cross-linked Polyallylamine Polymers by Ion exchange metathesis
2	Dr. T Pradeep	A method t transform metallic single walled carbon nanotubes into semiconducting nanotubes

**4.5.5 Research and Consultancy:****Sponsored Research Projects:**

SI. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	RAFT Polymerization as a Tool Towards Water Soluble Block Copolymers	2008-11	DST	28.40	R. Dhamodharan
2	Polymer Assited Insitu Synthesis of Nanoparticles	2009-12	CSIR		R. Dhamodharan
3	-pyrrole substituted porphyrins: Synthesis and their properties	2008-11	DST	39.19	P. Bhyrappa
4	Photochemistry and Photophysics of Functional Macromolecules Based on PAMAM Dendrimers	2008-11	DST	36.50	E. Prasad
5	Designing New Polymer Supports to Improve Liquid Phase Peptide Synthesis	2009-11	IITM - New Faculty Scheme	5.00	N. Madhavan
6	Development of Novel Soluble Polymer Supports to Improve Liquid Phase Peptide Synthesis: Towards the Facile Synthesis of Cyclic Peptide Nanotubes	2009-2012	CSIR	21.26	N. Madhavan

7	Engineering Internally Functionalized Pores Derived from Cyclic Peptides	2010-13	DST	36.88	N. Madhavan
8	Total Synthesis of Biologically active isokotinin-A kotinin and desertorin – C natural products through catalytic, enantioselective oxidation coupling	3 Yrs	CSIR	23.26	G. Sekar
9	Abnormal N-Heterocyclic carbene ligands, Synthesis transition metal complexes (Pd, Ni, Cu) and applications in asymmetric synthesis	3 Yrs	CSIR	13.20	S. Sankararaman
10	Low Energy ion Collisions on Molecular solids : Chemical reactions, Phase Transformations and Unique Properties	3 Yrs	DST	444.50	T. Pradeep
11	Phase – II of the Facility on Spatially Resolved Magnetic Resonance.	5 Yrs	DST	1349.00	N. Chandrakumar
12	Chemistry and Application of metallasila- and metallagermaboranes derived from Group 14 unsaturated organic substrates	3 Yrs	IFCPAR	37.63	S.Ghosh
13	New Class of Organochalcogen Derivatives Derived from Group 5,6 Metallaboranes	3 Yrs	CSIR	18.76	S. Ghosh
14	Analysis of underpotential deposition of Metals for electrocatalytic applications	3Yrs	CSIR	16.76	M.V. Sangaranarayanan
15	Polymerization of cyclic esters using activated monomer mechanism	3Yrs	CSIR	19.26	D. Chakraborty

#### Industrial Consultancy projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs.)
1	S. Baskaran	Synthetic route for APIs	Apex Laboratories Pvt. Ltd.,	66,080
2	G. Rangarao	Conductivity Studies on Fly Ash	Bharat Heavy Electricals Ltd.,	9,92,700
3	T. Pradeep	Topic Invention Plus	Intellectual Ventures Asia Pte. Ltd.,	8,46,992
4	P Selvam	Development of heterogeneous catalyst for selective hydrogenation of nitrobenzene to p-aminophenol for economically feasible commercial application	Granules India Limited	29,64,000
5	U. V. Varadaraju	Development of high lithium storage cathode materials for Li-ion batteries	Renault Nissan Technology & Business Centre India Private Limited	15,00,000

#### Research Publications of the faculty members & research scholars:

- Total No. of papers published in Refereed National Journals : 03
- Total No. of papers published in Refereed International Journals : 152

#### National Journals:

1. Selvam, P.; Krishna, N. V.; Viswanathan, B. Architecting mesoporous AISBA-15: an overview on the synthetic strategy. *J. Indian Inst. Sci.* **2010**, 90, 271-285.
2. Bhyrappa, P.; Arunkumar, C. Structural and electrochemical properties of beta -tetrabromo-meso-tetrakis(4-alkyloxyphenyl)porphyrins and their metal complexes. *J. Chem. Sci. (Bangalore, India)* **2010**, 122, 233-238.
3. Raj, K. J. A.; Viswanathan, B. Synthesis of nickel nanoparticles with fcc and hcp crystal structures. *Indian J. Chem., Sect. A Inorg., Bio-inorg., Phys., Theor. Anal. Chem.* **2011**, 50A, 176-179.

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2. Kumar, K. S.; Patnaik, A. Tunable Electronic Properties of a Proton-Responsive N,N-Dimethylaminoazobenzene Fullerene (C60) Dyad. *ChemPhysChem* **2010**, 11, 3645-3655.
3. Kumar, K. S.; Patnaik, A. Intramolecular electronic communication in a dimethylaminoazobenzene-fullerene C60 dyad: an experimental and TD-DFT study. *J. Comput. Chem.* **2010**, 31, 1182-1194.
4. Kumar, K. S.; Patnaik, A. Solvent-Polarity-Tunable Dimeric Association of a Fullerene(C60)-N,N-Dimethylaminoazobenzene Dyad: Modulated Electronic Coupling of the Azo Chromophore with a Substituted 3D Fullerene. *Chem.Eur.J.* **2011**.
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6. Gore, S.; Baskaran, S.; Koenig, B. Efficient synthesis of 3,4-dihydropyrimidin-2-ones in low melting tartaric acid-urea mixtures. *Green Chem.* **2011**, 13, 1009-1013.
7. Kumar, P. S.; Banerjee, A.; Baskaran, S. Regioselective Oxidative Cleavage of Benzylidene Acetals: Synthesis of alpha - and beta -Benzoyloxy Carboxylic Acids. *Angew. Chem., Int. Ed.* **2010**, 49, 804-807, S804/1-S804/43.
8. Bhyrappa, P.; Karunanithi, K. Porphyrin-Fullerene, C60, Cocrystallates: Influence of C60 on the Porphyrin Ring Conformation. *Inorg. Chem. (Washington, DC, U. S.)* **2010**, 49, 8389-8400.
9. Bhyrappa, P.; Velkannan, V.; Maity, A. Regioselective syntheses of 2,3-disubstituted-12-formyl-5,10,15,20-tetraphenylporphyrins and their metal complexes. *J. Porphyrins Phthalocyanines* **2010**, 14, 459-467.
10. George, C.; Chandrakumar, N. 119/117/115Sn low-abundance single-transition correlation spectroscopy (LASSY): sensitivity-enhanced homonuclear correlation experiments for Sn NMR. *Magn. Reson. Chem.* **2010**, 48, 912-917.
11. Banerjee, A.; Chandrakumar, N. Real-Time in Vitro Drug Dissolution Studies of Tablets Using Volume-Localized NMR (MRS). *Appl. Magn. Reson.* **2011**, 40, 251-259.
12. Bhat, S. D. Sahu, A. K.; Jalajakshi, A.; Pitchumani, S.; Sridhar, P.; George, C.; Banerjee, A.; Chandrakumar, N.; Shukla, A. K. PVA-SSA-HPA Mixed-Matrix-Membrane Electrolytes for DMFCs. *J. Electrochem. Soc.* **2010**, 157, B1403-B1412.
13. Banerjee, A.; Chandrakumar, N. Volume localized shift selective <sup>13</sup>C spectroscopy using Pulsed Rotating Frame Transfer sequences with Windows (PRAWN). *Magn. Reson. Med.* **2011**.
14. Das, R.; Chakraborty, D. Silver nitrate catalyzed oxidation of sulfides. *Synthesis* **2011**, 277-280.
15. Das, R.; Chakraborty, D. Cu(II)-catalyzed oxidation of sulfides. *Tetrahedron Lett.* **2010**, 51, 6255-6258.
16. Gowda, R. R.; Chakraborty, D. Zinc acetate as a catalyst for the bulk ring opening polymerization of cyclic esters and lactide. *J. Mol. Catal. A: Chem.* **2010**, 333, 167-172.
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18. Malik, P.; Chakraborty, D. Bismuth(III) oxide catalyzed oxidation of alcohols with tert-butyl hydroperoxide. *Synthesis* **2010**, 3736-3740.
19. Malik, P.; Chakraborty, D. Bi<sub>2</sub>O<sub>3</sub>-catalyzed oxidation of aldehydes with t-BuOOH. *Tetrahedron Lett.* **2010**, 51, 3521-3523.
20. Malik, P.; Chakraborty, D.; Ramkumar, V. New phosphoroamidate compounds: Synthesis, structural characterization and studies on ZnCl<sub>2</sub> assisted hydrolysis of the P-N bond. *Polyhedron* **2010**, 29, 2142-2148.

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24. Gowda, R. R.; Chakraborty, D.; Ramkumar, V. Aryloxy and benzyloxy compounds of zirconium: Synthesis, structural characterization and studies on solvent-free ring-opening polymerization of  $\epsilon$ -caprolactone and  $\delta$ -valerolactone. *J. Organomet. Chem.* **2011**, 696, 572-580.
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26. Bharathwaj, R.; Natarajan, U.; Dhamodharan, R. Synthesis of poly(benzyl methacrylate)/Mg-phyllsilicate nanocomposites by surface-initiated ambient temperature ATRP. *Appl. Clay Sci.* **2010**, 48, 300-306.
27. Haridharan, N.; Ponnusamy, K.; Dhamodharan, R. Controlled polymerization of methacrylates at ambient temperature using trithiocarbonate chain transfer agents via SET-RAFT-cyclohexyl methacrylate: A model study. *J. Polym. Sci., Part A: Polym. Chem.* **2010**, 48, 5329-5338.
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**Distinguished Visitors to the Department:**

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Dr. Kannan R Karukurichi	01.04.2010	Guest Lecture
2	SOURAV HALDAR Centre for Cellular & Molecular Biology Hyderabad	12.04.2010	Guest Lecture
3	Prof. DEEPAK MATHUR TIFR, MUMBAI	21.04.2010	Guest Lecture
4	Prof. I.N.N. NAMBOOTHIRI Department of Chemistry, IIT Bombay, Mumbai	22.06.2010	Guest Lecture
5	Prof. C.P. RAO Department of Chemistry, IIT Bombay, Mumbai	08.07.2010	Guest Lecture
6	Dr. JULIEN LEGROS CNRS Research Scientist Laboratories BioCIS-CNRS, FRANCE	08.07.2010	Guest Lecture
7	Prof. ASHOK KUMAR GANGULI Department of Chemistry, IIT Delhi, New Delhi	20.07.2010	Guest Lecture
8	Dr. RAMESH RAGHAVACHARI Pharmaceutical Assessment Lead Food & Drug Administration, Silver Spring, MD 20993	21.07.2010	Guest Lecture
9	Dr. R.V. OMKUMAR Scientist, Department of Neurobiology, Rajiv Gandhi Centre for Biotechnology Thycaud, Thiruvananthapuram, Kerala	21.07.2010	Guest Lecture
10	Prof. KRISHNA BALASUBRAMANIAN Emeritus Professor, Arizona State University, USA	09.08.2010	Guest Lecture
11	Dr. RAMACHANDRAN GNANASEKARAM University of Nevada, Reno, U.S.A	25.08.2010	Guest Lecture
12	Prof. GOUTAM KUMAR LAHIRI Dept. of Chemistry, I.I.T Bombay, Mumbai	27.09.2010	Guest Lecture
13	Dr. SURESH KUMAR Dept. of Bioorganic Chemistry, Max-Planck-Institute for Chemical Ecology, Germany	29.09.2010	Guest Lecture
14	Dr. A. T. BIJU Organic Chemisches Institute, Westfälische Wilhelms Universität, Munster, Germany	12.11.2010	Guest Lecture
15	Dr. GIRIJA THESMA CHANDRAN Dept. of Mechanical & Aerospace Engg. University of California Irvine, USA	18.11.2010	Guest Lecture
16	Mr. M.M. BALAMURALI Dept. of Pharmacology & Physiology, University of Medicine and Dentistry of New Jersey, Newark, NJ 07103	22.11.2010	Guest Lecture
17	Mr. M. DURGA PRASAD School of Chemistry, University of Hyderabad, Hyderabad	25.11.2010	Guest Lecture
18	Prof. S. GLASER Dept. of Chemistry, tu muenchen, germany	01.12.2010	Guest Lecture
19	Prof. CHRISTOPH SCHEIDER Institut für organische Chemie Universität Leipzig Johannisallee 29 04103 Leipzig	10.12.2010	Guest Lecture
20	Dr. DEMIAN R. IFA Dept. of Chemistry, Purdue University, U.S.A	14.12.2010	Guest Lecture
21	Dr. PANNURU VENKATESU Assistant Professor, Department of Chemistry University of Delhi	04.01.2011	Guest Lecture
22	Dr. J. NITHYANANDHAN Post Doctoral Associate, University of Miami Coral Gables, FL 33146, USA	14.01.2011	Guest Lecture
23	Prof. E. KRISHNAKUMAR, TIFR, Mumbai	17.01.2011	Guest Lecture
24	Prof. KLAUS YVON University of Geneva, Switzerland	21.01.2011	Guest Lecture

25	Prof. RAY C F JONES Dept. of Chemistry, Loughborough University Loughborough, Leics. LE11 3TU	02.02.2011	Guest Lecture
26	Dr. KARUNAKARAN VENUGOPAL Dept. of Physics, Northeastern University Boston, MA 02115, U.S.A	04.02.2011	Guest Lecture
27	Prof. A.R. RAVISHANKARA, FRSC Director, NOAA, USA	07.02.2011	Guest Lecture
28	Dr. JITENDRA MATA Bragg Institute Australian Nuclear Science & Technology Organisation Kirrawee DC NSW 2232. Australia	15.02.2011	Guest Lecture
29	Dr. THOMAS J COLACOT, Johnson Matthey, West Deptford, NJ	21.02.2011	Guest Lecture
30	Prof. PARESH C RAY Jackson State University, USA	28.02.2011	Guest Lecture

#### 4.5.6 Other Activities of the Department/Centre:

- Coordinator for single crystal X-rd facility
- Preparatory Lab course (Jan-May 2010)
- Medical Education and Research in Independent India : A Critical Review and the Projected Role of IITs in Post-Graduate Medical Education and Research
- A Training Programme on Spectroscopy Molecular Dynamics organized by STATE KERALA during 10.01.2011 – 14.01.2011 was conducted by Prof. K. Mangalasundar.
- Summer Fellowship Programme (May - July 2010)

#### Endowment Lectures:

- Prof. P.T. Manoharan Endowment Lecture 2011 by Prof. S.S. Krishnamurthy on 21 January 2011.
- Prof. K.K. Balasuramanian Endowment Lecture 2011 by Prof. S.Chandrasekaran on 24 January 2011.

#### International collaboration achievements by the Department

- Student visit - Mr. Sumanta Kumar Meher visited Department of chemistry, University of Trieste, Italy, from 01-30 Sept 2010.
- Faculty visit - Prof. G. Ranga Rao visited Department of chemistry, University of Trieste, Italy, from 21-30 Sept 2010.

## 4.6 DEPARTMENT OF CIVIL ENGINEERING

### 4.6.1 Introduction:

The Department of Civil Engineering has been in existence since the inception of IIT Madras in 1959, and has grown into a full-fledged Department with specializations in all the major branches of Civil Engineering. The departmental activities embrace Planning, Design, Construction and Management. The academic programmes of the Department in B. Tech, Dual Degree, M. Tech, M.S. and Ph.D. 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, U.K., U.S.A., Canada, Netherlands, the former USSR, etc.

The activities of the Department are carried out under different disciplines, administratively organized into five Divisions. There are fourteen well-equipped laboratories attached to different divisions. Environmental and Water Resources Engineering and Structural Engineering Laboratories have 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 discipline/branch introduced:

Chennai Metro Rail Limited sponsored 'Post Graduate Diploma Course in Metro Rail Technology and Management' to be flagged off with effect from July-November 2011 semester. This is an interdisciplinary User Oriented Programme of 2 Semesters duration.

#### New Courses introduced:

Sl. No.	Course No.	Title
1	CE 3050	Basic Structural Steel Design (modified)
2	CE 3060	Basic Reinforced Concrete Design (modified)
4	CE 4050	B.Tech. Project I (modified)
5	CE 4060	B.Tech. Project II (modified)
6	CE 7011	Advanced Transportation Network Analysis (new course)
7	CE 2330	Civil Engineering Materials and Construction (modified)
8	CE 4050	B.Tech. Project I
9	CE 7012	Computer Integrated Project Delivery (new course)
10	CE7013	Advanced Topics in Project Delivery and Finance (new course)
11	CE 6050	Lean Construction Concepts, Tools and Practices (modified)
12	CE 5338	Underground Space Technology (new course)
13	CE 5338	Non-Destructive Evaluation of Structures (new course)
14	CE 5331	Metro Systems and Engineering (new course)
15	CE 5336	Professional Ethics (new course)
16	CE 5335	Metro Project

#### Students on roll:

Programme	I Year	II Year	III Year	IV Year	V Year	Total
B.Tech.	57	56	42	31	5	191
Dual Degree	35	28	28	30	21	142
M.Tech.	87	80	3	0	-	170
M.S.	9	15	7	3	-	34
Ph.D.	28	33	10	16	31	118
<b>Total</b>	<b>216</b>	<b>212</b>	<b>90</b>	<b>80</b>	<b>57</b>	<b>655</b>

#### Endowment prize instituted:

Sl.No.	Name of Prizes	Instituted by
1.	Prof. PLAHN award for best Experimental M Tech Thesis In Structural Engineering	Dr. P.C. Varghese
2.	Institution of award for student with highest CGPA in Geotechnical named after Shri Rajnikant Gandhi	Dr. S.R. Gandhi
3.	Institution of Prof. Gerhard Rowve Memorial Prize	Dr. P.C Varghese



**Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1	Uma Maheswari R	CE06D013	Proceedings of International Conference on "Geotechnical Challenges in Mega Cities"	07-10, June 2010, Moscow	Institute Fund
2	Krishna Kumar S	CE08S005			
3	Balu A S	CE06D017	Proceedings of World Congress on Computational Mechanics / Asian Pacific Congress on Computational Mechanics 2010	19-23 July 2010, Sydney, Australia	
4	Rajesh K N	CE06D028			
5	Kalanad A	CE08S006	20 <sup>th</sup> International Congress on Acoustics	23-27 August, 2010, Australia	
6	Kalaiselvi R	CE05D031			
7	Sundaresan R	CE07D018	International Conference of Innovative World of Structural Engineering (CIWSE -2010)	25-27 Dec. 2010	
8	Navya V	CE08S021			
9	Soundharajan B	CE04D015	Summer Schools on Hydrology and Water Management Modeling	23 <sup>rd</sup> August 2010 - 11 <sup>th</sup> Sept 2010	Organisers
<b>India:</b>					
1	Sri Muruganandam B	CE07D002	9 <sup>th</sup> International Conference on Hydro-Science and Engineering (ICHE2010) IITM	2-5 August 2010, IITM	Institute Fund
2	Sunitha K Nair	CE09D016	4 <sup>th</sup> CUSAT National Conference on Recent Advances in Civil Engg. (RACE 2010)	16-18, Sept. 2010, Cochin	
3	Elson John	CE08D012	National Conference on 'Contemporary Challenges and Pioneering Technologies in Civil Engg.	Erode	
4	Chithra V S	CE09D023	Proceedings of the Conference on Infrastructure, Sustainable Transportation and Urban Planning (CISTUP 2010)	18-20 Oct., 2010, IISc Bangalore	
5	Kalaiselvi R	CE05D031	National Symposium on Acoustics – NSA 2010	11-13 Nov. 2010, Rishikesh, UP	
6	Kalanad A	CE08S006	International Conference on Theoretical Applied Computational and Experimental Mechanics (ICTACEM 2010)	27-29 Dec, 2010, IIT Kharagpur	
7	Mukherjee D	CE08S004			
8	Balu A S	CE06D017			
9	Reshma K V	CE09M056	ISSMGE TC 302 Forensic Geotechnical Engg. Conference	15 <sup>th</sup> Dec. 2010, IIT Bombay	
10	Kanagarathinam L	CE06D024	Proceedings of 14 <sup>th</sup> National Symposium on Earthquake Engg.	18 <sup>th</sup> Dec. 2010, IIT Roorkee	
11	Chethanamba K R	CE07D001			
12	Sivakumar M V N	CE06D025	International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2010)	27-29 Dec 2010, IIT Kharagpur	

**Names of students/scholars who won outside prizes and awards:**

S.No.	Name of the Student / Scholar	Roll No.	Name of Prize	Prize awarded by
1	Kalaiselvi	CE05D031	Young Scientist Grant 2010	International Conference on Acoustics

2	Sunitha K Nair	CE09D016	Best Paper Award	4 <sup>th</sup> CUSAT National Conference on Recent Advances in Civil Engg. (RACE 2010), Cochin
3	Srinath Raval Tata	CE07B037 CE07B026	First Prize in 'Stimulus Quiz'	Ultratech in PSNA College of Engg. Dindugul

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1	Varun Ramakrishna Pattabhiraman	CE06B042	Larsen & Toubro ECC Endowment Prize	Convocation
2	Palukuri V S Seshanka	CE05B055	Institute Merit Prize	
3	Alagappan P	CE08M121	Valli Anantharamakrishnan Merit Prize K Devarajan Memorial Prize	
4	Adil Eshack	CE08M141	L & T Endowment Prize (UoP)	
5	Vijayalakshmi D P	CE05D012	Shree Gayathree Devi Award	
6	Prajwal B V S	CE06B027	Best Academic Record (B.Tech.)	Institute Day
7	Palukuri V S Seshanka	CE05B055	Best Performance (Dual Degree)	
8	Alagappan P	CE08M121	Best Academic Record (M.Tech.)	
9	Adil Eshack	CE08M141	Best Academic Record (M.Tech.)	
10	Nandini P	CE05S003	Sri K Sreeharsha Memorial Prize	

**4.6.3 Faculty and their activities:**

**Faculty:**

**Name and Qualifications**

**Major Area of Specialization**

**Professors:**

Dr. P. Alagusundaramoorthy, Ph.D.(IITM)	Composite Technology
Dr. A.Boominathan, Ph.D. (Moscow)	Geotechnical Engineering
Dr. Devdas Menon, Ph.D. (IITM)	Structural Engineering
Dr. S.R.Gandhi, Ph.D. (IITM)	Geotechnical Engineering
Dr. V.Kalyanaraman, Ph.D. (Cornell)	Structural Engineering
Dr. Koshy Varghese, Ph.D. (Texas, Austin)	Building Technology and Construction Mgmt.
Dr. Ligy Philip (Ms.) Ph.D. (IIT Kanpur)	Environmental Engineering
Dr. M.S.Mathews, Ph.D. (IITM)	Building Technology and Construction Mgmt.
Dr. A.Meher Prasad, Ph.D. (RICE)	Structural Engineering
Dr. S.Mohan, Ph.D. (IISc., Bangalore)	Environmental & Water Resources Engineering
Dr. B.S.Murty, Ph.D. (Washington St)	Environmental & Water Resources Engineering
Dr. C V R Murty, Ph.D. (California Instt.of Tech.)	Structural Engineering
Dr. K.Rajagopal, Ph.D. (Florida)	Geotechnical Engineering
Dr. A.Ramachandraiah, Ph.D. (IITM)	Building Technology and Construction Mgmt.
Dr. K.Ramamurthy, Ph.D. (IITM)	Building Technology and Construction Mgmt.
Dr.Ravindra Gettu, Ph.D.(Northwestern)	Building Technology and Construction Mgmt.
Dr. S.R. Satish Kumar, D.Engg. (Nagoya Univ.)	Structural Engineering
Dr. K.N. Satyanarayana, Ph.D. (Clemson)	Building Technology and Construction Mgmt.
Dr. R.Sivanandan, Ph.D. (Virginia Tech.)	Transportation Engineering
Dr.K.Srinivasan, Ph.D. (IITM)	Water Resources Engineering
Dr. V.Thamizh Arasan Ph.D. (IITM)	Transportation Engineering
Dr. A. Veeraragavan Ph.D. (Bangalore University)	Transportation Engineering

**Associate Professors:**

Dr. Amlan Kumar Sengupta Ph.D. (Univ. of Missouri)	Structural Engineering
Dr. K.Ananthanarayanan, Ph.D. (IITM)	Building Technology and Construction Mgmt.
Dr. G.Appa Rao Ph.D. (IISc. Bangalore)	Structural Engineering
Dr. Arul Jayachandran, Ph.D. (IITM)	Structural Engineering
Dr. G.R.Dodagoudar Ph.D. (IIT Bombay)	Geotechnical Engineering
Dr. Karthik K Srinivasan Ph.D. (Texas, Austin)	Transportation Engineering
Dr. Manu Santhanam Ph.D. (Purdue Univ.)	Building Technology and Construction Mgmt.
Dr. J. Murali Krishnan, Ph.D (IIT Madras)	Transportation Engineering
Dr. B. Nageswara Rao, Ph.D (Iowa Univ.)	Structural Engineering
Dr.R.G.Robinson Ph.D. (IISc., Bangalore)	Geotechnical Engineering
Dr.K.P.Sudheer, Ph.D. (IIT Delhi)	Water Resources Engineering

**Assistant Professors:**

Dr. Arun Menon, Ph.D.(Univ. of Pavia, Italy)	Structural Engineering
Dr. Ashwin Mahalingam (Stanford Univ)	Building Technology and Construction Mgmt.
Dr. Balaji Narasimhan, Ph.D. (Texas A & M Univ.)	Water Resources Engineering
Dr. Dali Naidu Arnepalli, Ph.D. (IIT Bombay)	Geotechnical Engineering
Dr. Gitakrishnan Ramadurai, Ph.D.(Univ.of Rensselaer)	Transportation Engineering
Shri. K. Gopalakrishna, M.Tech. (IIT Kanpur)	Environmental Engineering
Dr. Indumathi M Nambi, Ph.D.(Clarkson Univ.)	Environmental Engineering
Dr. Leliitha Devi, Ph.D. (Texas A&M)	Transportation Engineering
Dr. Radhakrishna G Pillai, Ph.D. (Texas A&M Univ.)	Building Technology and Construction Mgmt.
Dr. S T G Raghukanth, Ph.D. (IISc Bangalore)	Structural Engineering
Dr. Rupen Goswami, Ph.D. (IIT Kanpur)	Structural Engineering
Dr. U. Saravanan, Ph.D. (Texas A&M)	Structural Engineering
Dr. S.M. Shiva Nagendra, Ph.D. (IIT Delhi)	Environmental Engineering
Dr. Sivakumar Palaniappan, Ph.D. (Arizona State Univ.)	Building Technology and Construction Mgmt.
Dr. T. Thyagaraj, Ph.D. (IISc Bangalore)	Geotechnical Engineering
Dr. Vidya Bhushan Maji, Ph.D. (IISc Bangalore)	Geotechnical Engineering

**Adjunct Faculty:**

Dr. A. Ramakrishna	Building Technology and Construction Mgmt.
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**Visiting Professor:**

Dr. N. Raghavan	Structural Engineering
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**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

S. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1	Sundar V (OE) Srinivasan K	International Conference on Hydro-Science and Engineering	2-5 August 2010 IIT Madras
2	Ravindra Gettu	Indian Concrete Institute and IITM organized 450 Delegates Participated 3 <sup>rd</sup> Asian Conference on Concrete (ACECON)	6-8 December 2010 IIT Madras

S. No.	Coordinator(s)	Title	Period
<b>Seminar:</b>			
1	Rajagopal K	International Geosynthetics Society (India Chapter) Sponsored International Seminar on "Applications of Geosynthetics"	12 <sup>th</sup> November 2010 New Delhi
2	Veeraragavan A	Alchemist Sponsored Seminar on 'New Materials in Road Construction for Stabilized Pavement Construction	1 March 2011
<b>Workshop:</b>			
1	Balaji Narasimhan	Introductory SWAT Workshop	1-3 December 2010 IIT Madras
2	Ravindra Gettu	Deterioration and Rehabilitation of Concrete Structures	9 <sup>th</sup> December 2010 IIT Madras
3	Mukesh Khare (IITD) Shiva Nagendra S M	Land Use Strategies and Technology Interventions for Urban Air Quality Management	9-10 Feb. 2011 IIT Delhi
4	Veeraragavan A	Trends and Techniques in Concrete Pavements for 21 <sup>st</sup> Century	12 Feb. 2011 IIT Madras
5	Satish Kumar S R Arul Jayachandran S	Awareness Sessions / Workshop on IS800	9-12 March 2011 Noida, UP
<b>Training:</b>			
1	Appa Rao G	Prestressed Concrete Design, Retrofitting of RC Structures, and Fracture Mechanics of Concrete for APGENCO Civil Engineering Trainees at VTPS, Vijayawada	14 <sup>th</sup> October 2010 VTPS Vijayawada
<b>Short term Course:</b>			
1	Robinson R G Thyagaraj T	Ground Investigation and inference for officials of Southern Railways	23-25 June 2010, IIT Madras
2	Robinson R G Thyagaraj T	Laboratory Soil Testing for Officials of NIOT, Chennai	19-23 July 2010, IIT Madras
3	Mohan S Shiva Nagendra S M	Environmental Impact Assessment : Guide Lines and Procedures	19-23 July 2010 IIT Madras
4	Robinson R G Thyagaraj T	Soil Investigation and Design of Foundations for buildings for Tamil Nadu Housing Board Engineers	20-22 October 2010 IIT Madras
5	Murali Krishnan J Saravanan U	Recent Advances in Mechanics	25-27 November 2010, IIT Madras
6	Robinson R G Thyagaraj T	Geotechnical Site Investigation	31 <sup>st</sup> Jan – 5 <sup>th</sup> Feb. 2011
7	Balaji Narasimhan Sudheer K P	GIS & Remote Sensing Techniques for Water Resources Assessment (Using Open Source Tools)	31 <sup>st</sup> Jan – 5 <sup>th</sup> Feb. 2011
8	Rajagopal K Gandhi S R Boominathan A	Foundation Design for Design Engineers of M/s SAIPEM, Chennai	27-29 January 2011 SAIPEM Office, Chennai
9	Ravindra Gettu	Construction Materials and Management	21-26 Feb. 2011 IIT Madras
10	Veeraragavan A Sivanandan R	Road safety and Traffic Management for the Practising Engineers of Ghana	7-11 March 2011 Accra, Ghana

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

S.No	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Shiva Nagendra S M	Preparation of Ganga River Basin Management Plan	IIT Delhi	18 June 2010
2	Boominathan A	Seismic Design of Earth Structures & Foundations for High Rise Buildings	IIIT, Hyderabad	26 June 2010
3	Ravindra Gettu	Concrete Science for Sustainable Construction	Lyon, France	22-23 July 2010
4	Arun Menon	Earthquake Resistant Architecture for Students and Faculty	Vidyavardhan's Instt. Of Design, Environment and Architecture, Goa	27-28 July 2010
5	Murty C V R	Earthquake Risk Mitigation for Engineers and Architects	Emanuel Hospital Association, Silchar, Assam	29 Aug. 2010

S.No	Name of faculty	Title	Institution	Period
6	Murty C V R	Risk Assessment Workshop	Geohazards Society, New Delhi	28-30 Aug. 2010
7	BTCM Faculty	MAPS-II (Mentoring and Augumenting Planning Skills) for the Project Engineers of L&T.	L&T Chennai	19 & 22 Oct. 2010
8	Amlan K Sengupta	Seismic Retrofitting Policy;	Building Materials Technology Promotion Council, New Delhi	22 Oct. 2010
9	Arun Menon	Forensic Science for Historical and Monumental Structures	Forensic Engg. (INDUSFEW), NIT Trichy	16 Dec. 2010
10	Ravindra Gettu	Nano-Technology	CBRI, Roorkee	13-16 Dec. 2010
11	Arun Menon	Indo-US Workshop on Forensic Engineering (INDUSFEW)	NIT Trichy	16 Dec. 2010
<b>Seminar:</b>				
1	Gandhi S R	Case on Deep Excavation	Anna University Chennai	17 April 2010
2	Sivakumar Palaniappan	Infrastructure for Sustainable Development	The Institution of Engineers, TNSC, Chennai	29-30 Aug. 2010
3	Arul Jayachandran	4 <sup>th</sup> India Steel Summit	Associated Chamber of Commerce and Industry in India, New Delhi	11 Aug. 2010
4	Arun Menon	Masonry Structures	Rajiv Gandhi Instt. Of Technology, Kottayam	3-4 Sept. 2010
5	Shiva Nagendra S M	POLLUTECH INDIA 2010 – Expo & Seminar on Environment and Pollution	Karnataka State Pollution Control Board, Bangalore	29-30 Oct. 2010
6	Rupen Goswami	Construction of High Rise Buildings in the Army	Chief Engineer's Office, Eastern Command, Kolkatta Region	05 Feb. 2011
<b>Symposia:</b>				
1	Gandhi S R	Entwickler 10	Veltech Univ. Chennai	24 July 2010
2	Rajagopal K	Geotechnical and Geosynthetics Engineering AIT, Bangkok	Thailand	7-8 Dec. 2010
3	Sivakumar Palaniappan	Managing Infrastructure Projects and Lessons Learnt from the Best Practices From Asia Pacific Region	New Delhi	6-7 Dec. 2010
4	Nageswara Rao B	International Symposium on Forensic Approach to Analysis of Geohazard Problems	Navi Mumbai	14-16 Dec. 2010
5	Amlan K Sengupta	14 <sup>th</sup> Symposium on Earthquake Engineering	IIT Roorkee	17-19 Dec. 2010
6	Murty C V R	International Symposium on '2001 Bhuj Earthquakes and Advances in Earthquake Science	Institute of Seismological Research, Gujarat	22 Jan. 2011
7	Rupen Goswami			
<b>Conference:</b>				
1	Indumathi M Nambi	International Green Remediation Conference	Amherst, USA	6-12 June 2010
2	Shiva Nagendra SM	Air Pollution 2010	Kos, Greece	21-23, June 2010
3	Shiva Nagendra SM	International Conference on Sustainable Urban Transport and Environment	Paris, France	28-30, June 2010
4	Gopalakrishna K	ICEST 2010	Texas, USA	19 July 2010
5	Ananthanarayanan K	International Conference DELTAS 2010	Orieans, Louisiana, USA	7-9 Oct. 2010
6	Appa Rao G	Innovative World of Structural Engineering 2010	Govt. college of Engg. Aurangabad	27 Dec. 2010
7	Gitakrishnan Ramadurai	Urban Mobility 2010	Ministry of Urban Development, New Delhi	3-5 Dec. 2010

S.No	Name of faculty	Title	Institution	Period
8	Sudheer K P	General Climate Impact	Bonn, Germany	6-8 Dec. 2010
9	Nageswara Rao B	International Conference on Reliability, Safety and Hazard-2010	Navi Mumbai	14-16 Dec. 2010
10	Gandhi S R	Indian Geotechnical Conference	IIT Bombay	15-16 Dec. 2010
11	Nageswara Rao B	International Conference on Theoretical, Applied Computational and Experimental Mechanics (ICTACEM 2010)	IIT Kharagpur	27-29 Dec. 2010
12	Raghukanth S T G	Advances in Materials and Structures	Pondichery Engg. College	03 Feb. 2011
13	Appa Rao G	National Conference on Advances in Materials and Structures	Pondichery Engg. College	3-4 Feb. 2011
14	Ananthanarayanan K	The Fourth International Conference on Construction Engg. And Project Management (ICCEPM-2011)	Sydney, Australia	16-18 Feb. 2011
15	Appa Rao G	International Conference on 'Civil Environmental and Structural Engg.	KSR College of Engg. Erode	18-19 Feb. 2011
16	Rajagopal K	International Conference on 'Geofrontiers 2011'	Dallas, Texas, USA	7 March 2011
17	Gandhi S R	National Conference on 'Advances in Engineering Geology and Geotechnical Engineering (GEOCON 2011)	Govt. College of Engg. Kannur	29-30 March 2011
<b>Training:</b>				
1	Satish Kumar S R	IS800-2007	NITTR, Kolkata	14-15 May 2010
			Reliance Industries, Noida	07-10 June 2010
		Bolts I & II Multistoreyed buildings I & II Earthquake Resistant Design I & II	Nirma Univ., Ahmedabad	24-25 June 2010
2	Arun Menon	Seismic Vulnerability of Historical Monuments	Anna Univ.	11 June 2010
3	Rajagopal K	Brain Storming session on 'The use of technical textiles in infrastructure projects of the country	Bombay Textile Research Institute (BTRA), Mumbai	16 June 2010
4	Murty C V R	Brain storming session on 'Cost Effective Building Materials and Construction Technologies: Problems and Prospects	Building Materials and Technology Promotion Council, New Delhi	27 Aug. 2010
5	Arun Menon	Earthquake Hazard and Risk Reduction	IITR – NORSA, New Delhi	18 Aug 2010
6	Shiva Nagendra S M	Environmental Impact Assessment	Dayananda Sagar College of Engg. Bangalore	17 Sept. 2010
7	Devdas Menon	Advanced Applications of Post Tensioned Concrete in Buildings & Bridges	Gayatri Vidya Parishad Col. Of Engg., Vizag	20 Sept. 2010
8	Appa Rao G	Prestressed Concrete Design, Retrofitting of RC Structures, and Fracture Mechanics of Concrete		
9	Gandhi S R	Ground Improvement Techniques	Andhra University, Vishakapatnam	2-3 Oct. 2010
10	Gandhi S R	Failures in Geotechnical Engineering	GS College of Tech. & Sci. Indore	8-10 Oct. 2010
11	Satish Kumar S R	IS800-2007	Nirma Univ. Ahmedabad	29-30 Oct. 2010
12	Murty C V R	Why Buildings Fail in Natural Disasters and what we can do about it?	IISc, Bangalore	10 <sup>th</sup> Nov. 2010
13	Satish Kumar S R Rupen Goswami	Seismic Design of Structures and Hazard Mitigation	Taiwan	22-26 Nov. 2010
14	Balaji Narasimhan	Faculty Development Program (In collaboration with Texas A&M Univ.)	IIT Madras	8-10 Dec. 2010

S.No	Name of faculty	Title	Institution	Period
15	Amlan K Sengupta	7 <sup>th</sup> Structural Engineering Convention (SEC)	Annamalai Univ.	9-10 Dec. 2010
16	Balaji Narasimhan	Vector Data Model and Geo Spatial Analysis	Govt. College of Engg., Trichur	20 Jan 2011
17	Alagusundaramoorthy P	Shake Table Tests on Polyfunctional Technical Textile Strengthened Structures	Annual Transportation Research Board Meeting, Washington, DC, USA	23-27 Jan. 2011
18	Gandhi S R	Deep Basement Excavations	Builders Association of India, Chennai	24 Jan. 2011
19	Amlan K Sengupta	Advanced Course on Structural Health Assessment and Management of Bridge	CSIR, SERC Chennai	23-25 Feb. 2011
20	Shiva Nagendra S M	Prediction & Assessment of Impacts on the Air Environment	Bapuji Institute of Engg. And Tech. Davangere	5-7 March 2011
21	Devdas Menon	Annual Technical Festival	NIT Hamirpur	7 March 2011
<b>Short Term Course:</b>				
1	Arun Menon	Seismic response, assessment and retrofit of structures	NIT Calicut	12-13 May 2010
2	Satish Kumar S R	Limit State Design of Steel Structures	NITTR, Taramani, Chennai-113	8-9 Sept. 2010
3	Arul Jayachandran	Limit State Design of Steel Structures	NITTR, Taramani, Chennai-113	8-9 Sept. 2010
4	Appa Rao G	Analysis and Design of Earthquake Resistant Structures	Budhgaon, Sangli	16 Dec. 2010
5	Arun Menon	Repair and Rehabilitation of Masonry Structures	NITTR, Chennai	17 Feb. 2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Gandhi S R	Geotechnical Failures	B S Abdur Rahman University, Chennai	17 <sup>th</sup> April 2010
2	Indumathi M Nambi	Research Methodology – Planning and Design of Experiments	College of Engineering, Thiruvananthapuram	22 <sup>nd</sup> April 2010
3	Gandhi S R	Remedial measure for the sinking of Buildings at Coimbatore	TNSCB, Coimbatore	23 <sup>rd</sup> April 2010
4	Gitakrishnan Ramadurai	Information and Communication Technology in Urban Transportation Management	Institution of Electronics and Telecommunications Engineers, Chennai	17 <sup>th</sup> May 2011
5	Devdas Menon	Fundamentals of Structural Analysis	M A college of Engg. Kothamangalam, Kerala	7-12 June 2010
6	Boominathan A	Seismic Analysis and Design of Shallow Foundations	International Institute of Information Technology (IIIT)	26 June 2010
7	Shiva Nagendra S M	Artificial neural network applications in environmental science and engineering	Interdisciplinary School of Scientific Computing, University of Pune, Maharashtra	19 Aug. 2010
8	Sivakumar Palaniappan	The 2010 Green Building Congress	Chennai Trade Centre	7-9, Oct. 2010
9	Rajagopal K	Analysis and Construction Aspects of 22.5m High Geosynthetic Reinforced Soil Retaining Wall	JNTU, Kakinada	2 Oct. 2010
10	Rajagopal K	Constructions of 22.5m High Geosynthetic Reinforced Segmental Retaining Wall	Geotechnical Engg. For Infrastructural Development, Mysore	5 Oct. 2010
11	Appa Rao G	Strengthening and Ductility Detailing of RC Beam-Column Joints	KSRM College of Engg. Cuddapah,	3-4 Oct. 2010

12	Arun Menon	Structural Restoration	Hindu Religious and Charitable Endowments, Coimbatore	3 Oct. 2010
13	Arun Menon	Structure of Architecture	NIT Trichy	4 Oct. 2010
14	Thamizharasan V	Sustainable Transportation Systems Planning	Kwame Nkrumah University of Science and Technology, Ghana	13-24 Dec. 2010
15	Balaji Narasimhan	Crop-water use estimation from thermal remote sensing data	Centre for Water Resources, Anna University, Chennai	5 <sup>th</sup> Jan. 2011
16	Murty C V R	Restoration of Temples in Andhra Pradesh	Endowments Department, Govt. of Andhra Pradesh, Hyderabad	13 Jan. 2011
17	Murty C V R	Future of Civil Engineering in India	Indian National Academy of Engg., New Delhi	29 Jan. 2011
18	Amlan K Sengupta	Retrofitting of Structures – Research Prospects	Pondichery Engg. College	3 Feb. 2011
19	Devdas Menon	Structural Analysis Software – Use & Misuse	College of Engg. Trivandrum	24 Feb. 2011
20	Appa Rao G	Ductile Design of RC Beam-Column Joints	Andhra University, Vishakapatnam	25 Feb. 2011
21	Appa Rao G	Design of RC Structural Elements for Shear	ISTE Students Chapter, GITAM Univ., Vishakapatnam	25 Feb. 2011
22	Arun Menon	Forensic Science for Historical and Monumental structures	B S Abdur Rahman Univ. Chennai	25 March 2011

#### Visits abroad by faculty:

Sl. No	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	Appa Rao G	Germany	11-18 May 2010	Research Stay Alexander Van Humboldt Foundation	Alexander von Humboldt Foundation, Bonn
2	Appa Rao G	Korea	23-28 May 2010	Paper presentation in a conference	Instt. Fund
3	Rajagopal K	Brazil	23-29 May 2010	Paper presentation in 9 <sup>th</sup> international conference and meeting of the International Geosynthetic Society	
4	Appa Rao G	Germany	3-23 June 2010	Research Stay Alexander Van Humboldt Foundation	Instt. Fund
5	Alagusundaramoorthy P	China	6-10 June 2010	Paper presentation in an International Conference OMAE2010, Shanghai	Instt. Fund-CPDA
6	Boominathan A	Russia	6-12 June 2010	Paper presentation in an International Conference, Moscow	Instt. Fund
7	Indumathi M Nambi	USA	6-12 June 2010	International Green Remediation Conference, Amherst	Instt. Fund – CPDA
8	Shiva Nagendra S M	Greece	21-23 June 2010	Paper presentation in an International conference Kos	DST
		France	28-30 June 2010	Paper presentation in an International Conference, Paris	Instt. Fund – CPDA
9	Koshy Varghese	Slovakia	25-27 June 2010	Paper presentation in an International Symposium ISARC-2010, Bratislava	Instt. Fund
10	Nageswara Rao B	Germany	03 June – 25 July 2010	Study visit at Technical University Hamburg	DAAD
11	Veeraragavan A	USA	20 June – 11 July 2010	Joint Collaborative activity under Indo-US Sci. & Tech. Forum	Instt. Fund
12	Appa Rao G	Germany	6-25 July 2010	Research Stay	PCF Fund



Sl. No	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
13	Meher Prasad A Devdas Menon	USA	17-24 July 2010	University visit	Instt. Fund
14	Alagusundaramoorthy P	USA	4-7 July 2010	International Conference at Alaska	
		USA	8-14 July 2010	Project Discussions at Kentucky University	Project fund
16	Gopalakrishna K	USA	12-16 July 2010	International Conference, Texas	Instt. Fund – CPDA
17	Ravindra Gettu	France	22-23 July 2010	International workshop, Lyon	Lafarge Research
18	Devdas Menon Meher Prasad A	Canada	25-29 July 2010	International Conference, Toronto	Instt. Fund
19	Alagusundaramoorthy P	Germany & Italy	28 July – 1 <sup>st</sup> Aug 2010	European Union Sponsored Research Projects Meetings in Karlsruhe University and Genova	Project Fund
20	Koshy Varghese	USA	25 Aug. – 13 Sept. 2010	Project visit to University of Michigan	PCF Fund
21	Ananthanarayanan K	USA	16-25 Oct. 2010	International Conference DELTA 2010,, Oriens Louisiana	Instt. Fund
22	Appa Rao G	USA	23-28 Oct. 2010	American Concrete Institute Convention and Research Discussion	
23	Ananthanarayanan K	China	13-21 Nov. 2010	International Conference, Chengdu	
24	Satish Kumar S R Rupen Goswami	Taiwan	22-26 Nov. 2010	International Training Programme	National Science Council in Taiwan
25	Koshy Varghese	USA	25-27 Nov. 2010	University visit	PCF Fund
26	Koshy Varghese	USA	29 <sup>th</sup> Nov. – 2 Dec. 2010	Visit to Autodesk University	Invited talk
27	Shiva Nagendra S M	UK	4-12 Dec. 2010	Technical Discussion Meeting of UKIERI sponsored project at Newcastle University, UK	UKIERI project fund
28	Shiva Nagendra S M	UK	9 Dec. 2010	Visit to University of West of England, Bristol, UK	UKIERI project fund
29	Rajagopal K	Thailand	7-9 Dec. 2010	Paper Presentation and attending committee meetings, Bangkok	PCF Fund
30	Sudheer K P	Germany	15 <sup>th</sup> May 2010 – 13 <sup>th</sup> June 2010	Visit to University of Kiel under German-India STAR Program	DAAD
31	Sudheer K P	Germany	6-8 Dec. 2010	GCI Conference 2010, Bonn	Instt. Fund
32	Alagusundaramoorthy P	Oman	12-14 Dec. 2010	Project Visit, Salaiah	Nawaras Noos Trading & Contracting Estd. LLC, Salalah, Oman.
33	Thamizharasan V	Ghana	13-24 Dec. 2010	Guest lectures at Kwame Nkrumah University of Science and Technology	Kwame Nkrumah University of Science and Technology
34	Gandhi S R	USA	21 Dec. 2010 – 8 Jan. 2011	Industry and University visit	PCF Fund
35	Alagusundaramoorthy P	USA	19-29 Jan. 2011	Annual TRB Meeting at Washington, DC, visit to Univ. of Kentucky, Lexington	Instt. Fund
36	Ananthanarayanan K	Australia	16-18 Feb. 2011	International Conference ICCEPM-2011, Sydney	Institute Fund

Sl. No	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
37	Veeraragavan A Sivanandan R	Ghana	7-11 March 2011	Short Term Course at Accra, Ghana	
38	Rajagopal K	USA	12-16 March 2011	International conference and meetings Texas	
39	Ravindra Gettu	France	13-18 March 2011	Technical Activities Committee meeting of RILEM and University visit	Instt. Fund

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>Awards:</b>					
1	Arul Jayachandran S	Dr. Ramaiah Prize	SERC, CSIR	Int. Journal	26 September 2010

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Monographs:</b>				
1.	Nageswara Rao B	High Dimensional Model Representation for Reliability Analysis	VDM Publishing House Limited	-
		Fractal Finite Element Method	LAP Lambert Academic Publishing AG & Co	-
		Coupled Meshfree and Fractal Finite Element Method	LAP Lambert Academic Publishing AG & Co	-
2.		Stochastic Meshfree Method: For elasto- plastic damage analysis	LAP Lambert Academic Publishing AG & Co	-

**Fellowships of Academies and Professional Societies:**

Details	Name of faculty	Year of admission
<b>INAE:</b>		
INAE Distinguished Visiting Professorship Scheme	Raghavan N	01.04.11 – 31.03.2014
<b>Others:</b>		
Council Member in the International Geosynthetics Society, USA	Rajagopal K	2010-2014
Secretary, Asian Activity Committee of International Geosynthetics Society, USA	Rajagopal K	
Vice President of the Board, International Symposium on Automation & Robotics in Construction (ISARC)	Koshy Varghese	2010-2013
President of International Geosynthetic Society (India) Chapter	Rajagopal K	2010-2012
Member, Institute for Steel Development and Growth (INSDAG), India	Arul Jayachandran	From 2010

**Journal Editorial Boards:**

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	Ravindra Gettu	Associate Editor	ASCE Journal of Materials in Civil Engineering
2.	Arul Jayachandran S	Editorial Board Member	International Journal of advanced Steel Construction

**4.6.4 Design and Development Activities:**

**New facilities added or major equipment procured:**

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1	Hobart Mixer	48.52
2	150 KN & 5 KN Material Testing Machine	29.45
2	Intel Core 2 Duo E7200 System	2.48
3	Elgi Make Air Compressor	3.63
4	Soil Restivity Meter	1.12

5	Data Acquisition System	1.98
6	Cold Room Accessories	1.09
7	Fine Particulate Envirotech Sampler	1.60
8	Flame Photometer	2.91
9	Detector	4.08
10	Orbital Shaker	0.73
11	Yokogawa Portable Data Station	1.78
12	HP Compaq System	1.82
13	Mud 2555 Cf Amplifier	3.13
14	Rotary Evaporator	1.90
15	2 TR Split Airconditioner	1.39
16	Troxler New Technology Oven	7.65
17	Dell Vostro Slim Tower System	2.09
18	HP Workstation Z400	6.40
19	Intel Core 29505 System	1.20
20	Saturated Soil Testing System	7.47
21	Potentiostat	26.82
22	Large Dia Triaxial Cell	7.46
23	Sandwich Cutter	1.84
24	ADMS software	3.32

**Patents:**

**Patents filed:**

SI.No	Name of faculty	Topic of patent
1	Prof. Ligy and Senthilnathan	A Method of Removing Organic Pollutants from Water and Wastewater
2	Dr. V.Lelitha Devi	Inductive Loop Sensor Device

**4.6.5 Research and Consultancy:**

**Sponsored Research Projects:**

- No. of Project - 10
- Value - 260.61 lakhs

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
1	Arun Menon Meher Prasad A	Reduction of seismic risk of architectural heritage in Italy and India	Regional Government of Lombardy	30.00
2	Ligy Philip Murty B S	Solution of Textile Pollution	Department of Environment Protection and Clean Energy	9.60
3	Indumathi M Nambi	Bioremediation of petroleum contaminated site using biosurfactant producers	Tamil Nadu Pollution Control Board	8.62
4	Ravindra Gettu Manu Santhanam	Laboratory for the study of the long term performance of concrete	Lafarge Centre de Recherche	90.00
5	Ravindra Gettu Manu Santhanam	Long term performance of concrete	Lafarge Aggregate and Concrete India	9.00
6	Murty C V R	Methodology for documenting housing typologies in seismic areas	Building Materials & Technology Promotion Council	3.95
7	Ligy Philip Murty B S	Ganga River Basin Management Plan (GRBMP) - A Pan IIT Project	Ministry of Environment & Forests	70.41
8	Shiva Nagendra S M	Monitoring the influence of outdoor vehicular pollutants concentration on indoor air quality of the buildings located close to urban roadway	Ministry of Environment & Forests	18.13
9	Raghukanth S T G	Development of spectral attenuation model for Kalpakkam site	Indira Gandhi Centre for Atomic Research	7.44
10	Murali Krishnan J Veeraragavan A	Upgradation of IS 73:2006 - Paving Bitumen - Specification	Bureau of Indian Standards	13.46

**Industrial Consultancy projects:**

- No. of Project - 216
- Value - 658.64 lakhs

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
1	Thyagaraj T Indumathi M Nambi	Testing soil samples from Pudupakkam Quarry	Va Tech Wabag Ltd	0.22
2	Gandhi S R	Heurtey Petrochem Foundation design	Heurtey Petrochem	1.65
3	Meher Prasad A	Structural stability and design check of Pre-Fabricated tele shelters	Rinac India Limited	1.9
4	Gandhi S R	Durgapur fertilizer foundation design	Essar Engineering Services Limited	5.51
5	Ravindra Gettu	Technical assistance for the concrete technology in affordable housing	Value & Budget housing corporation Pvt. Ltd.,	5.18
6	Thamizh Arasan V	Traffic management plan for Hotel project	ITC Limited	3.52
7	Indumathi M Nambi	Evaluation of treatment efficiency and design of effective waste water treatment technology	Bharat Heavy Electricals Ltd.,-Ranipet	2.0
8	Manu Santhanam	Chimney investigation	Saint-Gobain Glass India Ltd.	1.40
9	Satish Kumar S R	Proof Checking of launching Girder	L & T Limited	1.65
10	Thyagaraj T Robinson R G	Testing soil samples for tank pad foundations	Hindustan Petroleum Corporation Ltd.,	0.27
11	Devdas Menon Meher Prasad A	Proof checking of structural design of group housing at S-58	IREO Management Private Limited	16.83
12	Ligy Philip	Technical Assessment of DPR	Andipalayam Common Effluent Treatment Plant (P) Ltd.,	0.66
13	Appa Rao G	Design of concrete mixes for M30 and M40 grade	Public Works Department - Puducherry	0.77
14	Devdas Menon	Testing of load transfer test and anchorage efficiency test	Tech9 Engineering Solutions Pvt. Ltd.,	2.21
15	Gandhi S R	Foundation problem at Coimbatore	Tamilnadu Slum Clearance Board	0.55
16	Devdas Menon	Testing of HT strands and Elastomeric bearings	Common Code	2.0
17	Gandhi S R Robinson R G	Drainage design for Tambaram Airforce Station	Airforce	0.82
18	Meher Prasad A	Design Verification and approval of 50m tower and foundation	Kadevi Engineering Company Pvt. Ltd.,	0.65
19	Boominathan A Vidya Bhushan Maji	Site specific seismic and rock slope stability analysis	Hindustan Electricity Generation Co. Pvt. Ltd.,	8.50
20	Satish Kumar S R	Testing of HT strands	Common Code	3.00
21	Dodagoudar G R	design verification of foundations of ESIC Hospital	A.K. Associates	0.93
22	Boominathan A	Design of coffer dam for construction of barrage across Cauvery river at Mayanur	SRS Technic Infrastructure	3.45
23	Alagusundaramoorthy P	Strengthening of Puduchery State Data Centre Building with FRP Composites	Tata Consultancy Services	3.86
24	Alagusundaramoorthy P	Proof checking of structural design of proposed elevator corridor	Bruhat Bangalore Mahanagara Palike	8.27
25	Ligy Philip Murty B S	Onsite treatment plant or sewae without polluting the ground water - feasibility study	Tamilnadu Small Industries Development Corp. Ltd.,	6.61
26	Robinson R G Thyagaraj T	Charaterisation of soil samples to evaluate its suitability as a Back fill material	Lanco Infra Tech Ltd.	1.76
27	Robinson R G	Flexible wall permeability test on liner material	Gareware-Wall Ropes Ltd.,	0.22
28	Meher Prasad A	High mast and foundation Design 30m, 17m, 22m & 40m	Aster Teleservices Pvt. Ltd.,	2.53

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
29	Gandhi S R	Remedial measures for retaining wall at Cochin	Rail Vikas Nigam Limited	1.10
30	Thyagaraj T Robinson R G	Testing of gravel samples for approaches to ROB located at Ariyalur	BSCPL Infrastructure Ltd.,	0.29
31	Thyagaraj T Robinson R G	Testing sand samples for sand blanket for ground improvement works	Bharat Geosystems Pvt. Ltd.,	0.82
32	Gandhi S R Robinson R G	Furness foundation design	Lanco Industries Ltd.,	1.10
33	Meher Prasad A	Calibration Test	Common Code	2.00
34	Alagusundaramoorthy P	Characterization of Resin and Fiber Reinforced Polymer Composite Systems	BASF India Ltd	1.77
35	Devdas Menon	Proof checking of 9 nos. of ROB in GSRDC packages being executed by us in Gujarat	Larsen and Toubro Limited	23.38
36	Rajagopal K	Construction of New Air Port at Pakyong, Sikkim - Recommendation of Design Parameters	Airports Authority of India	3.30
37	Shiva Nagendra S M	Soil Sample Analysis	Groundtech Earthing Solutions	0.24
38	Devdas Menon	Proof checking of design and drawing of minor bridge at Km 303+467 (Mubakala bridge)	Navayuga Engineering Company Limited	1.75
39	Gandhi S R Thyagaraj T	Foundation for Sembarabakkam project	Godrej Sea View Properties Pvt. Ltd.,	0.55
40	Meher Prasad A	Fatigue testing	Axles India Limited	1.65
41	Devdas Menon	Proof checking for Box cell Bridges 4Nos	KNR Construction Ltd.,	2.20
42	Devdas Menon	Proof checking for ROB Foundation at CH 135+705 (Ariyamangalam)	Madhucon Projects Limited	0.33
43	Manu Santhanam Ravindra Gettu	Evaluation of concrete with Metakaolin	English India Clays Ltd.,	4.00
44	Devdas Menon	H-Beam for test report	Nav Nirman BeamTechnics	0.33
45	Alagusundaramoorthy P	Nondestructive testing of columns, beams and walls of TG foundation	Gammon India Ltd.,	3.58
46	Dali Naidu Arnepalli	Evaluation of tensile properties of geogrids	Shiv Shakthi Enterprises	0.25
47	Appa Rao G Rajagopal K	Proof checking of structural design of sunrise apartments at Lucknow, LDA,	Indu Fortune Limited	15.00
48	Satish Kumar S R	Proof checking of launching Girder	Consolidated Construction Consortium Ltd	1.10
49	Satish Kumar S R	Vetting of Peb Design	Aster Building Solution Pvt. Ltd.,	4.66
50	Devdas Menon	Testing of HT strands and Elastomeric bearings	Common Code	2.00
51	Gandhi S R Dali Naidu Arnepalli	Design for ash dyke	Gayatri Projects Ltd	3.30
52	Thyagaraj T Robinson R G	Testing soil samples for structural fill	Oriental Structural Engineers Pvt. Ltd.	0.29
53	Devdas Menon	Proof checking of ROB Designs and drawings	GKC Projects Limited	3.63
54	Alagusundaramoorthy P	Characterization of FRP Composites	Department of Lighthouses & Lightships	0.60
55	Ravindra Gettu	Toughness characterization of fibre concretes with Dramiz fibres	Bekaert Industries Pvt. Ltd.,	1.10
56	Devdas Menon Gandhi S R	Construction of grade separator at mint junction, chennai on design and build basis-proof checking of the design	IVRCL Infrastructures and Projects Ltd	8.82
57	Thyagaraj T Robinson R G	Testing of gravel samples for structural fill works	KMC Construction Limited (JV)	0.29
58	Meher Prasad A	Testing for compressive strength, Water Absorption on prisms	Rashtriya Chemicals and Fertilizers Ltd.,	2.09

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
59	Alagusundaramoorthy P	Fire Damaged Hatsun Building - Assessment, Repair and Rehabilitation	HATSUN Agro Products Ltd.,	2.75
60	Thamizh Arasan V	Evaluation of paving Bitumen	BR Arora Associates Pvt. Ltd.,	0.88
61	Devdas Menon Meher Prasad A	Proof checking of ROB @ Rayavaram Village in lieu of L.C. No.236	Roads and Building Division	1.10
62	Rajagopal K	Recommendation on the connection strength between Secugrids and Modular Blocks	NAUE GmbH & Co KG	4.41
63	Indumathi M Nambi	Evaluation of Chloroscope Kit	Tamilnadu Medical Services Corporation	0.55
64	Indumathi M Nambi	Analysis of steelmill waste for reuse	Agni Steels (P) Ltd.,	0.55
65	Shiva Nagendra S M	Air Dispersion modeling for 400 MW Gas based power plant at Pune, Maharashtra	Green Circle Inc.,	3.03
66	Dodagoudar G R	Soil Nailing for Hill Cut of NH 7 Bypass - Chainage 163.700 to 164.400 Section Kayathar to Tirunelveli, Tamilnadu	SMS Infrastructure Ltd.,	0.30
67	Appa Rao G	Testing of Bharathi Cement OPC 53 grade and PPC	Bharathi Cement Corporation Limited	1.10
68	Ligy Philip	Process Technical Feasibility Report	VK Chemicals	0.56
69	Ligy Philip	Design and performance evaluation of a pilot scale flue gas Desulphurization system	Hi-Tech Carbon	2.25
70	Ligy Philip	Soil Sample Analysis	Toshiba JSW Turbine & Generator Pvt. Ltd.	1.43
71	Thamizh Arasan V	Mix Design for Airport Pavement Layers	Consolidated Construction Consortium Ltd	1.09
72	Satish Kumar S R	Vetting of designs pertaining to storage hall 2 green stock hall and cooling and inspection hall	Aster Building Solution Pvt. Ltd.,	3.47
73	Ligy Philip	Water Sample Testing	B.L. Kashyap & Sons Ltd.,	0.05
74	Boominathan A	Review of soil investigation at central park Building, Madurai	Apex Construction Ltd.,	0.55
75	Thyagaraj T Gandhi S R	Design of foundation for Tamil Nadu Housing Board flats at MKB Nagar	Tamil Nadu Housing Board	0.88
76	Devdas Menon	Proof checking bridge for coal carrying conveyor and CW pipe line Across Enoore Creek, Buckingham Canal and Railway Track for Vallur Thermal Power Project	Rites Limited	1.37
77	Appa Rao G	Proof checking of design of RC buildings at INCOIS	Indian National center for Ocean Information Services	7.99
78	Appa Rao G	Proof checing of structural design for blocks senior sailor and junior sailor at DGNP site	Gillette Diversified Operations Ltd.,	6.08
79	Devdas Menon	Proof checking of bridge at Chettichira and Vaduthala	Corporation of Cochin	2.64
80	Gandhi S R	Proof checking of well foundation at Chakki Bridge - Pathankot	ITD Cementation India Ltd.,	0.22
81	Devdas Menon	Tests on anchorage system	BBR (INDIA) LTD	3.30
82	Meher Prasad A	Design Approvals	Aster Teleservices Pvt. Ltd.,	1.59
83	Arul Jayachandran	Design checking of steel penstock rail bridge at TISCO Jamshedpur	Pragati Consultants	1.43
84	Devdas Menon	Testing of HT strands and elastomeric bearings	Common Code	2.00
85	Meher Prasad A	Calibration Test	Common Code	2.00
86	Appa Rao G	Proof checking of ROB composite girder between Podanur and Madukarai Station	V K Engineering Constructions	0.60

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
87	Devdas Menon	Proof checking of 4 lanning of Bijapur - Hungund section of NH-13 from Km 102.00 to Km 202.00 in the state of Karnataka	KNR Construction Ltd.,	18.86
88	Devdas Menon	Proof checking of MPL/NH-67/ROB no.1108 Trichy Thanjavur Highway	Madhucon Projects Limited	0.71
89	Devdas Menon	Proof checking of structural designs of road over bridge at Km 203/700-800 between Keelamanagalam	PJB Engineers Pvt. Ltd.,	2.81
90	Veeraraghavan A	Development of performance prediction models for rural roads under Pradhan Mantri Gram Sadak Yojana	National Rural Road Development Agency	1.37
91	Satish Kumar S R	Testing of HT strands	Common Code	3.00
92	Robinson R G Gandhi S R	Checking the design and monitoring phase II, cell 1 of landfill at of TNWML Gummidipoondi	Tamil Nadu Waste Mangement Limited	3.86
93	Alagusundaramoorthy P	Proof checking of structural design of prestressed prefabricated two lane bridge	Public Works Department	1.65
94	Alagusundaramoorthy P	Proof checking of structural design of hospital buiding	HLL Life Care Limited	4.96
95	Arul Jayachandran	Design checking of automated passive safety laboratory building for NATRIP	Consolidated Construction Consortium Ltd	5.18
96	Satish Kumar S R	Vetting of design - storage hall-2, Green stock hall and cooling and inspection hall - BK Threshers Ongole	Aster Building Solution Pvt. Ltd.,	2.50
97	Satish Kumar S R	Proof checking of PEBs for Dr. Reddy's Lab - Baddi at Jaipur	Pennar Engineered Building Systems Ltd.,	2.00
98	Satish Kumar S R	Proof checking of PEBs for Machine Hall, Ongole	Pennar Engineered Building Systems Ltd.,	3.30
99	Appa Rao G	Mix Design for M50 grade and Testing of Neoprene Bearing Pads	Copco Engineering Pvt. Ltd.	0.82
100	Devdas Menon	Testing of Anchorage Efficiency test - 2 Nos	Ultracon Structural Systems Pvt Ltd.,	1.65
101	Devdas Menon	Proof-Checking of Subway design for Coimbatore City Municipal Corporation at Mettupalayam Road	Coimbatore City Municipal Corporation	1.10
102	Robinson R G	Soil characterization for structural fill	Garrison Engineer	0.28
103	Meher Prasad A	Calibration Test	Common Code	2.00
104	Devdas Menon	Proof checking of conditions of dwelling units at colony of the K.C.P. Ltd	K C P Limited	1.65
105	Ravindra Gettu	Evaluation of components and mixes for concrete pavement at Chennai Airport	Chennai Airport Expansion Project	1.10
106	Gandhi S R Vidya Bhushan Maji	Design of excavation slope for Mantri Complex at Maleshwaram	Mantri Developers Pvt. Ltd.,	5.18
107	Devdas Menon	Proof checking of 275M chimney at Jharkhand & 220M chimney at Hazira	Essar Engineering Services Limited	5.51
108	Meher Prasad A	Study of dynamic behaviour and proof checking of TG pedestal	Abir Infrastructure P Ltd.,	1.32
109	Dodagoudar G R	Probabilistic Stability Analysis of Slopes, M.P.Mill Compound, Tardeo, Mumbai	Dongre Associates	2.50
110	Boominathan A Gandhi S R	Advice on piling operations at VEDANTA power plant site at Talwandi - Punjab	Talwandi Sabo Power Ltd.,	2.75
111	Devdas Menon Arul Jayachandran	Proof checking / vetting of 275 M tall chimney design for 2 X 300 MW coastal thermal power project at Nellore District	Bygging India Ltd	4.68

S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
112	Boominathan A	Dynamic pile testing at IOCL pradiip refinery	Larsen and Toubro Limited	3.86
113	Gandhi S R	Foundation Design for berthing structure at Jaigad	OECPL	0.33
114	Dodagoudar G R	Design Verification of Foundations of ESIC's Super Specialty Hospital, Sanat Nagar, Hyderabad	A.K. Associates	0.40
115	Dodagoudar G R	Design Verification of Foundations of RD office and Annexe Building, Adharshnagar, Hyderabad	A.K. Associates	0.50
116	Meher Prasad A	Proof checking of stup consultants design and detailed engineering for 275 meter high twin flue chimney	Abir Infrastructure P Ltd.,	4.41
117	Devdas Menon	Proof checking of Bridge No. 9, 16, 260, 6, 1, 2, 5 & 8A	Rail Vikas Nigam Limited	13.23
118	Indumathi M Nambi	Investigation of ground water pollution at petrol station in Mogapair	Indian Oil Corporation Limited	0.55
119	Gandhi S R Dali Naidu Arnepalli	Ash Pond at IB Thermal Power Station - Foundation Design	Orissa Power Generation Corporation Limited	4.19
120	Ravindra Gettu Satyanarayana K N	Technical Consultancy for the India Tower Project	Larsen and Toubro Limited	8.82
121	Devdas Menon	Proof checking of standard technical building at OKHA Port & dome structure above MCC building Kandla	Directorate of Lighthouses & Lightships	1.65
122	Rajagopal K	Proof checking and laboratory evaluation of the connection strength	IVRCL Infrastructures and Projects Ltd	4.96
123	Satish Kumar S R	Proof checking of the connecting truss	Consolidated Construction Consortium Ltd	0.25
124	Satish Kumar S R	ITC Report for III party Validation	Armes Maini Storage Systems Pvt. Ltd.,	0.66
125	Boominathan A	Site Specific Seismic study for 2400Mw Power plant at Samalkot	Reliance Infrastructure Engineers Private Limited	3.86
126	Murty C V R	Structural concept peer review - part I	Diamond Empire Estates Private Limited	9.92
127	Meher Prasad A	Design checking for structural stability of one shelter	Rinac India Limited	0.27
128	Nageswara Rao B Sundaravadivelu R	Proof checking of Structural design	Naval Project	2.20
129	Muralikrishnan J	Evaluation of the Rheological properties of Modified Binder	Total Vinergy Bitumen India Private	0.50
130	Ravindra Gettu	Concrete design for chennai metro rail project	Consolidated Construction Consortium Ltd	2.09
131	Dali Naidu Arnepalli	Evaluation of permeability characteristics of undisturbed clay samples	Gareware-Wall Ropes Ltd.,	1.98
132	Devdas Menon	Testing of HT strands and elastomeric Bearings	Common Code	2.00
133	Dali Naidu Arnepalli Thyagaraj T	Consultancy services in connection with geotechnical problems of minor bridges	Southern Railway	1.65
134	Appa Rao G	Assessment of quality of concrete in irrigation structures in A.P	LEA Associates	1.37
135	Robinson R G Thyagaraj T	Subgrade strengthening for Apron Construction at Cochin International Airport	Cochin International Airport	3.30
136	Meher Prasad A	Proof checking of 22m roof top towel and foundation design	Aster Teleservices Pvt. Ltd.,	0.27
137	Thyagaraj T Gandhi S R	Suitability study of excavated soil from foundation area for plinth filling	India Bulls Real Estate Limited	0.33
138	Devdas Menon	Testing of POT PTFE bearing & Elastomeric bearing testing	Simplex Infrastructures Ltd.,	0.79
139	Rajagopal K	Pullout testing of ParaWEBTM polymeric strips	Maccaferri Environmental Solutions Pvt. Ltd.	1.65
140	Dali Naidu Arnepalli Gandhi S R	Design of ash dyke section at Marwa TPP and slope stability analysis	BGR Energy Systems Limited	5.51



S.No	Name of the Faculty	Title	Industry	Amount (Rs. In lakhs)
141	G R Dodagoudar	Proof checking and foundation associated connection details - IOCL, Bottling Plant at Pondicherry	Sri Vinayaga Engineering Contrators	0.22
142	Appa Rao G	Testing of Bearings and Expansion joint material for Adilabad Expressway	Adilabad Expressway Private Limited	0.44
143	Devdas Menon	Proof Checking and Providing approval of all structural designs (substructure, super structure and other structural/related components) and drawings of 2 no ROB's for chennaiOuter Ring Road Project of TNRDC in the state of Tamil Nadu	GMR Infrastructure Ltd	6.78
144	Gandhi S R	Stability check for storage tank	IMC Limited	0.22
145	Ligy Philip	Water Sample Analysis	Toshiba JSW Turbine & Generator Pvt. Ltd.	0.99
146	Devdas Menon	Testing of HT strands and elastomeric bearings	Common Code	2.00
147	Boominathan A	DPL testing at OMPL project at Mangalore	Larsen and Toubro Limited	3.86
148	Boominathan A	Dynamic pile testing at Paradip Refinery CPP	Gangadhar Jena	3.86
149	Gandhi S R	Preliminary investigation for strengthening of tunnel	Paradip Port Trust	0.55
150	Alagusundaramoorthy P	Proof checking of tower foundation	Godrej & Boyces Manufacturing Co. Ltd.,	0.27
151	Alagusundaramoorthy P	Rehabilitation of 20 lakhs litres capacity over head water tank at Puducherry	Public Works Department	5.51
152	Alagusundaramoorthy P	Construction of 30m Height FRP Tower at Rava Port	Department of Lighthouses & Lightships	5.79
153	Alagusundaramoorthy P	Structural Adequacy check of a resin plant building	Technip India Limited	3.86
154	Dodagoudar G R	Advice on compaction strategy to be followed for backfilling of foundation excavations, residential housing complex for air force naval housing board at Ganapathy	Shapoorji Pallonji & Co. Ltd.,	0.30
155	Satish Kumar S R	Proof Checking of design of integrated dwells	S.S. Infrastructure Development Consultants Pvt. Ltd.,	0.40
156	Alagusundaramoorthy P	Testing of HT strands	Common Code	3.00
157	Boominathan A Gandhi S R	Review of soil investigation report and foundation recommendation	Patel Engineering Ltd.,	8.82
158	Alagusundaramoorthy P	Repair and Rehabilitation of a Hospital Building	Corporation of Chennai	6.62
159	Boominathan A	Seismic study for preparation of site evaluation report	Development Consultants Pvt. Ltd.,	4.41
160	Devdas Menon	Testing of dynamic test on 19dp 15 anchorages	Dynamic Prestress (I) Pvt. Ltd.	3.30
161	Robinson R G	Evaluation of Consolidation strength parameters for thermal power plant	Thermal Powertech Corporation India Ltd	0.56
162	Appa Rao G	Concrete Mix design for construction of three lane bridge at Adyar	Highways Department	1.37
163	Thamizh Arasan V	Mix Design for Airport Pavement Works	Airports Authority of India	1.37
164	Devdas Menon	Testing of load transfer test & dynamic load test & static load test	Metropolitan Transport Project	1.37
165	Boominathan A Gandhi S R	Consultancy services for pile construction for paradip refinery project	Kazstroy Engineering India Pvt. Ltd.,	3.30
166	Devdas Menon	Testing of tension test on bare bars & fatigue test for 32mm and 36mm dia	Shakthi Commodities Pvt. Ltd.,	8.38

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167	Meher Prasad A	Proof checking of 275M high triple steel flue RCC chimney	Reliance Infrastructure Ltd.,	4.41
168	Appa Rao G	Conducting Design Mix for RCC works for the Grade M20, 25 30 & 35	National Building Construction Corporation Ltd.,	1.65
169	Meher Prasad A	Fatigue testing of heavy commercial vehicle drive axle housings	Axles India Limited	2.75
170	Devdas Menon	Dynamic fatigue test of composite sleepers	Patil Group of Ind.	6.61
171	Meher Prasad A	Proof checking of structural design and drawings AWHO project at Coimbatore	Army Welfare Housing Organisation	5.00
172	Arul Jayachandran S	Design checking of a new PEB hangar for a Dornier squadron at naval base Kochi	Naval Project	2.20
173	Devdas Menon	Proof checking of Box Culvert	DLF Southern Homes Pvt. Ltd.,	0.88
174	Satish Kumar S R	Proof checking of design	Pennar Engineered Building Systems Ltd.,	9.92
175	Satish Kumar S R	Vetting the pre-engineered steel building design	Era Buildsys Limited	0.55
176	Arul Jayachandran S	Fatigue testing of corroded and glass fiber strengthened rails	Southern Railway	12.28
177	Manu Santhanam	Mix designs for Chennai Elevated Corridor	Soma Enterprise Limited	3.20
178	Manu Santhanam	Evaluation of SNF superplasticizers	Balmer Lawrie and Co. Ltd	0.40
179	Manu Santhanam	Durability investigations for concrete	ICOMAT Pvt. Ltd.,	0.50
180	Manu Santhanam	Site investigation of cracked concrete pedestals	Samsung Engineering Company Ltd.,	1.30
181	Manu Santhanam	Core testing on airport runway slabs	Airports Authority of India	1.00
182	Dodagoudar G R Nageswara Rao B	Site visit and certification of gauge converted line between Villupuram and Vellore Cantonment Stations	Southern Railway	0.65
183	Gandhi S R Thyagaraj T	Compound wall foundation	Udangudi Power Corporation Ltd.,	0.22
184	Appa Rao G	Design of M30 Grade Concrete for severe environment	SVC Projects Pvt Ltd	0.35
185	Appa Rao G	Assessment of structural stability of RC Famed Buildings in Kirlampudi, Vizag	Greater Visakhapatnam Municipal Corporation	2.48
186	Koshy Varghese Satyanarayana K N	Assessment of developing monetary and planning skills programme	Larsen and Toubro Limited	15.22
187	Arun Menon	Restoration of Ripon Building and Victoria Public Hall	Corporation of Chennai	0.66
188	Ramachandraiah A	Assessment of Acoustical and Lighting Properties of Tiles	Airports Authority of India	0.88
189	Satish Kumar S R	Proof checking of design	Mukesh and Associates	6.20
190	Satish Kumar S R	Checking and approval of design calculation	Pennar Engineered Building Systems Ltd.,	1.32
191	Vidya Bhushan Maji Gandhi S R	Rock Strata Classification	Airports Authority of India	0.55
192	Devdas Menon	Proof Checking design of trapezoidal spans both sides of ROB proper	Roads and Building Division	1.48
193	Satish Kumar S R	Proof Checking of Structural Design of Steel Bow String Arch Superstructure Over River Cauvery	L & T Ramboll Consulting Engineers Ltd.,	1.10
194	Devdas Menon	Testing of HT strands and elastomeric Bearings	Common Code	2.00
195	Appa Rao G	Assessment of quality of concrete in irrigation structures in A.P.	LEA Associates	1.37
196	Murty B S	Vetting of surge analysis report for 50 MLD WTP ASSONORA - GOA	Saisanket Enterprises	0.22
197	Murty B S	Vetting of design note for water hammer control system	Fluid Hammer Consultancy Services (P) Ltd.,	0.44

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198	Satish Kumar S R	Testing of HT strands	Common Code	3.00
199	Meher Prasad A	Proof checking for design verification and approval of 31 mtrs trillon mast	Kadevi Engineering Company Pvt. Ltd.,	0.33
200	Meher Prasad A	Testing of compressive strength and water absorption flexural strength	Rashtriya Chemicals and Fertilizers Ltd.,	2.11
201	Ligy Philip	Technical Feasibility Report for the construction of 40 MLD STP	Municipal Corporation	0.88
202	Gandhi S R	Proof checking of foundation for major structures of SGRP Road	Larsen and Toubro Limited	2.20
203	Veeraraghavan A	Consultancy services to carryout road safety assessment of the upgraded roads under TNRSP - 01 and proposed counter-measure implementation	Highways Department	9.43
204	Ligy Philip	Coovam water sample testing	Soma Enterprise Limited	0.59
205	Meher Prasad A	Testing of Cuplock System	Consolidated Construction Consortium Ltd	1.81
206	Gandhi S R	Foundation Design	Common Code	2.00
207	Rajagopal K	Reinforced soil works	Common Code	5.00
208	Devdas Menon	Testing of HDPE Sheathing Duct ID 105 mm/ OD 124mm as per Fib - 7	Gwalior Polypipes Ltd.,	3.14
209	Veeraraghavan A	Investigation of cracks in dense bituminous macadam layers on NHAI project on NH-67-Tiruchy-Karuru section and recommendations on remedial measures	TechTrans Construction India Pvt. Ltd.,	1.65
210	Veeraraghavan A	Chennai Bypass Inspection and Evaluation report on pavement condition and maintenance needs assessment	Hindustan Construction Co. Ltd.	1.37
211	Veeraraghavan A	Consultancy Services to carryout techno-Economic Feaibility to prepare a shelf of projects for various financial options including institutional borrowing for improvements to core networks in Tamilnadu	Highways Department	49.24
212	Ravindra Gettu	Mix Design and Inspection of Damages in Concrete Construction	Common Code	2.00
213	Ramachandraiah A	Acoustical Design of Studios and Auditorium	American International School	2.35
214	Robinson R G Sudheer K P	Design of embankment and cut slopes for the test track at Oragadam	Rites Limited	9.92
215	Ravindra Gettu	Characterization of polypropylene fibre reinforced concrete	Tashi India Ltd.,	0.88
216	Boominathan A	Geotechnical consultancy services for compressor foundation	Saipem India Project Limited	0.55

**RBIC projects:**

- No. of Project - 11
- Value - 204.45 lakhs

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Alagusundaramoorthy P Sundaravadivelu R	Comprehensive Study of Berthing Jetty at Offshore Oil Terminal	Kandla Port Trust	17.09
2	Ligy Philip	Scaling up of community based water quality monitoring and sanitary surveillance in two blocks of Krishnagiri Dist.	United Nations Children's Fund	17.78
3	Meher Prasad A	Optimal design of pre-stressed concrete (PSC) sleeper	Ministry of Railways	9.93

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
4	Ashwin Mahaligam Thillairajan A	Developing toolkits for policy makers engaged in designing and managing sectoral and cross sectoral PPP Interventions in Infrastructure	International Bank for Reconstruction & Development	18.19
5	Balaji Narasimhan	Climate II : SWAT modelling and online database creation	Bioforsk	7.47
6	Muralikrishnan J Veeraragavan A	Evaluation of the performance of the Bituminous mixtures using modified binders manufactured	Total Vinergy Bitumen India Private	13.45
7	Appa Rao G	Fatigue testing of 12.7mm 7-ply high tensile steel strands	Tata Steel	8.93
8	Nageswara Rao B Dodagoudar G R	Reliability based optimal design of FBR base raft	Indira Gandhi Centre for Atomic Research	29.94
9	Ravindra Gettu Manu Santhanam	Study of the durability of concrete under different environmental conditions with a view of establishing a database	Lafarge Centre de Recherche	23.00
10	Ligy Philip Ramachandraiah A	Terrestrial Environmental Monitoring	Larsen & Toubro Shipbuilding Ltd.,	34.17
11	Muralikrishnan J Veeraragavan A	Assessment of the Laboratory Performance of Specialty Modified B	Bharat Petroleum Corporation Ltd.,	24.50

**Retainer Consultancy:**

- No. of Project - 3
- Value - 4.12 lakhs

Sl.No.	Name of faculty	Industry	Amount (Rs. in lakhs)
1	Gandhi S R	Larsen and Toubro Limited	1.32
2	Manu Santhanam	Hitech Concrete Solutions Chennai Pvt. Ltd.,	2.64
3	Veeraraghavan A	L&T Infrastructure Development Projects Limited	0.16

**Research Publications of the faculty members & research scholars:**

- Total No. of papers published in Refereed National Journals : 23
- Total No. of papers published in Refereed International Journals : 49
- Total No. of papers presented in National Conferences : 19
- Total No. of papers presented in International conferences : 48

**In Refereed National Journals:**

1. A.Cinderla Devi and K.Ananthanarayanan, " The Development of Resource-Driven Scheduling Model for Mass Housing Construction Projects" NICMAR Journal Vol.XXIV April-June 2009.
2. Sudheer, K. P., and Jain, A. (2009). Recent advances in knowledge extraction from artificial neural network based hydrologic models. ISH Journal of Hydraulic Engineering, Vol. 15(1): 75-83.
3. Shailendra Grover and Veeraragavan, A, (2010) Quantification of benefits of improved performance due to good drainage, Paper No.558, Journal of the Indian Roads Congress Vol. 71-1, January-March 2010.
4. Shailendra Grover and Veeraragavan, A, (2010) Research needs in sub-surface drainage for long lasting pavements, Highway Research Journal, Vol.3, No.1, Indian Roads Congress, January-June 2010.
5. Pundhir, N.K.S, Shailendra Grover and Veeraragavan, A, (2010) Cold mix design of semi-dense bituminous concrete, Indian Highways, Journal of the Indian Roads Congress, Vol. 38, No.3, March 2010.
6. Veeraragavan, A and Shailendra Grover, (2010) Forensic investigation of pre-mature failure of a national highway pavement due to poor sub-surface drainage, Paper No.562, Indian Roads Congress Journal Vol. 71-2, July-September 2010.
7. Prithvi Singh Kandhal, Jain, R.K and Veeraragavan, A, (2010) Guidelines for long lasting highway pavements in India, Paper No. 564, Journal of the Indian Roads Congress Vol.71-3, October – December 2010. R Kalaiselvi and A Ramachandraiah, "Computation of noise levels due to elevated structures", JI of Acoustical Society of India, Vol. 37 (2),pp 51-56, 2010.

8. Chirag Deb and A Ramachandraiah, "Significance of PET in outdoor thermal comfort studies", International Journal of science and technology, vol.2 (7), pp 2825-2828, 2010.
9. Bushra, I. and Robinson, R. G. (2010). Curing Stress and Compressibility Behaviour of Cement Treated Marine Soil, Indian Geotechnical Journal, 40(4), 253-263.
10. Balu, A.S., and Rao, B.N., "Efficient Explicit Formulation for Practical Fuzzy Structural Analysis," Sadhana, 2011 (Accepted).
11. Balu, A.S., and Rao, B.N., "Efficient high dimensional model representation based method for system reliability bounds estimation for problems with mixed uncertain variables," Journal of Structural Engineering, SERC, India October -November 2011.
12. Kalanad, A., and Rao, B. N., "Modified Two-Dimensional Cracked Finite Element For Crack Identification," Journal of Structural Engineering, SERC, India August -September 2011.
13. Ghouse, M.D., Lakshmana Rao, C., and Rao, B.N., "Numerical modelling of failure of cement concrete using a unit cell approach," Sadhana, Vol. 36, Part 1, pp. 1-17, February 2011.
14. Arun, O. C., Rao, B.N., and Sivakumar, S.M., "Continuum Damage Growth Analysis Using Element Free Galerkin Method," Sadhana, Vol. 35, Part 3, pp. 279-301, June 2010.
15. Rajesh, K.N., and Rao, B.N., "Coupled Element Free Galerkin and Fractal Finite Element Method for Unbounded Problems," Journal of Structural Engineering, SERC, India, Vol. 37, No. 3, pp. 167-179, August-September 2010.
16. Chowdhury, R., Rao, B.N., and Prasad, A.M., "Hybrid High Dimensional Model Representation for Failure Probability Estimation," Journal of Structural Engineering, SERC, India, Vol. 37, No. 3, pp. 185-196, August-September 2010.
17. Arun, O. C., Rao, B.N., and Sivakumar, S.M., "Continuum Damage Growth Analysis Using Element Free Galerkin Method," Sadhana, Vol. 35, Part 3, pp. 279-301, June 2010.
18. Rajesh, K.N., and Rao, B.N., "Coupling of Fractal Finite Element Method and Meshfree MethodS for Mode I Crack Problems," Journal of Structural Engineering, SERC, India, Vol. 36, No. 6, pp. 409-424, February - March 2010.
19. Reddy, C. R. S. and Sengupta, A. K., "Validation of Indices for Assessing Seismic Vulnerability of Multi-storeyed Buildings with typical Vertical Irregularities using Push-over Analysis", *Journal of Structural Engineering*, Structural Engineering Research Centre, Chennai, Vol. 37, No. 4, October- November 2010, pp. 256 - 262.
20. Dhar, S. and Sengupta, A. K., "Analysis of Chord Forces in Reinforced Concrete Buildings with Flat Plates or Flat Slabs", *ICI Journal*, Indian Concrete Institute, Vol. 10, No. 4, January-March 2010, pp. 21 - 27.
21. Dasgupta, K., Goswami, R., and Murty, C.V.R., "Seismic Shear Design of Deep RC Vertical Members: A Review of Codal Provisions," The Indian Concrete Journal, The ACC Limited, Thane, Vol. 84, No. 9, September 2010, pp. 39-50.
22. Dasgupta, K., Goswami, R., and Murty, C.V.R., "Seismic Shear Design of Deep RC Vertical Members: Recommended Provisions for Indian Codes," The Indian Concrete Journal, The ACC Limited, Thane, Vol. 84, No. 9, September 2010, pp. 59-63.
23. Veeraragavan, A and Shailendra Grover, (2010) Forensic investigation of pre-mature failure of a national highway pavement due to poor sub-surface drainage, Paper No.562, Indian Roads Congress Journal Vol. 71-2, July-September 2010.

**In Refereed International Journals:**

1. Anjan Kumar, S and Veeraragavan, A, (2010) Performance based binder type selection using mixed integer programming technique, Construction and Building Materials, Vol. 24, 2091-2100.
2. A. Sivakumar and M. Santhanam, "Cracked Permeability of Hybrid Fibre-Reinforced Concrete", *Proceedings of the ICE - Construction Materials*, Vol. 63, Issue 1, 2010, pp. 45 - 50.
3. Ameena Padiath, Lelitha Vanajakshi and Shankar C. Subramanian, Estimation of traffic density under Indian traffic conditions, Transportation Research Board, National Research Council, Washington, D. C., 2010.

4. Ameena Salim, Lelitha Vanajakshi and Shankar Subramanian, 'Estimation of Average Space Headway under Heterogeneous Traffic Conditions, *International Journal of Recent Trends in Engineering*, Vol. 3, No. 6, 2010, pp. 6-10.
5. Anjan Kumar, S and Veeraragavan, A, (2010) Performance based binder type selection using mixed integer programming technique, *Construction and Building Materials*, Vol. 24, 2091-2100.
6. Arul Jayachandran S, Marimuthu V, Saravanan M, Prabha P, "Large deflection and postbuckling behaviour of thin plates resting on nonlinear elastic medium", *International Journal of Structural Stability and Dynamics*, Accepted for publication. 2010.
7. Arun, O. C., Rao, B.N., and Sivakumar, S.M., "Stochastic Meshfree Method for Elasto-Plastic Damage Analysis," *Computer Methods in Applied Mechanics and Engineering*, Vol. 199, No. 37–40, pp. 2590–2606, August 2010.
8. B.N. Rao, M. Kuna, Interaction Integrals for Thermal Fracture of Functionally Graded Piezoelectric Materials, *Engineering Fracture Mechanics*, 77, 37-50, 2010
9. B.N. Rao, Rajib Chowdhury, A. Meher Prasad, R. K. Singh H. S. Kushwaha, Reliability Analysis of 500 MWe PHWR Inner Containment Using High Dimensional Model Representation, *International Journal of Pressure Vessels and Piping*, 2010
10. Balasubramanian P, Ligy Philip, S. Murty Bhallamudi (2011). Biodegradation of Chlorinated and Non Chlorinated VOCs from Pharmaceutical Industries. *Appl. Biochem. and Biotech* . Doi: 10.1007/s12010-010-9057-2
11. Bhasi, A. and Rajagopal, K. (2010) Finite element study of the influence of pile jetting on load capacity of adjacent piles, *International Journal of Geotechnical Engineering*, J. Ross Publishing Inc., Vol. 4, No. 3, 361-370.
12. Bhuvaneshwari, S., Robinson, R. G. and Gandhi, S. R. (2010), Micro-fabric and mineralogical studies on the stabilization of an expansive soil using inorganic additives, *International Journal of Geotechnical Engineering* 4: (405-415).
13. Boominathan, A., Rangaswamy, K. and Rajagopal, K. (2010) Effect of non-plastic fines on liquefaction resistance of Gujarat Sand, *International Journal of Geotechnical Engineering*, J. Ross Publishing Inc., Vol. 4, No. 2, 241-253.
14. Chandrasekaran, S. S., Boominathan, A. and Dodagoudar, G. R. (2010). Group Interaction Effects on Laterally Loaded Piles in Clay, *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 136, pp. 573-582.
15. Chandrasekaran, S. S., Boominathan, A. and Dodagoudar, G. R. (2010). Experimental Investigations on the Behaviour of Pile Groups in Clay Under Lateral Cyclic Loading, *Geotechnical and Geological Engineering An International Journal*, Vol. 28, pp. 603 - 617.
16. Chethanamba, K. R. and Dodagoudar, G. R. (2011). Probabilistic Seismic Hazard Analysis Using Kernel Density Estimation Technique for Chennai, India, *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards*, Vol. 5, 15p.
17. Chethanamba, K. R. and Dodagoudar, G. R. (2011). Seismic Hazard Analysis Using Adaptive Kernel Density Estimation Technique for Chennai City, *Pure and Applied Geophysics*, Vol. 168, 15p.
18. Chirag Deb and A Ramachandraiah, " A simple technique to classify urban locations with respect to human thermal comfort- proposing HXG scale", *Building and Environment*, pp.1-8, 2011.
19. Chirag Deb and A Ramachandraiah, " Evaluation of thermal comfort in a rail terminal location in India", *Building and Environment*, Vol 45, pp 2575-2580, 2010
20. Chokalingham K., Saravanan U., and Muralikrishnan J. (2010) Characterization of petroleum pitch using steady shear experiments. *International Journal of Engineering Science*, 48(11) pp. 1092-1109.
21. Chowdhury, R., and Rao, B. N., "Probabilistic Stability Assessment of Slopes Using High Dimensional Model Representation," *Computers and Geotechnics*, Vol. 37, No. 7–8, pp. 876–884, November 2010.
22. Chowdhury, R., Rao, B.N., and Prasad, A.M., "High Dimensional Model Representation for Structural Reliability Analysis: Authors' Reply to Comments by S. Rahman and H. Xu," *Communications in Numerical Methods in Engineering*, 2010 DOI: 10.1002/cnm.1412.
23. Cbin, R., Sudheer, K. P. and Chaubey, I. (2010). Sensitivity and Identifiability of stream flow generation parameters of the SWAT model. *Hydrological Processes*, 24(9): 1133-1148.
24. D. Mukherjee, B.N. Rao, and A.M. Prasad, Global Sensitivity Analysis of Unreinforced Masonry Structure Using High Dimensional Model Representation, *Engineering Structures*, Vol. 33, No. 4, pp. 1316–1325, April 2011.

25. D. N. Arnepalli, B. Hanumantharao, S. Shanthakumar and D. N. Singh (2010). "Determination of Distribution Coefficient of Geomaterials and Immobilizing Agents", Canadian Geotechnical Journal, (In Press).
26. Deepa, A. and Shiva Nagendra, S. M., 2010. Statistical distribution models for urban air quality management. International Journal of Advances in Geosciences, 16, 285-297.
27. Devasena and Indumathi Nambi (2010) Migration and Entrapment of Mercury in porous media *Journal of Contaminant Hydrology* DOI information: 0.1016/j.jconhyd.2010.06.005 (2.106)
28. Devdas Menon, K V Sivaraman and Maganti Janardhana, "Improved codal recommendations for design of RC dog-legged stairs supported on transverse landing edges", Journal of Structural Engineering, Vol. 37, No. 5, pp 342-346, Dec. 2010 – Jan. 2011.
29. Gaspar, L, Veeraragavan, A and Bako.A, Comparison of Road Performance Modeling of India and Hungary, Acta Technica Jaurinensis International Journal Vol 2., No.1 Hungary, 2010.
30. Goswami, R., and Murty, C.V.R., "Externally Reinforced Welded I-Beam-to-Box-Column Seismic Connection," Journal of Engineering Mechanics, ASCE, Vol. 136, No. 1, January 2010, pp. 23-30.
31. J. Jeyasingh, V. Somasundaram, Ligy Philip, S. Murty Bhallamudi (2010). Bioremediation of Cr(VI) Contaminated Soil/Sludge: Experimental Studies and Development of a Management Model. Journal of Chemical Engineering. 160 (2), pp 556-564.
32. J. Senthil Nathan and Ligy Philip (2010). Photocatalytic Degradation of Lindane under UV and Visible Light using N-doped TiO<sub>2</sub>. Journal of Chemical Engineering. 161(1-2), pp 83-92.
33. J. Senthil Nathan and Ligy Philip (2010). Removal of mixed pesticides from drinking water system using surfactant assisted nano TiO<sub>2</sub>. Air, water and Soil Pollution. 210(1-4), pp143-154
34. K Pallav, STG Raghu Kanth and KD Singh, Surface level ground motion estimation for 1869 Cachar earthquake at Imphal city, Journal of Geophysics and Engineering, 7,1-11, 2010
35. K. N. Rajesh, B.N. Rao, Coupled Meshfree and Fractal Finite Element Method for Mixed Mode Two-Dimensional Crack Problems, International Journal for Numerical Methods in Engineering, 2010 .
36. K. Ramakrishna and Ligy Philip (2011). Bioremediation of Single and Mixture of Pesticide-Contaminated Soils by Mixed Pesticide-Enriched Cultures. Appl. Biochem. and Biotech (Doi: 10.1007/s12010-011-9211-5)
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44. Menon, A. Magenes, G. [2011] *Definition of seismic input for out-of-plane response of unreinforced masonry – I. Parametric Study*, Journal of Earthquake Engineering, Vol.15 (2), pp. 165-194.
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57. Theja P. V. V. K., Lelitha Vanajakshi, Short Term Prediction of Traffic Parameters Using Support Vector Machines Technique, International Conference on Emerging Trends in Engineering & Technology, 2010.
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60. Veeraragavan, A and Muralikrishna, (2010) Decision support models for asset management of rural roads, PIARC International seminar on sustainable maintenance of rural road, Hyderabad, 21-23 January 2010.
61. Veeraragavan, A and Sikdar, P, (2010) Prioritisation of rural roads for maintenance – strategies and options, PIARC International seminar on sustainable maintenance of rural road, Hyderabad, 21-23 January 2010.

**Distinguished Visitors to the Department:**

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Sterling Group comprises of Profs. David A Cardwell Univ. of Cambridge, Charles Iroonside, University of Glasgow, Richard Scott, Durham University	09 April 2010	Research collaboration
2	Prof. Adnan Ibrahimbegovic, ENS Cachan, France	30 June 2010	Delivered a Lecture
3	Mr. Heribert Moeslang Director Technology Aquantis GmbH, Germany	11 July 2010	Veolia interested with IIT Madras Collaboration
4	Prof. Greg Davis, CSIRO, Australia	2-5 Aug. 2010	International Conference on Hydro-Science and Engg.
5	Prof. James Tsai, Georgia Tech. University	23 Aug. 2010	Delivered a Lecture
6	Members from Planning Commission, Government of India	16 Sept. 2010	Discussion with EWRE Faculty members
7	Prof. Shashi Nambeesan, Director of Transportation Studies, IOWA State University, US	12 Oct. 2010	Research collaboration
8	Joseph J Helble, Dean and Professor Thayer School of Engg., Dartmouth College Hanover and Member of the Ivy League Group of Universities	16 Dec. 2010	Research collaboration
9	Profs. James, B Milliken, President, Prof. Thomas Farrell, Vice Provost Prof. Suat Irmak, Water for Food Instt. University of Nebraska Lincoln	04 March 2011	Collaborations in Water Research
10	Prof. Jerry Magutu, Nairobi University, Kenya	09 March 2011	C V Raman International Fellow in the Department
11	Dr. Tim Chatterton University of the West of England, Bristol	08 -10 March 2011	Delivered a Lecture
12	Prof. Ning Bin President Beijing Jiatong University China	28 March 2011	MoU – Beijing Jiatong University and IIT Madras

#### 4.6.6 Other Activities of the Department/Centre:

- a. Civil Engineering Association organized CEAFEST 2011 during 4-7 March 2011, more than 500 students from across the country participated. Quizzes, Paper presentations, design contests, Brainstorming sessions etc. were the events of the programme.
- b. 40<sup>th</sup> Anniversary of Structural Engineering Laboratory and 90<sup>th</sup> year Birthday of Prof. P.C. Varghese, Former Head of the Department, were celebrated on 26.03.2011 with participation of Retired Faculty and Staff of the Department.

#### • International collaboration achievements by the Department

##### Student visit:

Prince Vijay, Master's student of EWRE division visited Newcastle University during November/December 2010 for more than 3 weeks

**Faculty visit:** Dr. S.M. Shiva Nagendra visited New Castle University, UK during January 2010

##### Activities initiated:

#### 1. Joint workshops:

Department of Civil Engineering of IIT Delhi and IIT Madras and Transportation Research Group, Newcastle University Jointly Organized Two Day Workshop on Transport, Land Use Strategies and Technology Interventions for Urban Air Quality Management during 9<sup>th</sup> Feb.2011 to 10<sup>th</sup> Feb. 2011, at IIT Delhi.

#### 2. Joint research publications

1. Namdeo, A.K., Nagendra, S.M.S, Khare, M., Bell, M., Sohel, I. and Cairns, J.(2010) Performance evaluation of air quality dispersion models/codes – a case study in Delhi. 10<sup>th</sup> Urban Environment Symposium, Gothenburg, 9-11 June 2010.
2. Mukesh Khare, Shiva Nagendra,SM. and Sunil Gulia, (2011). Prediction of Pollution Level at Urban Intersection of UK and Indian Cities by ADMS Urban Model. Accepted in Air pollution 2011 conference, organized by WIT, UK.
3. Shiva Nagendra, Mukesh Khare SM Prince Vijay and Sunil Gulia, (2011). Performance evaluation of ADMS Urban Model for predicting PM<sub>10</sub> concentration at roadside in Chennai, India and Newcastle, UK. Accepted in Air pollution 2011 conference, organized by WIT, UK.

#### Major infrastructure development made in the Department

IITM-Lafarge Laboratory for the 'Study of Long-Term Performance of Concrete' funded by Lafarge Centre De Recherche, France was set up in the Department for a value of Rs.90,00,000/-.



## 4.7 DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### 4.7.1 Introduction:

Started as Computer Center 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 number of M.S. / Ph.D. scholars among all CS Depts. of like institutions in the country.

### 4.7.2 Academic Programmes: B.Tech, Dual Degree, M.Tech, M.S., Ph.D.

#### New Courses introduced:

Sl.No	Course No.	Title
1	CS6012	Social Networks Analysis
2	CS6011	Kernel Methods for Pattern Analysis
3	CS6014	Advance Theory of Computation
4	CS6013	Modern Compilers Theory and Practice
5	CS5011	Introduction to Machine Learning
6	CS6560	Parallel Computing Architecture
7	CS6860	Algorithms for Computational Biology

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	33	27	26	20	5	111
Dual Degree	29	23	19	20	17	108
M.Tech.	67	63	4	0	-	134
M.S.	17	26	18	13	-	74
Ph.D.	10	15	11	7	17	60
<b>Total</b>	<b>156</b>	<b>154</b>	<b>78</b>	<b>60</b>	<b>39</b>	<b>487</b>

#### Names of Student/Scholar who attended Conference/ Seminar and Symposia Abroad/India:

Sl. No	Name of the Student/ Scholar	Roll No.	Name of the Conference/ Seminar / Symposia/ Workshop	Date and Venue
<b>Abroad</b>				
1	V Umadevi (Ph.D)	CS10B013	IEEE EMBS Conference	30 <sup>th</sup> November – 2 <sup>nd</sup> December 2010 at Kuala Lumpur, Malaysia.
2	Karthik Raghavan (MS)		ASPLOS 2010 also presented Poster titled "ROSY: Recovering processor and Memory Systems from Hard Errors"	13 <sup>th</sup> -17 <sup>th</sup> March 2010
3	Preethi Chandur (MS)	CS10S006	Indo-UK Technical workshop on IU-ATC Project	15-16 June 2010 Coleraine, Northern Ireland, U.K
4	Madanagopal Ramachandran (Ph D)	CS10D007	Indo-UK Technical workshop on IU-ATC Project	15-16, June 2010 Coleraine, Northern Ireland, U.K
5	Gireesh Namboothiri (M S)	CS05B006	IEEE Conference on Local Computer Networks.	Oct. 2010. Denver, USA.
6	N. Sadagopan, (Ph D)	CS07D007	Australasian Theory Symposium	January 2011, Sydney, Australia
<b>India</b>				
1	Immanuel Illavarasan T B.Tech	CS07B006	SIGCOMM 2010	30 <sup>th</sup> August- 3 <sup>rd</sup> September 2010, New Delhi
2	Kritika B.Ruchandani		SIGCOMM 2010	30 <sup>th</sup> August- 3 <sup>rd</sup> September 2010, New Delhi

3	Ms.R. Golda Brunet (Ph.D)	CS09D012	Winter School on Speech & Audio Processing-11.	<sup>th-</sup> <sup>th</sup> 8 11 January 2011 IIT Guwahati.
4	Mr. N.Sadagopan (Ph.D)	CS07D007	School of Approximability.	<sup>th-</sup> <sup>th</sup> 4 9 January 2011 IISc Bangalore.
5	Mr. Rajeev Rajan (Ph.D)	CS10B014	Winter School on Speech & Audio Processing-11.	<sup>th-</sup> <sup>th</sup> 8 11 January 2011 IIT Guwahati.
6	Mr. Rajeev Rajan (Ph.D)	CS10B014	National Conference on Communications.	<sup>th-</sup> <sup>th</sup> 28 30 January 2011 IISc Bangalore.
7	Mr.Patil Ganesh Ramesh (M.S)	CS08S028	National Conference on Communications.	<sup>th-</sup> <sup>th</sup> 28 30 January 2011 IISc Bangalore.
8	Mr. Sriram Kailasam (Ph.D)	CS06D011	Apache Hadoop India Summit 2011.	<sup>th-</sup> <sup>th</sup> 15 18 February 2011 IISc. Bagalaoe
9	Mr. Harishankar. H (Ph.D)	CS08D014	Apache Hadoop India Summit 2011.	<sup>th-</sup> <sup>th</sup> 15 18 February 2011 IISc. Bagalaoe
10	Mrs. Geeta Iyer (Ph.D)	CS09S011	Apache Hadoop India Summit 2011.	<sup>th-</sup> <sup>th</sup> 15 18 February 2011 IISc. Bagalaoe
11	Mr.Hemang Mehta (M.S)	CS10S011	Apache Hadoop India Summit 2011.	<sup>th-</sup> <sup>th</sup> 15 18 February 2011 IISc. Bagalaoe
12	Mr. K.V.N. Pradyut (M.S)	CS10S005	Yahoo. Faculty Research and Engagement Program.	<sup>th-</sup> <sup>th</sup> 15 27 February 2011 IISc. Bagalaoe
13	Mr. Rajesh Barua (M.Tech)	CS09M035	Yahoo. Faculty Research and Engagement Program	<sup>th-</sup> <sup>h</sup> 15 27 February 2011 IISc. Bagalaoe
14	Sarang Deshpande (M S)	CS08S026	ACM SIGCOMM Conference,	Aug. 2010 New Delhi, India
15	Sarang Deshpande (M S)	CS08S026	IBM-IRL Collaborative Academia Research Exchange (I-CARE),	Oct. 2010. Bangalore, India
16	Sarang Deshpande (M S)	CS08S026	CSI-SIGDS International Workshop on Distributed Systems,	Nov. 2010 Kanpur, India
17	Sarang Deshpande (M S)	CS08S026	Third International Conference on COMMunication Systems and NETworkS(COMSNETS)	Jan. 2011. Bangalore, India
18	Anand Kumar M.Tech	CS09M003	CSI-SIGDS International Workshop on Distributed Systems	Nov. 2010 Kanpur, India
19	Ganesh C.S.,	CS09S003	IEEE Advanced Networks and Telecommunications Systems (ANTS) Conference	Dec. 2010 Mumbai, India
20	B. Durai	CS07S023	National Conference on Communications (NCC)	Jan. 2011. Bangalore, India
21	Somdutta Banerjee, B (MS). Prashanth,(PhD) Smit Marvaniya, (MS) Renuka Pattnaik,(PhD) Sreyasee Das Bhattacharya(Ph.D)	CS10D012 CS10D012 CS10S027 CS08D002 CS06D002	Microsoft Shindig	Dec 2011
22	Dileep A.D. and Veena T	CS07D001	Indo-US Symposium on New Directions in Machine Learning, Game Theory and Optimization, IISc Bangalore	Nov 12-13, 2010
23	Geeta Iyer (MS)	CS09S011	International Workshop on Distributed Systems (IWDS) 2010	27-28 November 2010. IIT Kanpur
24	Harisankar H (PhD )	CS08D014	International Workshop on Distributed Systems (IWDS) 2010	27-28 November 2010. IIT Kanpur
25	Harisankar H (PhD)	CS08D014	4th International Semantic Search Workshop located at the 20th Int. World Wide Web Conference WWW2011	March 29, 2011 Hyderabad

26	MS Najeem (PhD )	CS08D011	ACM SIGCOMM New Delhi	31 August .2010 – 02 September 2010
27	PhD Mahendran Veeramani (PhD)	CS07D008	ACM SIGCOMM New Delhi	31 August .2010 – 02 September 2010
28	P Phani Krishna (MS)	CS09S007	ACM SIGCOMM New Delhi	31 August .2010 – 02 September 2010
29	MVK Chaithanya(MS)	CS09S024	ACM SIGCOMM New Delhi	31 August .2010 – 02 September 2010
30	PhD Mahendran Veeramani (PhD )	CS07D008	ICDCN Institute Bangalore	02 January 2010 – 05 January 2010
31	R.Saravana Manickam CS (MS)	CS08S023	COMSNETS Institute Bangalore	05 January 2010 – 08 January 2010

**Names of students/scholars who won outside prizes and awards:**

SI No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1	Bharat Uday Seth(M.Tech)	CS10M013	Best POSTER Award "Sensor Based Smart Mine Design",	IBM-IRL Collaborative Academia Research Exchange (I-CARE), (Bangalore, India), Oct. 2010; Track- IV: Distributed, High-Performance, Network & Cyber-physical Systems

**Honors and Awards obtained by faculty:**

SI. No	Name of faculty	Name of Award	Awarded by	Awarded for
<b>ii. Awards:</b>				
1	Swarun Kumar, Shivank Agrawal, Ramarathnam Venkatesan, Satya Lokam and C. Pandu Rangan	Best paper	SECURITY 2010	The FORCING OUT A CONFESSION – Threshold Discernible Ring Signatures
2	Bharath Uday Seth and Krishna Sivalingam	Best Poster award in "Distributed, High- Performance, Network & Cyber-physical Systems" Category	IBM-IRL Collaborative Academia Research Exchange (I-CARE) Bangalore, India October 2010	Sensor node based Smart Mine Design
3	Ashish V. Tendulkar	Innovative Young Biotechnologist Award	Department of Biotechnology, Govt. of India.	Three Years April 2010-13

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

SI.No	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1.	N.Karthick Rajagopal	CS08B009	Institute day Merit prize	IITM
2.	G.Aparna	CS10B003	Notional Prize	
3.	Appini Surya Teja	CS10B004		
4.	Golla Abhinay swaroop	CS10B008		
5.	Pothineni Sai Bhusan	CS10B017		
6.	Raghavendra Bommaraju	CS10B018		
7.	Rongali Subendhu	CS10B019		
8.	B.Saikrishana	CS10B021		
9.	Sidhartha S	CS10B023		
10.	Smit Samir Mehta	CS10B024		
11.	Yash Vijay Kamat	CS10B029		
12.	Yannam Vamsi Krishna	CS10B055		
13.	C.Giri Venkata Prasad Reddy	CS10B007		
14.	A.Janardhan Reddy	CS10B011		
15.	Tulasi Aditya Anirudh	CS10B026		

16.	Vageesh D C	CS10B027	Notional Prize	IITM
17.	.Yaswanth Kumar Reddy	CS10B030		
18.	P N Bhargav	CS07B037	Institute Merit prize	
19.	Subhashini V	CS09M054	Institute Merit prize	
20.	Jyothi B S	CS05S024	Best M S Thesis	Sri Biswajit Sain Endowment Prize

#### 4.7.3 Faculty and their activities:

##### Faculty:

**Name and Qualifications**                      **Major area of specialization** (only 3 areas)

##### Professor:

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
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
Kalyana Krishnan.R, Ph.D (Yale)	Computer Architecture, Computer System Design, Microprocessors, Digital Electronic Systems, Computer Graphics, Statistical Signal Processing
Kamala Krithivasan, Ph.D (Madras)	Theoretical Computer Science, Computational Geometry, Languages and Automata Theory Formal Languages and Automata Algorithms, Molecular Computing.
Kamakoti V., Ph.D (IIT Madras)	Software for VLSI Design, Computational Geometry, High Performance Computing.
Krishna Moorthy Sivalingam., Ph.D (SUNY Buffalo)	Wireless Sensor Networks, Optical Network
Sreenivasa Kumar P, Ph.D (IISc)	Graph Theory, Algorithms, Parallel Computations, Data Mining and Data Bases.
Hema A Murthy., Ph.D (IIT Madras)	Speech processing, Computer Graphics and Pattern Recognition.
Siva Ram Murthy C., Ph.D (IISc) [Head of the Department]	Parallel and Distributed Computing, Real-Time Systems, Lightwave Networks and Wireless Networks
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.
Sukhendu Das, Ph.D (IIT Kharagpur)	Visual Perception, Image Intelligence, Graphics and Visualization
Chandra Sekhar C, Ph.D (IIT Madras)	Speech Recognition, Artificial Neural Networks, Kernel Methods.
Pandu Rangan C., Ph.D (IISc.)	Algorithms, Parallel and VLSI Algorithms, Graph Theory, Computational Geometry, Randomized Algorithms, Computational Learning theory, Crypto-analysis

##### Associate Professor:

Anurag Mittal., Ph.D (University of Maryland)	Computer Vision
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Narayanaswamy N.S., Ph.D (IISc) Algorithms and Complexity Theory.

Ravindran B., Ph.D (University of Massachusetts, Amherst) Machine Learning, Reinforcement Learning, Data/Text Mining

Madhu Mutyam, PhD (IIT Madras) Computer Architecture and VLSI CAD

**Assistant Professor:**

Shankar Balachandran., Ph.D (UT, Dallas) CAD for VLSI, Reconfigurable Computing, Computer Architecture

Sutanu Chakraborti., P h.D (Robert Gordon University, UK) Information Retrieval, Memory-based reasoning and Machine learning.

**Visiting Faculty:**

Shailesh Vaya., Ph.D (UCLA.) Theoretical Computer Science (Distributed Computing, Foundations of cryptography and Computational complexity).

Ashish V. Tendulkar, Ph.D (IIT Bombay) Computational Biology, Machine Learning (Graphical Models, Kernel Methods), Text mining in Biomedical Literature, Social Media Mining, Frequent Episode Mining

Dr. M.N.Jayalal Sharma, PhD (IMSc) Complexity Theory, Theoretical Computer Science, Algebra, Combinatorics

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1	Dr. V. Kamakoti and Dr. Shankar Balachandran	24th International Conference on VLSI Design and Embedded Systems	January 2-7, 2011
2	Dr. Krishna Sivalingam	IEEE Advanced Networks and Telecommunications Systems (ANTS) Conference	Mumbai, India, Dec. 2010
3	Dr. Krishna Sivalingam	ACM SIGCOMM Conference, New Delhi, India,	Aug. 2010
4	Dr. Anurag Mittal	Indian Conference on Computer Vision, Graphics and Image Processing	Dec 12-16, 2010
5	Dr. P Sreenivasa Kumar	The 16 <sup>th</sup> international conference on management of data COMAD, 2010, NIT, Nagpur	December 8- 10, 2010
6	Dr. B.Ravindran (Program Co-Chair)	PAKDD 2010	21-24 June, 2010
7	Dr. B.Ravindran (Finance Chair)	VLSI 2011	
<b>Workshop:</b>			
1	Dr. Kamala Krithivasan (Author of the Book)	Theory of Computation Book Promotion Workshop Organized by Pearson Education(Publishers of the book)	14 <sup>th</sup> Nov 2009, Lucknow
2	Dr. Hema A. Murthy	Basic computers for the visually challenged using JAWS	May 15-Jun 25, 2010. IIT, Madras
<b>Other Activities of the Department/Short term Course:</b>			
1	Dr. Krishna Sivalingam	Fundamental Concepts of Data Structures, Algorithms and Software Design	Dec. 2010- June 2011

2	Dr. Krishna Sivalingam	Energy-Efficient Mobile Data Collection in Wireless Sensor Networks AICTE Sponsored QIP Short Term Course on Mobile Robots and Sensor Network	Mar. 2011
3	Dr. Jayalal Sarma M.N	Matrix Rigidity and Complexity of Linear Transformations - Dept. of mathematics, IIT Madras.	Mar 24, 2011

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Dr. B.Ravindran	Workshop on recent trends in social network analysis	TIFR, Mumbai	Jan 3rd to 5th
2	Dr. B.Ravindran	Workshop on Networks Science meets Web Science	Northwestern University, vanston, IL, USA	March 3rd to 7th
<b>Conference:</b>				
1	Dr. Kamala Krithivasan	ACM Celebration of Women in Computing Conference	Amrita University Coimbatore	17 <sup>th</sup> Sep-2010
2	Dr. Jayalal Sarma M.N	International Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2010)	Chennai.	15 <sup>th</sup> -18 <sup>th</sup> December, 2010
3	Dr.D. Janakiraman	20 <sup>th</sup> International World Wide Web Conference WWW2011	Hyderabad	March 29, 2011
4	Dr. B. Ravindran	World Wide Web (WWW) Conference	Hyderabad	29 <sup>th</sup> - 31 <sup>st</sup> March 2011,
5	Dr.D. Janakiraman	Yahoo.Hadoop	IISc., Bangalore	15 <sup>th</sup> -17 <sup>th</sup> Feb. 2011
6	Dr.C. Siva Ram Murthy	Ubiquitous Computing (UbiComp2011)	Cdacb, Bangalore.	26 <sup>th</sup> February 2011
7	Dr. Jayalal Sarma M.N	Matrix Rigidity and Complexity of Linear Transformations - Dept. of mathematics	IIT Madras	Mar 24, 2011
8	Dr. Ashish V Tendulkar	WWW 2011	IIIT - Bangalore	28 March – 1 April 2011
9	Dr. Ashish V Tendulkar	PA-KDD 2010	IIIT-H	21-24 June 2010 Hyderabad
10	Dr. D. Janakiraman	International Workshop on Distributed Systems (IWDS) 2010	IIT Kanpur	27-28 November 2010.
11	Dr. B Ravindran	ICRA 2010	Alaska ,USA	2-7 <sup>th</sup> May 2010
12	Dr. B Ravindran	FLAIRS 2010	Florida, USA	18 <sup>th</sup> – 21 <sup>st</sup> May
13	Dr. B Ravindran	Yahoo Summer School on Machine Learning	Bangalore	June 17th to 19th
14	Dr. B Ravindran	PAKDD 2010	Hyderabad	June 21st to 24th
15	Dr. B Ravindran	WWW 2011	Hyderabad	28 <sup>th</sup> Mar.to 2 <sup>nd</sup> April
16	Dr. P Sreenivasa Kumar	The 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining	Hyderabad	21-24 June, 2010
17	Dr. P Sreenivasa Kumar	The 36th International Conference on Very Large Data Bases (VLDB 2010)	Singapore	13 to 17 Sept 2010
18	Dr. P Sreenivasa Kumar	The 16 <sup>th</sup> international conference on management of data COMAD, 2010	NIT, Nagpur	December 8- 10, 2010
19	Dr. P Sreenivasa Kumar	The 20th International World Wide Web Conference (WWW 2011)	Hyderabad,	28th March 2011 to 1 <sup>st</sup> April 2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Dr. Kamala Krithivasan	Discrete Mathematical Structures	PSG College of Technology Coimbatore (Under NpTeL Programme)	8 <sup>th</sup> April 2010
2	Dr. Kamala Krithivasan	Inaugural address & Lectures on Decidability at the Short Term Faculty Development Programme on Theory of Computation	Easwari Engineering College, Chennai	22.04.2010 & 2 <sup>nd</sup> & 3 <sup>rd</sup> May 2010
3	Dr. Kamala Krithivasan	Membrane Computing in Workshop on Research Practices on Topics in Mathematics	Madras Christian College Chennai	26.06.2010
4	Dr. B.Ravindran	Efficient Computation of the Shapley Value for Centrality in Networks.	University of Birmingham, UK.	03.01.2011
5	Dr. Anurag Mittal	Indian Digital Heritage	National Institute of Advanced Studies, Bangalore	25 <sup>th</sup> – 27 <sup>th</sup> March 2011
6	Dr. N.S.Narayanaswamy	Graph Algorithms	Karnataka University, Dharwad	25 <sup>th</sup> – 28 <sup>th</sup> March 2011
7	Dr.Kamala Krithivasan	Automata Theory	AKG College of Engineering, Ghaziabad	23 <sup>rd</sup> March 2011
8	Dr. C.Chandra Sekhar	Kernel Methods for Pattern Recognition	Konery Lakshmaiah University, Vijayawada.	19 <sup>th</sup> February 2011
9	Dr. Krishna Sivalingam	Target Tracking in Wireless Sensor Networks, International Conference on Information Science and Applications (ICISA)	Seoul, Korea	April 2010
10	Dr. Narayanaswamy	Introduction to Algorithms and Data Structures	Karnatak University, Dharwad,	March 2011.
11	Dr. Narayanaswamy	New Characterization of Matrices with the Consecutive Ones Proprety	Thapar University, Patiala	August 2010
12	Dr. Narayanaswamy	Introduction to Analysis of Algorithms	UGC-academic Staff College, University of Mysore	June 2010
13	Dr. Anurag Mittal	Graph Algorithms in Computer Vision	PSG College of Engg., Coimbatore	Jan 2011
14	Dr. Hema A Murthy	Network security and time series models	Grace Hopper Celebration of Women in Computing, India: Celebrating Women in Technology Bangalore	Dec 7-9, 2010
15	Dr. D. Janakiram	Programming Abstractions for Smart Apps on Clouds	Apache Hadoop India Summit 2011 held at IISc Bangalore	16 Feb 2011
16	Dr . D. Janakiram	Message Filters for Hardening the Linux Kernel	International Workshop on Distributed Systems (IWDS) 2010, held at IIT Kanpur	27-28 November 2010.
17	Dr. B Ravindran	Efficient computation of game theoretic centrality measures	Yahoo! Labs, Bangalore.	27th July 2010
18	Dr. B Ravindran	Data Mining for Security: A Case Study	Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Kancheepuram.	31st August
19	Dr. B Ravindran	Talk titled "Role of Information in Product Development: The case of blogs",	GM India Science Lab, Bangalore.	17th November

20	Dr. B Ravindran	Talk titled "Efficient Computation of the Shapley Value for Centrality in Networks",	TIFR, Mumbai	4th January
21	Dr. B Ravindran	"Efficient Computation of the Shapley Value for Centrality in Networks",	Department of Computer Science, University of Birmingham, UK.	3rd February, Departmental Seminar,
22	Dr. B Ravindran	Talk titled "Social Network Analysis for Marketing",	Mobius Knowledge Services, Chennai	7th February
22	Dr. B Ravindran	Talk titled "Reinforcement Learning for Robotics",	CEP for DRDO scientists, CAIR, Bangalore	8th February,
23	Dr. B Ravindran	Talk titled "Social Network Analysis: An Introduction"	CEP for DRDO scientists, CAIR Bangalore	8th February,
24	Dr. B Ravindran	Talk titled "Making Sense of a connected World"	Sri Venkateswara College of Engineering, Chennai.	24th March
25	Dr.P Sreenivasa Kumar	The Semantic Web: Issues and Challenges – delivered at the Workshop on Data mining and Web Intelligence	Madras Institute of Technology (MIT), Chrompet, Chennai	January 21 <sup>st</sup> , 2010 at
26	Dr .P Sreenivasa Kumar	Seminar on "The Semantic Web Technology	Dept of Mathematics, Anna University, Chennai	16-03-11
27	Dr. C. Siva Ram Murthy	Information Discovery in Wireless Sensor Networks	C-DAC, Bangalore	26 February 2010

#### Visits abroad:

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit
1	Dr. C. Siva Ram Murthy	Germany	7 <sup>th</sup> April to 31 <sup>st</sup> May 2010 1 <sup>st</sup> to 30 <sup>th</sup> June 2010	To visit Max Planck Institute for Software Systems & To visit University of Aachen
2	Dr. C. Pandu Rangan	South Africa	3 <sup>rd</sup> - 6 <sup>th</sup> May 2010	To attend and present paper in the third International conference on Cryptography in Africa (AFRICACRYPT 2010)
3	Dr. Krishna Sivalingam	Seoul Korea	20 <sup>th</sup> - 24 <sup>th</sup> April 2010	To attend and deliver an invited talk in the Intl. Conference on Information Science and Applications (ICISA 2010)
4	Dr. C. Pandu Rangan	Harvard University USA	7 <sup>th</sup> - 8 <sup>th</sup> June 2010	To attend and present paper in the 9 <sup>th</sup> Workshop on the Economics of Information Security (WEIS)
5	Dr. C. Chandra Sekhar	University of Ulster, Northern Ireland, UK	13 <sup>th</sup> - 19 <sup>th</sup> June 2010	To attend the Joint Technical Meeting of the Indo-UK Research Project on Telecommunication
6	Dr. Krishna Sivalingam	University of Ulster, Northern Ireland, UK	13 <sup>th</sup> - 17 <sup>th</sup> June 2010	To attend the Joint Technical Meeting of the EPSRC –DST Project
7	Dr. Hema A Murthy	University of Ulster, Northern Ireland, UK	13 <sup>th</sup> - 18 <sup>th</sup> June 2010	To visit the University of Ulster for Project Work
8	Dr. Gaurav Raina	University of Ulster, Northern Ireland, UK	14 <sup>th</sup> June 2010 to 2 <sup>nd</sup> July 2010	To attend IU-ATC 3 <sup>rd</sup> Technical Workshop & to visit University of Cambridge in connection with his project
9	Dr. D. Janakiram	Miami & Seattle, USA	5 <sup>th</sup> - 15 <sup>th</sup> July 2010	To attend IEEE SCC 2010 Conference & to attend the Microsoft Faculty Summit 2010
10	Dr. C. Pandu Rangan	University of Fukuoka, Japan	11 <sup>th</sup> – 19 <sup>th</sup> July 2010	To discuss on various Research Problems



11	Dr. Sukhendu Das	Redmond, Seattle, USA	12 <sup>th</sup> - 19 <sup>th</sup> July 2010	To attend the Microsoft Faculty Summit 2010 & University visit
12	Dr. Sutanu Chakraborti	Alessandria, Italy	15 <sup>th</sup> - 27 <sup>th</sup> July 2010	To attend and present paper at the 18 <sup>th</sup> Intl. Conference on Case Based Reasoning (ICCBR 2010)
13	Dr. Shailesh Vaya	Athens, Greece & Zurich, Switzerland	22 <sup>nd</sup> – 28 <sup>th</sup> July 2010	To visit University of Athens & to present paper in SECRYPT'2010 To present a paper in PODC 2010
14	Dr. Gaurav Raina	Stanford University USA	9 <sup>th</sup> – 13 <sup>th</sup> Aug 2010	To attend NetFPGA Summer Camp
15	Dr. Deepak Khemani	Robert Gordon University Scotland	22 <sup>nd</sup> Aug 2010 to 4 <sup>th</sup> Sep 2010	In connection with Indo-UK Collaborative Project
16	Dr. Kamala Krithivasan	Jena Germany	24 <sup>th</sup> 27 <sup>th</sup> Aug 2010	To attend 11 <sup>th</sup> Intl. Conference on Membrane Computing (CMC11)
17	Dr. C. Pandu Rangan	Tokyo	29 <sup>th</sup> Aug to 1 <sup>st</sup> Sept 2010	On behalf of IITH for research project meetings
18	Dr. Anurag Mittal	Greece	5 <sup>th</sup> - 11 <sup>th</sup> Sep 2010	To attend European Conference on Computer Vision and Workshop on Vision for Cognitive Tasks
19	Dr. P. Sreenivasa Kumar	Singapore	13 <sup>th</sup> – 17 <sup>th</sup> Sep 2010	To attend the 36 <sup>th</sup> Intl. Conference on Very Large Data Bases (VLDB 2010)
20	Dr. Hema A Murthy	Makuhari, Japan	27 <sup>th</sup> Sep – 1 <sup>st</sup> Oct 2010	To attend the Conference - INTERSPEECH 2010
21	Dr. Hema A Murthy	Copenhagen, Denmark	28 <sup>th</sup> - 30 <sup>th</sup> October 2010	“Participatory design approach for distance education in rural India” Intl. Workshop on Global Software Collaborative Practices & Collaborative Technologies
22	Dr.C.Pandu Rangan	Malaysia	13 <sup>th</sup> – 15 <sup>th</sup> October 2010	Conference on Provable Security 2010
23	Dr. Hema A Murthy	Kathmandu, Nepal	24 <sup>th</sup> – 25 <sup>th</sup> November 2010	International Conference on Spoken Language Technology
24	Dr. Kamala Krithivasan	University of Maryland and UMASS	6 <sup>th</sup> -13 <sup>th</sup> December 2010, USA.	To visit and interact with faculty
25	Dr.C. Pandu Rangan	Kyushu University	10 <sup>th</sup> -17 <sup>th</sup> December 2010, Japan.	To visit and interact with faculty
26	Dr.B.Ravindran	University of Birmingham, UK.	23 <sup>rd</sup> January – 5 <sup>th</sup> February 2011, UK.	Joint Project Meeting on Reinforcement Learning of Visual Routines in Autonomous Systems.
27	Dr.C. Pandu Rangan	Melbourne, Australia	2 <sup>nd</sup> September 2010	To Present paper in APWCS-10
28	Dr.C. Pandu Rangan	Brisbane Australia	13 <sup>th</sup> -14 <sup>th</sup> April 2010	615 Indo-Australian Conference on Information Technology Security(IACTS2010)
29	Dr P Sreenivasa Kumar	Redmond, USA	11 <sup>th</sup> -13 <sup>th</sup> July 2010	Microsoft Research Faculty Summit 2010
30	Dr. Krishnamurty Sivalingam	Seattle USA	21 <sup>st</sup> -25 <sup>th</sup> March 2011	Seventh IEEE International workshop on Sensor Networks and System for pervasive Computing
31	Dr. Anurag Mittal	San Francisco USA	14 <sup>th</sup> -18 <sup>th</sup> June 2010	IEEE International Symposium on Computer vision and pattern recognition 2010
32	Dr B. Ravindran	Northwestern University, USA	4 <sup>th</sup> -6 <sup>th</sup> March 2011	Invitational NSF workshop on network
33	Dr. C. Siva Ram Murthy	Saarbrucken, Germany	April 2010 to May 2010 (two months)	Max Planck Institute for Software Systems, (joint collaborative research Germany)

34	Dr. C. Siva Ram Murthy	RWTH Aachen University, Germany	June 2010 (one month)	, joint collaborative research Germany
35	Dr. Kamala Krithivasan	U.S.A	December 2010	To present papers at BIONETICS -
36	Dr. B Ravindran	USA Anchorage Alaska;	2 <sup>nd</sup> to 7 <sup>th</sup> May 2010	ICRA visited Yahoo Labs, San Jose;
37	Dr. B Ravindran	Florida.	18 <sup>th</sup> - 21 <sup>st</sup> May 2010	To attend FLAIRS
38	Dr P Sreenivasa Kumar	Singapore	September 13- 17 <sup>th</sup> , 2010	to attend the 36 <sup>th</sup> International Conference on Very Large Data Bases (VLDB 2010)

#### Books, Monographs authored/co-authored:

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1	Dr. Krishnamoorthy Sivalingam Co –Edited by Dr. Byrav Ramamurthy Dr. George N. Rouskas	Next-Generation Internet Architectures and Protocols	Cambridge University Press, February 2011.	Nil

#### Fellowships of Academies and Professional Societies:

Sl. No.	Name of faculty	Year of admission
<b>INAE:</b>		
1	Dr. C Pandurangan	
2	Dr. Kamala Krithivasan	
3	Dr. Siva Ram Murthy	

#### Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1	Dr. Krishnamoorthy Sivalingam	Member of Editorial Board Oct. 2003 to present.	ACM Wireless Networks Journal (WINET)
2	Dr. Krishnamoorthy Sivalingam	Member of Editorial Board April 2005 to Dec. 2010	Elsevier Optical Switching and Networking Journal (OSN)
3	Dr. Krishnamoorthy Sivalingam	Member of Editorial Board June 2005 to Dec. 2010	InderScience International Journal of Security and Networks (IJSN)
4	Dr. Krishnamoorthy Sivalingam	Member of Editorial Board Oct. 2004 to Dec. 2010	Journal on Ad Hoc and Sensor Wireless Networks

#### 4.7.4 Design and Development Activities:

##### Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:

- Home grown, Indian language based screen reader for visually challenged
  - A consortium on Text-To-Speech (TTS) systems, has successfully developed TTSES in 6 Indian languages, that will convert the input text into human-like speech. The average MoS score obtained 3.0 on unseen text. The TTS is unique in that it uses a syllable-based approach for concatenative speech synthesis. This approach is well suited for Indian languages.
  - The TTSES have been successfully integrated with NVDA and ORCA screen readers. The unique feature of the
  - TTS is its ability to read both Indian language UTF-8 text and English text through native Indian voice.
  - The 6 Indian Languages and the member institutes involved are :
    - Hindi and Tamil – IIT Madras.
    - Telugu – IIIT Hyderabad.
    - Bengali – IIT Kharagpur.
    - Marathi – CDAC Mumbai.
    - Malayalam – CDAC Trivandrum.

- A speaker verification system (of commercial quality) was successfully delivered to the client Tata Power Corporation. The system also has the capability to segment conversations into different speakers.
- The Online test and tutorial has been successfully integrated with a subjective component. In this product, student answers questions online in his/her own handwriting using a writing tablet. Further, a facility for online correction has also been facilitated. Facilities to ensure security from the middle person have also been achieved. A prototypical system for the NPTEL course has also been developed.

#### 4.7.5 Research and Consultancy

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Intelligent Reconfigurable Low Cost Robotics Lab –Phase II	2 Years	Alumni Association	Rs.1.4 lakhs	Dr. V.Kamakoti
2	Speech Based access for agricultural commodity prices in six Indian Languages	2 Years	DST	Rs. 1.23 Crores	Dr. Hema A Murthy & Dr. C. Chandrasekhar (Co- Investigators)
3	Hardware security analysis of cryptographic platforms	13 Months	DRDO	Rs. 19.6 lakhs	Dr. Shankar Balachandran
4	Approaches to enhance the integrated knowledge system on soil nutrient analysis –Phase II	18 Months	DST	Rs. 11.6 lakhs	Dr. Deepak Khemani
5	Robust feature detection and matching for computer vision	3 Years	DST	Rs.18 lakhs	Dr. Anurag Mittal
6	Basic Computers for Visually Challenged	7 Months	Rural Technology Action Group	Rs. 2.59 lakhs	Dr. Hema A Murthy
7	Development of computer vision algorithms invariant to illumination changes	3 Years	Department of Science and Technology	Rs.23.2 lakhs	Dr.Anurag Mittal & Dr.B. Ravindran
9	Converged Networks QoS Frameworks Co-PI.			UK Part funded by EPSRC	Project PIs: Dr. Ashok Jhunjunwalla of IIT Madras, India Dr. Gerard Parr of Univ. of Ulster, UK Dr. Krishnamoorthy Sivalingam
11	Low Cost Routers for Networks-on-Chip Architectures	One year	Defence Research and Development Organization	4	Dr.Madhu Mutyam
12	Energy Efficient Cache Architectures	Three years	Department of Science and Technology	22.3	Dr.Madhu Mutyam, Dr.Shankar Balachandran
13	Functional Genomics of Orphan Structural Proteome	Three Years (2010-13)	Department of Biotechnology, Govt. of India	41.12	Dr.Ashish V Tendulkar
14	Smarter Analytics	2 years (2010-2011)	IBM Shared University Research Grant	30.0	Dr. Shankar Balachandran, Dr. Rahul Marathe (from DoMS)

#### 5.3 RBIC projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. Krishnamoorthy Sivalingam	Networking Technologies for the Smart Grid, Sep. 2010 - Sep. 2011,	IBM Open Collaborative Research (OCR) Project, PI.	US\$15,000,

2	Dr Krishnamoorthy Sivalingam	Tactical Field Wireless System, Co-PI (with Profs. Jalihal, Giridhar and Bhaskar Ramamurthi). Jan. 2009 - June 2011,	Tata Power Company,	33
3	Dr. Sukhendu Das	Smart segmentation of objects in images	CAIR (DRDO), Bangalore	9.98

#### Retainer Consultancy:

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. B. Ravindran	-	Mobius Knowledge Services Pvt. Ltd 11 <sup>th</sup> June 2010 to 10 <sup>th</sup> June 2012	-

#### Research Publications of the faculty members & research scholars:

Total No. of papers published in Refereed National Journals	: 04
Total No. of papers published in Refereed International Journals	: 30
Total No. of papers presented in National Conferences	: 09
Total No. of papers presented in International conferences	: 61

#### In Refereed National Journals:

Sl.No	Authors	Title of the paper published	Name of the Journal	Pages
1.	Utthara Gosa Mangai, Suranjana Samanta, Sukhendu Das and Pinaki Roy Chowdhury	A Survey of Decision Fusion and Feature Fusion Strategies for Pattern Classification	IETE Technical Review	Vol. 27, No. 4, July-August 2010, pp. 293-307.
2.	S Nagireddy, Hema A Murthy, S Kant	Identification of encryption method for block ciphers using histogram method	Journal of discrete mathematical sciences and cryptography,	Vol 13, No 4, August 2010, pp.319-328.
3.	Abdul Nizar and p Sreenivasa Kumar	Order-Aware Twigs: Adding Order Semantics to Twigs	Journal of Information and management (JIDM)	2011
4.	Hema A Murthy and B Yegnanarayana	Group delay functions and its applications to speech processing	Sadhana, Indian Academy of Sciences.	

#### In Refereed International Journals:

Sl.No	Authors	Title of the paper published	Name of the Journal	Pages
1	A. Dyana and Sukhendu Das	MST-CSS (Multi-spectro-temporal Curvature Scale Space) : A novel spatio-temporal representation for content-based video retrieval	IEEE Transactions on Circuits and Systems for Video Technology	Vol. 20, No. 8, August 2010, pp. 1080-1094..
2	Sunando Sengupta and Sukhendu Das	Design of an improved framework for stratified 3D reconstruction from a pair of images, with reduced ambiguity	International Journal of Computer Mathematics	Vol. 87, No. 14, November 2010, 3111–3137.
3	Lavanya Jagan and V. Kamakoti	Tests and Diagnostic Trends for Nanometer Technology	IETE Technical Review	Vol. 27 (6), pp. 430-445, 2010.
4	Shoaib Mohammed, S. K. Noor Mahammed and V. Kamakoti	Hardware based genetic evolution of self-adaptive arbitrary response FIR filters	International Journal on Applied Soft Computing	Vol. 11 (1), pp. 842- 854, 2010.

5	Kavish Seth, V. Kamakoti and S. Srinivasan	"Efficient Motion Vector Recovery Algorithm for H.264 Using B-Spline Approximation"	IEEE Transactions on Broadcasting	Vol. 56, No. 4, pp. 467- 480 December 2010.
6	Kamala Krithivasan, V.P.Metta and D.Garg	On String Languages Generated by Spiking Neural P Systems with Anti-Spikes.	International Journal of Foundation of Computer Science	Vol. 22, (1) PP.15-28, January 2011.
7	Sukhendu Das, T. T. Minalinee and Koshy Varghese	An Integrated Multistage Framework for Automatic Road Extraction from High Resolution Satellite Imagery	(In Press) Journal of Indian Society of Remote Sensing, Springer-Verlag	pp 1-25 March 2011
8	Jayalal Sarma, Youming Qiao and Bangsheng Tang	On Isomorphism Testing of Groups with Normal Hall Subgroups	28th International Symposium on Theoretical Aspects of Computer Science (STACS) March 10-12, 2011, Dortmund, Germany Book Series : Leibniz International Proceedings in Informatics	PP 567-578, 2011
9	V.G, Renumol and Dharanipragada, Janakiram and S, Jayaprakash	Identification of Cognitive Processes of Effective and Ineffective Students During Computer Programming	ACM Transactions on Computing Education (TOCE)	10 (3). pp. 1-21
10	C Ravindranatha Choudary, M Sraavanthi and P Sreenivasa Kumar	A System For Query Specific Coherent Text Multi-Document Summarization	International Journal on Artificial Intelligence Tools (IJAIT)	Vol. 19, No. 5 (2010) 597-626
11	Tendulkar, A. V., Krallinger M., de la Torre V., Lopez, G, Wangikar P. P., Valencia A.	FragKB: Structural and literature annotation resource of conserved peptide fragments and residues	PLoS ONE	5(3):e9679, doi:10.1371/journal.pone.0009679
12	N.S.Narayanaswamy and C.R. Subramanian	Dominating Set Based Exact Algorithms for 3-coloring.	Information Processing Letters	111(6): 251-255 (2011).
13	Suneetha Nadella, Dharanipragada Janakiram	Message filters for hardening the Linux kernel	Software: Practice and Experience, John Wiley & Sons.	DOI: 10.1002/spe.997, 24 August 2010.
14	Tushar Sharma and D. Janakiram	Inferring design patterns by ReP graph	Journal of Object Technology (JOT)	Sept/October, 2010 issue
15	Saravanan, M and Ravindran, Balaraman	Identification of Rhetorical Roles for Segmentation and Summarization of a Legal Judgment	Artificial Intelligence and Law	pp. 45-76 May 2010
16	M, Magdoom and D, Subramanian Balaraman, Ravindran V S, Chakravarty Amari, Shun-ichi and N, Meenakshisundaram	Modelling Basal Ganglia for Understanding Parkinsonian Reaching Movements	Neural Computation	Vol. 23, No. 2, Pages 477-516 February 2011,

17	Balasubramanian, Sivan and S, Harini and Chandrasekaran, Pandu Rangan	On Conditional Covering Problem	Mathematics in Computer Science,	3 (1). pp. 97-107.
18	Tendulkar, Ashish V and Krallinger, Martin and De la Torre, Victor, Lopez, Gonzalo and Wangikar, Pramod P and Valencia, Alfonso	FragKB: Structural and Literature Annotation Resource of Conserved Peptide Fragments and Residues	PLOS One,	5 (3). e9679.
19	Patra, Arpita Chandrasekaran, and Pandu Rangan	Communication and Round Efficient Information Checking Protocol.	Working Paper. CoRR	April 2010
20	Pankaj K. Gupta, Prabhat K. Singhal, Palakurthy Rajandrakumar, Yohendra Badward, Ashish V. Tendulkar, V.S. Kalyanaraman, Reinhold Schmidt, A. Srinivsan, and S. Mahalingam	Host Cell Kinase, MAPK/ERK-2 Physically Interacts with a Conserved Polyproline-rich domain within Capsid region of Structural Protein, Gag and packaged into Lentiviral Particles	Accepted for publication in J. Mol. Biol	2011
21	Tendulkar, A. V., and Wangikar, P. P.	Characterization and sequence prediction of structural variations in alpha-helix	To appear in BMC Bioinformatics Special Issue on Asia Pacific Bioinformatics Conference 2011.	2011
22	S. Chandrakala and C. Chandra Sekhar	Classification of varying length multi-variate time series using Gaussian mixture models and support vector machines	International Journal on Data Mining, Modelling and Management, Inderscience Publishers, Switzerland	, Vol. 2, No. 3, pp., 268-287, 2010.
23	S. Chandrakala and C. Chandra Sekhar	Temporal pattern classification using kernel methods	International Defence Science Journal on Machine Learning and Pattern Recognition, Defence Science Information and Documentation Centre (DESIDOC), DRDO, Delhi	Vol. 61, No. 4, pp. 348-363, July 2010.
24	V. Rohit, Arun A. Kanagasabapathy, and C. Siva Ram Murthy	A Non-cooperative Game-theoretic Approach to Channel Assignment in Multi-Channel Multi-Radio Wireless Networks	ACM/Springer Wireless Networks	vol. 17, no. 2, pp. 411-435, 2011.
25	Arun A. Kanagasabapathy, A. Antony Franklin, and C. Siva Ram Murthy	An Adaptive Channel Reconfiguration Algorithm for Multi-Channel Multi-Radio Wireless Mesh Networks	IEEE Trans. on Wireless Communications,.	vol. 9, no. 10, pp. 3064-3071, October 2010
26	Frank Kelly and Gaurav Raina	Explicit congestion control: charging, fairness and admission management	In "Next-Generation Internet Architectures and Protocols" Cambridge University Press,	2011

27	B. Venkata Ramana and C. Siva Ram Murthy	A Novel Learning Based Solution for Efficient Data Transport in Heterogeneous Wireless Networks"	ACM/Springer Wireless Networks,.	vol. 16, no. 6. pp. 1777-1798, 2010
28	Lalit Kumar Pagaria, T. Venkatesh, and C. Siva Ram Murthy	Modelling the Impact of Control Plane Losses on the Performance of Optical Burst Switched Core Node"	IEEE Communications Letters,	Vol. 14, no. 11, pp. 1071-1073, 2010.
29	Venkata Padmavati Metta, KAMALA KRITHIVASAN and Deepak Garg	Protocol Modeling in Spiking Neural P systems and Petri nets,	International Journal of Computer Applications	Vol. 1, No. 24, 69 - 74, March 2010
30	C Ravindranatha Choudary, M Sravanthi and P Sreenivasa Kumar	A System For Query Specific Coherent Text Multi-Document Summarization	International Journal on Artificial Intelligence Tools (IJAIT)	Vol. 19, No. 5 (2010) 597-626.

#### In Proceedings of National Conferences:

1	B. Durai, T. A. Gonsalves and Krishna M. Sivalingam,	Adaptive Push Based Data Collection Method for Online Performance Monitoring	National Conference on Communications (NCC), (Bangalore, India), Jan. 2011.
2	Sreekanth Sreekumaran and Krishna M. Sivalingam	Guided Navigation of Friendly Object Towards Mobile Target in Wireless Sensor Networks	National Conference on Communications (NCC), (Bangalore, India), Jan. 2011.
3	Rajeev Rajan, Subhadeep Dey, R. Padmanabhan. and Murthy H.A	Feature Diversity for Emotion, Language and Speaker Verification	National Conference on Communications (NCC), Indian Institute of Science, Bangalore, 2011.
4	Madikeri, S.R. and ,Murthy,H.A.	Mel Filter Bank energy-based Slope feature and its application to speaker recognition	Communications (NCC), 2011 National Conference on , vol., no., pp.1-4, 28-30 Jan. 2011. doi: 10.1109/NCC.2011.5734713
5	Bellur, A.; Narayan, K.B.; Krishnan, K.R. and Murthy, H.A	"Prosody modeling for syllable-based concatenative speech synthesis of Hindi and Tamil,"	Communications (NCC), 2011 National Conference on , vol., no., pp.1-5, 28-30 Jan. 2011. doi: 10.1109/NCC.2011.5734737
6	Srikanth M.R., and Murthy H.A	Discriminative training of Gaussian mixture speaker models: A new approach	National Conference on Communications (NCC), IIT Madras, Chennai, 2010. DOI: 10.1109/NCC.2010.5430204.
7	Vinodh M.V., Ashwin Bellur, Badri Narayan K., Deepali Thakare M., Anila Susan, Suthakar N.M. and Murthy H A	Using polysyllabic units for text to speech synthesis in Indian languages	pp.1-5, National Conference on Communications (NCC), IIT Madras, Chennai, 2010. DOI: 10.1109/NCC.2010.5430193.
8	Susan Elias , Vanaja Gokul KamalaKrithivasan, Marian Gheorghe, and Gexiang Zhang	Real time Cross Layer Design using Particle Swarm Optimization	Presented at ACM Compute, Bangalore March 2011
9	Raj Gupta, Sailaja Reddy, Swagatika Panda, Sushant Sharma and Aunrag Mittal	Foreground-Background Separation on GPU using order based approaches	Presented at ICVGIP iit madras, 12-15 december 2010

**In Proceedings of International Conferences:**

<b>Sl. No</b>	<b>Authors</b>	<b>Titles</b>	<b>Conferences</b>
1	Vijayasathy, R and Ravindran, Balaraman and Raghavan, S. V.	A System Approach to Network Modeling for DDoS Detection using Naive Bayesian Classifiers.	COMSNETS 2011
2	Mangai G., Utthara and Samanta, Suranjana and Das, Sukhendu anRoychowdhury, P and Varghese, Koshy and Kalra, Manisha	A Hierarchical Multi-Classifer Framework For Probabilistic Landform Segmentation Using Multi-Spectral Satellite Images - A case study over the Indian subcontinent	Fourth Pacific-Rim Symposium On Image And Video Technology (PSIVT), Singapore. Nov. 2010
3	Lakshmanan, Balaji and Balaraman, Ravindran	Transfer Learning Across Heterogeneous Robots with Action Sequence Mapping	International Conference on Intelligent Robots and Systems, October 18-22, Taipei, Taiwan.
4	Banerjee, Somdutta Singh, Brinder Pal and Mittal, Anurag	Human Detection in Compressed Images.	"Cognitive Vision" workshop at 11th European Conference on Computer Vision (ECCV 2010)
5	Subramanian, Shivashankar and Balaraman, Ravindran	Multi Grain Sentiment Analysis using Collective Classification	Nineteenth European Conference on Artificial Intelligence, Portugal.
6	Bhattacharjee, Raktim and S, Sanand and S. V., Raghavan	Path Attestation Scheme to Avert DDoS Flood Attacks.	IFIP International Conference on Networking (IFIP Networking 2010).
7	A, Yousuf and Balaraman Ravindran,	Visual Object Detection using Frequent Pattern Mining	In the Proceedings of the Twenty Third Florida AI Research Society Conference (FLAIRS 2010), pp. 98-103. AAAI Press. 20 <sup>th</sup> May Florida, USA
8	Karthik V, Aaditya and Balaraman, Ravindran	Game Theoretic Network Centrality: Exact Formulas and Efficient Algorithms.	In the Proceedings of the Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2010), pp. 1459-1460.
9	N, Aswin S S, Manimaran A, Harini and Balaraman Ravindran,	Accurate Mobile Robot Localization in Indoor environments using Bluetooth	In the Proceedings of the 2010 IEEE International Conference on Robotics and Automation (ICRA 2010), pp. 4391-4396. IEEE Press. , 6th May ,Anchorage, Alaska
10	P, Swapna Raj and, Balaraman Ravindran	Mining Actionable Patterns	Twenty Third Florida AI Research Society Conference (FLAIRS 2010)
11	R., Padmanabhan and Murthy, H A.	Acoustic Feature Diversity and Speaker Verification.	Interspeech 2010, Makuhari, Japan
12	Kailasam, Sriram and Kumar, Santosh and Dharanipragada, Janakiram	An enhanced grid-based approach to mobile telemedicine	International Journal of Telemedicine and Applications, 2010
13	Patra, Arpita , Choudhury, Ashish Chandrasekaran, and Pandu Rangan	Communication Efficient Perfectly Secure VSS and MPC in Asynchronous Networks with Optimal Resilience.	Progress in Cryptology - AFRICACRYPT 2010, Third International Conference on Cryptology in Africa, May 3-6, 2010, Stellenbosch, South Africa
14	Patra, Arpita Chandrasekaran, and Pandu Rangan	Communication Optimal Multi-Valued Asynchronous Broadcast Protocol.	The first international conference on cryptology and Information security, LatinCrypt 2010, August 8-11, Puebla, Mexico
15	Gupta, Raj Patil, Harshal and Mittal, Anurag	Robust Order-based Methods for Feature Description.	IEEE Conference on Computer Vision and Pattern Recognition (CVPR), San Francisco,CA,June 2010



16	Rajani, Vineet and Kumar, Arun and Dharanipragada, Janakiram	Xi-Calculus: A Calculus for Service Interactions.	2010 IEEE International Conference on Services Computing, July 05-July 10, Miami, Florida.
17	Anshu Khare and Krishna M. Sivalingam	On Recovery of Lost Targets in a Cluster-based Wireless Sensor Network	Seventh IEEE International Workshop on Sensor Networks and Systems for Pervasive Computing (PerSeNS 2011), (Seattle, USA), Mar. 2011.
18	Surendra Sharma, Sarang Deshpande and Krishna M. Sivalingam	POSTER: Alpha-Beta Filter Based Target Tracking in Clustered Wireless Sensor Networks	Third International Conference on COMMunication Systems and NETWORKS (COMSNETS), (Bangalore, India), Jan. 2011; 4-page version published in Proceedings.
19	Neeharika Jana, Ganesh C. Sankaran, Krishna M. Sivalingam and Gerard Parr	Performance Analysis of Dynamic Bandwidth Allocation Algorithms for Long-Reach PONs	IEEE International Symposium on Advanced Networks and Telecommunications Systems (ANTS), (Mumbai, India), Dec. 2010.
20	P. Gireesan and Krishna M. Sivalingam,	Capacity Analysis of Multi-Hop Wireless Sensor Networks using Multiple Transmission Channels: A case study using IEEE 802.15.4 based networks	IEEE Conference on Local Computer Networks, (Denver, USA), Oct. 2010.
21	Naghmeh Moradpoor Sheykhkanloo, Gerard Parr, Sally McClean, Bryan Scotney, and Krishna M. Sivalingam	Simulation and Performance Evaluation of Bandwidth Allocation Algorithms for Ethernet Passive Optical Networks (EPONs)	Proc. of OPNETWORK 2010, (Washington, DC), Aug. 2010.
22	Karthik Jayanthi, Sutanu Chakraborti and Stewart Massie	Introspective Knowledge Revision in Case-Based Reasoning	International Conference on Case-Based Reasoning, ICCBR-2010, Italy
23	Kuldeep B R Reddy and P Sreenivasa Kumar	Efficient Approximate SPARQL Querying of Web of Linked Data	Proceedings of the 6th International Workshop on Uncertainty Reasoning for the Semantic Web (URSW 2010), Shanghai, China, November, 2010
24	Kuldeep B R Reddy and P Sreenivasa Kumar	Optimizing SPARQL Queries Over the Web of Linked Data	Proceedings of the International Workshop on Semantic Data Management (SemData 2010), Singapore, September, 2010
25	Nitin Kumar and P Sreenivasa Kumar	An Efficient Heuristic for Logical Optimization of ETL Workflows	Proceedings of the 4th International Workshop on Business Intelligence for the Real Time Enterprise (BIRTE 2010), Singapore, September, 2010
26	N.S. Narayanaswamy and C.R. Subramanian	Dominating Set Based Exact Algorithms for 3-coloring	Information Processing Letters 111(6): 251-255 (2011)
27	N.S. Narayanaswamy and N. Sadagopan	A Novel Data Structure for Biconnectivity, Triconnectivity, and k-tree Augmentation	The Australasian Theory Symposium (CATS 2011), Perth, Australia 2011. ACS, CRPIT 119: 45-54
28	Esha Ghosh, N.S. Narayanaswamy and C. Pandu Rangan	A Polynomial Time Algorithm for Longest Paths in Biconvex Graphs	Workshop on Algorithms and Computation, (WALCOM 2011), New Delhi, India, 2011. Springer Verlag, LNCS 6552: 191-201
29	Neeldhara Misra, N. S. Narayanaswamy, Venkatesh Raman, and Bal Sri Shankar	Solving minones-2-sat as Fast as vertex cover	In the Proceedings of Mathematical Foundations of Computer Science, MFCS 2010: 549-555

30	Shivashankar, S., Srivathsan, S., Ravindran, B., and Tendulkar, A. V	Multi-view Methods for Protein Structure Comparison using Latent Dirichlet Allocation	To appear in the Proceedings of the 19th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB/ECCB 2011).
31	Swapna Raj P., and Ravindran, B.	Utility Driven Clustering	To appear in the Proceedings of the Twenty Third Florida AI Research Society Conference (FLAIRS 2011). AAAI Press.
32	Malpani, A., Ravindran, B., and Murthy, H. A.	Personalized Intelligent Tutoring System Using Reinforcement Learning	To appear in the Proceedings of the Twenty Third Florida AI Research Society Conference (FLAIRS 2011). AAAI Press.
33	Aadithya, K. V., Ravindran, B., Michalak, T., and Jennings, N. R.	Efficient Computation of the Shapley Value for Centrality in Networks	In the Proceedings of the Sixth Workshop on Internet and Network Economics (WINE 2010), pp. 1-13. Springer-Verlag. (Associated Technical Report PDF)
34	Zaki, M.J., Yu, J.X., Ravindran, B., and Pudi, V.	Advances in Knowledge Discovery and Data Mining	Proceedings of the 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD 2010, Hyderabad, India, June 21-24, 2010. Springer-Verlag, LNCS. Part I, Part II.
35	Maya, M., Chakravarthy, V. S., and Ravindran, B.	An Oscillatory Neural Network Model for Birdsong Learning and Generation	To appear in the Proceedings of the Twentieth International Conference on Artificial Neural Networks (ICANN 2010).
36	Balaji, L., and Ravindran, B.	Transfer Learning Across Heterogeneous Robots with Action Sequence Mapping	In the Proceedings of the 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010), pp. 3251-3256. IEEE Press.
37	Shivashankar, S., and Ravindran, B.	Multi Grain Sentiment Analysis using Collective Classification	In the Proceedings of the Nineteenth European Conference on Artificial Intelligence (ECAI 2010), pp. 823-828. IOS Press.
38	Rangrej, A. S., Kulkarni, S., and Tendulkar, A. V.	Comparative study of clustering techniques for short text documents	To appear in WWW 2011, Hyderabad, India
39	Tendulkar, A. V., and Wangikar,	Characterization and sequence prediction of structural variations in alpha-helix	Asia Pacific Bioinformatics Conference 2011, Seoul, South Korea Jan 13-15, 2011
40	Lakshminarayana Padhi, Siddhartha Kartikeya, Krishna M. Sivalingam and S. Sivasankara Sai	Multi-path Routing in Optical WDM Networks: Even versus Uneven Split Bandwidth Allocation	International conference on signal processing and communications (SPCOM), (Bangalore, India), July 2010.
41	Sreejith V, Sarang Deshpande, Anand Kumar, Bharat Seth, Surendra Sharma, Krishna M. Sivalingam, S.A.V. Satya Murty and Baldev Raj,	Work-in-Progress Session: Throughput analysis in a WSN grid deployment	International Workshop on Distributed Systems (IWDS), (Kanpur, India), Nov. 2010.
42	Janakiram Dharanipragada, Fausto Giunchiglia, Harisankar Haridas and Uladzimir Kharkevich	Two-layered architecture for peer-to-peer concept search	In the 4th International Semantic Search Workshop located at the 20th Int. World Wide Web Conference WWW2011

43	Sriram Kailasam, Nathan Gnanasambandam, Dharanipragada Janakiram and Naveen Sharma.	Optimizing Service Level Agreements for Autonomic Cloud Bursting Schedulers	SRMPDS 2010
44	Maurice Jansen, Youming Qiao, Jayalal Sarma	Deterministic Black-Box Identity Testing $\mathbb{Z}$ -Ordered Algebraic Branching Programs	International Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2010, December 15-18, 2010, Chennai, India. LIPIcs 8 Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik 2010, ISBN 978-3-939897-23-1, Pages 296-307.
45	Hema A. Murthy, and Ashwin Bellur et.al.	Building Unit Selection Speech Synthesis in Indian Languages: An Initiative by an Indian Consortium	Proceedings of Oriental COCODA Workshop 2010, Kathmandu, Nepal, November 2010.
46	T.Veena and C.Chandra Sekhar	Scene categorization using large margin Gaussian mixture models	International Conference on Image Processing and Computer Vision, IPCV 2010, Las Vegas, July 2010, pp.395-401.
47	S. Chandrakala and C. Chandra Sekhar	Classification of varying length time series using example-specific adapted Gaussian mixture models and support vector machines	International Conference on Signal Processing and Communications, IISC Bangalore, India, July 2010.
48	A. D. Dileep and C. Chandra Sekhar	Selection of non-uniformly spaced orientations for Gabor filters using multiple kernel learning	2010 IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2010), Kittil, Finland, August 29 September 1, 2010, pp. 415-420.
49	N. Dhananjaya, B. Yegnanarayana, and S. V. Gangashetty	Acoustic-phonetic information from excitation source for refining manner hypotheses of a phone recognizer	Proc. ICASSP 2011, (Praha, Czech Republic), May 2011.
50	Sanasam Ranbir Singh, Hema A. Murthy and Timothy A. Gonsalves	Feature Selection for Text Classification Based on Gini Coefficient of Inequality	Proceedings of the Fourth International Workshop on Feature Selection in Data Mining, 10:76-85, 2010, Hyderabad India.
51	Ranbir Singh, Hema A. Murthy and Timothy A. Gonsalves	Dynamic Query Expansion Based on User's Real Time Implicit Feedback	KDIR 2010, Valencia Spain
52	Nikhil Handigol, Ka. Selvaradjou, and C. Siva Ram Murthy,	A Reliable Data Transport Protocol for Partitioned Actors in Wireless Sensor and Actor Networks"	In Proc. 17th Annual IEEE International Conference on High Performance Computing (HiPC), Goa, December 19-22, 2010.
53	V. Mahendran, Anirudh Sivaraman, and Siva Ram Murthy	A Realistic Framework for Delay-Tolerant Network Routing in Open Terrains with Continuous Churn	In Proc. 12th International Conference on Distributed Computing and Networking (ICDCN), Bangalore, January 2-5, 2011.
54	R. Saravana Manickam and C. Siva Ram Murthy	An Instantaneous Call Admission Control using Information Dissemination for WiMax Mesh Networks	In Proc. 3rd International Conference on Communication Systems and Networks (COMSNETS)}, Bangalore 4-8, 2011.
55	Venkata Padmavati Metta, Kamala Krithivasan and Deepak Garg	.Representation of Spiking Neural P Systems with Anti-spikes through Petri nets	Presented at Bionetics 2010, Boston Dec2010

56	Kamala Krithivasan, Lakshmanan Kuppusamy, Anand Mahendran and Khalid M	On the Ambiguity and Complexity Measures of Insertion-Deletion Systems	Presented at Bionetices 2010, Boston Dec2010
57	Venkata Padmavati Metta, Kamala Krithivasan and Deepak Garg	Some Characteristics of Spiking Neural P Systems with Anti-Spikes	CMC 11 Jena. Germany August 2010
58	Parthasarathy K, P Sreenivasa Kumar and Dominic Damien,	Algorithm for answer graph construction for keyword queries on RDF data	4th International Semantic Search Workshop (SemSearch-2011) March 29, 2011,( Held along with WWW2011).
59	Kuldeep B R Reddy and P Sreenivasa Kumar	Efficient Approximate SPARQL Querying of Web of Linked Data,	Proceedings of the 6th International Workshop on Uncertainty Reasoning for the Semantic Web (URSW 2010), Shanghai, China, November, 2010. (Held along with ISWC 2010).
60	Kuldeep B R Reddy and P Sreenivasa Kumar	Optimizing SPARQL Queries Over the Web of Linked Data	Proceedings of the International Workshop on Semantic Data Management (SemData 2010), Singapore, September, 2010. (Held along with VLDB 2010).
61	Nitin Kumar and P Sreenivasa Kumar	An Efficient Heuristic for Logical Optimization of ETL Workflows,	Proceedings of the 4th International Workshop on Business Intelligence for the Real Time Enterprise (BIRTE 2010), Singapore, September, 2010. (Held along with VLDB 2010).

#### Distinguished Visitors to the Department:

Sl. No	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Prof. Archie Johnston, Dean of the Faculty of Engineering and IT & Prof. Joseph Davis, Associate Dean, International University of Sydney	14 <sup>th</sup> May 2010	To discuss possible research and other collaborations and to explore faculty and research student exchanges.
2	Dr. David Chaikan CTO, Yahoo! (Jointly Organised with ACM Chennai)	28 <sup>th</sup> March 2011	Architecting at Internet Scale
3	Prof. Hanan Samet Professor, Computer Science and Engg University of Maryland, College Park, MD	1 <sup>st</sup> April, 2011	To deliver lecture on "Sorting in Space"
4	Dr. T.T.Mirnalinee Anna university of Technology. Chennai	April 15, 2010	Seminar
5	Dr. Sathya Peri Memorial University	June 14, 2010	To deliver seminar on title "Proving Correctness of Nested Transactions"
6	Prof. Noshir Contractor Kellogg School of Business and Northwestern University	June 28, 2010	To deliver seminar on title "Multi- theoretical Multilevel Models to Understand and Enable Networks"
7	Dr Saketh Nath IIT Bombay	June 30, 2010	To deliver seminar on title "Multi-task Kernel Learning"
8	Jeremy Wyatt, School of Computer Science, University of Birmingham	July 1, 2010	To deliver seminar on title "Self- understanding and self-extension in robots"
9	Dr. Deepak K. Agarwal Principal Research Scientist, Yahoo! Research, Silicon Valley	July 7, 2010	To deliver seminar on title "Recommender Problems for Web Applications"
10	Prof Shrikanth Narayanan Andrew J Viterbi Professor of Engineering University of Southern California	July 13, 2010	To deliver seminar on title "Measuring, Modeling and Using Speech Production Information"

11	Dr. Vijay Nagarajan University of Edinburgh	July 13, 2010	To deliver seminar on title "Monitoring Parallel Programs on Multicores for Performance and Reliability"
12	Prof Shrikanth Narayanan Andrew J Viterbi Professor of Engineering University of Southern California	July 13, 2010	To deliver seminar on title "Enriched Spoken Language Processing and applications"
13	Krishna Kumar Rangan Microprocessor Development Group (MDG) Intel, Massachusetts	July 19, 2010	To deliver seminar on title "Thread Motion: Solutions for Fine-grained Multi-Core Power Management"
14	Prof. Aravind Srinivasan University of Maryland, College Park	July 28, 2010	To deliver seminar on title "Linear Programming, Randomization, and Approximation Algorithms: An Exposition through Markov Random Fields"
15	Dr Sriraam Natarajan, Post-Doctoral Research Associate, Department of Computer Science and Engineering, University of Wisconsin-Madison, USA.	July 29, 2010	To deliver seminar on title "Efficient Statistical Relational Learning"
16	Dr.Lakshmesh Ramaswamy Assistant Professor, Department of Computer Science The University of Georgia 415 Boyd Graduate Studies Research Center Athens	August 5, 2010	To deliver seminar on title "Denial of Information: Threat, Challenges and Defense Mechanisms"
17	Dr. Mukund Sivaraman Product Architect, Synopsys	August 6, 2010	To deliver seminar on title "High Level Synthesis"
18	Dr. Vinod Nair University of Toronto	August 10, 2010	To deliver seminar on title "Learning Feature Hierarchies for Object Recognition with Deep Belief Nets"
19	Dr Girish Palshikar, Senior Scientist Tata Research Development and Design Center (TRDDC), Pune	August 10, 2010	To deliver seminar on title "Efficient Detection of Collusion Data in Stock Market Trading"
20	Laks V.S. Lakshmanan Professor , Department of Computer Science The University of British Columbia 2366 Main Mall, Vancouver, B.C., Canada V6T 1Z4	August 12, 2010	To deliver seminar on title "Breaking out of the Box of Recommendations: From Items to Packages"
21	Dr. Bryan Ford, Yale University	August 20, 2010	To deliver seminar on title "Efficient System-Enforced Deterministic Parallelism"
22	Dr. Uday Khedker, Professor, Department of Computer Science & Engg., IIT Bombay	September 13, 2010	To deliver seminar on title "Demystifying GCC Through Gray Box Probing"
23	Prof. Vijay Narayanan Pennsylvania State University	September 14, 2010	Talks on Computer Architecture Sept 14th to 17th
24	Prof. Luz Garcia University of Granada, Spain	September 15, 2010	To deliver seminar on title "Non-linear feature transformations for Robust Speech Recognition"
25	Dr. Manik Varma Microsoft Research India	September 17, 2010	To deliver seminar on title "Large scale max-margin multi-label classification with priors"
26	Dr. Shriram Revankar, Head of Adobe India Research	September 22, 2010	To deliver seminar on title "Smart Documents: Challenges and Opportunities"
27	Dr. Shalabh Bhatnagar, Indian Institute of Science, Bangalore	October 8, 2010	To deliver seminar on title "Reinforcement Learning Algorithms and an Application to Road Traffic Control"
28	Prof. Marian Gheorghe from University of Sheffield	October	as part of a indo-UK project

29	Prof. Yvonne Dittrich Visiting Associate Professor, Dept. CSE, IIT Madras	November 12, 2010	To deliver seminar on title "Software Engineering beyond the project. Juggling short-term and long-term requirements in software product evolution"
30	Prof. Yvonne Dittrich Associate Professor, IT University of Copenhagen	November 20, 2010	Workshop: User Oriented ICT Design and Development.
31	Shivaram Kalyanakrishnan Department of Computer Science, The University of Texas at Austin	December 21, 2010	To deliver seminar on title "Learning Methods for Sequential Decision Making in Practice"
32	Prof. C. A. Murthy, Machine Intelligence Unit, ISI Kolkata	January 6, 2011	To deliver seminar on title "SET ESTIMATION TECHNIQUE FOR FACE RECOGNITION"
33	Dr. P. Gopalakrishnan Vice President BM India Software Lab	January 12, 2011	To deliver seminar on title "Mobility – Trends and emerging technologies"
34	Prof. Sridhar Mahadevan University of Massachusetts, Amherst.	January 14, 2011	To deliver seminar on title "Representation Discovery for Manifold Alignment and Control"
35	Ravishankar Krishnaswamy, PhD student, Carnegie Mellon University.	January 17, 2011	To deliver seminar on title "Online Algorithms for Broadcast Scheduling"
36	Dr Suma Bhat University of Illinois Urbana Champaign	February 7, 2011	To deliver seminar on title "Knowing the Unseen in Natural Language and Assessing Fluency in Second Language Speech Measuring, Modeling and Using Speech Production Information"
37	N. Swaminathan Principal Scientist, Systems Research Lab, Tata Research Development and Design Centre (TCS), Pune.	March 14, 2011	To deliver seminar on title "Model-driven generic machine control for large scientific instruments"
38	Dr. Sriraam Natarajan , Wake Forest University	March 14, 2011	To deliver seminar on title "Functional Gradient Boosting for Statistical Relational Learning"
39	Prof. Subbarao Kambhampati Arizona State University	March 22, 2011	To deliver seminar on title "Incomplete Domain Models, Indecisive Users and Open Worlds: Foundations of Model-Lite Planning"
40	Shivkumar Kalyanaraman Senior Manager, IBM-IRL	March 25, 2011	To deliver seminar on title "Smarter Energy: The Promise of Cyber-Physical Systems"
41	Shivani Agarwal, CSA, IISc, Bangalore.	March 25, 2011	To deliver seminar on title "Ranking Genes, Ranking Documents, Ranking Drug Candidates: A Unified Machine Learning Approach"

#### 4.7.6 Other Activities of the Department/Centre:

##### Results obtained in research work (from M.S. & Ph.D thesis) of the scholar/faculty:

- A novel approach and a web-based prototype for Content based Video Retrieval (CBVR), for non-annotated video query samples, using a joint spatio-temporal representation
- Combining Decision and Feature fusion techniques for a novel multi-classifier framework

Prof. Sivalingam is coordinator for one of the 10 Themes of India-UK, Advanced Technology Centre (IU-ATC) of Excellence in Next Generation Networks Systems and Services " Theme 5: Converged Networks QoS Frameworks", Co-PI. (UK Part funded by EPSRC; Project PIs: Prof. Ashok Jhunjunwalla of IIT Madras, India and Prof. Gerard Parr of Univ. of Ulster, UK).

As part of this project, Prof. Sivalingam and two research scholars (Preethi Chandur and Madanagopal Ramachandran) visited UK in June 2010 to attend the joint bi-annual meeting. Also, Ms. Naghmeah Moradpoor, Ph.D. student at Univ of Ulster visited our lab. in Feb. 2011 for about 10 days.

**Major infrastructure development made in the Department:**

Exebit 2010 : Annual Department Tech. Fest

Department has received an amount of Rs.3.60 Lakhs from Microsoft Research India for constituting MSR India Outstanding Young Faculty Award.

The Department has initiated a new series of weekly talks called the "Research Seminar series" The seminar series consists of two talks every week by PhD scholars

## 4.8 DEPARTMENT OF ELECTRICAL ENGINEERING

### 4.8.1. Introduction:

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

- EE1 – Communication, Wireless and Optical networks and Systems
- EE2 – Power systems, Power electronics, High Voltage, Machines and Drives
- EE3 – Analog and Digital Circuits, Microelectronics, MEMS and VLSI design
- EE4 – Control, Robotics Measurements and Instrumentation
- EE5 – Photonics

All faculty members in the department have PhDs received from reputed universities.

### ***EE1 - COMMUNICATIONS, SIGNAL, SPEECH & IMAGE PROCESSING, WIRELESS & OPTICAL NETWORKS***

#### **Facilities:**

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

### ***EE2 - POWER SYSTEMS, POWER ELECTRONICS, HIGH VOLTAGE MACHINES AND DRIVES***

#### **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, 400kVA)
- Lightning impulse generator (1.5 MV, 37.5kJ)
- 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- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS**

### **Facilities:**

#### **Microelectronics and MEMS Lab**

- Class 100 /class 1000 clean rooms
- Laser writer for mask making
- E-beam metallization unit
- Furnaces for oxidation and diffusion
- Double sided mask aligner and exposure systems
- PECVD system for silicon dioxide and silicon nitride deposition.
- LPCVD system for polysilicon deposition
- Reactive Ion Etching System
- Substrate bonder

### **Characterization:**

- Autogain Ellipsometer
- Interferometric 3 -D surface profiler
- Four point probe
- Contact angle measurement system
- DLTS system
- Manual wafer probe station
- Semiconductor parametric analyzer
- Multifrequency LCR meters
- Lock-in amplifier and chopper
- Device simulation

#### **ANALOG & 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, ROBOTICS, 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 (Analog and digital)
- Benchmark vision system
- High precision measuring instruments
- Cobra RS-23-5 axis robot
- Eshed ERIII, eshed E&V: 5 axes 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

### Facilities:

- Fibre optic educational kit/laboratory
- Experimental Optics Laboratory with Lightwave Measurement unit, BER Tester, optical spectrum analyzer
- Fibre Grating Fabrication
- Fibre Laser Laboratory
- Integrated optoelectronics (LiNbO3 and Si-on-Insulator platforms)

### 4.8.2. Academic Programmes:

#### New discipline/branch introduced:

A new M.Tech. Stream “Photonics (EE5)” has been created effective from July 2011 with an intake of 10 students.

Eligibility	Total prescribed credits
B.E./B.Tech./M.Sc. (who qualify GATE subjects EE/EC/IN/PH)	65

Apart from core and electives from the Electrical Engineering Department, students can also take electives from Applied Mechanics, Engineering Design and Physics.

#### New Courses introduced:

Sl. No.	Course No.	Title
1	EE 5181	DC Power Transmission Systems
2	EE 6450	Optical Sensors
3	EE 5182	Computational Electromagnetics
4	EE 6301	Mathematical Methods for Circuit Analysis

#### New Lab(s) established:

- Virtual Instrumentation Laboratory
- Fiber Grating Fabrication

#### Students on Roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	54	46	40	41	3	184
Dual Degree	69	58	53	49	55	284
M.Tech.	64	57	0	0	1	122
M.S.	53	34	18	7	0	112
Ph.D.	19	21	15	22	17	94
<b>Total</b>	<b>259</b>	<b>216</b>	<b>126</b>	<b>119</b>	<b>76</b>	<b>796</b>

#### Endowment prize instituted:

Name of the Prize	Name of Donor	Amount of Corpus Fund	Nature of Award	Criteria of selection
Valadi Krishna Sarma Balaji & Savithri Balaji Award	Sri B. Narayan Roll No.89640EE Software Consultant USA	₹ 2,16,186/-	A silver medal & cash award of ₹ 10,000/-	To a B.Tech./DD/ M.Tech. student for the best project in Power/Energy saving

**Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad</b>					
1	A. V. Giridhar	EE07D011	2010 International Conference on Condition Monitoring and Diagnosis	06.09.10 to 11.09.10 Tokyo, Japan	IIT Madras
2	K. Kalaiselvi	EE07D014	International Workshop on Dielectric thin films for future ULSI Devices Science and Technology (IWDTF-11)	20.01.11 to 21.01.11 Tokyo, Japan	IIT Madras
3	G. Angeline Ezhilarasi	EE07D010	3 <sup>rd</sup> International Conference on Machine Learning and Computing (ICMLC 2011)	26.02.11, Singapore	IIT Madras
4	K. Jamuna	EE08D005		28.02.11, Singapore	
5	B.H. Pawan Prasad	EE08S037	International Conference on Computer Vision Theory and Applications (VISAPP 2011)	05.03.11, Portugal	IIT Madras, Microsoft Research
6	A.N. Bharathwaj	EE09S030	SPIE Photonics West	22.01.11 to 27.01.11, San Francisco, USA	IIT Madras
7	Anish Bekal	EE08D022	Frontiers in Optics	24.10.10 to 27.10.10, Rochester, USA	Optical Society of America
<b>India</b>					
1	K. Jamuna	EE08D005	16 <sup>th</sup> National Power Systems Conference (NPSC)	16.12.10, Osmania University, Hyderabad	IIT Madras
2	S.Sivasubramani	EE08D013		17.12.10, Osmania University, Hyderabad	
3	E. Angeline	EE08D010			
4	B.H. Pawan Prasad	EE08S037	Indian Conference on Computer Vision, Graphics and Image Processing	12.12.10, IIT Madras	IIT Madras

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	Mala Jayaraj Joseph S. Kedarinath	EE08D004 EE06D015 EE08D012	The Eneria award for the best innovation by student in the Academic Institutions (IITs & NITs)	Clean and Green Energy Initiative ₹ 1,00,000

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes
1.	Chinmoy Venkatesh Mandayam Nayaka	EE06B011	Governor's Prize Siemens Prize Motorola Prize
2.	Ramyra Korlakai Vinayak	EE07B088	Sri Ramasarma V Kolluri Memorial Prize K. Srinivasan and Indira Srinivasan Prize Swati/Jayalakshmi Memorial Award
3.	Dinesh Jayaraman	EE07B013	Dr. Dilip Veeraraghavan Memorial Award K. Srinivasan and Indira Srinivasan Prize Rajalakshmi Krishnamurthy English Prize
4.	Kollakgunta Krishnaswamy Anilesh	EE08B017	Institute Merit Prize
5.	Achuthan Sekar	EE10B001	Notional Prize of Rs.1000/- and a Certificate of Merit
6.	Apelagunta kama Naveen	EE10B004	
7.	Dhulipala Pranav Vaidik	EE10B008	
8.	Gokina Sree Satwik	EE10B010	

9.	Gurrala Praveen	EE10B011	Notional Prize of Rs.1000/- and a Certificate of Merit
10.	Karthik R	EE10B013	
11.	J Manoj Vikram	EE10B018	
12.	Muddireddy Pavankumar Reddy	EE10B020	
13.	B Naga Avinash Varma	EE10B022	
14.	Pananjady Martin Aswin	EE10B025	
15.	Praveen Venkatesh	EE10B028	
16.	Pydi Muni Sreenivas	EE10B030	
17.	Ranjit Nair	EE10B032	
18.	Saragadam R V Vishwanath	EE10B035	
19.	S Siddharth Jain	EE10B038	
20.	Siva Teja M G V	EE10B039	
21.	Archith Mohan	EE09B007	
22.	Karthikeyan Shanmugam	EE05B107 (DD)	Philips India Prize
23.	Srinidhi Tirupattur Ramamurthy	EE06B077 (DD)	Institute Merit Prize
24.	Rakesh Misra	EE06B097 (DD)	D Anand Subramanian Memorial Award
25.	R.M. Amarsagar Reddy	EE06B081 (DD)	Institute Merit Prize
26.	Surbhi Maheshwari	EE06B062 (DD)	Swati/Jayalakshmi Memorial Award
27.	Hariharan R	EE08M007	Siemens Prize
28.	Jitesh Mohanan	EE08M105	Prof. Achim Bopp Endowment Prize
29.	Aniruddha Roy	EE09M072	Institute Merit Prize
30.	Renny Edwin Fernandez	EE05D003	Dr. M. Mukunda Rao Endowment Prize

#### 4.8.3 Faculty and their activities:

##### a) Faculty:

Name And Qualifications	Major Area of Specialization (Only 5 Areas)
<b>Professor:</b> Enakshi Bhattacharya [ <b>Head</b> ]	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
Aravind R	Communications, Video, Estimation Theory
Ashok Jhunjunwala	Fibre-Optic Communication, Communication Network, Computer Networking, Microprocessor Based Systems, SAW
Bhaskar Ramamurthy	Digital Communication Systems, DSP, Wireless Networks
David Koilpillai R	Cellular and Broadband Wireless Systems, DSP Applications in Wireless, Cognitive Radio
Devendra Jalihal	Statistical Signal Processing, Estimation Theory
Giridhar K	Communication Systems, Adaptive Signal Processing
Prabhu K.M.M.	Algorithms for Digital Signal Processing, DSP for Communications, Non-Uniform Sampling, Acoustic Noise Control
Rajagopalan A. N.	Image Processing and Computer Vision
Harishankar Ramachandran	Computational Electromagnetic Access Network, Plasmic Physics
Umesh S.	Speech and Signal Processing
Krishna Vasudevan	<b>EE2 – POWER SYSTEMS, POWER ELECTRONICS, HIGH VOLTAGE MACHINES AND DRIVES</b> Electrical Machines, Industrial Drives and Power Electronics

Mahesh Kumar	Custom Power Devices, Power Quality Monitoring, Analysis and Interpretation
Sarathi R	High Voltage Engineering
Shanthi Swarup K	Power Systems, Computational Intelligence and Energy Management Systems
	<b>EE3- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS</b>
Amitava Das Gupta	Silicon And Gallium Arsenide Devices, Technology Modeling and Simulation, MEMS
Enakshi Bhattacharya	Amorphous, Porous and Polycrystalline Silicon Material and Devices, MEMS and Biosensors
Karmalkar S	Modeling and Fabrication of Semiconductor Devices, MEMS/Microfluidics, Nano Technology, Education
Nandita Das Gupta	Silicon and III-V Semi-Conductor Devices, Technology and Modeling, MEMS
Shanthi Pavan	Analog & Mixed-Signal VLSI, RF and Microwave IC Design
Srinivasan S	Digital Systems, Computer Architecture, Digital Signal Processing, VLSI Design
Vinita Vasudevan	Statistical & Noise Analysis of Circuits, VLSI Design
	<b>EE4 – CONTROL, ROBOTICS, MEASUREMENTS AND INSTRUMENTATION</b>
Jagadeesh Kumar V	Electrical and Electronic Measurements, Sensors and Signal Conditioning, Instrumentation and Biomedical Devices.
Janakiraman P A	Robotics and Vision, Electronic Instrumentation of IC Engines, Design of Control Systems, Digital Control and Identification of Systems
Jayashankar V	High Voltage, Power System and Biomedical Instrumentation
Sridharan K	Robotics, Vision, Architectures For Transforms, FPGA-Based System Design
	<b>EE5 – PHOTONICS</b>
Anil Prabhakar	Lasers, Quantum Optics, Nonlinear Systems, Magnetic and Magnetic-Semiconductor Devices, Sensor Networks, Metrology
Harishankar Ramachandran	Nonlinear Optics, Computational Plasma Physics and Optics, Edge Plasma Physics
<b>Associate Professor:</b>	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
Andrew Thangaraj T	Error Control Coding, Information Theory
Ramalingam C S	Signal Processing; Speech Recognition, Synthesis, and Coding
Srikrishna B	Wireless Multimedia Communications, Signal Processing for Communication Systems, Information Theory

	<b>EE3- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS</b>
Bijoy Krishna Das	Optoelectronic Devices and Circuits, Silicon Photonics, Lithium Niobate Integrated Optics
Nitin Chandrachoodan	Digital Systems, Microprocessors, VLSI Design
Nagendra Krishnapura	Analog VLSI, RF & Microwave IC
	<b>EE5 – PHOTONICS</b>
Balaji Srinivasan	Fiber Lasers, Distributed Fiber Sensors, Fiber Bragg Gratings
Shanti Bhattacharya	Fibre Interferometry, Diffractive Optics, Optical MEMS
<b>Assistant Professor:</b>	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
Arun Pachai Kannu	Wireless and Cellular Communications
Manivasakan R	Performance Analysis of Communication Networks in General: Optical and Computer Networks.
Venkatesh R	Stochastic Modeling, Queuing Theory, Wireless Communication
Venkatesh T G	Stochastic Modelling, Computer Networks, Computer Architecture, Multimedia applications using the Java Media Framework
	<b>EE2 – POWER SYSTEMS, POWER ELECTRONICS, HIGH VOLTAGE MACHINES AND DRIVES</b>
Kalyan Kumar B	Power System Stability, Facts, Power Quality
Krishna S	Power System Stability Analysis and Control
Lakshmi Narasamma	Power Electronics and Drives, Switched Mode Power Converters, Resonant Converters
Srinivas S	Electrical Machines, Power Electronics and Industrial Drives
	<b>EE3- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS</b>
Anjan Chakravorty	Compact Modeling of Sige Hbts, LDMOS, Nanofets, Inductors
Mathiazhagan C	Telematics, RF Communication, Analog Circuits
	<b>EE4 – CONTROL, ROBOTICS, MEASUREMENTS AND INSTRUMENTATION</b>
Arun D. Mahindrakar	Nonlinear and Robust Control with Application to Underactuated Systems
Bharath Bhikkaji	Identification Algorithms for Resonant Systems, Vibration Control of Resonant and Active Structures and Control and Actuation of Mechatronic Systems
Boby George	Sensors and Signal Conditioning, Measurements and Instrumentation and Biomedical Devices
Mohanasankar.S	Biomedical Instrumentation, Implantable Devices

	<b>EE5 – PHOTONICS</b>
Anantha Krishnan	Nanophotonics, Plasmonic Devices, Nanofabrication, Material Science, Optical MEMS, Characterization
Deepa Venkitesh	Nonlinear Optics, Fiber Amplifiers And Fiber Lasers, Optical Components for Communication, Components/Devices for All-Optical Signal Processing/ Switching.
<b>Visiting Faculty:</b>	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
Sridhar Krishnan	Sparse Signal Representations, Time-Frequency Signal Processing, Biomedical Signal Analysis, Affective Computing, Information Forensics and Security
Gaurav Raina	Performance Modeling of Communication Networks, Control Theory and Non-Linear Systems
<b>Adjunct Faculty:</b>	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
Kiran Kumar Kuchi	Wireless and Cellular Communications
	<b>EE3- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS</b>
Ravishankar A	Digital VLSI, CAD
Ravikumar C.P	Digital VLSI Design and Testing
<b>Emeritus Scientist/ Emeritus Professor:</b>	
<b>Scientific Officers / Instrumentation Engineer</b>	<b>EE1 – COMMUNICATIONS, SIGNAL, SPEECH &amp; IMAGE PROCESSING, WIRELESS &amp; OPTICAL NETWORKS</b>
	<b>Prabhakar Rao P, M.S</b>
	EE2 – POWER SYSTEMS, POWER ELECTRONICS, HIGH VOLTAGE MACHINES AND DRIVES
	<b>Jayasudha Avudai Thangam</b>
	EE3- ANALOG AND DIGITAL CIRCUITS, AND VLSI DESIGN, AND MICRO ELECTRONICS AND MEMS
Ponnuraju K	Semi-Conductor Devices and Technology

**b) Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1	A.N. Rajagopalan	7 <sup>th</sup> Indian Conference on Computer Vision Graphics and Image Processing (ICVGIP10)	12.12.10 to 15.12.10
2	Nitin Chandrachoodan, Nagendra Krishnapura	24 <sup>th</sup> international conference on VLSI Design and 10 <sup>th</sup> international conference on Embedded Systems	02.01.11 to 06.01.11
<b>Workshop:</b>			
1	Deepa Venkitesh	Workshop on Optics for HCL	30.08.10 to 04.09.10
<b>Short term Course:</b>			
1	Anil Prabhakar, Deepa Venkitesh, Bijoy K Das	Quantum Electronics and Laser	22.11.10 to 26.11.10

**Short-term Courses/ Workshops/ Meetings/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	S.Umesh	Odyssey 2010	Brno, CZ	27.06.10 to 01.07.10
2	Ashok Jhunjhunwala	Euro-India Future Internet Research and Experiments collaboration Workshop	Pune	16.12.10
3	Anil Prabhakar	Young Investigator's Meeting	Institute of Life Sciences, Bhuvaneshwar	13.02.11 to 17.02.11
<b>Meetings:</b>				
1	Bhaskar Ramamurthi	ITU Working Party 5D at Da Nang	Vietnam	08.06.10 to 12.06.10
2		India-UK Research Project in Telecommunications	University of Ulster, UK	14.06.10 to 16.06.10
3	K. Giridhar	To attend 5GPP standardization meeting (RAN1)	Dresden, Germany	26.06.10 to 02.07.10
4	K. Giridhar	3GPP Standardization Meeting (RAN1)	Madrid, Spain	25.08.10 to 28.08.10
5	Ashok Jhunjhunwala	Coordination Committee Meeting of India-UK research Project In Telecommunications	University of Ulster, UK	14.06.10 to 16.06.10
6		Euro-India Spirit Working group Experts Kick-Off Meeting	Hyderabad	03.08.10
7		2 <sup>nd</sup> Meeting of Advisory Committee of CGET	Hyderabad	27.08.10
8		MHRD Committee meeting	New Delhi	11.08.10
9		GeoICT PAMC Meeting	New Delhi	17.08.10
10		First Meeting Of the Expert Group, Department of Rural Development(Mahatma Gandhi NREGA Division)	New Delhi	25.08.10
11		2010 Shanthi Swarup Bhatnagar Prizes in Engineering Sciences- Advisory Committee Meeting	New Delhi	25.08.10
12		4 <sup>th</sup> Meeting Of the Council of Science and Technology for Rural India(CSTRI)	New Delhi	30.08.10
13		Jury at NASSCOM CNBC IT User Award Meeting	New Delhi	30.08.10
14		Meeting of the Sub-Committee for selection of Chairman and Managing Director (CMD) of BSNL and MTNL	New Delhi	03.10.10
15		Rural ICT RFP Evaluation and Management Committee Meeting	New Delhi	04.10.10
16		Interview of Sub-Committee for Selection of Chairman and Managing Director (CMD) of BSNL & MTNL	New Delhi	04.10.10
17		5 <sup>th</sup> and Final Project Review Committee (PRC)meeting of the Project "Development of Tunable Telemetry Receiver"	Bangalore	13.10.10
18		MHRD Committee meeting under the Chairmanship of Anil Kakodkar, Chairman, BoG, IIT Bombay	Mumbai	18.10.10
19	SEBI-Technical Advisory Committee Meeting	Mumbai	18.10.10	
20	Mobile payment 'meeting at National Payments Corporation of India	Mumbai	02.11.10	
21	Meeting of the 'National e-governance Advisory group at DIT	New Delhi	12.11.10	



22	Ashok Jhunjhunwala	Indo UK Executive Board Meeting	Dubai ,UAE	21.11.10	
23		SAC-PM Meeting ,CSIR Science Centre	New Delhi	22.11.10	
24		10 <sup>th</sup> Meeting of the MHRD Committee under the Chairmanship of Dr. Anil Kakodkar, Chairman at IIT Kanpur	Kanpur	29.11.10	
25		Euro-India Conference on “Fostering the Europe-India innovation nexus”	Kanpur	11.11.10	
26		CII Conclave on “Multidimensional telecom-growth building and enabling information infrastructure”.	New Delhi	12.11.10	
27		TCOE Conference “Mobile broadband igniting the service revolution”	New Delhi	26.11.10	
28		MHRD Committee Meeting under the Chairmanship of Dr. Anil Kakodkar, Chairman, BoG	IIT Bombay	12.12.10	
29		Forty-Sixth Meeting of Governing Council of IDRBT	Mumbai	13.12.10	
30		SEBI - Technical Advisory Committee Meeting	Mumbai	14.12.10	
31		IITM's Security Forum Meeting	Pune	16.12.10	
32		10 <sup>th</sup> SAC-PM Meeting	Bangalore	24.12.10	
33		Nielson Company's Global Leadership Meeting	Florida, USA	04.01.11 to 07.01.11	
34		Balaji Srinivasan	Working Group on Photonics, Dept. of Information Technology	Electronics Niketan, New Delhi	23.11.10
35		David Koilpillai	Indo-US Conclave on Engineering Education	New Delhi	10.01.11 to 11.01.11
<b>Symposia:</b>					
1	Andrew Thangaraj	International Symposium on Turbo Codes 2010	Brest, France.	06.09.10 to 08.09.10	
<b>Conference:</b>					
1	K. Giridhar	Wireless world Research Forum (WWRF-24)	Penang, Malaysia	12.04.10 to 14.04.10	
2	Bijoy KrishnaDas	SPIE Photonics Europe 2010	Brussels, Belgium	12.04.10 to 16.04.10	
3	B. Srikrishna	IEEE International Symposium on Information Theory 2010 (ISIT)	Austin, Texas, USA	13.06.10 to 18.06.10	
4	A.N. Rajagopalan	IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)	San Francisco, USA	13.06.10 to 18.06.10	
5	Lakshmi Narasamma	To Present Papers at the 12 <sup>th</sup> IEEE Workshop on Control and Modelling for Power Electronics(COMPEL 2010)	University of Colorado,Boulder Campus,Colorado,USA	28.06.10 to 30.06.10	
6	Andrew Thangaraj	SPCOM 2010	IISc, Bangalore	19.07.10 to 21.07.10	
7	Srirama Srinivas	International Conference on Electrical Machines (ICEM 2010)	Rome, Italy	06.09.10 to 08.09.10	
8	Shanthi Pavan	European Solid State Circuits Conference	Spain	10.09.10 to 16.09.10	
9		Custom Integrated Circuit Conference	USA	17.09.10 to 23.09.10	
10		International Solid State Circuits Conference	San Fransisco, USA	20.02.11 to 24.02.11	
11	Ashok Jhunjhunwala	Euro-India Conference on “Fostering the Europe-India innovation nexus”	Brest, France	11.11.10	
12		CII Conclave on “Multi-dimentional telecom-growth building and enabling information infrastructure”	New Delhi	12.11.10	

13	Ashok Jhunjhunwala	TCOE Conference “ Mobile broadband igniting the service revolution	New Delhi	26.12.10
14	K. Sridharan	11 <sup>th</sup> International Conference on Control, Automation, Robotics and Vision (ICARCV 2010)	Singapore	07.12.10 to 10.12.10
15	Arun D. Mahindrakar			
16	Balaji Srinivasan	Photonics 2010 – International Conference on Fiber Optics and Photonics	IIT Guwahati	13.12.10 to 15.12.10
17	Bijoi Krishna Das			
18	Shanti Bhattacharya			
19	Deepa Venkitesh			
20	K. S. Swarup	16 <sup>th</sup> National Power Systems Conference (NPSC)	Osmania University, Hyderabad	15.12.10 to 17.12.10
21	Anil Prabhakar	Accessible Reading Materials	Spastics Society of Karnataka	22.07.10 to 23.07.10
22		Photonics West 2011	San Francisco, USA	22.01.11 to 27.01.11
23	Enakshi Bhattacharya	24 <sup>th</sup> International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2011)	Cancun, Mexico	23.01.11 to 27.01.11
24	B. Srikrishna	SPCOM 2010	IISc, Bangalore	19.07.10 to 21.07.10
25		IEEE GLOBECOM 2010	Miami, FL, USA	07.12.10 to 10.12.10
26		IEEE COMSNETS 2011	Bangalore	06.01.11 to 08.01.11
27		B. Srikrishna	National Conference on Communications (NCC 2011)	IISc. Bangalore
28	Bhaskar Ramamurthi			
29	A. N. Rajagopalan			
30	Gaurav Raina			
<b>Short term Course:</b>				
1	B. Srikrishna	JTG Summer School 2010	IISc, Bangalore	18.05.10 to 21.05.10

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of Faculty	Topic of Lecture	Institution	Date
1	Mahesh Kumar	Load compensation techniques and some conceptual issues	PES, IES, PELS & IES Chapter, IIT Delhi	19.04.10
2	Mahesh Kumar	Power quality issues and problem in home/industrial inverters	FICCI in association with International Copper Promotion Council(India)and Electrical Installation Engineers under the aegis of the EU-Asia Power Quality Initiative(APQI)	16.07.10
3		Control Algorithms for DSTATCOM and its implementation	VIT, Vellore	31.07.10
4	Anil Prabhakar	Accessible reading materials	Spastics Society of Karnataka, Bangalore	22.07.10
5	Ashok Jhunjhunwala	What would it take for india to become leader in wireless technology?	Raman Research Institute, Bangalore	10.08.10
6		Connecting the next billion retreat in Agra	Microsoft, Agra	30.08.10
7	Ashok Jhunjhunwala	What would it take for india to become leader in wireless technology?	Indian Institute of Science, Bangalore	13.10.10

8	Anil Prabhakar	Photonics, Multi-physics and Metamaterials	Comsol India, Bangalore	30.10.10
9	B. Srikrishna	Half-duplex gaussian relay networks with interference processing relays	Rice University, Houston, Texas, USA	11.12.10
			Texas A & M University, College Station, Texas, USA	13.12.10
10	B. Srikrishna	Coding Schemes for Bidirectional relaying	NCC 2011, IISc. Bangalore	29.01.11
11	K. Giridhar	Generalized Multi-Carrier Modulation	Anna University, Thiruchirapalli	04.02.11
12	Gaurav Raina	Mobile Payment Security	Institute For Development and Research in Banking Technology(IDRBT), Hyderabad	16.02.11
13	Shanti Bhattacharya	Everyday Optics	Vivekananda College, Chennai	19.02.11
14	Sridhar Krishnan	Compressed Sensing	Nanda Engineering College, Perundurai	21.02.11
15		Biomedical Signal Processing	Sengunthar Engineering College, Thiruchengode	
16	K. S. Swarup	Smart Grid and Scope of research in Electric Power Systems	Anna university, Chennai	21.02.11
17		Smart Grid in Power Engineering	Kinston engineering College, Vellore	24.02.11
18	Anil Prabhakar	Four Wave Mixing on the ITU grid for Quantum Key Distribution	Velammal Engineering College	04.02.11
19	Deepa Venkitesh	Nonlinear effects in optical fibers	Velammal Engineering College	04.02.11
20		Applications of nonlinear effects in optical fibers	NIT Calicut	02.03.11
21	K.S. Swarup	Inter-disciplinary Research in Smart Grid	Mohamed Sathak AJ College of Engineering	07.03.11
22	Sridhar Krishnan	Perspectives on People-Centered Biomedical Systems	Anna University, Chennai	03.03.11
23	Balaji Srinivasan	Laser Technology & Fiber Optic Sensing	University of Kerala	09.07.10
24		Fiber Optic Communications	Karpaga Vinayagar College of Engineering & Technology, Chennai	19.08.10
25		Distributed Sensing	Panimalar College of Engineering, Chennai	16.03.11

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	R.Sarathi	Munchen, Germany	18.05.10 to 30.06.10	For research stay sponsored by DAAD to carry out research at technical university in the area of Nanocomposites	--
2		Gifu, Japan	19.11.10 to 20.11.10	To attend the 11 <sup>th</sup> Workshop on Fine Particle Plasmas	--
3	Y.Shanthi Pavan	Paris, France	30.05.10 to	To present paper at the 2010 IEEE international symposium on circuits and systems	--
4	Nagendra Krishnapura		02.06.10		
5	Balaji Srinivasan	Karlsruhe, Germany	21.06.10 to 24.06.10	To present paper at the 2010 Bragg Gratings, Photosensitivity and poling in Glass Waveguides (BGPP) topical meeting	--

6	Deepa Venkitesh	Dublin City University, Ireland	14.06.10 to 23.07.10	International visitors program	--
7	S.Umesh	University of Granada, Spain	02.07.10 to 15.07.10.	For Research discussions under Indo Spanish joint project	--
8	Y.Shanthi Pavan	Malaysia	05.07.10 to 09.07.10	Retainer consultancy assignment for M/s Dreamcatcher Asia	Dreamcatcher
9	Shanti Bhattacharya	University of Western Australia, Australia	07.07.10 to 20.07.10	To explore Research collaboration	University of Western Australia
10	K. S. Swarup	Thailand	25.08.10 to 07.09.10	Raja Mangala Univ. Technology, Thanyaburi, (RMUTT), Research Collaboration on Smart Grid in Electric Power Systems	--
11	B. Srikrishna	Rice University, USA Texas A & M University, USA	10.12.10 to 13.12.10	For research presentation and discussion	PCF, DST
12		Miami Florida, USA	06.12.10 to 10.12.10	Conference(IEEE GLOBECOM)	--
13	Anil Prabhakar	Poznan, Poland	20.12.10 to 21.12.10	DYNAMAG Indo-EU collaboration meeting	--
14	Srirama Srinivas	Tehran, Iran	15.02.11 to 18.02.11	To present paper Titled "Current ripple analysis in a decoupled SVPWM controlled dual two-level inverter fed open-end winding induction motor drive"	IIT Madras
15	Anil Prabhakar	Kuala Lumpur, Malaysia	29.03.11 to 31.03.11	Telekom Malaysia OTDR project	--
16	Amitava DasGupta	P.R. China	4.12.10 to 9.12.10	Indo-China Workshop on "MEMS and NEMS" held at North University of China, Taiyuan, Shanxi (China)	DST
17	K. M. M. Prabhu	Technical University Eindhoven (TU/e), The Netherlands	01.09.10 to 20.10.10	Visiting Professor	Technical University Eindhoven
18	K. Giridhar	Madrid, Spain	25.08.10 to 28.08.	To attend 3GPP Standardization Meeting (RAN1)	--
19	Kalyan Kumar	Hitachi, Tokyo, Japan	26.08.10 to 28.08.10	Project discussion	--
20	David Koilpillai	Tokyo, Japan	27.08.10	Progress Review meeting of Hitachi Ltd.	--
21			29.08.10 to 02.09.10	Technical Planning meeting	--
22	Andrew Thangaraj	Dublin, Ireland	29.08.10 to 03.09.10	IEEE Information Theory workshop 2010	--
23		France	31.08.10 to 04.09.10	ISTC 2010 to be held in the Congress Centre of Brest, "Le Quartz"	--
24	Shanthi Pavan	San Francisco, USA	10.10.10 to 13.10.10	To attend the paper selection meeting for the international Solid State Circuits Conference(ISSCC)	--
25	Nagendra Krishnapura	Kuala Lumpur, Malaysia	29.11.10 to 03.12.10	For consultations on "Sensor Interface Analog Integrated Circuits"	--
26		Colombo, Srilanka	01.04.10 to 02.04.10	To attend the meeting of TATA Communications Ltd.	--
27		USA	07.05.10 to 09.05.10	To accept an honorary doctorate at University of Maine	--
28			13.05.10 to 14.05.10	To deliver a talk at University of Pittsburgh	--
29			15.05.10 to 17.05.10	To attend Alumni Meeting at San Francisco	--

30	Ashok Jhunjhunwala		24.05.10 to 25.05.10	To attend Board of Governors Audit Committee Meeting of Polaris	--
31		Sweden	27.05.10 to 27.05.10	To attend Scientific Governance Board meeting at Blekinge Institute of Technology	--
32		China	03.11.10 to 07.11.10	A member of the Committee constituted under the chairmanship of Dr. Anil Kakodkar	--
33		Dubai	21.11.10	Executive board of IUATC	--
34		Xian, China	03.12.10 to 09.12.10	To attend CPR South5:Convergence:Infrastructure,Services,Policies;Chaired session in CPR South5 Inaugural Presentation Policies for e-development Senior Scholars Panel	--
35	Bhaskar Ramamurthi	Taiwan	31.08.10 to 04.09.10	Technical Collaboration Meeting and Signing of Memorandum of Understanding(MoU) with Institute of Information Industry on behalf of CEWiT	--

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>Awards:</b>					
1	Ashok Jhunjhunwala	Bernard Lown Humanitarian Award (2009)	University of Maine Alumni Association	--	April & May
2		Honorary Doctorate Award	The University of Maine, USA	--	April & May
3	Srirama Srinivas	Best Presenter	3 <sup>rd</sup> global conference on Power Control and Optimization2010, Australia	For the paper "Hybrid PWM Switching Strategy for A Three Level Inverter Fed Induction Motor Drive with Open-End Windings	September
4	B. Srikrishna	Young Engineer Award	INAE	For engineering research, excellence in engineering design, technology development and technology transfer	September
5	K. Sridharan	Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Award, 2009	Physical Research Laboratory	Contributions to electronics, Telematics, Informatics And Automation	August
6	Srirama Srinivas	Best Paper Award	2 <sup>nd</sup> Power electronics, Drive Systems and Technologies Conference(PEDSTC, 2011), Teheran, Iran	Paper Titled "Current ripple analysis in a decoupled SVPWM controlled dual two-level inverter fed open-end winding induction motor drive"	February

**Fellowships of Academies and Professional Societies:**

Sl. No.	Name of Faculty	Year of admission (Fellowship)
<b>INAE:</b>		
1	Amitava DasGupta	2010
2	A. N. Rajagopalan	2010
<b>Others:</b>		
<b>J.C.Bose Fellowship (Dept. of Science and Technology)</b>		
1.	Ashok Jhunjhunwala	2010
<b>Institute of Electronics and Telecommunications Engineers (India)</b>		
1.	K. Sridharan	2010

**Journal Editorial Boards:**

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1	B. Srikrishna	Member	IEEE Transactions on Wireless Communications

**4.8.4 Design and Development Activities:**

**Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:**

**New facilities added or major equipment procured:**

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1	Bragg Grating Fabricating Facility	90
2	Experiment work Bench-40sets	180
3	Dissectible Machines-2sets	24
4	E-Beam coating unit, BC 300T	31.5
5	Cascade Probe Station	42
6	ICP Etching System	165
7	ELSPEC G4500 PQ Analyser	8
8	Vibration Isolation Table	5
9	3-Phase current injection test set for relay testing	9
10	High precision power meter	8
11	3-phase digital voltage source for relay testing	8
12	3 net FPGA cubes	2.25

**Patents:**

**Patents filed:**

Sl. No.	Name of faculty	Topic of patent
1	Balaji Srinivasan	A Process and System for Manufacturing Stable Fiber Bragg Gratings (Indian, applied 30.7.10)
2		Strain and Temperature Discrimination Using Fiber Bragg Gratings in a Cross-Wire Configuration

**Patents awarded:**

Sl. No.	Name of faculty	Topic of patent
1	Balaji Srinivasan	A Process and System for Manufacturing Stable Fiber Bragg Gratings (PCT, awarded 29.7.10)

**Research and Consultancy:**

**Sponsored Research Projects: (ongoing & new)**

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Computer Vision techniques for resurrection of heritage sites in India	3 years (1.07.2010 to 30.06.2013)	DST	34	A. N. Rajagopalan
2	India Based Neutrino Observatory(INO)	1 year(11.08.10 to 10.08.2011)	DST	10.04	Nagendra Krishnapura
3	Fabrication of RF MEMS SPST and SPDT switches for X-band and Ku-band applications	1 and ½ years	National Programme on Micro and Smart Systems	233.74	Amitava DasGupta
4	Low power CODEC for digitally programmable hearing aids	3 years	Dept. of Information Technology	125.49	Shanthi Pavan
5	TeNet Development Activities – phase 2	2 years	TT Funds and IIT Madras	39.67	Ashok Jhunjhunwala
6	Diode-pumped compact kilowatt-level fiber laser	2 years	DRDO	44.38	Balaji Srinivasan
7	Design and development of a device for the measurement of venous refilling time	2 years	DST	20.40	V. Jagdeesh Kumar
8	Design and Fabrication of diffractive optics using electron beam and focused ion beam systems	3 years	DST	27.34	Shanti Bhattacharya
9	Optical MEMS scanner for Optical Coherence Tomography: development and reliability	3years (2009 - 2012)	DST	27	
10	Design and fabrication of diffractive and optical MEMS	2 years (2010-2012)	NPMASS	130	
11	Estimating Quality of Broadband Internet in India	9 months	National Internet Exchange of India	7.00	Ashok Jhunjhunwala
12	Preparation of monograph and publishing the book on wave energy project	1 year	National Institute of Ocean Technology	5.00	V. Jayashankar
13	Demonstration of all-optical wavelength conversion	3 years	DST	20.00	Deepa Venkitesh
14	Resource Allocation for Multi-Terminal Wireless Communication Systems	3.5 years (July 2007 to Jan 2011)	DST	19.6	B. Srikrishna
15	Development of GPoN Technology	2 years	DST	16	R. Manivasakan
16	Simulation and Performance Analysis of GPoN	1 year & 3 months	CARS (CAIR)	9.96	
17	Development of microelectrode arrays for electrochemical applications	3 years & 4 months (March 2008 to June 2011)	DST, New Delhi	31.97	Dr. Amitava DasGupta Dr. N. DasGupta Dr. E. Bhattacharya
18	Optimization of processes for the fabrication of nitride based heterostructure devices	3 years (April 2009 to April 2012)	DST, New Delhi	357.52	Dr. Amitava DasGupta Dr. N. DasGupta Dr. E. Bhattacharya
19	National Resource Centre for MEMS Design	2009-2011	National Programme on Micro and Smart Systems	38.7	Enakshi Bhattacharya

20	Silicon MEMS biosensor system	2010-2012	National Programme on Micro and Smart Systems	70	Enakshi Bhattacharya
21	Diode-Pumped Compact KiloWatt Level Fiber Laser	2 years	DRDO	46.3	Balaji Srinivasan
22	Fiber Interrogation Monitor for Vibration Sensing	1 year	IGCAR	14.9	
23	Development of optoelectronic module	1 year	TT Funds and IIT Madras	11.67	Anil Prabhakar
24	Intelligent condition monitoring of power transformers adopting multi sensor fusion technique	3 years	DST	51.97	R. Sarathi

#### Industrial Consultancy projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Anil Prabhakar	Design of magnetic sensors	HCL India Ltd.	5.00
2	R. Sarathi	Calibration testing for high voltage	Ascot Electricals	1.00
3	Balaji Srinivasan	Fiber Sensors for Current Transformers	ERDA	1.43

#### RBIC projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Boby George	Magnetic Properties Test Apparatus for Armature Frame	Ramind Cold Forge Pvt. Ltd, Chennai	1.5 Lakhs

#### 4.8.5 Research Publications of the faculty members & research scholars:

Total No. of papers published in Refereed International Journals : 46  
Total No. of papers presented in National Conferences : 09  
Total No. of papers presented in International conferences : 52

#### In Refereed International Journals:

Sl. No.	Faculty Name	Title	Published	Co-authors	Month
1	K S.Swarup	Bidding Strategy for pumped storage plant in pool-based electricity market	Energy Conversion and Management, Vol.51, No.3, March 2010, PP.572-579	.P.Kanakasabapathy	April
2		High Precision frequency estimation using internet-base phasor measurement unit	IEEE transactions on Power Systems, Vol.25, Issue:2, May2010, pp.607-614	Rohit Malpani, Zaheer Abbas	May
3		Graph theoretic Approach for preventive control of power systems	International Journal of Electrical Power and Energy Systems (IJEPEs), Vol.32, Issue.4, 2010	Manoj Kumar Maharana	May
4	K.M.M.Prabhu	Block Filtered-s least mean square algorithm for active control of non linear noise systems	IET Signal processing Journal, Volume.4, Issue.2, pp.168-180, 2010	P. Vikram Kumar, D. P. Das	April
5		On the eigen values of matrices for the reconstruction of missing uniform samples	Transactions on signal processing, Vol.58, No.5, pp 2896-2900, 2010	M. Karthik	May



6	Balaji Srinivasan	Strain-Temperature discrimination using a single fibre bregg greting	IEEE Photonics Technology Letters	R.Aashia, K.V.Madhav, B.Srinivasan, S.Asokan	May
7		Charecterisation of atmospheric turbulence effects and their mitigation using wavelet based signal processing	IEEE Transactions on Communications	Latsa Babu	May
8	R. Aravind K. M. M. Prabhu	Krylov subspace-base low-rank channel estimation in OFDM subsystems	Signal Processing, Vol.90, No.6, pp.1861-1872, 2010	J. Oliver	June
9	Shanthi Pavan	A power efficient continuous time modulator with 15 Mhz bandwidth and 70dB dynamic range	Analog Integrated circuits and signal processing	Karthikeyan Reddy	June
10	Nandita DasGupta, Amitava DasGupta	Study of Random Dopant Fluctuation effects in FDSOI-MOSFET using analytical threshold voltage mode	IEEE Transaction on device and materials reliability	Rathnamala Rao,	June
11	A. N. Rajagopalan, R. Aravind	A recursive frameworm for joint inpainting and denoising of photographic films	Journal Of the Optical Society of America A(JOSA A),Vol.27,pp1091-1099, June 2010	G.R.K.S.S. Manyam	June
12	A. N. Rajagopalan	Joint Image and depth completion in shape-from-focus: Taking a cue from parallax	Journal Of the Optical Society of America A(JOSA A),Vol.27,pp1203-1213, June 2010	R. R. Sahay	June
13	K. S. Swarup	Evolutionary Tristate PSO for strategic bidding of pumped Storage Hydroelectric plant	IEEE transactions on systems man and Cybernetics, Part C:Applications and Reviews, Vol.40, No.4	P. Kanakasabapathy	July
14	Shanthi Pavan	Power reduction in continuous time delta sigma modulators using the assited opamp technique	IEEE Journal of Solid State Circuits	P. Shankar	July
15	Amitava DasGupta	Modeling Non-Quasi-Static Effects in SiGe HBTs	IEEE Trans. Electron Devices, pp. 1559-1566	J. Jacob, M. Schröter and A. Chakravory	July
16	Shanthi Pavan	Efficient simulation of weak non linearities in continuous time oversampling converters	IEEE Transactions on Circuits and Systems	--	August
17	Mahesh Kumar	DC capacitor Voltge equalization in neutral clamped inverter for DSTATCOM applications	IEEE Transactions on Industrial Electronics, Vol.57, No.8, August 2010, pp.2768-2775	Srikanthan	August
18		Dynamic Hysteresis current control to minimize the switching for three phase four-leg VSI topology to compensate non linear loads	IEEE Transactions on Power Electronics Letters, Vol.25, NO.8, Aug2010, pp.1935-1942	Nikhil Prabhakar	August
19	Amitava DasGupta	Analytical Approximation for the Surface Potential in n-channel MOSFETs considering Quantum Mechanical Effects	IEEE Trans. Electron Devices, pp. 1820-1828, August 2010	G S Jayadeva	August
20	K.S. Swarup T.G. Venkatesh	Simulation of SMIB power system with stochastic load	11 <sup>th</sup> IEEE Internatl. Conf. on Probabi-listic methods applied to power systems (PMAPS) pp.190-293, 2010	R. Chendur Kumaran	August

21	K. Sridharan Arun D Mahindrakar	Mobile Robot navigation through a hardware efficient implementation for control law based construction of generalized voronoi diagram	IEEE/ASME Transactions on Mechatronics, 2010	Leena Vachhani	Sep.
22	Andrew Thangaraj	Path Gain Algebraic Formulation for the Scalar Linear Network Coding Problem	IEEE Transactions on Information Theory, Vol.56, No.9, pp.4520-4531, Sep 2010	Abhay Subramanian	Sep.
23	Deepa Venkitesh	Stability Studies on Continuous-Wave Broadband Generated in an Erbium-Doped Fiber Ring Laser Using Highly Nonlinear Fiber	IEEE Photonics	Aditi Ghosh, R. Vijaya	October
24	Bijoy Krishna Das Nandita DasGupta	Compact integrated optical directional coupler with large cross section silicon waveguides	<i>SPIE Proc.</i> , vol. – 7719, pp1-IX, 2010	John P. George	--
25	Enakshi Bhattacharya	MOS capacitor for simple thiol based biosensor applications	Thin Sol. Films 519 (2010) 982-986, Oct. 2010	N. Bhagirath E. Kanhere	October
26	Mahesh Kumar	Particle swarm optimization based feedback controller for unified power quality conditioner	IEEE Trans. On Power Delivery, Vol.25, Issue 4, PP.2814-2824, Oct. 2010	K. Srinivas Bhaskar B. Kalyan Kumar	October
27	S. Karmalkar	On a simple scheme for computing the electronic energy levels of a finite system from those of the corresponding infinite system	J. phys. Condes.Matter, Vol.22, No.43, pp.435502, Oct.2010	Arvind Ajoy	October
28	K.S.Swarup	Support Vector machine based pattern recognition approach for static security assessment	International Journal of Artificial Intelligence ISSN 0974-0635, Volume 5, No.A10, Autumn 2010 pp.17-36	S.Kalyani	--
29	Anil Prabhakar	Quantum Key distribution using spin-wave optical interactions	J.Quantum Electronics Nov.2010 Vol.46, Issue:11, pp.1542-1548	Pradeep Kumar	Nov.
30	Bhaskar Ramamurthi	Distributed cooperative precoder selection for interference alignment	IEEE Transactions on Vehicular Technology, Vol.5, No.9, pp.4368-4376	Vinoth Nagarajan	--
31	Anil Prabhakar	Quantum key distribution using spin wave-optical interactions	IEEE J. of Quant. Electron, Vol 46, No.11	P. Kumar	Nov.
32	K. S. Swarup	Hybrid DE-SQP algorithm for non-convex short term hydrothermal scheduling problem	Energy Conversion and Management, Vol.52, No.1, pp.757-761, Jan 2011	S. Sivasubramani	January
33		Hybrid SOA-SQP algorithm for dynamic economic dispatch with valve-point effects	Intl. Journal of Energy, Vol.35, No.12, pp.5031-5036, Dec.2010		
34	Sridhar Krishnan	Automated detection of nocturnal slow eye movements modulated by selective serotonin reuptake inhibitors	Progress in Neuro-psychopharmacology & biological psychiatry, Vol.35 Issue:1, pp.126-130	M.I. Boulos, B. Murray, K. Umapathy	January

35	S. Karmalkar	Ambient field effect on the current-voltage characteristics of nanowire field effect transistors	Appl. Phys. Lett., Vol.98, No.7, pp.063508.1-063508.3	Maheswaran, G. Vijaykumar	Feb.
36	A. N. Rajagopalan	Dealing with parallax in shape-from-focus	IEEE Transactions on Image Processing, pp.558-569	Rajiv Ranjan Sahay	Feb.
37	Shanthi Pavan	Alias Rejection of continuous-time sigma-delta modulators with switched-capacitor feedbacks DACs	IEEE Transactions on Circuit and Systems: Regular papers	--	Feb.
38	Sridhar Krishnan	Combining Least-Squares support vector machines for classification of biomedical signals: a case study with knee-joint vibroarthrographic signals	Journal of experimental and theoretical artificial intelligence, Vol.23, Issue.1, pp.63-77	Y. Wu	Feb.
39	Harishankar Ramachandran	Convergence of quantum and semiclassical models of erbium-doped fiber amplifiers	J. Opt. Soc. Am. B, Vol 28, pages 533-542	A.R. Karthikeyan	March
40	K. Shanthi Swarup	Electricity price forecasting using artificial neural networks	International Journal of Electrical Power & Energy Systems, Volume 33, Issue 3, Pages 550-555	Deepak Singhal	March
41		Tie-line constrained distributed state estimation	International Journal of Electrical Power & Energy Systems, Volume 33, Issue 3, Pages 569-576	Kalyan DasGupta	March
42		Multi-objective harmony search algorithm for optimal power flow problem	International Journal of Electrical Power & Energy Systems, Volume 33, Issue 3, Pages 745-752	Sivasubramani	March
43	Arun D.Mahindrakar	Robust stabilization of a class of underactuated mechanical systems using time-scaling and Lyapunov redesign	IEEE Transaction on Industrial Electronics	T.R. Maruthi	--
44	Enakshi Bhattacharya	Dynamic Response of polysilicon microcantilevers to enzymatic hydrolysis of urea	International Journal of Advances in Engineering Sciences and Applied Mathematics, Special issue on MEMS	R.E. Fernandez A. Chadha	March
45	Shanti Bhattacharya	Integrated optical and MEMS based design process for a variable optical attenuator	Optics and Lasers in Engineering	Deepak Kumar Agrawal	March

#### In Proceedings of National Conferences:

S.No	Faculty Name	Title	Published	Co-authors	Month
1	Andrew Thangaraj	Multistage Relaying using interference networks	Invited paper, SPCOM 2010, IISC Bangalore	M. Bama, B. Srikrishna	July
2	K. S. Swarup	Estimation and elimination of DC component in digital relaying	Paper ID 6083, 16 <sup>th</sup> National Power Systems Conference (NPSC), Hyderabad	K. Venkatesh	Dec.
3		Critical Measurement set with Phasor Measurement Unit (PMU) for Hybrid state estimation	Paper ID 6030, 16 <sup>th</sup> NPSC, Hyderabad	K. Jamuna	Dec.
4		A distributed computing Environment for probabilistic transient stability analysis	Paper ID 6120, 16 <sup>th</sup> NPSC, Hyderabad	K. Jayashree	Dec.

5	K.S. Swarup	Distributed load flow using partitioning and equivalencing of power networks	Paper ID 6030, 16 <sup>th</sup> NPSC, Hyderabad	E. Angeline	Dec.
6		Multi objective harmony search algorithm for optimal power flow	Paper ID 7007, 16 <sup>th</sup> NPSC, Hyderabad	S. Sivasubramani	Dec.
7	Gaurav Raina	Experimental evaluation of cubic TCP	Proceedings of NCC 2011	S. Jain	Jan.
8		Some design considerations for mobile payments		P Chandrahas D Kumar R Karthik T Gonsalves A Jhunjunwala	Jan.
9	K. M. M. Prabhu	Poisson noise removal from images using the fast discrete curvelet transform		Sandeep Palakkal	Jan.

#### In Proceedings of International Conferences:

S.No	Faculty Name	Title	Published	Co-authors	Month
1	Bijoy Krishna Das Nandita DasGupta	Compact Integrated Optical Directional Coupler with Large Cross Section Silicon Waveguides	Photonics Europe (SPIE), Brussels, Belgium	John P. George,	April 2010
2	Amitava DasGupta	An improved analytical solution to surface potential in undoped surrounding gate MOSFET	Proc NSTI Nanotech, Anaheim, CA, pp. 797-800. Article #1082.	Aritra Dey	June
3	Shanthi Pavan	Understanding weak nonlinearities in continuous time oversampled converters	IEEE international Symposium on Circuits and Systems, Paris, June2010	-	June
4	B. Srikrishna	Dirty Paper Coding using Sign bit shaping and LDPC codes	Proc. Of ISIT 2010, Austin, Texas, USA	S. Gadiraju, Andrew T.	June
5	Nagendra Krishnapura	Spur reduction in Wideband PLLs by random positioning of charge pump pulses	2010 International Symposium on Circuits and Systems (ISCAS), Paris, France	Chembiyan Thambidurai	June
6		A 100 microW decimator for a 16 Bit 24kHz bandwidth audio Delta Sigma Modulator	2010 International Symposium on Circuits and Systems (ISCAS), Paris, France	Shankar Parameswaran	June
7		Efficient Determination of feedback Dac errors for digital correction in Delta Sigma A/D converters	2010 International Symposium on Circuits and Systems (ISCAS), Paris, France	-	June
8	Shanti Bhattacharya, E. Bhattacharya	Designing Micro mirrors for low resolution spectroscopy	Asia Pacific Conference on Transducers and Micro nano Technologies 2010	K. A. G. Prakash, S. Dhabai	July
9	R. Aravind K. M. M. Prabhu	Pilot Sequence Design for Improving OFDM Channel Estimation in the Presence of CFO	Proc. of the International Conference on Signal Processing and Communications, SPCOM 2010, IISc, Bangalore	Oliver J	July
10	K.M.M. Prabhu	Robust and efficient filterbank structure for reconstruction from recurrent nonuniform samples	Proc. Of the <u>European Signal Processing Conference (EUSIPCO-2010)</u> , PP. 1597- 1601, Aalborg, Denmark	M. Karthik, P.C.W. Sommen, B. Bloemendal	August

11	Andrew Thangaraj	Strong secrecy for erasure wiretap channels	IEEE ITW 2010, Dublin, Ireland.	Ananda Suresh, Arun Kumar, Subramaniam, Matthieu Bloch, Steven McLaughlin	Sep.
12	Mahesh Kumar	Modeling of four leg inverter based DSTATCOM for load compensation	International Conference POWERCON 2010, Hangzhou, China	S. Srikanthan	Oct.
13	Mahesh Kumar, B. Kalyan Kumar	Optimal VA loading of UPQC during mitigation of unbalanced voltage sags with phase jumps in three-phase four-wire distribution system	International Conference POWERCON 2010, Hangzhou, China.	G. Siva Kumar	Oct.
14	V. Jayashankar	Modular wave energy plants for desalination applications in islands	Third International Conference on Ocean Energy (ICOE 2010), Bilbao, Spain.	K. Mala	Oct.
15		A twin unidirectional turbine topology for wave energy			
16	R. Sarathi	Invited paper on "Generation and characterization of nano-tungsten carbide particle by wire explosion process"	TENCON IEEE Region 10 Conference, Fukuoka, Japan.	Debalina, N. J. Vasa	Nov.
17	Boby George	Precision Measurement of Humidity Dependent Permittivity of Foams	IEEE International Conference on Sensors, Hawaii, USA	Bretterkieber T. Neumayer M. , Zangl H.	Nov.
18	Bijoy Krishna Das	Attenuation of TM polarized light in metal coated SOI rib waveguides due to plasmonic absorption	PHOTONICS, Guwahati	G.R. Bhatt, P.V. Vivek	Dec.
19		Fabrication of 1X8 power splitter in SOI substrate with optimized design parameters			
20	Bijoy Krishna Das	Fabrication of ridge waveguide in X-cut lithium niobate for nonlinear optic applications	PHOTONICS, Guwahati	S. Pal	Dec.
21		Advances in Silicon Photonics Research: The World Scenario and IIT Madras (Invited talk)	ICCCD, Kharagpur	--	
22	Balaji Srinivasan	Performance Enhancement of Raman Optical Time Domain Reflectometer Using Golay Codes	International Conference on Photonics & Fiber Optics	mitabha Datta, Vinayak Srimal, Venkatesh V	Dec.
23		Development of a Fiber-Based Dynamic Interrogator For Vibration Sensing	International Conference on Photonics & Fiber Optics	Harish A.V., Bibin Varghese	
24		Optimization of the Cavity Configuration of an All-Fiber Q-switched Erbium-Doped Fiber Laser	International Conference on Photonics & Fiber Optics	Anish Bekal, Manivannan, Deepa Venkitesh	

25	K.M.M. Prabhu	Processor-efficient FFT Implementation Scheme for Active Noise Control Applications	Proc. of the 6 <sup>th</sup> International Conference on Signal Image Technology and Internet-Based Systems-2010, IEEE Computer Society, PP. 134-140, Kuala Lumpur, Malaysia	P. Vikram Kumar, D.P Das	Dec.
26	B.Srikrishna	Rate gap analysis for rate-adaptive antenna selection and beam forming schemes	Proceedings of IEEE GLOBECOM 2010, Miami, FL, USA	Karthikeyan, Shanmugam	Dec.
27	Deepa Venkitesh	Demonstration of slow light in semiconductor optical amplifier	Proceedings: Photonics 2010	Annop Patil, Karl Dexter, Prince Anandarajah, Liam Barry	Dec.
28		Investigation of stability of continuous-wave broadband output from a fiber laser		Aditi Ghosh R. Vijaya	
29		Demonstration of all optical xor gate using semiconductor optical amplifiers		P.A. Aravind S. Thiruthakkathevan Anil Prabhakar	
30	R. Aravind	Robust head pose estimation system in uncalibrated monocular videos	Proc. of ICVGIP 2010	B. H. Pawan Prasad	Dec.
31	Shanti Bhattacharya	Versatile Phase Zone Plates	International Conference on Photonics, IIT Guwahati, 2010A.	Vijayakumar	Dec.
32		MEMS MIRROR BASED OPTICAL COHERENCE TOMOGRAPHY	International Conference on Photonics, IIT Guwahati, 2010	R. Prashanth	Dec.
33	K. Sridharan	Robotic mapping with simple sensing and processing hardware-algorithm and architecture	Proceedings of the 11 <sup>th</sup> International Conference Control, Automation, Robotics and Vision, Singapore	Leena Vachhani	Dec.
34	Arun D. Mahindrakar	Stabilization of a circular ball-and-beam system		Aakash	Dec.
35	B. Srikrishna, Andrew Thangaraj	Processing interface at the Physical Layer to Enhance information flow in wireless networks	Proceedings of IEEE COMSNETS 2011, Bangalore	M.Bama	Jan.
36	Anil Prabhakar	Coherent state statistics from time-resolved photon counting	Proceedings SPIE	Harish Ravishankar	Jan.
37		Extended-range multi-wavelength all-fiber interferometer		Abhijeet Kulkarni Shanti Bhattacharya	Jan.
38		Nonlinear strong and weak pulse generation for the B92 protocol		S. Thiruthakkathevan	Jan.
39		Quantum key distribution using transverse spin wave optical interactions		Pradeep Kumar	Jan.
40	K. S. Swarup	Optimal meter placement for maintaining observability using Biography based optimization, Paper ID: L197	3 <sup>rd</sup> International Conference on Machine Learning and computing (ICMLC 2011), Singapore.	K. Jamuna	Feb.

41	K. S. Swarup	Power Systems Network decomposition using harmony search algorithm, Paper ID: L284	3 <sup>rd</sup> International Conference on Machine Learning and computing (ICMLC 2011), Singapore.	G. Angeline Ezhilarasi	Feb.
42		Multi_classification approach for static security evaluation using SVM with parameter, paper ID: L312		S. Kalyani	Feb.
43	Nandita Das Gupta	High Pressure Chemical vapor oxidation of silicon carbide	Extended abstract of 2011 IWDTF	K. Kalaiselvi, T. Sreenidhi, H. Rysse, A. Bauer	Feb.
44	Arun D Mahindrakar	Modelling and control of Quad Rotor MIMO systems	Proc. Of the international Conference on Multi-body Dynamics, Vijaywada, India	Laxman Mawani,, Anup Ekbote, M. Vijay	Feb.
45	Srirama Srinivas	Current ripple analysis in a decoupled SVPWM controlled dual two-level inverter fed open-end winding induction motor drive	Proc. PEDSTC 2011, Tehran, Iran, Paper No.MDS-157	K. Ramachandra Shekhar	Feb.
46	Ashok Jhunjhunwala	Banking Technologies and Mobile Payments	Second EDP on "Wireless Technologies and Mobile Payments", IDRBT, Hyderabad	---	Feb.
47		Technologies Enabling Collaborations	Enterprise Transformation : Create, Collaborate, Accelerate, C-Change India CIO Forum 2011, CIOL, Bangalore	---	Feb.
48		ICT towards driving Opportunities in Rural India.	A Tie Initiative Enterprising India Changing the Nation, Leading the World, "Opportunities in Rural India", TIE Entrepreneurship Summit, NCPA, Mumbai	---	March
49		Innovation and Entrepreneurship driving India	Promoting Innovation and Entrepreneurship through Incubation, EDI, Ahmedabad	---	March
50		ICT drives Innovations and growth in India: Can it help overcome its dilemmas?	Information Technology Conference 2011", on "Fostering Inclusive Growth through IT", Indian Merchants' Chamber, Mumbai	---	March
51	Ashok Jhunjhunwala	Panel Discussion: Telecom in India: Bottlenecks and gains	Global Technology, Media and Telecommunications (TMT) Predictions, Deloitte, Mumbai	---	March
52	R. Aravind	Facial pose and action tracking using SIFT	Proc. of VISAPP 2011	B.H. Pawan Prasad	March

**Distinguished Visitors to the Department:**

S.No.	Visitors' Name & Designation	Affiliation	Purpose of Visit	Month & Date
1	Mr.Siddharth Naik, Ph.D. Scholar	Fraunhofer Institute, Berlin	Talk on "Characterisation of conacave resource allocation problems in intereference coupled wireless systems"	06.04.10
2	Prof.David A Cardwell	University of Cambridge	To give brief presentation	09.04.10
3	Prof.Charles Iroonside	University of Glasgow		
4	Prof.Richard Scott	Durham University		
5	Prof. David Jiles	Cardiff University, UK	Indo UK collaboration,	27.06.10 to 10.07.10
6	1. Prof.Toshifumi Ise, Division of Electrical Electronic & Information Engineering, Graduate School of Engineering	Osaka University	1) Gave a presentation introducing Osaka University and his research group 2) Potential Indo-Japan cooperation in the area of smart grids	15.09.10
7	2. Pinaki Mazumder Professor	University of Michigan	IEEE distinguished lecture	19.10.10
8	Dr.Navin Kashyap Associate Professor	Queen's University at Kingston, Canada	Research Collaboration	15.10.10
9	Dr.Barathwaj Amruth Assisstant professor	Indian Institute of Science, Bangalore	To interact with faculty and students	12.11.10
10	1.Dr. Brian MacCrait President 2. Dr. Jim Dowling Dean, Faculty of Engg. and Computing 3. Dr.Anne Sinnott Deputy dean, DCU Business School 4. Dr.John Costello Associate Dean for Research 5. Dr.Pascal Landias School of electrical Engineering 6.Dr.Satheesh Krishnamurthy, School of Electronic Engg 7.Mary Colgan Developmant Officer	Dublin City University, Ireland	To interact with faculty and students	16.12.10
11	1. Shirashi Kazuki(NEDO) 2.Yamono Shuhei 3. Kato Shunshuke 4.Kawamata Hidenori	Hitachi Ltd., Tokyo, Japan	Discussion about future collaboration with Hitachi	20.12.10
12	1. Morari Daisuke 2. Ashitha Ashok	Hitachi India Ltd.		
13	1.Dr.Zaini, Vice Chancellor 2.Prof.Abdul Halim Yatim 3.Dr.Vijay K Arora	Universiti Teknologi Malaysia	Interaction with faculty and UTM MoU signing	03.01.11
14	Dr.Rahul Sarpeshkar Associate Professor	MIT, Boston	Seminar presentation about Bioelectronics and interaction with faculty and students	03.01.11
15	Dr.P.Pillay Professor	Concordia University, Montreal	Delivered Seminar and interaction with faculty and students.	03.01.11
16	Dr.Bijoy Chatterjee Incharge of University Research	National Semiconductor Corporation, USA	Interaction with faculty	10.01.11



17	Shankar Sadasivam Ph.D Scholar	University of Illinois at Urbana-Champaign	Seminar presentation	24.01.11
18	1. Dr. Fabric Labeau, Director of Operations and Associate Dean 2. Prof. Ke Wu 3. Prof. Dominic Deslandes 4. Prof. Ammar Kouki 5. Prof. Xiupu Zhang 6. Prof. Mohammed Sawan 7. Prof. Sofie`ne Tahar 8. Prof. Jean-Francois Boland Associate Research Professor 9. Jacob Teitelbaum, Project Manager of the Centre Signature	Quebec, Canada	To conduct one day technical workshop and to explore the possibility of collaboration	02.02.11
19	Prof. Glenn Cowan	Concordia University, Canada	To deliver a lecture on “ Global variation mitigation strategies: using calibration to exploit performance tradeoffs ”	03.02.11
20	Prof. Promod Viswanath	University of Illinois, Urbana Champaign	To give seminar	04.02.11
21	Dr. Anton Fuchs, Deputy Director	Tech. University Graz., Austria	To discuss about possible collaboration in research	15.02.11
22	1. Edith Frey, Head of International Relations 2.Dr. Vincent Caille, Head of Mechanical Engineering Dept.	ECAM Graduate School of Engineering, Lyon, France	To explore the possibility of co- operating	18.02.11
23	1.Dr. Apurba Laha 2.Prof. H. Jorg Osten, Director	Leibniz Universitat, Hannover	To interact with faculty members	21.02.11
24	Prof. Brian Solheim Prof. Regina Lee	York University, Canada	To explore the possibility of co- operating with faculties	24.02.11
25	Prof. David Jiles	Iowa State Univ, USA	Indo UK collaboration	08.03.11 to 09.03.11
26	Mr. Jayendran Director	Tata-Elxsi	Research Collaboration	03.03.11
27	1.Prof. LIU Jun, Dean School of Traffic & Transportation 2.Prof.LIU Ying, Vice Dean School of Electronic & Information Engineering 3.Prof. LU Wei,Dean School of Software	Beijing Jiatong University, China	To interact with faculty members and Signing of MoU	28.03.11

#### 4.8.6 Other Activities of the Department/Centre:

Sl.No	Activities	Period
1.	Mou with IITM signed by Prof. K Vijay Raghavan, Director, National Centre for Biological Sciences, Bangalore on 25.03.11	March 2011
2	International Journal of Advances in Engg. Sciences and Applied Mathematics Vol.2, Issue 1 Special issue on MEMS, Guest Editors: E. Bhattacharya and S. Büttgenbach	

#### Student visit:

Sl. No.	Name of student	Country Visited	Date	Purpose of visit
1	Sahana M. Prabhu	Technical University Eindhoven (TU/e), The Netherlands	01.09.10 to 20.10.10	Did an Internship in the VCA Group

## 4.9 DEPARTMENT OF ENGINEERING DESIGN

### 4.9.1 Introduction:

The Department of Engineering Design was established in IIT Madras as its 16th Department with a focus on interdisciplinary teaching and research. The Department launched the novel dual degree programme in Engineering Design with a view to providing the much needed leadership in this area. The first of its kind in the country, the programme constitutes a B.Tech specialisation in Engineering Design and M.Tech specialization in Automotive Engineering with a strong thrust on the modern practices of design.

Engineering design involves the development of a concept and a form to meet a function. The designer has to be well versed rooted in the fundamentals of engineering and possess interdisciplinary skill sets to create cutting edge products within a competitive business environment. The design has to be aesthetically appealing yet robust; long lasting, yet inexpensive; and incorporate light-weight material, yet be sensitive to environmental concerns. This broad-based programme combines all the above aspects of design along with managerial acumen.

### 4.9.2 Academic Programmes:

#### New Courses introduced:

Sl. No.	Course No.	Title
1.	ED 5311	Medical Device Innovation
2.	ED 1200	Introduction to Computation and Visualization
3.	ED 5312	Materials and Manufacturing for the Automotive industry

#### New lab(s) established:

The following three laboratories were established:

Anatomy and Physiology laboratory, Medical device dissection laboratory, Automotive Engines Laboratory.

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
Dual Degree	57	46	43	26	26	198
M.S.	2	6	7	3	1	19
Ph.D.	7	3	6	6	2	24
<b>Total</b>	<b>66</b>	<b>55</b>	<b>56</b>	<b>35</b>	<b>29</b>	<b>241</b>

#### Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad</b>					
1	M Suresh	ED09D003	IEEE Region-10 Conference TENCON2010	21-24 Nov'2010 Fukuoka, Japan	Nil
2	Jobin K. Antony	ED08D002	IEEE Region-10 Conference TENCON2010	21-24 Nov'2010 Fukuoka, Japan	IIT Madras
<b>India</b>					
1	V.Susila Anand	ED09D001	Workshop And Continuing Dental Education programme	February 2010, SRMC	Nil
2	V.Susila Anand	ED09D001	International Conference on Recent Advances in Biomaterials	December 2010, Saveetha University, Chennai	Nil
3	Jobin K. Antony	ED08D002	International Conference on Contemporary Trends in Optics and Optoelectronics	17-19 Jan', 2011, Thiruvanthapuram, India Organized by Indian Institute of Space Science & Technology (IIST) and Optical Society of India	IIT Madras

4	Divya Kannan	ED09S007	International Conference on Fiber Optics and Photonics (Photonics 2010)	11-15 Dec' , 2010, Indian Institute of Technology Guwahati, India	IIT Madras
5	Chaman Nasa	ED08S007	International Conference on Multi-body Dynamics (ICMBD)	February 2011 Vijayawada	Nil

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	Ms Kannan Divya	ED09S007	IITD-FOS Photonics Award	Photonics 2010, IIT Guwahati
2.	Mr K V Dilip	ED07S006	Bhagyalakshmi & Krishna Ayengar Award	IIT Madras

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1.	Viswanath K S	ED 06B026	Institute Merit Prize	IIT Madras
2.	R Arun Srivatsan	ED 07B003	Institute Merit Prize	IIT Madras
3.	Adithya Arikere	ED05B002	Prof.C.S.Krishna moorthy Endowment Prize	IIT Madras

**4.9.3 Faculty and their activities:**

**a) Faculty:**

**Name and Qualifications**

**Major area of specialization (only 3 areas)**

**Professor:**

Nilesh J Vasa [Head]

Optomechatronics, Remote Sensing, Laser Based Sensing, MEMS

R.Krishna Kumar

Nonlinear Finite Elements, Vehicle Dynamics and Tyre Mechanics

**Associate Professor:**

T Asokan

Robotics, Mechatronics, Control, Electro Hydraulic Servo Systems

Venkatesh Balasubramanian

Human factors and Ergonomics, Biomedical Devices Development, Rehabilitation Engineering, Injury and Sports Biomechanics, Perceptual Psychophysics and Technology Management

Sankara J Subramanian

Digital Image Correlation, Nano-indentation, Mechanics of Materials, Finite Element Analysis.

Srikanth Vedantam

Design with novel materials, mechanical behaviour of materials, wetting, microstructure evolution

**Assistant Professor:**

C S Shankar Ram

Model Based Control and Diagnostics, Automotive Systems, Vehicle Dynamics, Analysis of Transportation Systems

Sandipan Bandyopadhyay

Robotics, Kinematics, Dynamics of Multibody Systems, Design, Symbolic Computation

M.Ramanathan

Geometric & Solid Modelling, CAD, Computer Vision, Computational Geometry, Computer Graphics, Computational Biology, Shape search

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

Kavitha Arunachalam

Biomedical instrumentation, Radio frequency and microwave antenna design , Hyperthermia physics, Non destructive material evaluation, Digital signal and image processing

Palaniappan Ramu

Optimization, Application of statistical and probabilistic techniques for engineering design under uncertainties, Risk/Reliability based engineering design, Surrogate based modeling and analysis

Balkrishna C Rao

Sustainable manufacturing, Sustainable design, Nano-manufacturing, Manufacturing for Bio-medical applications , Simulation of Manufacturing Processes

**Visiting Professor (upto 30.6.2011):**

Paul Milgram (Toronto University, Canada)

Navigation, manipulation and control in 3D environments, human-machine interfaces for 3D mixed reality environments, stereoscopic displays and computer graphics, visual displays for telerobotic control, human performance modeling, modelling of attentional workload, cognitive engineering, human factors issues in medicine, interfaces for eHealth applications

**b) Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Workshop:</b>			
1.	Asokan T	Mechatronics Education and Training: An initiative on New Curricula Development.	05 <sup>th</sup> February 2010
2.	Nilesh J. Vasa	Workshop on Laser Technology for Students (in collaboration with Tamil Nadu Science and Technology Centre)	31 December 2010
<b>Short term Course:</b>			
1.	Asokan T	1. Robotics and Robot Applications 2. Industrial Hydraulics	21-26 <sup>th</sup> June 2010 6- 8 <sup>th</sup> May 2010

**c) Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1.	Asokan T	Product design and innovations	GM India Science lab.	12-13 Nov. 2010
2.	Saravana Kumar G	Decision Science in Product Development	GM India Science lab.	12-13 Nov. 2010
3.	Asokan T	Strategies for new Knowledge Economy- Integrating new Knowledge Streams	National Workshop on Knowledge Economy at IMI New Delhi	19th November 2010
4.	Nilesh J. Vasa	Laser Micro-Welding	Short-term School on Micro manufacturing, IIT Kanpur	2-8, October 2010
<b>Conference:</b>				
1.	Asokan T	Fuzzy and PID control of Autonomous underwater Robots	ICIUS Conference in Bali, Indonesia	1-3, Nov. 2010
2.	Srikanth Vedantam	Temperature dependent mean sealed inter-atomic potentials for phase transitions	IMECE 2010 organised by American Society of Mechanical Engineers, Vancouver, Canada	Nov 12-18, 2010
3.	Asokan T	Optimised trajectory control for AUV Manipulator System	IEEE TENCON 2010 (2010 IEEE Region 10 Conference), Fukuoka International Congress Center, Fukuoka, Japan	21-24 November 2010
4.	Sandipan Bandyopadhyay	Optimisation of Double Wishbone Suspension System using Multi-Objective Genetic Algorithm	Eighth International Conference on Simulated Evolution And Learning (SEAL-2010)", IIT Kanpur	01 - 04 December 2010

5.	G Saravana Kumar	Prediction of Tensile behavior of DP 590 Steel Tailor Welded Blanks by ANN	2010 International Conference on Manufacturing Science and Technology, Kuala Lumpur, Malaysia	26-28 November 2010
6.	G Saravana Kumar	Optimisation of Double Wishbone Suspension System using Multi-Objective Genetic Algorithm	SEAL 2010, IIT Kanpur	01-04 December 2010
7.	Kavitha Arunachalam	Probabilistic analysis of eddy current data from steam generator tube inspection	16th International Workshop on Electromagnetic Nondestructive Evaluation (ENDE-2011), IIT Madras	March 10-12, 2011
8.	Kavitha Arunachalam	Non-Oncologic Application for Microwave Radiometry in Temperature Monitoring and Control	26th Annual Meeting of EUROPEAN SOCIETY for HYPERTHERMIC ONCOLOGY in Rotterdam, The Netherlands	May 20-22, 2010
9.	Kavitha Arunachalam	Noninvasive Grade V Vesicoureteral Reflux Detection: An Animal Study	22nd Congress of the European Society for Paediatric Urology in Copenhagen, Denmark	April 27-30, 2011

**d) Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Asokan T	Design of Medical devices for Indian hospitals	AIIMS, New Delhi IMI, New Delhi	Sep. 2010 19 <sup>th</sup> Nov. 2010.
2.	Asokan T	Field and Service Robotics development: Challenges ahead, Staff Development programme,. Robots of the future: An insight to developmental challenges, Faculty development programme	Rajalakshmi Engg. College, Chennai	11 <sup>th</sup> Oct. 2010
3.	Asokan T	Strategies for the new knowledge economy- Integrating new Knowledge streams, National workshop on knowledge economy	Sathyabhama University, Chennai	5 <sup>th</sup> Dec. 2010
4.	Asokan T	Medical Device Innovation in India: IIT Madras initiatives, Indian MedTech. Summit 2010	New Delhi	12 <sup>th</sup> Dec. 2010
5.	Asokan T	Futuristic Robots and Developmental challenges, Key note presentation, Int. National Conference on Robotics And Communication Technologies (INTERACT2010)	MGR University Chennai	4 <sup>th</sup> February 2011
6.	Asokan T	Autonomous robotic systems: Design and development, Workshop on Robotics	Kongu Engineering College, Erode	25 <sup>th</sup> February 2011
7.	Asokan T	Robotics: Past, Present, and the Future, IEEE student workshop on Robotics	Periyar Maniammai University, Thanjavur	22 <sup>nd</sup> March 2011
8.	Sandipan Bandyopadhyay	Design of Parallel Manipulators	IIT Madras	21 <sup>st</sup> June 2010
9.	Sandipan Bandyopadhyay	Introduction to Robot Dynamics	IIT Madras	22 <sup>nd</sup> June 2010

10.	Sandipan Bandyopadhyay	From academia to the industries -- and back!	Indian Institute of Science, Bangalore	22 <sup>nd</sup> May 2010
11.	Kavitha Arunachalam	Automated Analysis of Eddy Current Signals in Steam Generator Tube Inspection	AICTE sponsored STTP/QIP Workshop on "Time Series Modelling & Spectral Analysis: Theory & Applications" coordinated by Dr. Arun K. Tangirala	July 12-17, 2010
12.	G Saravana Kumar	Reverse Engineering: theory & applications	VTU-VGST FDP on "Digital Manufacturing in Advanced Manufacturing Materials" held at CIT, Bangalore	28 March 2011
13.	G Saravana Kumar	Rapid Prototyping: micro & bio fabrication	VTU-VGST FDP on "Digital Manufacturing in Advanced Manufacturing Materials" held at CIT, Bangalore	28 March 2011
14.	Kavitha Arunachalam	Automated Analysis of Eddy Current Signals in Steam Generator Tube Inspection	AICTE sponsored STTP/QIP Workshop on "Time Series Modelling & Spectral Analysis: Theory & Applications" coordinated by Dr. Arun K. Tangirala	July 12-17, 2010
15.	Kavitha Arunachalam	Eddy Current Technique and its Industrial Applications" Saturday 24th Sept 2010 Two day course on Emerging NDE Methods for Industrial Applications	Coordinated by Dr. Krishnan Balasubramanian, IC & SR Seminar Hall , IITM, Chennai	24th & 25th September 2010

**e) Visits abroad by faculty:**

SI. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1.	Asokan T	Indonesia	Oct 30-Nov 3	Attend Conference	IIT Madras
		Japan	Nov. 23-25	Attend conference	IIT Madras
2.	Nilesh J Vasa	Japan	6 <sup>th</sup> May to 12 <sup>th</sup> May 2010	Research collaboration	Kyushu University
3.	Nilesh J Vasa	Japan	21 <sup>st</sup> to 24 <sup>th</sup> November 2010	TENCON 2010 conference Present a paper, Session Co-Chairman	IIT Madras (CPDA)
4.	Nilesh J Vasa	San Francisco, USA	22 <sup>nd</sup> to 27 <sup>th</sup> January 2011	SPIE Photonics West 2011 conference Present a paper	IIT Madras (CPDA)
5.	Nilesh J. Vasa	Singapore	23-25 March, 2011	International Conference on Optics in Precision Engineering and Nanotechnology (ICOPEN 2011) Present Two Papers	IIT Madras (CPDA)
6.	Venkatesh Balasubramanian	Austria	26 Sept to 1 Oct. 2010	Attend conference	IIT Madras
7.	Venkatesh Balasubramanian	North Carolina Art University, University of Nebraska and Lincoln, Duke Univ.	28 Nov 28 to Dec 14	To attend conference	Partial financial assistance from IIT Madras
8.	G Saravana Kumar	Kuala Lumpur, Malaysia	26-28 November 2010	Conference	IIT Madras (CPDA)
9.	Sankara J Subramanian	Vancouver, Canada	12-18 November 2010	Attend Conference	IIT Madras (CPDA)

10.	Srikanth Vedantam	Vancouver, Canada	12-18 November 2010	Attend Conference	IIT Madras (CPDA)
11.	Venkatesh Balasubramanian	Japan	22-28 January 2011	IIT Madras representative for VLFM Sustain-ability Mission	VLM Project funds
12.	Venkatesh Balasubramanian	Thailand	22-25 March 2011	VLFM Meeting	VLFM

**f) Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>ii. Awards:</b>					
	Dr.M.Ramanathan	Best Student Paper Award	CAD conference and exhibition	Best paper presentation	June 2010

**g) Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	Saravana Kumar, G	Geometric Modeling Methods using Point Cloud Data: Computing Techniques for Recognition and Fitting of Free-form Curves and Surfaces	LAP Lambert Academic Publishing GmbH & Co. KG, Germany, 2010. ISBN 978-3-8433-5912-2	Author

**4.9.4 Design and Development Activities:**

**Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:**

A 3-degree-of-freedom planar parallel robot has been developed in the robotics lab, as a part of the M.S. thesis research by Chaman Nasa. The robot is capable of "moving through" singularities. This was funded by the NFRG of Dr. Sandipan Bandyopadhyay

**Patents - Patents filed:**

Sl.No.	Name of faculty	Topic of patent
1.	Asokan T	Combinational scissor-grasper tool for use in laparoscopy (filed 2010) An immobilisation device for medical application (filed, 2010) (Dr.T.Asokan and Mr.Chinmay Deodhar, Dual Degree student)
2.	Arun Srivatsan, Hem Rampal, Bhavin Gawali, Kartik Mehta, G. Saravana Kumar and Sandipan Bandyopadhyay	A device for flipping the pages of a book at the press of a button

**Patents awarded:**

Sl.No.	Name of faculty	Topic of patent
1.	Asokan T	Modulated switching control of ON/OFF poppet valves for proportional flow control (Patent No: P-No. 122827, Application no: 200406701-3, Singapore)

**c) Research and Consultancy:**

**Sponsored Research Projects:**

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1.	Evaluation of traffic data collection techniques for Indian Conditions	3 years	Sub-project of a project funded by MOUD		Dr.C.S.Shankar Ram (Co-investigator)
2.	Bus arrival time prediction under Indian traffic conditions	2 years	Sub-project of a project funded by MOUD		Dr.C.S.Shankar Ram (Co-investigator)

3.	Development of station keeping strategy for flat-fish AUV	1 year	NSTL, Visakhapatnam	Rs.9,76,000	Dr.T.Asokan
4.	HuMotor – Human powered motor, with applications in material handling	9 months	ICSR, IIT Madras	Rs.70,000	Faculty members: Dr Sandipan Bandyopadhyay Dr G Saravana Kumar  DD students: Mr Jaideep Badduri Mr Sayantan Biswas Mr Sriram Charan Mr Swapnil Jain, Mr Tarun Mehta
5.	Mechanical properties of shape memory alloy reinforced composites	2 years	New Faculty Seed Grant (IIT Madras)	Rs.4,35,000	Dr Srikanth Vedantam
6.	Characterization of conformal microwave array applicator for hyperthermia treatment of superficial tissue disease	2 years	New Faculty Seed Grant (IIT Madras)	Rs.20,00,000	Dr Kavitha Arunachalam
7.	Fatigue based reliable designs	2 years	New Faculty Seed Grant (IIT Madras)	Rs.2,25,000	Dr Palaniappan Ramu
8.	Modular tricycle for mobility disabled	5 months	RuTaG	Rs.1,00,000	Dr M Ramanathan Dr Sandipan Bandyopadhyay
9.	Pollution Performance of wind turbine blades adopting laser induced breakdown spectroscopy	2 years(New, March 2011 - 2013)	DST	Rs.53,40,000	Dr.Nilesh J.Vasa Dr R Sarathi, EE dept.
10.	Measurement of elemental species for space-exploration by using laser-induced breakdown spectroscopy technique	3 Years (March 2008-2011)	ISRO-IIT M	Rs.19,53,000	Dr. M. Singaperumal
11.	Study on development of MEMS based RF-ion mobility spectrometer for chemical pollutants	21 Months (February 2009 – December 2010)	DRDE	Rs. 9,84,000	Dr. M. Singaperumal
12.	Page Flipper	9 months	ICSR, IIT Madras	Rs.50,000/-	Faculty members: Dr Sandipan Bandyopadhyay Dr G Saravana Kumar
13.	Computer aided design and analysis of sculpted engineered porous structures for bone tissue engineering	2 Years	New Faculty Seed Grant (IIT Madras)	Rs. 5,00,000/-	Dr G Saravana Kumar
14.	Medial axis transform using theory of moving frames	2 years	New Faculty Research Grant	Rs.5,00,000	Dr M Ramanathan

#### Industrial Consultancy projects:

Sl.No.	Name of faculty	Title	Industry	Amount(Rs. in lakhs)
1.	G.Saravana Kumar	Prototype development for model of mechanism to unload a counter weight	Caterpillar Engineering Design Center, Chennai	0.5



**RBIC projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1.	Asokan T	Development of Station keeping strategy and algorithm for flat-fish AUV	NSTL, Vishakhapatnam	8.96 lakhs

**Retainer Consultancy:**

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1.	R Krishna Kumar	--	Hari Shankar Singhania Elastomer and Tyre Research Institute	Rs.12 lakhs

**4.9.5 Research Publications of the faculty members & research scholars:**

Total No. of papers published in Refereed International Journals	: 25
Total No. of papers presented in National Conferences	: 01
Total No. of papers presented in International conferences	: 27

**In Refereed International Journals:**

- Subramani S, Ramanathan M. Yagnanarayanan K., Sundar M., Manish G., Ramani K., and Hoffmann C. M. (2010), PCS - Prominent Cross-sections for mesh models, Computer Aided Design and Applications (CADA), 7 (4), pp. 601 - 620.
- Periasamy T, Asokan T, Singaperumal M. (2011), Investigations on the Dynamic Coupling in AUV-Manipulator System and the Manipulator Trajectory Errors Using Bond Graph Method, International Journal of Systems Science, (DOI: 10.1080/00207721.2010.543488).
- Santhakumar M., Asokan T. (2010), A self – tuning proportional – integral – derivative controller for an autonomous underwater vehicle, based on Taguchi method. *Journal of Computer Science* 6 (8), pp. 862 - 871.
- Santhakumar M., Asokan T. (2010), Investigations on the Hybrid Tracking Control of an Under actuated Autonomous Underwater Robot, *Advanced Robotics*, 24 (11), pp. 1529 -1556.
- Santhakumar M., Asokan T. (2010), Planar Tracking Control of an Under actuated Autonomous Underwater Vehicle, *International Journal of Mechanical, Industrial and Aerospace Engineering*, 4 (1), pp 32 - 37.
- I. A. Palani, N. J. Vasa, M. Singaperumal, T. Okada (2010), Influence of laser wavelength and beam-profile on Nd<sup>3+</sup>:YAG laser assisted formation of polycrystalline Si films', *Thin Solid Films*, 518, pp. 4183 - 4190.
- I. A. Palani, N. J. Vasa, M. Singaperumal, T. Okada (2010), Investigation on Laser-annealing and Subsequent Laser-nanotexturing of Amorphous Silicon (a-Si) Films for Photovoltaic Application *Journal of Laser Micro/ Nano engineering*, 5, pp. 150 - 155.
- P. Karthikeyan, Dinesh Sonawane and Shankar C. Subramanian (2010), Model based control of an electro pneumatic brake system for commercial vehicles, *International Journal of Automotive Technology*, 11 (4), pp. 507 - 515.
- Pandithevan, P. and Saravana Kumar, G. (2010), Finite element analysis of a personalized femoral scaffold with designed microarchitecture *MechE, Part H: J. Engineering in Medicine*, 224 (H7), pp. 877 - 889.
- Jobin K. Antony, Nilesh J. Vasa, S. R. Chakravarthy, and R. Sarathi (2010), Understanding the mechanism of nano-aluminum particle formation by wire explosion process using optical emission technique' *Journal of Quantitative Spectroscopy and Radiative Transfer*, 111, pp. 2509 - 2516.
- K.V. Dilip, Nilesh J. Vasa, Kopp Carsten, K.U. Ravindra (2010), Incineration of diesel particulate matter using induction heating technique', *Applied Energy* Applied Energy, Volume: 88, pp. 938 - 946
- Ameena Salim, Lelitha Vanajakshi and Shankar C. Subramanian (2010), Estimation of average space headway under heterogeneous traffic conditions, *International Journal of Recent Trends in Engineering*, Vol. 3 (5), pp. 6 - 10.
- Veerababu K., Ganesh Narayanan R. and Saravana Kumar G (2010), An expert system to predict the deep drawing behaviour of tailor welded blanks, *Expert Systems with Applications*. 37, pp. 7802 - 7812.

14. Siva Krishna, K., Ganesh Narayanan, R., Saravana Kumar, G. (2010), Tailor welded blank forming limit computation by neural network based expert system, Journal of computer and experimental simulations in engineering and science (CESES), **Issue 8, 2010**
15. Ramanathan Muthuganapathy, Gershon Elber, Gill Barequet, and Myung-Soo Kim (2011), Computing the Minimum Enclosing Sphere of Free-form Hypersurfaces in Arbitrary Dimensions, Computer-Aided Design, 43 (3), pp. 247 - 257.
16. Ramanathan M., and Gurumoorthy B. (2010), Interior medial axis computation of 3D objects bound by free-form surfaces, Computer-Aided Design, 42 (12), pp. 1217 - 1231.
17. Ganesh Narayana R., Veerababu K., Sivakrishna K., Saravana Kumar G. (2011), Determining the forming behavior of tailor welded blanks: expert systems predict results, Stamping Journal - The official publication of the fabricators & manufacturers association international, **Vol.**, pp. 13 - 16.
18. P. Karthikeyan, Ch. Siva Chaitanya, N. Jagga Raju and Shankar C. Subramanian (2011), Modelling an electropneumatic brake system for commercial vehicles, IET Electrical Systems in Transportation, 1 (1), pp. 41-48.
19. R.P.S. Padmanaban, K. Divakar, L. Vanajakshi, and S.C. Subramanian (2010), Development of a real-time bus arrival prediction system for Indian traffic conditions, IET Intelligent Transport Systems, 4 (3), pp. 189 - 200.
20. N. J. Vasa, I. A. Palani, M. Singaperumal, T. Okada (2010), Influence of Nd<sup>3+</sup>:YAG Laser Beam Profiles on Annealing and Nano-Texturing of Amorphous-Silicon Thin Films, Transactions of Materials Research Society of Japan, 35 (3), pp. 601 - 606
21. G. Hemanth, G. L. Samuel, N. J. Vasa (2011), Influence of machining parameters on microdrill performance, International Journal of Manufacturing Technology and Management, 22 (2), pp. 124 -144.
22. Muralidhara, N. J. Vasa, M. Singaperumal (2010), Wear ratio based tool wear compensation for micro electro discharge machining of silicon through process simulation, Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3), 9, pp. 013040 - 013046.
23. K. Arunachalam, P. F. Maccarini, V. De Luca, F. Bardati, B. W. Snow, P. R Stauffer (2010), Modeling the detectability of vesicoureteral reflux using microwave radiometry, Phys Med Biol., 55 (18), pp. 5417 - 35.
24. Stauffer PR; Maccarini PF; Arunachalam K; Craciunescu OI; Diederich C; Juang T; Rossetto F; Schlorff JL; Milligan A; Hsu T; Sneed P; Vujaskovic Z (2010), Conformal Microwave Array (CMA) Applicators for Hyperthermia of Diffuse Chestwall Recurrence, Int J Hyperthermia, 26 (7), pp. 686 - 698.
25. Venkatesh Balasubramanian, K. Adalarasu and A. Gupta (2011), EEG based analysis of cognitive fatigue during simulated driving, International Journal of Industrial and Systems Engineering, 7 (2), pp. 135 - 149.

#### **In Proceedings of National Conferences:**

1. Neelakanthu K, Asokan T, M Singaperumal (2010), Improving dynamic performance of industrial robots using calibration data: A case study using SCARA arm, 10<sup>th</sup> National Conference on Industrial Problems on Machines and Mechanisms, MNIT, Jaipur (Rajasthan) December 17-18, 2010.

#### **In Proceedings of International Conferences:**

1. K. Neelakanthu, T Asokan and M. Singaperumal, Parametric sensitivity analysis of robot dynamic models developed from experimental data for optimal dynamic performance: A case study using SCARA robot arm, International conference on Mathematical Modelling and Applications to Industrial Problems (MMIP 2011), March 28-31, 2011, National Institute of Technology Calicut, India
2. Santhakumar, M., and Asokan, T, Optimal Proportional-Integral-Derivative Controller for Underwater Robot, Int. Nat. conference on System modeling, optimization and advanced process automation, SYMOPA 2010, Trivandrum, 16-19 December 2010.
3. Periasamy T., Asokan T., Singaperumal M., (2010) Optimized Robust Controller for AUV-Manipulator System, IEEE TENCON 2010, 21-24 Nov. 2010, Fukoka, Japan
4. Salman, Sreenatha A. Anavatti, T. Asokan, (2010) PID and Fuzzy Control of Unmanned Underwater Vehicles, Int. Conf. on Intelligent Unmanned Systems (ICIUS), 3-5, Nov. 2010, Bali, Indonesia.
5. Santhakumar M., Asokan T. (2010), A self – tuning proportional – integral – derivative controller for an autonomous underwater vehicle, based on Taguchi method, Journal of Computer Science 6 (8): 862-871
6. Santhakumar M., Asokan T. (2010), Investigations on the Hybrid Tracking Control of an Under actuated Autonomous Underwater Robot Advanced Robotics, Vol. 24, No. 11, pp. 1529-1556

7. Susanta Kumar Dey, Ganesh Narayanan R. and Saravana Kumar G, Prediction of Tensile behavior of DP 590 Steel Tailor Welded Blanks by ANN, International Conference on Manufacturing Science and Technology, Kuala Lumpur, Malaysia, 26-28, November 2010. Proceedings with ISBN: 978-1-4244-8758-5
8. M. Suresh, N. J. Vasa, M. Saseedran, Vivek Agarwal, Ion Mobility Sensor based on Photo-Ionization Light Source for Trace Gas Sensing, IEEE TENCON 2010 (2010 IEEE Region 10 Conference), Fukuoka International Congress Center, Fukuoka, Japan, 21-24 November 2010
9. Jobin K. Antony, Garneesh Singh Jatana, Nilesh J. Vasa, V.L.N.Sridhar Raja, A.S.Laxmiprasad, Laser induced breakdown spectroscopy analysis of lunar simulants under high vacuum conditions, IEEE TENCON 2010 (2010 IEEE Region 10 Conference), Fukuoka International Congress Center, Fukuoka, Japan, 21-24 November 2010
10. I.A.Palani, N.J.Vasa, M.Singaperumal, Annealing and texturing of a-Si film using Nd<sup>3+</sup>:YAG laser with Gaussian and flat-top beam profiles, IEEE TENCON 2010 (2010 IEEE Region 10 Conference), Fukuoka International Congress Center, Fukuoka, Japan, 21-24 November 2010
11. Yeerla S. R. Rajeev Kumar, Dinesh B. Sonawane and Shankar C. Subramanian, A linear model based controller for an electro-pneumatic brake system, Proceedings of the Workshop on Recent Advances in Mechanics, IIT Madras, Chennai, pp. 293–304, November 2010.
12. Vineet Bhandari and Shankar C. Subramanian, Development of an electronically controlled pneumatic suspension for commercial vehicles, Proceedings of the International Conference on Power, Control and Embedded Systems (technically co-sponsored by IEEE), Allahabad, November 2010, India.
13. Aditya Arikere, Gurunathan Saravana Kumar and Sandipan Bandyopadhyay, Optimisation of Double Wishbone Suspension System Using Multi-Objective Genetic Algorithm; Eighth International Conference on Simulated Evolution And Learning (SEAL-2010)", 01 - 04 December 2010, Indian Institute of Technology Kanpur, India
14. S. Vasantha Kumar, Lelitha Vanajakshi and Shankar C. Subramanian, Traffic state estimation and prediction under heterogeneous traffic conditions, Proceedings of the International Conference on Advances in Civil Engineering, Trivandrum, India, pp. 69–73, December 2010.
15. Sudhir Kindo, Amitava Ghosh and Saravana Kumar, G Methodology to Estimate Grit Density of Abrasives Bonded in Single Layer Configuration, 3rd International and 24th AIMTDR conference, Andhra University, Visakhapatnam, December 13-15, 2010
16. Susanta Kumar Dey, Ganesh Narayanan R. and Saravana Kumar G, Computing the tensile behavior of Tailor Welded Blanks by ANN based expert system, 3rd International and 24th AIMTDR, Andhra University, Visakhapatnam, December 13-15, 2010.
17. M. Jagannath, K. Adalarasu and V. Balasubramanian, "Evaluating bicycle design using sEMG to study muscle fatigue," Proceedings of Seventh International Conference on Prevention of Work-Related Musculoskeletal Disorders (PREMUS 2010), France, August 2010, p. 178
18. M. Jagannath, K. Adalarasu and V. Balasubramanian, "Evaluating bicycle design using sEMG to study muscle fatigue," Proceedings of Seventh International Conference on Prevention of Work-Related Musculoskeletal Disorders (PREMUS 2010), France, August 2010, p. 178.
19. Ajitha Thankappan, Lelitha Vanajakshi and Shankar C. Subramanian, "An optimal traffic stream model for Indian traffic conditions," Proceedings of the 90th Transportation Research Board Annual Meeting, Washington, D. C., USA, January 2011.
20. S. Vasantha Kumar, Lelitha Vanajakshi and Shankar C. Subramanian, "Application of location based data for traffic state estimation on urban arterial under heterogeneous traffic conditions," Proceedings of the 90th Transportation Research Board Annual Meeting, Washington, D. C., USA, January 2011.
21. Sundarraman P., Baskaran R., Sunilkumar V., Raghavendra K., Subir K. Saha, N. J. Vasa, Multibody Dynamics Modeling and Experimental Validation of Fuel-injection pump, International Conf. on Research into Design, Indian Institute of Science, Bangalore, India, Research into Design — Supporting Sustainable Product Development. Edited by Amaresh Chakrabarti, pp. 397-404, ISBN: 978-981-08-7721-7, Research Publishing.
22. Jobin K. Antony, N. J. Vasa, V. L. N. Sridhar Raja, A. S. Laxmiprasad, Investigation on LIBS plasma expansion of lunar simulant under high vacuum conditions, International Conference on Contemporary Trends in Optics and Optoelectronics Organized by Indian Institute of Space Science & Technology (IIST) and Optical Society of India, OP-OM6, pp. 258-259.
23. Sai Praveen Velagapudi, Venkatesh Balasubramanian, Adalarasu, Babu and Venkata Mangaraju, "Muscle fatigue due to motorcycle riding," Small Engine Technology Conference & Exposition, September 2010, Austria.

24. Vijay Lohan, Mohan Jagannath, V. Balasubramanian and K. Adalarasu, "Review on different techniques of oxygen saturation measurement," VIT Conference on Science, Engineering and Technology (VIT – SET), 2010.
25. Susanta Kumar Dey, Ganesh Narayanan R. and Saravana Kumar G., Prediction of Tensile behavior of DP 590 Steel Tailor Welded Blanks by ANN, 2010 International Conference on Manufacturing Science and Technology, Kuala Lumpur, Malaysia, 26-28 November 2010.
26. Paul R. Stauffer; Paolo F. Maccarini; Kavitha Arunachalam; Valeria De Luca; Sara Salah; Alina Boico; Oystein Klemetsen; Yngve Birkelund; Svein K. Jacobsen; Fernando Bardati; Piero Tognolotti; Brent Snow, Microwave radiometry for non-invasive detection of vesicoureteral reflux (VUR) following bladder warming, SPIE Proceedings, Vol. 7901, Energy-based Treatment of Tissue and Assessment VI, Thomas P. Ryan, Editors, 79010V, SPIE Photonics West 2011, San Francisco, CA (January 22-27, 2011).
27. Shiba and Venkatesh Balasubramanian, Breakthrough in Higher Education for Transforming Indian Manufacturing: VLFM Programme Shoji, Research in Higher Education---Daigaku Ronshu, vol 42, 371-386, 2011

**Distinguished Visitors to the Department:**

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1.	Mr. Baskaran, GM, Product Engineering and Mr. Jayanna, Senior Manager, Product Application from Bosch Limited	21st June 2010	To discuss possible project proposals
2.	Dr Shigeru Yokoyama, Adviser, Central Research Institute of Electric Power Industry, Japan & Mr Hideo Shimokawa, Co-ordinator, Institute of Electrical Installation Engineers of Japan	18 <sup>th</sup> December to 24 <sup>th</sup> December 2010	To deliver a few lectures
3.	Prof Ravi Poovaiah, IDC, IIT Bombay	12 <sup>th</sup> March 2011	To conduct a workshop for Dual degree students

**4.9.6 Other Activities of the Department/Centre:**

1. Dr G Deivanayagam, Tamil University, Thanjavur, delivered a lecture on "The Architectural Heritage of Thanjavur" on 9th April 2010.
2. Dr..K Suresh, Associate Professor, University of Wisconsin, Madison delivered a lecture entitled "Topological Sensitivity and its Applications in CAD/CAE" on 19th April 2010.
3. Dr. Sankara J Subramanian, Dr Palaniappan Ramu and a team of 5 dual degree students participated in the 'Made in Brunel 2010' Design Contest held at Brunel University, West London. Out of the 3 teams that participated, one team - Tech Met by Mr. Mohit Mittal won the prize money of 500 pounds.
4. Dr T Asokan attended a meeting at AIIMS, New Delhi on 13th September 2010 to discuss future collaborations between India and the US in medical device development. Mr. Aneesh Chopra, Chief Technical Officer to the US President attended the meeting on behalf of US Government.
5. Dr G Saravana Kumar attended the "Decision Science in Product Development", 6th General Motors Global Research and Development Symposium held at Bangalore, on 13th November 2010.
6. Dr M Ramanathan attended the "Decision Science in Product Development", 6th General Motors Global Research and Development Symposium held at Bangalore, on 13th November 2010.
7. G Saravana Kumar in collaboration with faculty from IDC, IIT Bombay conducted a full day workshop on Problem Space Visualization - Creative Design Methods on 12th March 2011 for the Dual Degree Engineering Design students.

## 4.10 DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

### 4.10.1 Introduction:

The Department of Humanities and Social Sciences (HSS) is one of the earliest departments established at IITM. The Department is multi-disciplinary in nature and has reputed faculty from diverse disciplines such as Economics, English language and Literature, Philosophy, Sociology, History, and German Studies.

The five year integrated MA programme launched by the Department in the academic year 2006-07. The first batch of MA students who joined the program in 2006 will complete their degree in July 2011.

### 4.10.2 Academic Programmes:

Five year integrated MA programme introduced in July 2006

#### New Elective Courses introduced:

Course No.	Title of Course
HS3021	Macroeconomics
HS3023	Microeconomics
HS3015	Mathematics for Economic Analysis
HS4571	Introduction to Chinese language
HS1051	The History of Modern World – I
HS1052	The History of Modern World – II
HS7541	Science and its Public
HS4014	State and Development
HS4011	Econometrics

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year	Total
MA	45	39	29	28	27	168
Ph.D.	7	6	7	4	19	43
<b>Total</b>	<b>52</b>	<b>45</b>	<b>36</b>	<b>32</b>	<b>46</b>	<b>211</b>

#### Names of Students/Scholars who attended Conferences/Workshops/Seminars and Symposia Abroad/in India:

S. No	Name of the Student/Scholar	Programme / Paper presented	Name of the Conference/Seminar/Symposia	Venue and date
1	Vidya CT HS06D007	'Understanding the dynamics of India's Services trade'	20 <sup>th</sup> International Conference of RESER titled "The Global Resilience of the Service Economy" at Gothenburg, Sweden	30 <sup>th</sup> September to 2 <sup>nd</sup> October, 2010
2.	K.C. Adaina	'Developing a Participatory Model for the Assessment of the Proposed Tipaimukh Hydro Multipurpose Dam in Manipur: An Ethnographic Approach to Environmental Valuation'	13th Biennial Conference of the International Association for the Study of Commons (IASC)	10 <sup>th</sup> January to 14 <sup>th</sup> January, 2011
3	Anu T Asokan	"Writing the subaltern into being: Nature and Tribals in Mahaswata Devi's Writing"	International Conference on Humanistic Language and Learning, Anna University	18 <sup>th</sup> and 19 <sup>th</sup> February 2011

#### Names of students / scholars who won outside prizes and awards:

1	Vaishnavi Surendra	MITACS Globalink, Canada
2	Rinju Rajan	Top team, International Youth Summit on Energy and Climate Change, 2010, Shanghai

#### 4.10.3 Faculty and their activities:

##### Faculty:

<b>Name and Qualifications</b>	<b>Major area of specialization</b>
<b>Sudhir Chella Rajan</b> Ph.D. [Head]	Environment, Energy and Climate Policy, Political Theory, Development.
<b>V. R. Muraleedharan</b> , Ph.D. (IIT Madras)	Health Care Economics, Public Policy, History of Healthcare in South India
<b>Shreesh Chaudhary</b> , Ph.D. (CIEFL Hyderabad)	Theoretical Linguistics, ELT & Need based courses in English
<b>Evangeline Manickam</b> , Ph.D. (Madras University)	American Literature, English/ French
<b>Malathy Duraisamy</b> , Ph.D. (Madras University)	Applied Economics, Labour Economics, Economics of Social Sector, Science and Technology
<b>John M S.</b> Ph. D. [M G University]	International Relations Theory MG University
<b>Aysha Iqbal Viswamohan</b> Ph.D. (Vikram University)	American Studies, World Drama, and Intercultural Communication.
<b>Binitha V.Thampi Ph D.</b> [ISEC, Bangalore]	Development Studies, Gender and ICT
<b>Devaki Reddy</b> , Ph.D. (JNU, New Delhi)	English, Sociolinguistics, ELT
<b>John Bosco Lourdusamy</b> , D.Phil. (Oxford University)	History of Science, Science, Technology and Society
<b>Jyotirmaya Tripathy</b> , Ph.D (IIT,Kharagpur)	Literary Theory, American Studies, Cultural Studies
<b>Kalpana K</b> Ph D [MIDS]	History-Economics
<b>Milind Brahme</b> , Ph.D. (JNU, New Delhi)	German Studies, Comparative Literature and Modern Marathi Literature
<b>Mohan S</b> , M.A. (Madras University)	English, Science Fiction, Technical Report Writing, Indian Writing in English
<b>Prema Rajagopalan</b> , Ph.D. (IIT Kanpur)	Sociology of Science and Technology, Development, Women in Science and Technology
<b>Satya Sundar Sethy</b> Ph D [Central University of Hyderabad]	Philosophy of Language
<b>Sonika Gupta</b> Ph D (JNU NewDelhi)	Chinese Foreign Policy and Politics, International Relations Theory, Human Security, Nuclearization of South Asia
<b>Sreekumar N</b> , Ph.D. (Univ. of Hyderabad.)	Philosophy of Language, Hermeneutics, Indian Philosophy
<b>Srilata K</b> , Ph.D. (Univ. of Hyderabad)	African Literature, Cultural Studies, Creative Writing
<b>Sudarsan Padmanabhan</b> Ph D (Univ. of South Florida)	Social and Political Philosophy, Indian Philosophy and culture
<b>Suresh Babu M</b> , Ph.D (JNU, New Delhi)	Industrial Economics, Applied Macro Economics
<b>Swarnalatha R</b> , Ph.D (Madras University)	Eco Philosophy, American Literature
<b>Tabraz S S</b> , Ph D (JNU New Delhi)	International Relations Theory, Isreal-Palestinian Conflict
<b>Umakant Dash</b> , Ph.D. (IIT Kanpur)	Energy Economics; Health Care Economics

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
1	Aysha Iqbal	'Imaging Cinema' Focus on recent trends in Direction / Storytelling, Digital filming, Editing and Cinematography.	May 5 to 10, 2010
2	Sudarsan Padmanabhan Jyotirmaya Tripathy Tabraz SS & Sonika Gupta	"Reinterpreting the State" in collaboration with the University of Sussex Brighton (UK)	June 28 <sup>th</sup> to July 3 <sup>rd</sup> 2010
3	VR Muraleedharan	"Round Table on Private Public Partnership in HealthCare" in collaboration with APAC- VHS USAID	30 <sup>th</sup> October 2010
4	Sudarsan P Jyotirmaya Tripathy Sonika Gupta	1st International Seminar on Democratization and Cultural Diversity Contestation and Consensus in European Union and India	IIT Madras 13 <sup>th</sup> to 15 <sup>th</sup> Dec. 20

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
1.	John Bosco Lourdusamy	"Computing for Socio- economic Development"	Microsoft Research India at the Indian Institute for Science, Bangalore	13 <sup>th</sup> to 27 <sup>th</sup> June 2010.
2.	John Bosco Lourdusamy	'ICTs and Sustainable Development'	16th Annual International Sustainable Development Research Conference 2010, Hong Kong	30 <sup>th</sup> May to 1 <sup>st</sup> June, 2010
3.	D Malathy	"Rand Summer Institute 2010 on Demography Economics and Epidemiology of Aging"	RAND Corporation, Santa Monica, California, USA	12 <sup>th</sup> to 15 <sup>th</sup> July 2010
4.	N Sreekumar	"10 <sup>th</sup> World Congress of Bioethics" presented a paper titled 'Facilitating Phronesis of a Cross Cultural Perspective in Bioethics : A Study on Conceptualizing the Human Body'	Bioethis Advisory Committee, Singapore	28 <sup>th</sup> to 31 <sup>st</sup> July 2010
5.	Sudhir Chella Rajan	"Logframe workshop related to transport in Dushanbe, Tajikistan "	The Ministry of Foreign Affairs, Republic of Tajikistan, and the United Nations Development Programme	5 <sup>th</sup> to 14 <sup>th</sup> July 2010
6.	Prema Rajagopalan	XVIII World Congress of Sociology presented a paper titled "Learning Alliance in the Knowledge Economy : Some Observations from India"	Gothenberg, Sweden	11 <sup>th</sup> to 17 <sup>th</sup> July 2010
7.	V R Muraleedharan Umakant Dash	To discuss the outputs / results of the study sponsored by the Rockefeller Foundation	Bellagio, Italy	23 <sup>rd</sup> to 27 <sup>th</sup> August 2010
8.	Jyotirmaya Tripathy	28 <sup>th</sup> Annual Conference of "The Association of Third World Studies"	Savannah, Georgia.	7 <sup>th</sup> to 9 <sup>th</sup> October 2010
9.	Prema Rajagopalan	Symposium on 'The Future of HSS'	Department of HSS, IIT Kanpur	22 <sup>nd</sup> and 23 <sup>rd</sup> of October 2010
10.	Sudarsan P	"European Union in Changing International Order: Issues and Concerns"	Mangalore University	20 <sup>th</sup> and 21 <sup>st</sup> October 2010
11.	Sreekumar N	"Inculcation of research culture for quality enhancement"	Vimala College, Thrissur, Kerala	25-26 Nov. 2010
12.	Jyotirmaya Tripathy	To deliver a few lectures as a Visiting Scholar at the Centre for Contemporary India Research and Studies,	University of Warsaw, Poland.	14 <sup>th</sup> to 22 <sup>nd</sup> Nov 2010
13.	Umakant Dash	To attend the 1 <sup>st</sup> Symposium on Health System Research, held at, arranged by WHO.	Monteux, Switzerland	15 <sup>th</sup> to 19 <sup>th</sup> Nov 2010

14.	Prema Rajagopalan	36 <sup>th</sup> All India sociological Conference (National) Presented a paper titled "The case of development of Displaced Community : Promises and Poverty"	Ravenshaw University Cuttack	27-29 <sup>th</sup> Dec 2010
15.	Swarnalatha R	5 <sup>th</sup> Tamkang International Conference on Ecological Discourse	Tamkang University Taiwan	16-22 <sup>nd</sup> Dec. 2010
16.	Aysha Iqbal	Conference on "Masculine Practices, Public Tastes: Reception of Hong Kong Cinema in India"	Hong Kong Open University Hong Kong	06 <sup>th</sup> to 8 <sup>th</sup> January 2011
17.	Prema Rajagopalan	Workshop on SEC Theme of the project " Ganga River Basin Management Plan"	IIT Roorkee	07 <sup>th</sup> to 10 <sup>th</sup> January 2011
18.	John Bosco Lourdasamy	Seminar on "Academic Amalgamation: Bringing Techno –Scientific and social Science Academic Communities together on the changing Academic Dimensions"	Bharathidasan Univerisity Trichy	18 <sup>th</sup> February 2011
19.	John Bosco Lourdasamy	To deliver a lecture on the topic "Modern Seience in India : Trends in reproduction and production" in view of 7 <sup>th</sup> Hasi Majumdar Memorial Oration.	University of Calcutta	25 <sup>th</sup> February 2011
20.	John Bosco Lourdasamy	Seminar on "The Making of Indian Engineers"	Centre de Sciences Humaines, New Delhi	21 <sup>st</sup> & 22 <sup>nd</sup> Feb. 2011
21.	Sudhir Chella Rajan	Workshops of National Transport Development Committee	Ministry of Urban Development, Government of India, New Delhi	Various, between Sep. 2010 & July 2011
22.	M.S. John	'Conflict Resolution The State of the Field and Implications for Practice' The paper is being rewritten for an edited volume.	UGC-sponsored National Seminar on Conflict Resolution in South Asia organized jointly by the Centre for Gandhian Studies, Alphonsa College, Pala and the Institute of Asian Studies, Chennai	1 & 2 February 2011

#### 4.10.5 Research and Consultancy:

##### Sponsored Research Projects:

S.No	Title	Period	Funding agency	Amount in Lakhs	Coordinators
1	'Comparative EU Studies'	2 years	European Union, New Delhi	Rs.130 lakhs	Sudarsan Padmanabhan, Sonika Gupta, Jyotirmaya Tripathy and SS Tabraz
2	'Performance of Tamil Nadu Health Care System during 1980 – 2005.	2 years	The Rockefeller Foundation (New York)	Rs.54.45 lakhs (Approx)	V. R. Muraleedharan and Umakant Dash
3	IIT Madras & APAC- VHS USAID Collaboration: Round Table on Private Public Partnership in HealthCare	2 years	AIDS Prevention And Control Project -VHS – USAID	Rs.25 lakhs.	VR Muraleedharan (HS) Ashwin Mahalingam (CE)
4	" Monitoring SSA Implementation in 13 districts of Tamil Nadu"		Min. of H R D	Rs.20 lakhs	Milind Brahme & Suresh Babu
5	"Review of Active Learning Methodology"		SSA Tamil Nadu	Rs.5.40 lakhs	Milind Brahme & Suresh Babu



6	"Empowering women leaders at the local level: Translating descriptive representation to substantive representation through ICT"	1 year	International Development Research Centre (Gender and Citizenship in the information Society in Asia)	Rs.11,22,000/-	Binitha V Thampi
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**Research Publications:**

Faculty	Title of the book	Venue
SC Chaudhary	Co-author of the book published by Aakar Publications of New Delhi: titled "Problimatizing Language Studies"	Indian Council of Social Sciences Research, New Delhi

**4.10.6 Other Activities:**

**Special Lectures:**

The Conference "Redefining Boundaries" aimed to offer an array of lectures, presentations, debates, and panel discussions by leading thinkers on a vast range of critical topics. It was held over three sessions spread over three days ie. From 1st April – 3rd April 2010.

The following lectures were organized on that occasion

- Lecture: Theoretical Superiority of the Capabilities Approach  
Speaker: Dr.Martha Nussbaum, University of Chicago.
- Dr. Nussbaum worked with Amartya Sen on the Capabilities Approach which was the foundation for the subsequent development of the UN Human Development Index
- Theme: Globalisation and Inequality
- Lecture: New Global Challenges  
Speaker: Robert Fogel:1993 winner of the Nobel Memorial Prize in Economic Sciences -
- Lecture: Conflict In West Asia – The Way Ahead  
Speaker: David Dean Shulman, Hebrew University, Jerusalem  
Play: Based on the Works of Mahmoud Darwish Director: Parnab Mukherjee
- Theme: New Directions in Writing  
Speaker: C.S. Lakshmi (Ambai) renowned Tamil feminist writer and director of SPARROW  
Panelists: Krish Ashok, Subhashree Krishnaswamy, K. Srilata, Kaushik Viswanathan

**Book Release:**

A Book release function organized to release the Book titled "Global Crisis, Recession and Uneven Recovery" written by Dr. Y V Reddy, (former Governor of RBI) in association with Orient Black Swan Publisher at IC & SR Auditorium on 22<sup>nd</sup> January 2011.

## 4.11 DEPARTMENT OF MANAGEMENT STUDIES

### 4.11.1 Introduction:

The Department of Management Studies (DOMS) was established in April 2004, with some of the faculty members drawn from the Department of Humanities and Social Sciences that offered the M. Tech (Industrial Management) programme until 2001, and thereafter the MBA programme. On 2<sup>nd</sup> February 2006, the DOMS moved to the new premises provided by the Institute to facilitate all-round developments in its teaching and research programmes, and industry-interface efforts and initiatives. Over the years, the work and contributions of the faculty and research scholars have been highly acclaimed in academic circles and peer groups. The sharply growing number of well-qualified applicants, with many having significant professional experience, both from the industry and academia, is a good indication of the academic reputation of the Department.

The MBA Programme, which commenced in July 2001, has earned a good reputation among all stakeholders. The summer and career placements offered to the students by globally and nationally reputed companies is strong evidence of the growing stature of the programme and the attention it is receiving.

The Department presently conducts one of the world's largest research programmes and possibly 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. The work of the research scholars is regularly published in reputed international and national journals, and is presented in prestigious international and national conferences. In the recent past, a few 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 well cited in the literature.

The alumni of the Department continue to make significant contributions to the organizations and institutions they work for. Many among them have won prizes, awards, honours and promotions in their organizations even within their first year of work. They have also played a central role in making their organizations earn laurels from various quarters.

The full-time and visiting faculty members have excellent academic and professional backgrounds, and they collectively work for 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 MBA programme curriculum, expanded its research activities, re-launched the MS (Entrepreneurship) programme with a new structure, and worked for establishing long-term relationships with globally reputed Institutions and organizations. The sections below present an outline of the Department's work.

Some major areas of research at the department are:

- Production and Operations Management
- Finance
- Marketing
- Human Resource Management
- Information Systems
- Strategy
- Technology Management
- Project Management
- Quality Management
- Services Management
- Knowledge Management

### 4.11.2 Academic Programmes:

#### New Courses introduced:

Sl. No.	Course No.	Title
1	MS 354	Introduction to Game Theory
2	MS 510	Social Enterprises in India
3	MS 520	Product Design and Business Models
4	MS 603	Advanced Data Analytics for Management
5	MS 659	Customer Relationship Marketing
6	MS 670	Market Microstructure
7	MS 761	Micro Finance
8	MS 762	Finance and Sustainable Development

#### Students on Roll:

Programme	I year	II Year	III Year	IV Year	V Year & other	Total
M.B.A.	69	70	-	-	-	139
MS	13	17	6	2	-	38
Ph.D.	12	26	12	7	22	79
<b>Total</b>	<b>94</b>	<b>113</b>	<b>18</b>	<b>9</b>	<b>22</b>	<b>256</b>

**Names of Students/Scholars who attended Conferences/Seminars and Symposia Abroad/ India:**

Sl. No.	Name of the Student	Programme	Title	Date & Venue
<b>Paper Presented:</b>				
1.	Prachi Pandey, Sanghamitra Bhattacharyya, Arshinder Kaur	International Conference & Colloquium, Excellence in Research & Education)	"Influence of People, Organizational and Operational Factors on Supply Chain Performance: A Conceptual Framework"	September 25–28, 2010 - IIM Indore
2	Krithika, V., Chandra Sekaran, K., Arshinder	International Conference on Recent Advances In Technology, Engineering, Management And Science (ICRATEMS2011)	"Issues in Service Modelling"	March 4-6, 2011 - Vivekanandha College Of Engineering For Women, Tiruchengodu, TN
3.	Anish Menon and Krishna Prasanna P.	2 <sup>nd</sup> Finance and corporate governance conference.	"Corporate Governance and Stock market liquidity in India"	28-29 <sup>th</sup> April, 2011, Melbourne, Australia

**4.11.3 Faculty and their activities:**

**Faculty:**

**Name and Qualifications**

**Major area of specialization**

**Professor:**

Ganesh L S

*B.E.(Hons.), M. Tech, Ph. D.*

Systems Thinking and Applications, Project Management, Technology Management, Data and Decision Analysis, Forecasting

Jayachandran S

*M.A., MBA, Ph. D.*

Marketing Management & Research, Advertisement and Publicity, Management of Finance / Personal / Marketing

Kamalanabhan T J

*M.A., M. Phil., Ph. D.*

Industrial Psychology, Organizational Behaviour, Human Resource Management, Introduction to Psychology

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.E., PG Dipl.(CM&P), M. Tech, Ph D.*

Strategic Management, IT Outsourcing and IT Strategic Planning Business Models, Technology Management, Contemporary Issues in Management

Rajendran

*B.E.(Hons), M.E., Ph. D.*

[Head]

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, O. R. Applications, Services Operations Management

R.P. Sundarraj

*Ph.D.*

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

Vijayaraghavan P

*B.E., MBA, Fellow IIM Bangalore (TTK Chair Professor)*

Strategic Marketing, Advertising & Sales Promotion, Brand Management, Industrial & Services Marketing

**Associate Professor:**

Arun Kumar G

*M. Com., Ph. D.*

Market Microstructure, IPOs, Mergers and Acquisitions, Joint Ventures and Multinational Business

Thillairajan A

*B.E., M.Sc., Fellow IIM Bangalore*

Financial Management, Advanced Corporate Finance, Venture Capital and Private Equity, Infrastructure and Project Finance

**Assistant Professor:**

Amit R K M. Tech., Ph.D	Game Theory, Operations Research, Decision Theory, Natural Resources Management.
Arshinder Kaur M. Tech, Ph. D.	Operations Research, Supply Chain Management, Total Quality Management, Services Operations Management
Ganesh M P M. Phil, Ph. D.	Organizational Behaviour, Human Resources Management, Industrial Psychology
Krishna Prasanna P M. Com., Ph. D.	Financial Management, Financial Accounting, Security Analysis and Portfolio Management, International Finance, Corporate Governance
Rahul R. Marathe B.E., M.S., Ph.D.	Simulation, Industrial Engineering, TQM, Operations Research, Operations Management
Richa Agrawal MBA, Ph. D.	Customer Relationship Marketing, Consumer Behaviour & Insight Advantage
Rupashree Baral Ph. D.	Strategic Human Resources Management, Organizational Behaviour, Employee Relations, Work–Life Balance, HR Outsourcing
Saji K. Mathew Ph. D.	Management Information Systems, IT Strategy, Data Mining and Business Intelligence, IT Services & Outsourcing, Information Systems Development
Usha Mohan M. Sc., Ph. D.	Quantitative Models in Operations Management, Probability and Statistics

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Name of the Co-ordinators	Programme	Name of the Conference/ Seminar/Symposia	Date & Venue
1.	G. Srinivasan & Rahul R. Marathe	3-day workshop on (organized for CII Chennai)	“Supply Chain Management”	April 26 <sup>th</sup> – 28 <sup>th</sup> 2010 IC&SR, IIT Madras
2.	T.J. Kamalanabhan and Dr. M. Thenmozhi	Supervisory Development Programme for L&T (E&GP OC) employees, Chennai	=====	April 27 – May 2, 2011; Dept of Management Studies, IIT Madras
3.	T.J. Kamalanabhan	Management Training Programme for Head Masters of Chennai Corporation Schools in Chennai City	=====	Batch–I : Oct 6-8, 2010 Batch–II: Oct 13-15, 2010, Dept of Management Studies, IIT Madras
4.	Prakash L. Sai & K. Chandrasekaran (NITK)	3-Day Workshop	“Business Excellence through Cloud Computing”	December 13 – 15, 2010, Dept of Management Studies, IIT Madras
5.	G. Srinivasan	2-day Executive Development Programme	“Modern Manufacturing Management Techniques – A step towards World Class Manufacturing”	February 7 <sup>th</sup> & 8 <sup>th</sup> , 2011, IIT Madras (in association with CII Institute of Logistics)
6.	T.J. Kamalanabhan	Supervisory Development Programme for L&T Senior Executives	=====	Feb 28 <sup>th</sup> - 5 <sup>th</sup> March, 2011, Dept of Management Studies, IIT Madras

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1.	Krishna Prasanna P.	Training of Trainers Program on Corporate Governance Board Leadership	Global Corporate Governance Forum in association with NISM and CII	March 9-12, 2011
<b>Conference (Paper Presented) :</b>				
1.	Krishna Prasanna	"Corporate Governance and Dividend Payout in India"	International Finance Conference 2011, held at the Indian Institute of Management Calcutta	January 10-12, 2011.
2.	Richa Agrawal	"What Constitutes 'LUXURY' : A Study of Indian Consumers"	ZHAW School of Business and Law and the Warwick Business School, Zurich, Switzerland (at the International Colloquium on Corporate Branding, Identity, Image and Reputation (COBIIR))	February 15-16, 2011
3.	Saji K. Mathew	"Identifying vendor risks in remote infrastructure management services"	9 <sup>th</sup> Annual Smart Sourcing Conference, IIT Delhi	January 5-6, 2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Venue and Date
1.	Arshinder Kaur	"Managing inventory in supply chain"	Indian Institute of Materials Management, Chennai Branch - 24 <sup>th</sup> April, 2010.
2.	L. Prakash Sai	"Dynamics of technological changes and business model innovations"	conducted by Technology Information Forecasting and Assessment Council (TIFAC), Dept. of Science and Technology, New Delhi (at the workshop on "Technology Foresight - Perspectives and Recent Trends") ; - Sep.15, 2010.
3.	Arshinder Kaur	"Supply Chain Contracts: Supply Chain Coordination perspective"	Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai (at the short term course on Supply Chain Management (STCSCM2010); - September 24-25, 2010
4.	T.T. Narendran	"Changing Role of Indian IT Industry – Partnering for Transformation' (an invited Special Address at the Plenary Session of India ICT Summit 2010 by CII, New Delhi)	Kochi; December 14-15, 2010
5.	L. Prakash Sai	"Business Excellence and Human Capital Management" (Key Note Address the National Seminar on 'Trends in Human Capital management')	National HRD Network, Vijayawada, AP – January 08, 2011.
6.	Krishna Prasanna P.	"Creative Teaching Techniques"	Faculty Development Programme for Management teachers @ SRM University, Chennai - 11 <sup>th</sup> Feb,2011
7.	Arshinder Kaur	"Service Supply Chain: Web Services"	International Conference on Recent Advances In Technology, Engineering, Management And Science (ICRATEMS 2011), Vivekanandha College Of Engineering For Women, Tiruchengodu, near Erode; 4 March 2011.

8.	L.S. Ganesh	"Management Intelligence and Management Wisdom: Which is dominant, Why and What should be?"	Thantai Periyar Hall (F-50), Tholkapiar Campus, Dept of Management Studies, University of Madras, Chepauk; 25 <sup>th</sup> March 2011
9.	A. Thillai Rajan	"Private Equity in Infrastructure Finance"	FICCI at Hotel Le Meridien, Chennai at a Session on Infrastructure Finance, INFRAVISION 2011); March 25, 2011

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit
1.	T.J. Kamalanabhan	Mazandaran University of Science and Technology, Babol, Iran	May 18 – June 17, 2010	To teach HRD courses to MBA students. (Professional Visit)
2.	M. Thenmozhi	University of Passau, Germany	June 2010	Teaching Finance Courses in the University (Professional Visit)
3.	C. Rajendran	Boston, United States of America	December 1-3, 2010	To deliver a key note address at the 1 <sup>st</sup> International Workshop on Bio-inspired Approaches to Advanced Computing and Communications (BioAdcom 2010)
4.	Richa Agrawal	Mokpo, Republic of Korea	December 6-9, 2010	To attend an International Meet on Customer Relationship Marketing (organized by Asian Productivity Organization (APO) & Korean Productivity Council)
5.	Richa Agrawal	College of Management of Technology - EPFL, Lausanne, Switzerland	February 19, 2011	An invited lecture on "Marketing and Innovations: Opportunities for Entrepreneurs"

**Honours and Awards obtained:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of Award
<b>Honours :</b>					
1.	G. Srinivasan	President (elected)	Operation Society of India	===	Period: 2010-12
2.	C. Rajendran	Top h-Index author	Elsevier Group of Publications, USA	15 <sup>th</sup> Top h-Index author among world-wide Production and Operations Management Researchers during the period 1959 and 2009	Dec 2010
3.	M.P. Ganesh	Outstanding Reviewer	Emerald Group of Publications, UK	for his contributions for their journal TEAM PERFORMANCE MANAGEMENT	Dec 2010
4.	M. Thenmozhi	Best Author (Top Ten downloaded list)	Social Science Electronic Publishing, Inc., USA	Top Ten downloaded list for Institutional & Transition Economics eJournals	Dec 2010
<b>Awards :</b>					
1.	G. Srinivasan	Dr. N.K. Jaiswal memorial Award	Operation Society of India	Best Theoretical Paper (at the ORSI 2010 Conference)	Dec 2010
2.	G. Srinivasan, Usha Mohan & Rahul R. Marathe	IBM Shared university Research Grant Award (with grant USD 7500)	IBM Inc.	Best Faculty Award	Jan 2011

3.	A. Thillairajan, S. P. Mukund and R. Siddharth	Highly Commended Award (Literati Network Awards for Excellence)	Emerald Group of Publications, UK	Best Case Study (published in International Journal of Financial Management of Property and Construction)	Dec 2010
4.	A. Thillairajan & Sriram Siddhartha	Highly Commended Award (Literati Network Awards for Excellence)	Emerald Group of Publications, UK	Best Research Paper (published International Journal of Energy Sector Management)	Dec 2010
5.	C. Rajendran, L. Prakash Sai and Sayeda Begum	Highly Commended Award (Literati Network Awards for Excellence)	Emerald Group of Publications, UK	Best Research Paper (published in International Journal of <i>Benchmarking</i> )	Dec 2010

#### Fellowships of Academies and Professional Societies:

Sl. No.	Name of faculty	Name of the Academy/ Professional Society	Level	Year of admission
<b>Humboldt Fellowship:</b>				
1.	C. Rajendran	University of Passau, Germany	Humboldt Fellowship (follow-up)	May - July 2010
<b>Erasmus Mundus Scholarship</b>				
2.	T.J. Kamalanabhan	University Politecnica de Madrid, Spain	Visiting Fellow	Oct - Dec 2010
<b>Fulbright Nehru Senior Research Fellowship in Business:</b>				
3.	Dr. A. Thillairajan	The Harvard Kennedy School of Government, Harvard University	Senior Fulbright Fellow	Jan - June 2010

#### 4.11.5 Research and Consultancy:

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. lacs)	Co-ordinators
1.	"Design and Development of a Generic Framework for Agro based Supply Chain"	24 Months	Dept of Science & Technology	5.2	Arshinder Kaur

##### Exchange programme with other Universities including Institutions/ Universities under MOU:

- Faculty and student exchange with the Universities of Mannheim, Passau and Hof in Germany.

##### Journal Editorial Boards:

Sl. No.	Name of faculty	Level	Journal
1.	C. Rajendran, L. Prakash Sai and K. Ganesan	Guest Editors for the special Issue entitled: "Models for Operational and Business Excellence,"	International Journal of Logistics Economics and Globalization, Vol.2, No.4,2010

##### Research Publications:

Total No. of papers published in Refereed International Journals : 12  
Total No. of papers presented in National Conferences : 04

##### In Refereed International Journals:

Sl. No.	Name of the Author	Title	Journal
1.	P.V. Rajendra Sethupathi & C. Rajendran	"Optimal and Heuristic Base-stock Levels and Review Periods in a Serial Supply Chain"	International Journal of Logistics Systems and Management, Vol.7, No.2,2010

2.	Brijesh Paul and C. Rajendran	<i>"Exact and Heuristic Algorithms for Inventory Rationing in a Divergent Supply Chain with Order Costs"</i>	International Journal of Industrial and Systems Engineering, Vol.6, No.4, 2010
3.	Sayeda Begum, Chandrasekharan Rajendran and L. Prakash Sai	<i>"An Empirical Study of Total Quality Management in Engineering Educational Institutions of India – Perspective of Management"</i>	International Journal: <i>Benchmarking: An International Journal</i> , Vol. 17 No. 5, pp. 728-767, 2010.
4.	Panchapakesan Padma, Chandrasekharan Rajendran, Prakash Sai Lokachari,	<i>"Service quality and its impact on customer satisfaction in Indian hospitals: Perspectives of patients and their attendants"</i>	Benchmarking: An International Journal, Vol. 17 Iss: 6, pp.807 – 841 (2010)
5.	Balasubramanian Kanagasabapathi, Chandrasekharan Rajendran, Kuppuswamy Ananthanarayanan,	<i>"Scheduling in resource-constrained multiple projects to minimise the weighted tardiness and weighted earliness of projects",</i>	International Journal of Operational Research, Volume 7, Number 3 / 2010, 334 - 386 (2010)
6.	Lata Dyaram and T.J. Kamalanabhan	<i>"Diversity in software development teams: the moderating effects of interdependence, team tenure and project type"</i>	International Journal of Business Innovation and Research, Vol.10, No.10, pp.1-20.
7.	Arun Prasad and T.J.Kamalanabhan	<i>"Human Resource excellence in Software Industry in India: An Exploratory Study"</i>	International Journal of Logistics Economics and Globalization, Vol.2, No.4, pp. 316-330. 2010
8.	Sreerexha and T. J Kamalanabhan	<i>"A Study on Employee turnover antecedents in ITES/BPO sector"</i>	International Journal of Learning and change, Vol.4, No.2., 2010
9.	Priya Nair and T.J.Kamalanabhan	<i>"Performance Pressure and Peer Reporting of Infractions: A Moderated Mediation Model"</i>	Journal of Indian Business Research, Vol. 2, No.4., 2010
10.	Paul, B., and Rajendran C.	<i>"Rationing mechanisms and inventory control-policy parameters for a divergent supply chain operating with lost sales and costs of review"</i>	Computers & Operations Research, Vol. 38, 1117-1130 (2010)
11.	Rameshkumar, K., Rajendran, C. and Mohanasundaram K.M.	<i>' Discrete particle swarm optimisation algorithms for minimising the completion-time variance of jobs in flowshops'</i>	International Journal of Industrial and Systems Engineering, Vol. 7, No. 3, pp.317–340, 2010
12.	Mathew, S. K.	Mitigating behavioral risks in offshore software development through relationship management	Strategic Outsourcing, an International Journal, Vol. 4, No. 2, 2010

**In Proceedings of National Conferences:**

Sl. No.	Name of Faculty	Programme	Names of the Conference/ Seminar/Symposia	Date and Venue
1.	L. Prakash Sai & G.S.Vidyashankar	2nd International Conference on "Excellence in School Education"	Educational Policy Imperatives and Performance Assessment of Indian Schools	October 26-28, 2010 Dept of Management Studies, IIT Delhi
2.	Mayuri Duggirala & L. Prakash Sai	2nd International Conference on "Excellence in School Education"	The Role of Teachers in Technology-Mediated Learning: A Structural Equation Modeling Approach	October 26-28, 2010 Dept of Management Studies, IIT Delhi
3.	P. Kalpana and Arshinder	XIV Annual International Conference of the Society of Operations Management (SOM 2010)	"Supply Chain Coordination for Two Level Single Period Supply Chain with Two Ordering Opportunities"	December 17-19; National Institute of Indl. Engg. (NITIE), Mumbai
4.	G. Ajay Karthic Bharathi, S. Sinduja, Arshinder	XIV Annual International Conference of the Society of Operations Management (SOM 2010)	"Supply Chain Coordination with Sales Rebate Contract: A case of Two Echelon Supply Chain",	December 17-19; National Institute of Industrial Engineering (NITIE), Mumbai



**Distinguished Visitors to the Department:**

Sl. No.	Name of the visitor & Designation	Date of visit	Purpose of visit
1.	Prof. Christopher L. Tucci, Professor, Innovation & Technology Management, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland	April 5-7, 2010	Delivered key note address at the 'symposium on <i>Entrepreneurship, Technology and Management in Emerging Economies</i> ' organized jointly by DoMS-IIT Madras, EPFL- Switzerland and MMA-Chennai
2.	Shri. D R Dhariwal CEO, Birla White Cement, New Delhi	April 06, 2010	On an invitation for CORPORATE WISDOM Forum organized by MBA students, he gave a talk on "Challenges in Marketing in tomorrow's world"
3.	Dr. N. Ravichandran, CEO, Lucas-TVS Ltd	April 13, 2010	Gave an invited lecture on "Manufacturing Management: Past, Present and Future" to MBA Students and Research Scholars.
4.	Ms. H�el�ene MAIRESSE, Deputy Director, Renault Foundation, France	June 02, 2010	Discussed with the faculty members, made a presentation about the Scholarship program of Sorbonne and Dauphine Universities, to our MBA students.
5.	Dr. R. Chidambaram, Principal Scientific Adviser, Govt of India, and Chairman, Board of Governors, IIT M	July 31, 2010	Gave a lecture on RE-INNOVATION & RURAL DEVELOPMENT to the MBA students and Research Scholars
6.	Dr. Pradeep Gopalakrishna, Professor of Marketing and Undergraduate Program Chair, LUBIN School of Business, Pace University, New York	August 12, 2010	Delivered an invited talk on "Current happenings in Management/ Marketing Research in the US".
7.	Prof Murgie Krishnan, Prof of Finance, Yeshiva University	August 17, 2010	Gave a lecture on research issues in finance and interacted with the research scholars
8.	Mr Dipankar Ghosh, Director-Engineering, Caterpillar Ltd, Chennai	August 19, 2010	On an invitation for CORPORATE WISDOM Forum organized by MBA students, he gave a talk to all the students and research scholars
9.	- Dr. Keith Chauvin, Professor of Business & Associate Dean, for Academic Affairs; - Dr. Tailan Chi, Associate Professor of Business Administration; - Dr. Kissan Joseph, Associate Professor of Marketing and Stockton Research Fellow; All from Kansas University, USA	August 20, 2010	Interacted with DoMS Faculty and also with the MBA students with respect to the MBA Programme.
10.	Ms. Sushri Mishra, Vice President - Wealth Management, IndusInd Bank, Mumbai	Sept 03, 2010	Gave invited lecture on "Wealth Management' at CORPORATE WIDOM, an event organized by MBA students.
11.	Anand Narayan, Director, Veda Corporate Advisors, Chennai	Sept 09, 2010	Gave an invited lecture on "Changing Dimensions of Value Creation in Corporate Finance" to MBA students and research scholars.
12.	Mr. Ram Vishwanathan, Professor and a Research consultant. [ B. Tech (IITM) and MBA (Stern School, NYU, USA)	Sept. 11, 2010	On invitation, conducted a statistics workshop titled "What Statistical test and why?"
13.	Mr. P. Jeevan Jose, Corporate HR Head, Royal Sundaram Alliance Insurance Co. Ltd, Chennai	18 Sept 2010	Gave invited lecture on "Wealth Management' at CORPORATE WIDOM, an event organized by MBA students.
14.	Prof. A. Ravi Ravindran, Pennsylvania State University, USA, eminent Professor in the field of Operations Research	October 12-14 & Oct 18, 2010	Was invited to give lectures on Multi Criteria Decision Making for Research Scholars.
15.	Mr. Davinder Singh, Business Head, Beverages of CavinKare Pvt. Ltd.	October 12, 2010	Gave invited lecture at CORPORATE WISDOM, a Business Event, organized by MBA students
16.	Delegation from HoF University, Germany	October 25, 2010	Interacted with Faculty members, DD and others for a possible MoU with them.

17.	Mr. Nithiyandhan Ananthkrishnan, Senior Manager, Interactive Technologies, Icon Clinical Research	October 27, 2010	Gave invited lecture 'Bringing the less privileged at par with the society' – at the MIST, a Business Event, organized by MBA students
18.	Prof. Jonathan Linton, Professor for the Management of Technological Enterprises, Telfer School of Management, University of Ottawa	December 23, 2011	An invited talk on "Implementing Effective Commercialization Practices"
19.	Dr. Ram Gopalan (Ph.D., 1992, M.I.T), Assistant Professor, Marketing and Supply Chain Management, Fox School of Business, USA	January 07, 2011	gave an invited seminar talk on "Solving Political Districting Problems" for Research Scholars
20.	Dr. P (Gopal) Gopalakrishnan, Vice President, IBM India Software Lab (ISL).	January 09, 2011	Gave an invited talk on "Mobility –Trends and emerging technologies".
21.	R Dhamodaran, Regional Director, Mphasis Ltd., an Hp Company	January 12, 2011	Gave an invited lecture "Customer Complaint is a Gift" – at the CEO Connect, a Business Event, organized by MBA students
22.	K. Balakrishnan, MD and CEO, Servion Global Solutions	January 19, 2011	Gave an invited lecture Servicing Million Customers – Opportunities and Challenges– at the CEO Connect, a Business Event, organized by MBA students
23.	Prof. Ashok Jhunjhunwala, Telecommunications and Computer Networks group (TeNeT)	February 02, 2011	An invited talk on 'Indian Telecom: Controversies and Truths' to the MBA students and Research Scholars
24.	Ms. Hemu Ramaiah, Founder of Landmark and Current MD of shop4solutions	February 09, 2011,	An invited Talk on 'The Story of Landmark: Innovation, Challenges, and Learnings' as part of the Team MILS(MBA Invitational Lecture Series
25.	Dr. Arun Elias, Director of MBA, Victoria Management School, Victoria University of Wellington, New Zealand	March 9, 2011	An invited Research Presentation on " <i>Stakeholder Analysis in Environmental Conflict Management: A Systems Thinking and Modelling Approach</i> ".
26.	Mr. Harsh Dugar, Sr. Vice President & Regional Head – Corporate Banking – HDFC Bank	March 9, 2011	An invited talk on " <i>Risk Management - Types of Risk, Identification and Management of risks</i> ", as part of MBA Invitational Lecture Series
27.	- Mr R. Thiagarajan, Founder Chairman, Shriram Group, Chennai - Mr Manikam Ramaswami, CMD, Loyal Textile Mills Ltd, Coimbatore (Alumnus of IITM) - Mr. K. Jayaramakrishnan, Vice President (Global Alliances), Tata Consultancy Services, Chennai - Mr. R. Ramkumar, Vice President, Cognizant Technology Solutions And - Mr V Balasubramanian, Asst Resident Editor, The Economic Times, Chennai	March 28, 2011	The Economic Times Publications organized a Panel Discussion on the topic "TN Assembly Poll: Good Politics will drive Good Business" (where the invitees presented their views)

#### 4.11.6 Other Activities:

1. Industrial Visit was organized for MBA students to Brakes India on April 8<sup>th</sup> and to Lucas TVS on April 15<sup>th</sup>, 2010.
2. Being the member of the Academic Committee, Dr. M Thenmozhi was invited to perform the Academic audit at PSG Institute of Management, PSG Tech, Coimbatore on October 22, 2010.
3. The Director, IIT Madras, Prof. M. S. Ananth has released the second annual report on the 'India Venture Capital and Private Equity Report' on November 02, 2010 prepared by Dr. A Thillairajan. Shri. Arun Jain, Chairman and CEO, Polaris Software was the Chief Guest.
4. Ms. V. Krithika, M.S. (By Research) Scholar won the Best Paper Award for her paper titled "*Issues in Service Modelling*" at the International Conference on Recent Advances in Technology, Engineering, Management and Science (ICRATEMS – 2011) in association with IEEE, IET, ISTE and Computer Society of India at Vivekananda College of Engineering for Women, Thiruchengodu, Namakkal Dist., Tamil Nadu held between March 4-6, 2011.

## 4.12 DEPARTMENT OF MATHEMATICS

### 4.12.1 Introduction:

The Department of Mathematics was established in 1959 along with the Institute. It offers M.Sc. programme in Mathematics, M. Tech. program in Industrial Mathematics and Scientific Computing [IMSC] and Ph.D. programme. In addition, the Department has taken the responsibility of teaching Mathematics courses to B.Tech., M. Tech. (other than IMSC), Dual Degree in ED, M.Sc. and Ph.D students of the Institute. The department has also signed a MoU for an Exchange Programme with TU Kaiserslautern under the DAAD Exchange Programme Network for 5 years beginning from 2009.

The major areas of research of the department are:

- |                                     |   |
|-------------------------------------|---|
| 1. Algebra and its applications     | 17. Mathematical logic & Applications           |
| 2. Applied Probability              | 18. Mathematical Modeling                       |
| 3. Approximation Theory             | 19. Mathematical Physics                        |
| 4. Computational Fluid Dynamics     | 20. Nonlinear Analysis                          |
| 5. Continuum Mechanics              | 21. Numerical Analysis                          |
| 6. Coding Theory                    | 22. Operations Research                         |
| 7. Complex Analysis                 | 23. Operator Theory                             |
| 8. Data Networks                    | 24. Queuing Theory                              |
| 9. Differential Equations           | 25. Statistical Quality Control                 |
| 10. Inverse and Ill- Posed problems | 26. Stochastic Processes and their applications |
| 11. Fluid Mechanics                 | 27. Theoretical Computer Science                |
| 12. Functional Analysis             | 28. Wavelets and their applications             |
| 13. Fuzzy Sets and Systems          | 29. Algebraic Geometry                          |
| 14. Graph Theory and Combinatorics  | 30. Fractal Geometry and its applications       |
| 15. Harmonic Analysis               | 31. Commutative Algebra                         |
| 16. Inventory and Reliability       |   |

### 4.12.2 Academic Programmes:

#### New Courses Introduced:

S.No.	Course No.	Title
1.	MA 6001	Introduction to Coding Theory
2.	MA 6001	Approximation Theory
3.	MA 6003	Wavelets
4.	MA 6004	Fractals
5.	MA 6005	Applied Linear Algebra
6.	MA 6006	Applied Integral Equations
7.	MA 6007	Nonlinear Partial Differential Equations
8.	MA 6008	Operations Research – II
9.	MA 6009	Theory of Bio-Inspired Computing
10.	MA 6011	Mathematical Programming
11.	MA 5430	Algebra II: Ring Theory and Field Theory
12.	MA 5460	Transform Techniques
13	MA 5140	Introduction to Algebraic Topology

#### Students on Roll:

Programme	I Year	II Year	III Year	IV Year	V Year & Others	Total
M.Sc.	47	36	1	-	-	84
M.Tech.	8	9	1	-	-	18
Ph.D.	8	9	8	4	10	39
<b>Total</b>	<b>63</b>	<b>54</b>	<b>10</b>	<b>4</b>	<b>10</b>	<b>141</b>

#### Endowment Prize Instituted:

1.	Ms. Pavani Aedutla Bala Lakshmi	MA08C016	Mira Paul Memorial Prize for M.Sc. Students
2.	Mr. Durga Prasad Challa	MA08M003	Prof. Helmut Neunzert Endowment Prize for M.Tech. Students

**Names of Students/Scholars attended Conferences/Seminars and Symposia abroad/India:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/ Symposia	Venue and Date
<b>International Conference/Symposium:</b>				
1.	Dr. Saroj Kumar Dash	MA09PD03	International Conference on Computational Management Science	Vienna, Austria July 28-30, 2010
2.	Dr. Swadesh Kumar Sahoo		ICM 2010	Hyderabad Aug.19-27, 2010
3.	Mr. Debashisha Mishra	MA07D003	ICM 2010	Hyderabad
4.	Mr. Ramakrishna Nanduri	MA06D003	ICM 2010	Aug.19-27, 2010
5.	Mr. I. Jeyaraman	MA06D005	ICM 2010	Hyderabad
6.	Mr. Sankararaju Kosuru	MA07D005	ICM 2010	Aug.19-27, 2010
7.	Mr. A. Sairam Kaliraj	MA09D011	ICM 2010	Hyderabad
8.	Dr. Vasudevarao Allu	MA10PD01	ICM 2010	Aug.19-27, 2010
9.	Mr. Sushobhan Mazumdar	MA10D010	Conf. on Complex Geometry, Group action and Moduli Spaces, Univ. of Hyderabad	Aug. 12-17, 2010
10.	Mr. Chirala Satyanarayana	MA08D013	International Congress of Mathematicians, HICC, Hyderabad	Aug.17-19, 2010
11.	Mr. Debasisha Mishra	MA07D003	ICM Satellite Conference on Functional Analysis and Operator Theory	ISI Bangalore Aug. 9-13, 2010
12.	Mr. Rajesh Kannan	MA08D007	ICM Satellite Conference on Functional Analysis and Operator Theory	ISI Bangalore Aug. 9-13, 2010
13.	Mr. K.P. Deepesh	MA06D001	ICM Satellite Conference on Functional Analysis and Operator Theory	ISI Bangalore Aug. 12-17, 2010
14.	Mr. G. Krishnakumar	MA07D005	ICM Satellite Conference on Functional Analysis and Operator Theory	ISI Bangalore Aug. 17-19, 2010
15.	Ms. Safina Devi	MA09D001	International Symposium on Parametereyed and Exact Computation FSTTCS 2010	IMSC, Chennai Dec. 13-17, 2010
16.	Mr. Ramakrishna Nanduri	MA06D002	International Conference on Commutative Algebra & Algebraic Geometry (CAAG-2010)	I.I.Sc. Bangalore Dec. 3-12, 2010
17.	Ms. Safina Devi	MA09D001	Workshop on Algorithms and Computation 2011	IIT Delhi Feb. 18-20, 2011
18.	Mr. Chirala Satyanarayana	MA08D013	Attended Meshfree – 2011 Conference	IISc Bangalore Jan. 10 – 11, 2011
19.	Mr. Suresh Badarla	MA09M009	Attended an International Conference on Mathematical Modelling and Applications to Industrial problems	NIT, Calicut, March 28-31, 2011
<b>Workshop:</b>				
1.	Mr. G. Sankararaju Kosuru	MA07D004	“Variational Inequalities and related problems”	HANOI-Vietnam May 10-21, 2010
2.	Mr. Ramakrishna Nanduri	MA06D002	“Local rings and Local Study of Algebraic Varieties”	Trieste, Italy May 31 – June 11, 2010
<b>Instructional School</b>				
1.	Ms. Saritha Viswanadhan	MA08D001	Advanced Instructional School in Schemes and Cohomology Kerala School of Mathematics	Calicut, Kerala June 28 – July 17, 2010
2.	Mr. R. Balakrishnan	MA10D012	Advanced Instructional School in Computational Commutative Algebra	IISER, Pune Dec. 11 – Jan. 3, 2011
<b>Summer School:</b>				
1.	Mr. G. Krishna Kumar	MA07D005	Summer School on Functional	IMSC, Chennai

2.	Mr. Rajesh Kannan	MA08D007	Analysis	June 28 –July 17, 2010
3.	Mr. Antony Selvan	MA09D002		
<b>Short Course:</b>				
1.	Mr. Susobhan Mazumdar	MA10D010	Algebra and Algebraic Geometry	IISER, Pune Dec.4- Jan.6, 2011
<b>Research Work:</b>				
1.	Mr. M. Panchatcharam	MA08D002	Research work under the supervision of Prof. Axel Klar, FB Technomathematik, TU Kaiserslautern, Germany	June 1, 2010 – Sept. 30, 2011

#### 4.12.3 Faculty and their Activities:

##### Faculty:

Name	Qualifications	Major area of specialization
<b>Professors:</b>		
P.V. Subrahmanyam[Head]	Ph.D. (IIT Madras)	Non-linear Analysis- Fixed point Theory & Functional Equation, Fuzzy sets, Summability Theory
S.A. Choudum,	Ph.D. (IIT Madras)	Discrete Mathematics, Combinatorics, Graph Theory
S. Kalpakam,	Ph.D. (IIT Madras)	Applied Probability and Stochastic Processes, Operations Research
S. H. Kulkarni,	Ph.D. (IIT Bombay)	Functional Analysis and Numerical Analysis
P. R. Parthasarathy,	Ph.D. (Annamalai)	Applied Probability and Stochastic Models, Mathematical Ecology, Operations Research
M. Thamban Nair,	Ph.D. (IIT Bombay)	Applicable Functional Analysis -Spectral Approximation, Operator Equations, Inverse and Ill-posed Equations
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
Arindama Singh,	Ph.D. (IIT Kanpur)	Logic, Numerical Analysis
S. G. Kamath,	Ph.D. (IIT Delhi)	Mathematical Physics
S. Ponnusamy,	Ph.D. (IIT Kanpur)	Complex Analysis, Function Spaces, Special functions and Conformal Geometry
R. Rama,	Ph.D. ( Anna University)	Formal Language & Automata Theory / Molecular computing
Satyajit Roy,	Ph.D. (IISc. Bangalore)	Convective Heat and Mass Transfer, Computational Fluid Dynamics
S. Sundar,	Ph.D. ( IIT Madras)	Computational Fluid Dynamics, Numerical Analysis for Partial Differential Equations, Mathematical Modeling
V. Vetrivel,	Ph.D. (IIT Madras)	Non-Smooth Optimization, Fixed Point Theory, Complementarity problems
Y.V.S.S. Sanyasiraju,	Ph.D. (IIT Madras)	Computational Fluid Dynamics
<b>Associate Professors:</b>		
K. Swaminathan,	Ph.D. (Agra University,	Fluid Dynamics, Ship Hydrodynamics, Mathematical Problems related to Naval Architecture and Ocean Engineering
R. Radha,	Ph.D.(IMSC.Chennai)	Harmonic Analysis, Wavelets, Time-Frequency Analysis
K.C. Sivakumar,	Ph.D. (IIT Madras)	Functional Analysis and Mathematical Programming
Ch. Srinivasa Rao,	Ph.D.(IISc.Bangalore)	Non-linear Differential Equations

**Assistant Professors:**

A.K. B. Chand, Ph.D. (IIT Kanpur)	Fractals, Approximation Theory and Wave Lets
A.V. Jayanthan, Ph.D.(IIT Bombay)	Commutative Algebra and Algebraic Combinatorics
W.B. Vasantha Ph.D.(RIASM,Chennai)	Group Theory, Application of Algebra, Fuzzy Algebra and Linear Algebra
Sounaka Mishra I.S.I. Kolkata	Discrete Mathematics, Approximation Algorithm , Combinatorial Optimization
V. Uma, Ph. D. (IMSC Chennai)	Topology and Geometry of Toric Varieties and Related Spaces
T.E. Venkata Balaji, Ph. D (CMI, Chennai)	Algebraic Geometry and Commutative Algebra
S R Manam, Ph.D. (IISc. Bangalore)	Applied Mathematics
A.J. Shaiju, Ph.D. (IISc. Bangalore)	Game Theory, Systems and Control Theory
Kalpana Mahalingam Ph.D. (Univ. of South Florida, Tampa)	Theory of codes, DNA Computing, Combinatorics of words
Arijit Dey	Algebraic Geometry
Shruti Dubey, Ph.D. (IIT Kanpur)	Nonlinear Analysis of Functional differential equations, Mathematical Study of Ferromagnetic systems
R Balaji, Ph.D. (IIT Madras)	Linear Algebra and Optimization

**Visiting Associate Professor:**

Dr. N. Sivakumar, Ph.D. (Univ, of Edmonton)	Approximation Theory
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**PDF(IITM):**

Dr. Ritesh Kumar Dubey, Ph.D. (I.I.T. Kanpur)	Numerical Analysis, PDE and Modeling . Joined on 24.12.2010
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**Short-term Courses/Workshops/Seminars/Symposia/Conferences organised by faculty members:**

Sl. No.	Co-ordinator(s)	Title	Period
<b>Conference:</b>			
1.	Prof.V. Vetrivel	National meet for research scholars in Mathematical Sciences with financial aid from DST	October 11-15, 2010
2.	Prof.S. Ponnusamy	ICM-2010 – Satellite Conference: International Workshop on Harmonic and Quasi-conformal Mappings (HQM 2010)	IIT Madras Aug. 9-17, 2010
3.	Prof.S. Sundar	International workshop on Computational PDE: Modeling and Simulation	IIT Madras Jan. 3-12, 2011

**Short-term Courses/Workshops/Seminars/Symposia/Conferences/Training attended by the faculty in Abroad:**

Sl. No.	Name of Faculty	Name of the Conference/Workshop	Institution	Period
1.	Prof.S. Ponnusamy	Chinese National Conference on Complex analysis	Hozhou, China	June 12 – 16, 2010
2.	Prof. M. Thamban Nair	Workshop on Impact of smoothness on regularization	RICAM. Linz, Austria	June 29 – July 2, 2010
3.	Prof. M. Thamban Nair	International Workshop on Computational Inverse Problems and Application	Institute of Geology and Geophysics (IGG), Chinese Academy of Sciences (CAS), Beijing, China	July 11 – 16, 2010
4.	Prof. S.G. Kamath	11 <sup>th</sup> International Symposium	Paris, France and also visit CERN, Geneva	July 6 – 9, 2010 July 10-23, 2010
5.	Prof. S. Sundar	International Workshop on Kinetic Theory and Multiphase Phenomena at Mopani Restcamp	University of Witwatersrand Kruger National Park, South Africa	Aug. 27 – 30, 2010

6.	Prof. S. Sundar	DAAD Network International Workshop o Industrial Mathematics	ITB Bandung, Indonesia	July 28-31, 2010
7.	Prof. R. Usha	Thin film flow: An overview of dynamic and stability	University of Lyon, France	July 9, 2010

**Lectures delivered by the faculty at Short-term Courses/Workshops/Seminars/Symposia/Conferences/Training attended by the faculty in Academic Institutions and Public Sector Undertakings:**

Sl. No.	Name of Faculty	Title of the talk	Name of the workshop	Institution	Period
<b>International Conference:</b>					
1.	Prof. P.V. Subrahmanyam	Plenary lecture	Solution of nonlinear equations	FIM Patna	Dec. 2010
2.	Dr. S.H. Kulkarni	Chaired a session	Satellite Conference on Functional Analysis on Operator Theory	ISI, Bangalore	Aug. 8-11, 2010
3.	Dr. M. Thamban Nair	Quadrature based regularization for ill-posed integral equations	ICM-Satellite Conf. on Numerical Functional Analysis	ISI, Bangalore	July 8-11, 2010
4.	Dr. M.Thamban Nair	On Stability Estimates for Backward Heat condition problems	ICM-Satellite Conf. on PDE & Related topics	TIFR, Bangalore	Aug.13-17, 2010
5.	Prof. S. Sundar		Recent Advances in Fluid Mechanics	Osmania University, Hyderabad	Dec. 21-24, 2010
6.	Prof. S. Sundar		ICM Satellite Conference on Mathematical Applications in Science and Technology	ISIAM, New Delhi	Aug.15-17, 2010
7.	Prof. R. Rama		Mathematical Modelling and Applications Industrial problems	NIT, Calicut	March 28 – 31, 2011
8.	Prof. Y.V.S.S.S. Raju		Mathematical Modelling and Applications to Industrial problems	NIT, Calicut	March 28, 2011
9.	Dr. A.K.B. Chand	On Coalescence Fractal Interpolation surfaces	Mathematical Modelling and Applications to Industrial problems	NIT, Calicut	March 28-31, 2011
10.	Dr. A.K.B. Chand	Chaired a session	Mathematical Modelling and Applications to Industrial problems	NIT, Calicut	March 28-31, 2011
11.	Dr. T.E. Venkata Balaji	Classifying Quaternion Algebras	International Conference on Algebra and Algebraic Geometry in honour of Prof. Abhyankar's 80 <sup>th</sup> birthday	Pune University	Dec. 2010
12.	Dr. T.E. Venkata Balaji		International Conference CAAG 2010	IISc. Bangalore	Dec. 2010
13.	Dr. T.E. Venkata Balaji		International Conference ICM 2010 Satellite Conference in Algebraic Geometry	Univ. of Hyderabad	Aug. 2010

**Lectures delivered by the faculty at Short-term Courses/Workshops/Seminars/Symposia/Conferences/Training attended by the faculty in Academic Institutions and Public Sector Undertakings:**

Sl. No.	Name of Faculty	Title of the talk	Name of the workshop	Institution	Period
<b>National Conference:</b>					
1.	Dr. S.H. Kulkarni		25 <sup>th</sup> Annual Conference of the Ramanujan Mathematical Society	Dept. of Mathematics NIT, Jalandhar	May 3 - 6, 2010
2.	Dr. M. Thamban Nair	Role of regularization in ill-posed problems	Annual Conference of Ramanujan Mathematical Society	NIT Jalandhar	May 3-5, 2010
3.	Dr. P. Veeramani	On existence of Best Proximity pair theorems and their Applications	Nonlinear Analysis and Applications	Hemwati Nadan Bahuguna Garhwal Univ. Campus Pauri, (Uttarakhand)	June 5-7, 2010
4.	Dr. P. Veeramani		Mathematics Program	Board of Studies, Bharathidasan Univ. Tiruchirapalli	July 23, 2010
5.	Dr. P. Veeramani		Mathematical Analysis and its applications	Tripura University, Tripura	Jan. 5-6, 2011
6.	Dr. A.V. Jayanthan	Chaired a session	ICM 2010	Univ. of Hyderabad	Aug. 19-27, 2010
7.	Dr. T.E. Venkata Balaji		ICM 2010	Univ. of Hyderabad	Aug. 13-16, 2010
8.	Dr. V. Uma		ICM 2010	Univ. of Hyderabad	Aug. 13-16, 2010.
9.	Dr. A.K.B. Chand		ICM 2010	Univ. of Hyderabad	Aug. 19-24, 2010.
10.	Dr. Sounaka Mishra	Primal-Dual Algorithms		Sambalpur University, Orissa	Dec. 21 – 23, 2010
11.	Dr. Y.V.S.S.S. Raju		Meshfree-2011	I.I.Sc. Bangalore	Jan. 10-11, 2011
<b>STTP:</b>					
1.	Dr. Y.V.S.S.S. Raju		Mathematical Modelling and Numerical Techniques	NIT Warangal	Jan. 17, 2011
<b>Short term Programme:</b>					
1.	Dr. Satyajit Roy		AICTE Short Term Course on Recent Advances in CFD	IIT Kharagpur	Nov. 22-23
<b>Workshop:</b>					
1.	Prof. M. Thamban Nair	How Many?	DST sponsored INSPIRE program	MG University Kottayam	April 8, 2010
2.	Prof. M. Thamban Nair	Three Lectures Lebesgue Integration		Ramanujan Institute for Advanced Studies in Mathematics Univ. of Madras	June 14-15, 2010
3.	Dr. R. Radha	Time-Frequency Analysis	Special Semester on Analysis	CMI, Chennai	April 2010
4.	Dr. R. Radha	Distribution Theory	Workshop on Functional Analysis	IMSC, Chennai	July 2010



5.	Dr. R. Radha	Local reconstruction from a non-uniform sampled data	National workshop	Rajalakshmi Engg. College	August 2010
6.	Prof.S. Sundar	In honour of Prof. K.R. Rajagopal	Recent advances in Mechanics	IIT Madras	Nov. 25-27, 2010
7.	Prof. Sounaka Mishra		Algorithms and Computation 2011	IIT Delhi	Feb.24-25, 2011
8.	Prof. R. Usha		Recent Advances in Mechanics	IIT Madras	Nov.25-27, 2010
9.	Prof. R. Usha	Advanced Instability Methods Meeting	Winter workshop on Advanced Instability Methods (AIM) Network meeting	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	Jan. 17-19, 2011
10.	Dr. T.E. Venkata Balaji	Lectures on Scheme Theory	Workshop in Cohomology and Schemes	Kerala School of Mathematics	July 2010
<b>Seminar:</b>					
1.	Dr. Satyajit Roy		Mathematic & Applications	Burdwan University West Bengal	Feb.24-25, 2011
<b>International School:</b>					
1.	Dr. Sounaka Mishra		Approximability	I.I.Sc. Bangalore Conducted by Microsoft Research India	Jan. 5- 9, 2011

**Special Lectures delivered by the faculty in other Institutions:**

Sl.No.	Name of Faculty	Title of the talk	Institution	Period
1.	Prof. P. R. Parthasarathy	Birth and death processes	S.A. Engg. College, Chennai	Oct.14, 2010
2.	Prof. P. R. Parthasarathy	Bulk queues, in Faculty development training programme on Probability and Queueing theory	Anna University, Chennai	Dec. 7, 2010
3.	Prof. P. R. Parthasarathy	Applied birth and Death models, Special lecture	Vel tech University	Dec. 22, 2010
4.	Prof. P. R. Parthasarathy	Ramanujan and birth and death processes	Valedictory address on one-day symposium on Mathematics and Applications IIT Madras	Dec. 22, 2010
5.	Prof. P. R. Parthasarathy	Industrial mathematics in Mathematical Research Challenges in Engineering Application	PSG College of Technology, Coimbatore	Dec. 27, 2010
6.	Prof. P. R. Parthasarathy	Applied birth-death models	Anna University, Villupuram	March 3, 2011
7.	Dr. R. Radha	Melin transform and Ramanujan Fourier series	D.B. Jain College	Feb. 2011
8.	Dr. R. Radha	An introduction to wavelets and applications	Anna University Chennai	March 2011

9.	Prof. P. Veeramani	Convergence of sequences, uniform convergence of functional series	Ramanujan Institute for Advanced Studies in Mathematics Univ. of Madras	June 1, 2010
10.	Prof. V. Vetrivel	Introduction to Nonsmooth analysis	Madras Christian College	June 26, 2010
11.	Dr. T.E. Venkata Balaji	Introduction to Moduli	IISER, Pune	June 2010

#### Visits Abroad by Faculty:

Sl.No.	Name of Faculty	Country Visited	Period of Visit	Purpose of Visit
1.	Prof. S. Kalpakam	U.S.A.	May 16, – July 22, 2010	Private visit
2.	Prof. M. Thamban Nair	Error Estimates for Tikhonov regularization using a general stabilizing operator, RICAM, Linz, Austria	June 29 – July 2, 2010	International Conference/workshop on Impact of Smoothness on Regularization
3.	Prof. M. Thamban Nair	Nystrom Method as Regularization for Integral Equations of the First Kind, Institute of Geology and Geophysics, The Chinese Academy of Sciences, Beijing, China	July 12-July 15, 2010	The Second International Workshop on Computational Inverse Problems and Applications
4.	Prof. R. Usha	Laboratoire de Meccanique des Fluides et d' Acoustique of "Ecole Centrale de Lyon" France	July 2 – July 31, 2010	Research Collaboration
5.	Prof. S. Sundar	AG Technomathematik, T U Kaiserslautern, Germany	May & June , 2010	Visiting Professor & DAAD Network Industrial Mathematics week
6.	Prof. S. Ponnusamy	School of Mathematical Sciences, Universiti Sains Malaysia Pulau Pinang, Malaysia	10.1.2011 – 31.1.2012	Visiting Faculty
7.	Prof. R. Rama	University of Sheffield United Kingdom	May 18 – June 2, 2010	Research Exchange Scheme
8.	Dr. A.J. Shaiju	University of New South Wales, ADFA, Canberra	July 11-30, 2010	To discussion with Prof. Ian Petersen
9.	Dr. V. Uma	International Centre for Theoretical Physics (ICTP), Trieste, Italy Summer school and Conference at Institute Fourier, Grenoble, France	May 21 – July 2, 2010 June 27 – July 7, 2010	Junior Associateship Scheme Professional visit
10.	Dr. Kalpana Mahalingam	Universiti of Sans, Malaysia U.S.A. U.S.A.	May 15 – June 13, 2010 June 16- August 15, 2010 Jan.17 – May 10, 2011	Professional visit Private visit Private visit

#### Fellowships of Academies and Professional Societies:

Sl.No.	Name of Faculty	Year	Details
1.	Prof. P.V. Subrahmanyam	2011- 12	Elected President Forum for Interdisciplinary Mathematics
2.	Prof. P.V. Subrahmanyam	2011	Invited by the Infosys Science Foundation to nominate candidates for Infosys Prize 2011

**Journal Editorial Boards:**

Sl.No.	Name of faculty	Position (Editor/Member)	Journal
1.	Prof. P.V. Subrahmanyam	Editor	Journal of Analysis
2.	Prof. P.V. Subrahmanyam	Editor	Journal of Differential Equations and Dynamical Systems

**4.12.4 Research and Consultancy:****Sponsored Research Projects:**

Sl. No.	Title	Period	Funding Agency	Amount (Rs.in lacs)	Co-ordinators
<b>Sponsored Research Project:</b>					
1.	Dynamic analysis using interval and fuzzy finite element methods	2 years	Board of Research in Nuclear Sciences	Rs.6.87	Dr. W.B. Vasantha
2.	Modeling of microwave passive components for high power applications – Phase II	23.8.2009 – 22.4.2012 (on going)	National Fusion Program, Institute for Plasma Research, Ahmedabad		Dr. S. Sundar & Dr. V. Subramanian
3.	Conjugate heat transfer experiments and analysis for predicting the external and internal heat transfer coefficient of gas turbine vanes and blades	2 years from March 2011	Gas Turbine Research Establishment	Rs. 45.41	Dr. Y.V.S.S.S. Raju
4.	Analysis and construction of solutions of some generalized Burgers equations	3 years	DST	Rs. 3.78	Dr. Ch. Srinivasa Rao
5.	Study of Bargmann transform and sampling theory	3 years	NBHM, DAE	Rs. 7.0	Dr. R. Radha & Dr. S.H. Kulkarni

**Exchange programme with other Universities:**

Sl. No.	Programme Name	Name of University	Student Name	Guide Name
1.	Research work under the supervision of Prof. Axel Klar	AG Technomathematik T U Kaiserslautern Germany	DAAD Sandwich Fellow Mr. M. Panchatcharam MA08D002 June 1, 2010 – September 30, 2011	Prof. S. Sundar
2	DAAD Network Exchange Programme	TU-Kaiserslautern, Germany Other participating Universities are University of Witwatersrand, South Africa and ITB Bandung, Indonesia	Advanced Numerical Methods, Started on May 2009-2013 for 4 years	Prof. S. Sundar

**Faculty member participation with other institution under MoU:**

Dr. S. Sundar : Participating other universities are University of Witwatersrand South Africa and ITB Bandung, Indonesia.

**Research Publications:**

Total No. of papers published in Refereed National Journals : 03  
 Total No. of papers published in Refereed International Journals : 46  
 Total No. of papers published in Proceedings of National Conferences : 02  
 Total No. of papers published in Proceedings of International Conferences : 08

**In Refereed National Journals:**

Sl. No.	Name(s) of the author(s)	Title of the paper	Name of the Journal
1.	S. Mishra, V. Raman, S. Saurabh, S. Sikdar, C.R. Subramanian	The complexity of Konig Subgraph Problems and Above-Guarantee Vertex Cover	Algorithmica, DoI.10, 1007/S00453-010-9412-2.
2.	Manzi Huang, S. Ponnusamy, and X. Wang	John disks, the Apollonian metric, and min-max properties	Proc. Indian Acad. Sci. (Math. Sci.), 120 (2010), 83–96.
3.	S. Sundar and Lemi Guta	Modeling and numerical simulation of free surface flows	The Mathematics Student, Vol.78, (2010) pp.127-144.

**In Refereed International Journals:**

Sl.No	Name(s) of the author(s)	Title of the paper	Name of the Journal
1.	S.A. Choudum, S. Lavanya and V. Sunitha	Disjoint paths in hypercubes with prescribed origins and lengths	International Journal of Computer Mathematics, Vo. 87, (2010) pp. 1692-1708.
2.	S.A. Choudum and T. Karthick	First-Fit coloring of $\{P_5, K_4 - e\}$ Free graphs,	International Journal of Discrete Applied Mathematics, Vol.158 (2010) pp. 620-626.
3.	S.A. Choudum and T. Karthick	Maximal cliques in $\{P_2UP_3, C_4\}$ Free graphs	International Journal of Discrete Mathematics, Vol. 310(2010) pp. 339-343.
4.	S.H. Kulkarni and G. Ramesh	The Carrier Graph Topology, Banach	International Journal of Mathematical Analysis Vol.5, No.1, (2011), pp.56-69.
5.	P.R. Parthasarathy and K Vasudevan	A single server queue with Gated Processor-sharing system	Computer Math.87(2010), no.6, 1217-1227
6.	P.R. Parthasarathy and K Vasudevan	A single server queue with two types of customers and a gate mechanism	Amer. Jour. Math. Mgmt. Sci., 31 (2011), 1-15
7.	P.R. Parthasarathy and R Sudesh	A state-dependent queue alternating between arrivals and services	Oper. Res. 7 (2010), 16-30.
8.	S. Jitendriya and R. Radha	$L^p$ multipliers for the Hilbert space valued functions on the Heisenberg group	Monatshefte fur. Math. 160(2010), 95-107.
9.	S. Jitendriya, R. Radha and D. Venku Naidu	Fourier multipliers for $L^p$ spaces on the Heisenberg group	Anal. Math., 36, (2010), 51-70.
10.	R. Radha and D. Venku Naidu	Frames in generalized Fock Spaces	J. Math. Anal. Appl. 378, No.1, (2011), 140-150.
11.	R. Radha and D. Venku Naidu	Generalized Bargmann transform and group representations	Bull.Des.Sci.Math.,135, NO.2, (2011), 206-214.
12.	M. Thamban Nair and Pallavi Mahale	Iterated Lavrentive regularization for nonlinear ill-posed problems	ANZIAM, Vol. 51(2009) Pages 191-217.
13.	Manzi Huang, S. Ponnusamy, H. Wang and X. Wang	A cosine inequality in the hyperbolic geometry	International Journal of Appl. Math. Lett. 23 (8)(2010), 887–891
14.	S. Ponnusamy, J. Qiao, and X. Wang,	Schwarzian derivative, integral means, and the affine and linear invariant families of biharmonic mappings	International Journal of Appl. Math. Comput. 216 (2010), 3468–3479
15.	A. Baricz and S. Ponnusamy	Starlikeness and convexity of generalized Bessel functions	International Journal of Integral Transforms and Special Functions 21 (9)(2010), 641–653.
16.	B. Bhowmik, S. Ponnusamy and K.-J. Wirths	On some problems of James Miller	International Journal of Cubo A Mathematical Journal 12 (1)(2010), 15–21

17.	B. Bhowmik, S. Ponnusamy and K.-J. Wirths,	Characterization and the pre-Schwarzian norm estimate for concave univalent functions	International Journal of Monatshefte für Mathematik 161 (2010), 59–75.
18.	Sh. Chen, S.Ponnusamy and X. Wang	Compositions of harmonic mappings and biharmonic mappings	International Journal of Bull. Belg. Math. Soc. (Simon Stevin) 17 (2010), 693–704.
19.	Manzi Huang, S. Ponnusamy, and X. Wang	The quasiconvexity of quasigeodesics in real normed vector spaces	Results Math. 57 (2010), 239–256.
20.	P. Hästö, S. Ponnusamy and M. Vuorinen	Starlikeness of the Gaussian Hypergeometric Functions,	International Journal of Complex Var. Elliptic Equ. 55, Issue 1-3 (2010), 173–184.
21.	P. Hästö, S. Ponnusamy and S.K. Sahoo,	Equivalence of the Apollonian and its inner metric,	International J. of Math. & Math. Sciences, Vol. 2010 (2010), Article ID 191858, 15 pages.
22.	Manzi Huang, S. Ponnusamy, X.Wang, and S.K. Sahoo	The Apollonian inner metric and uniform domains	International Journal of Mathematische Nachrichten 283 (9)(2010), 1277-1290.
23.	S. Ponnusamy and A. Rasila,	On zeros and boundary behavior of bounded harmonic functions	International Journal of Analysis (Munich) 30 (2010), 199–207.
24.	S. Ponnusamy and S.K. Sahoo,	Pre-Schwarzian norm estimates of functions for a subclass of strongly starlike functions	International Journal of Mathematica (Cluj) 52 (75), No. 1 (2010),47–53
25.	S. Ponnusamy and A. Vasudevarao	Region of variability for functions with positive real part	International Journal of Ann. Polon. Math., 99(3)(2010), 225–245
26.	Basak, T., Roy, S., Matta, A., Pop, I.	Analysis of heatlines for natural convection within porous trapezoidal enclosures: Effect of uniform and non-uniform heating of bottom wall	International Journal of Heat and Mass Transfer 53 (25-26), pp. 5947-5961, 2010
27.	Basak, T., Roy, S., Ramakrishna, D., Pandey, B.D.,	Analysis of heat recovery and heat transfer within entrapped porous triangular cavities via heatline approach	International Journal of Heat and Mass Transfer 53 (19-20), pp. 3655-3669, 2010
28.	Basak, T., Aravind, G., Roy, S., Balakrishnan, A.R.	Heatline analysis of heat recovery and thermal transport in materials confined within triangular cavities	International Journal of Heat and Mass Transfer 53 (19-20), pp. 3615-3628, 2010
29.	Patil, P.M., Roy, S., Pop, I.	Unsteady mixed convection flow over a vertical stretching sheet in a parallel free stream with variable wall temperature	International Journal of Heat and Mass Transfer 53 (21-22), pp. 4741-4748, 2010
30.	Patil, P.M., Roy, S., Pop, I.	Unsteady mixed convection flow from a moving vertical plate in a parallel free stream: Influence of heat generation or absorption	International Journal of Heat and Mass Transfer 53 (21-22), pp. 4749-4756, 2010
31.	Kaluri, R.S., Basak, T., Roy, S.	Heatline approach for visualization of heat flow and efficient thermal mixing with discrete heat sources	<i>International Journal of Heat and Mass Transfer</i> 53 (15-16), pp. 3241-3261, 2010
32.	Basak, T., Roy, S., Singh, S.K., Pop, I.,	Analysis of mixed convection in a lid-driven porous square cavity with linearly heated side wall(s)	International Journal of Heat and Mass Transfer 53 (9-10), pp. 1819-1840, 2010
33.	Momoniat, E., Ravindran, R., Roy, S.	The influence of slot injection/suction on the spreading of a thin film under gravity and surface tension	International Journal of Acta Mechanica 211 (1-2), pp. 61-71, 2010.

34.	Basak, T., Roy, S., Ramakrishna, D., Pop, I.,	Visualization of heat transport due to natural convection for hot materials confined within two entrapped porous triangular cavities via heatline concept	International Journal of Heat and Mass Transfer 53 (9-10), pp. 2100-2112, 2010.
35.	Patil, P.M., Roy, S., Chamkha, A.J.,	Mixed convection flow over a vertical power-law stretching sheet	International Journal of Numerical Methods for Heat and Fluid Flow 20 (4), pp. 445-458, 2010
36.	Basak, T., Roy, S., Ramakrishna, D., Pop, I.,	Visualization of heat transport during natural convection within porous triangular cavities via heatline approach	International Journal of Numerical Heat Transfer; Part A: Applications 57 (6), pp. 431-452, 2010.
37.	S. Sundar and Sudhakar Matle	A 2D numerical study on aspect ratio of the enclosure and aperture heat losses for the high temperature spherical furnace through FEM	International Journal of Applied Mathematics, ISSN, Vol.24, No.2, (2011) pp.1311-1728.
38.	S. Sundar, A.B. Subrahmanyam, J. Kuhnert, S. Tiwari, Amol Joshi and Anshul Saxena	On Parallelization and Load Balancing aspects of Finite Pointset Methods	International Journal of Computer Mathematics, 59, 1532-1540, (2010)
39.	Dr. Ch. Srinivasa Rao Manoj K. Yadav	Large time behaviour of solutions of the inviscid nonplanar Burgers equation	International Journal Engg. Mathematics 69, 345 – 357, (2011)
40.	I.N.R. Sadiq and R. Usha	Effect of permeability on the instability a non-Newtonian film down a porous inclined plane	J. Non-Newtonian Fluid Mechanics, Vol. 165, 1171-1118, Oct. (2010)
41.	G.M. Sisoiev and R. Usha	Wave Regimes on power-law fluid film flowing down a porous plane	International Journal of Non linear Mechanics, Vol. 45, 236-241, 2010.
42.	I.M.R. Sadiq, R. Usha and S.W. Joo	Instabilities in a liquid film over an inclined heated porous substrate	International Journal of Chemical Engineering Science, Vol. 65, 4443-4459, 2010
43.	Jeyaraman, I and V. Vetrivel	Jordan quadratic SSM-property and its relation to co-positive linear transformations on Euclidean Jordan algebras	Linear Algebra and Applications Vol.433(2010) , 390-400
44.	A.K.B. Chand & M.A. Navascues	Generalized Hermite Fractal Interpolation	Rev. Real Academic de ciencias, Zovagoza, 64 (2009), 107-120.
45.	A.K.B. Chand & M.A. Navascues	On complete Bicubic Fractal Splines	Applied Mathematics, 1 (2010), 87-97.
46.	Shruti Dubey	The method of lines applied to nonlinear nonlocal functional differential equations	International Journal of Mathematical Analysis and Applications, Vol. 376, issue 1(2011), 275-281

#### In Proceedings of National Conferences:

SI.No.	Name(s) of the author(s)	Title of the paper	Name of the Journal
1.	P.R. Parthasarathy, Klar, B and Henze, N	Zipf and Lerch limit of birth and Death processes	Probability Engg. Inform. Sci. 24 (2010), no.1, 129-144.
2.	P.R. Parthasarathy and A Sri Ranga	Generating Birth and Death Processes,	Stochastic Analysis and Applications, 29 (2011),185-196, 2011

#### In Proceedings of International Conferences:

SI.No.	Name(s) of the author(s)	Title of the paper	Name of the Journal
1.	S.G. Kamath	A derivation of the scalar propagator in a planar model in curved space	AIP Conference proceedings, 1246 (2010) 174-177.

2.	P.R. Parthasarathy and K Vasudevan	A single server queue with Gated Processor-sharing system	Computer Math.87(2010), no.6, 1217-1227
3.	P.R. Parthasarathy and K Vasudevan	A single server queue with two types of customers and a gate mechanism	Amer. Jour. Math. Mgmt. Sci., 31 (2011), 1-15
4.	P.R. Parthasarathy and R Sudesh	A state-dependent queue alternating between arrivals and services	Oper. Res. 7 (2010), 16-30.
5.	Shruti Dubey	Numerical solutions for nonlocal Sobolev-type differential equations	Electronic Journal of Differential equations, Conf.19(2010) pp. 65-73.
6.	Mrinal Kumar, S. Mishra, Safina Devi N, Saket Saourabh	Approximation Algorithms for minimum chain vertex deletion	Proceedings of Walcom 2011, LNCS 6552, 21-32.
7.	S. Mishra	On the maximum uniquely restricted matching for Bipontite graphs	LAGOS 2011, Argentina, 2011
8.	R. Usha, S. Millet, H. Ben Hadid, F. Rousset	Stability of a shear-thinning film on a porous substrate	FEDSM 2010, Aug. 1-5, 2010, Montreal, Canada. (in CD-ROM)

#### Distinguished Visitors to the Department:

SI.No	Name of the visitor and Designation	Date	Purpose of visit
1.	Prof. Harald Guenzel F B Mathematik RWTH Aachen Germany	March 29-April 10, 2010	Gave a seminar talk and interacted with faculty members 1. "Differentiable Structures in Constrained Optimization" 2. "Modulus of concavity and Marginal Functions"
2.	Prof. Ajit Iqbal Singh Stat-Math Unit Indian Statistical Institute New Delhi	April 10-13, 2010	Gave a seminar talk and interacted with faculty members "Cake-cutting, vector measures and Liapunov convexity Theorems for Operator algebras"
3.	Prof. Arpad Baricz, Dept. of Economics, Babes-Bolyai University, Romania	April 1 – 29, 2010	Gave a seminar talk and interacted with faculty members "Tulau type inequalities for Bessel and modified Bessel functions"
4.	Prof. Daoud Bshouty Dept. of Mathematics Technion Israel Institute of Haifa Technology 32000, Isreal	July 17-Aug.20, 2010	Research work with Prof.S. Ponnusamy and gave seminar talk.
5.	Prof. Peter Semrl Department of Mathematics Univ. of Ljubljana, Solv enia	Aug. 17, 2010	To interact with faculty members and gave a seminar talk
6.	Prof. M.A. Sofi University of Kashmir Jammu & Kashmir	Aug. 16, 2010	To interact with faculty members and gave a seminar talk
7.	Dr. Gautami Bhowmik Universite de Lille 1, France	Sept. 3, 2010	Some aspects of Additive Combinatorics
8.	Mr. Simon Walker Charlesworth group of publishers	Sept. 23, 2010	Discussion with HOD about issues in scientific publication
9.	Prof. Shiva Shankar Chennai Mathematical Institute Chennai	Oct. 7, 2010	Flatness of topological modules and the problem of controllability
10.	Prof. Nalini Ravishanker Dept. of Statistics, Univ. of Connecticut, Storrs CT USA	Oct. 12, 2010	Spectrum-Based Comparison of Stationary Multiple Time Series
11.	Prof. Marian Gheorghe Dept. of Computer Science University of Sheffield	Oct. 21, 2010	P ayatems – In search of modularity
12.	Prof. Ram Mohapatra University of Central Florida U.S.A.	Dec. 21, 2010	Remarks on Fuzzy Differential Equations

13.	Dr. Christian Lecot LAMA, UMR, 5127 CNRS & University de Savoie Cedex, France	Jan. 6, 2011	Gave a seminar talk "Numerical simulation of the droptime distribution in a spray"
14.	Prof. Kishna B Athreya Dept. of Mathematics and Statistics Iowa State University, U.S.A.	Jan.11, 2011	What is measure theory? What is Probability theory?
15.	Prof. R.C. Mittal Dept. of Mathematics IIT Roorkee	Jan.17, 2011	Generation of Some Fractals
16.	Prof. Michel Brion Institute Fourier Grenoble, France	Jan.20, 2011	Counting points of homogeneous varieties over finite fields
17.	Prof. C.H. Little Institute of Fundamental Sciences Massey University, New Zealand	Jan.25, 2011	A characterization of PM-compact bipartite and near-bipartite graphs
18.	Prof. Helmut Neunzert, Prof. Joerg Kuhnert, Prof. Oleg Illiev, Prof. Dietmar Hitel from Fraunhofer Institute of Industrial Mathematics, Kaiserslautern, Germany	January 2011	Conference/Workshop activities
19.	Prof. Klans Weichel, Prof. Michael Wenk, Prof. Werner Weiss, Prof. Lars Weichel from T U Kaiserslautern, Germany	January 2011	Conference/Workshop activities
20.	Prof. S.M. Deshpande, JNCASR Bangalore	January 2011	Conference/Workshop activities
21.	Prof. Mythily Ramaswamy, TIFR CAM Centre, Bangalore	January 2011	Conference/Workshop activities
22.	Prof. Raghurama Rao, IISC., Bangalore	January 2011	Conference/Workshop activities
23.	Prof. Girija Jayaraman, IIT Delhi	January 2011	Conference/Workshop activities
24.	Prof. R. Anantharaman, Retired Professor SUNY at Westbury & Clark Atlanta University,Atlanta,USA	March 10, 2011	Decomposition of Zonoids
25.	Prof. Bleicher, Professor Emeritus, Univ. of Wisconsin at Madison and former Chairman, Clark Atlanta Univ.	March 17, 2011	Isoperimetric problems

#### 4.12.5 Other Activities:

##### Seminar Talk:

Sl. No.	Name of the Faculty	Title	Date
1.	Dr. B.S. Panda Department of Mathematics I.I.T. Delhi	L (2,1)- Labeling of graphs	May 7, 2010
2.	Prof. K.T. Joseph TIFR, Mumbai	Product of distributions and non-conservative hyperbolic systems	June 8, 2010
3.	Prof. V. Muruganandam	Completely bounded multiplier norms of Spherical functions	June 25, 2010
4.	Dr. Manoj Kummini Dept. Of Mathematics Purdue University, U.S.A.	Hilbert Functions	July 21, 2010
5.	Dr. S. Sivananthan Johann Radon Institute for Computational and Applied Mathematics (RICAM), Austria	Multi-Parameter Regularization in Learning Theory-Extrapolation	Aug. 13, 2010



6.	Prof. M.A. Sofi Department of Mathematics Univ. Of Kashmir, Kashmir	Linear Maps Preserving invertibility	Aug. 16, 2010
7.	Prof. Peter Semrl Dept. Of Mathematics Univ. Of Ljubljana, Solvenia		Aug. 17, 2010
8.	Dr. D. Yogeswaran Ecole Normale Superieure INRIA, PARIS	Percolation and directionally convex ordering of point processes	Aug. 27, 2010
9.	Dr. Chamakuri Nagaiah Institute of Mathematics and Scientific Computing, University of Graz, Austria	Optimal control of reaction-diffusion Equations in Cardiac electro-physiology	Sept. 6, 2010
10.	Dr. Ramanujam IMSC, Chennai	Let's Play forever, see who wins	Sept. 17, 2010
11.	Prof. T. Parthasarathy CMI and ISI, Chennai (Jointly with IITH)	Minimax Theorem and Numerical Geometry	Sept. 30, 2010
12.	Prof. T. Amaranath Dept. of Mathematics and Statistics University of Hyderabad (organized jointly with IITH)	Complete general solutions of Stokes Equations and their applications	Nov. 4, 2010
13.	Dr. Abhijit Kallapur Research Associate School of Engg. And Information Technology, Univ. of New South Wales @ Australian Defence Force Academy	Robust Estimation of discrete-time uncertain nonlinear systems	Jan. 14, 2011
14.	Prof. Anatoly Yagola Dept. of Mathematics Physical Faculty, Moscow State University, Moscow (Visitor for Prof. M.T. Nair)	Error estimation for ill-posed problems with a priori information	Feb.1, 2011
15.	Dr. Severine Millet University Lyon 1 Laboratory of Fluid Mechanics and Acoustics, Lyon, France Visiting Assisting Professor from 21.1.11 to 9.2.11 (Visitor for Prof. R. Usha)	A short story of shear-thinning films on an inclined sub-state	Feb.3, 2011
16.	Prof. J. Watada Graduate School of Information Production & Systems Waseda University, Japan (Visitor for Prof. P.V. Subrahmanyam)	Modeling based on fuzzy random variables	Feb. 17, 2011
17.	Prof. V. Shankar Dept. of Chemical Engg. IIT Kanpur (Visitor for Prof. R. Usha)	Stability of fluid flow past deformable solid surfaces	Feb. 18, 2011
18.	Prof. C.V. Krishnamurthy Dept. of Physics IIT Madras	Image Reconstruction using Electromagnetic waves	Feb.24, 2011
19.	Prof. K. Murali Dept. of Ocean Engg. IIT Madras	Application of Level set to Air Water Industry	March 3, 2011
20.	Dr. R. Balaji Dept. of Mathematics IIT Madras	Z-Transformations on positive semi-definite cone	March 17, 2011
21.	Dr. Jayalal Sarma M.N.	Matrix Rigidity and Complexity of Linear Transformations	March 24, 2011

22.	Dr. Kunal Mukherjee IMSC, Chennai	MASA(s) in finite von Neumann Algebras	March 31, 2011
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**Ph.D Viva – Voce Examination:**

Sl.No	Name of the Scholar	Title of the thesis & Viva date
1.	Mr. A. Chandrasekharan	Standard and Semi-definite Linear Complementarity Problems April 9, 2010
2.	Mr. T. Karthick	Vertex Coloring and Cliques of Certain P6 – Free Graphs and Claw – Free Graphs, May 7, 2010
3.	Mr. P. Ravishankar	Regularized Continuous Newton Type Methods for Solving Ill-Posed Operator Equations, June 7, 2010
4.	Mr. Manoj Kumar Yadav	Analytical and numerical study of some generalized Burgers equations and related equations, June 9, 2010
5.	Mr. Jajati Kesari Sahoo	Regularization Techniques in Learning Theory, June 14, 2010
6.	Mr. Venku Naidu Dogga	Bargmann Transform and Certain Holomorphic Function Spaces June 25, 2010
7.	Mr. Lemi Guta Enyedene	Wave-Porous Structure Interaction: Modeling, Analysis and Simulation June 26, 2010
8.	Mr. Vasudevarao Allu	A Study of Regions of Variability type Problems for Classes of Univalent Functions, July 9, 2010
9.	Mr. V. B. Surya Prasath	Studies on Codes and Graphs with Rosenbloom-Tsfasman Metric March 21, 2010
10.	Mr. E. Satyanarayana	Solutions of Some Generalized Burgers Equations, Jan. 17, 2011

**Ph.D. Seminar Talks:**

Sl.No	Name of the scholar	Title	Date
1.	Mr. G. Satyanarayana MA06D003	H-Matrices and its Impact on a Grid Free Method	Sept.22,2010
2.	Mr. G. Sankararaju Kosuru MA 07D004	Existence of best proximity and fixed point theorems and their applications to differential equations.	Oct. 5, 2010
3.	Mr. I.Jeyaraman MA06D005	Linear Complementarity Problems in Euclidean Jordan Algebras	Nov. 2, 2010
4.	Mr. Nachiketa Mishra MA 05D009	Development and Analysis of Exponential Compact Higher Order Schemes	Nov.11, 2010
5.	Mr. Ramakrishna Nanduri MA06D002	Castelnuovo – Mumford Regularity and Gorensteinness of fiber cone	Jan. 7, 2011.
6.	Mr. I Jeyaraman MA06D005	Linear Complementarity problems over symmetric cones	Feb.15, 2011
7.	Mr. M. Sudhakar MA06D004	A Numerical Study on Surface Temperature Uniformity of the Spherical cavity with uniform block heating	March 16, 2011
8.	Mr. Debhashisha Mishra MA07D003	Splittings of matrices and nonnegative generalized inverses	March 30, 2011

**Other Activities of the Department /Centre:**

Sl.No	Name of the Faculty	Activity
1.	Drs. S.A. Choudum, V. Vetrivel and Ch. Srinivasa Rao	To interact with Members of the Prof. Kakodkar Committee
2.	Dr. S.A. Choudum	Resource person for a conference on Algorithms, Computation, Graph Theory and Combinatorics at Karnataka University, Dharwar
3.	Dr. S.A. Choudum	Conducted Ph.D. Viva-voce exam at IIT Delhi on May 17-18, 2010.
4.	Dr. S.A. Choudum	Attended a Selection Committee for faculty recruitment at IIT Hderabad, April 29, 2010
5.	Dr. S.H. Kulkarni	Seminar for faculty recruitment was held on May 6, 2010 and while interview was held on May 7, 2010.
6.	Dr. S.H. Kulkarni	Ph.D. Selection Committee meeting was held on 19 <sup>th</sup> & 20 <sup>th</sup> May 2010
7.	Dr. S.H. Kulkarni	Conducted Ph.D. Viva-voce examination at NIT, Calicut on June 29, 2010.

8.	Dr. S.H. Kulkarni	Resource person Advanced International School (AIS) on Numerical Linear Algebra at IIT Guwahati
9.	Dr.PV Subrahmanyam	Visited IIT Hyderabad for a meeting with President of Ansei University on April 2010.
10.	Dr.PV Subrahmanyam	Attended a Selection Committee for faculty recruitment at IIT Hyderabad, April 29, 2010.
11.	Dr.PV Subrahmanyam	Plenary address in the International Conference of FIM at Patna
12.	Dr.PV Subrahmanyam	Attended an Advisory Committee meeting at Pondicherry University as UGC nominee.
13.	Dr. M. Thamban Nair	Expert member for Selection Committee at IIT Mandi from May 24 – 27, 2010.
14.	Dr. S. Ponnusamy	Discussed with Dr. Murugesan for some research problems in difference equations at NIT Trichy.
15.	Dr. S. Ponnusamy.	Attended a Selection Committee meeting at Univ. of Jammu on May 7 – 10, 2010
16.	Dr. R. Rama	Resource person for a workshop on Introduction to Formal Language, Automata Theory and Computation March 23, 2011
17.	Dr. Satyajit Roy	Conducted a Ph.D. viva-voce examination at Madurai Kamaraj University, Madurai, July 28, 2010.
18.	Dr. S. Sundar	Attended a Selection Committee for faculty recruitment at IIT Hyderabad, April 29, 2010.
19.	Dr. S. Sundar	Invited talk on International Conference on Recent Advances in Fluid Mechanics at Osmania Univ. Hyderabad. Dec. 24, 2011
20.	Dr. V. Vetrivel	Attended a Selection Committee for faculty recruitment at IIT Hyderabad, April 29, 2010.
21.	Dr. V. Vetrivel	National meet of Research scholars in Mathematical Sciences (NMRSMS 2010) at IIT Madras on October 11-15, 2010
22.	Dr. Y.V.S.S.S. Raju	Member, to liaise between the department and the research park.
23.	Dr. V. Uma	Research/Colloboration at TIFR, Mumbai Sept. 29 – Oct. 4, 2010
24.	Dr. N. Sivakumar	Joined on Jan. 3, 2011 as Visiting faculty. His area of specialization Approximation Theory, Analysis
25.	Dr. Severine Millet	Joined on Jan. 21, 2011 as Visiting faculty. His area of specialization is Fluid Dynamics

#### **Socially relevant activities carried out by the Department:**

- 1) The Department of Mathematics and AG Technomathematik, Technische Universitaet Kaiserslautern, Germany have mutually agreed to set up a network in the scientific area of Applied Mathematics and Mathematical Modelling. This will enable intensive collaboration between IIT Madras and TU-Kaiserslautern in terms of Annual Workshops, Faculty / Student Exchange and Joint Modelling Seminars.
- 2) A delegation of DEG (German Research Foundation) Headed by Prof. Juerg Kramer, Chairperson of the Executive Board of the Berlin Mathematical School and Professor of the Department of Mathematics, Humboldt University, Berlin, visited the our Department and had presentation and discussion with faculty and students of the Department on Tuesday, August 17, 2010.
- 3) Dr. J. Heinze, Executive Vice-President of Publishing, Springer Science & Business Media, visited the department on 26<sup>th</sup> August and interacted with faculty members.
- 4) The department organized a “One Day National Symposium on Mathematical Methods and Applications” on 22<sup>nd</sup> December, 2010 the day of the birth anniversary of Sri Srinivasa Ramanujan, the great Indian Mathematician. The day’s events were inaugurated by Prof. V. G. Idichandy, Deputy Director, Indian Institute of Technology Madras, Chennai.

There were five invited lectures delivered by:

- 1 Prof. R. N. Mahopatra, University of Central Florida, U.S.A.,
- 2 Prof. Parameswaran Sankaran, Institute of Mathematical Sciences, Chennai.
- 3 Prof. G. Ravindran, I.S.I. Chennai and
- 4 Prof. N. Ramanujan, Bharatidasan University, Trichy

5 Prof. M. Krishna, Institute of Mathematical Sciences, Chennai

In the afternoon, parallel paper presentation sessions were held on:

- Analysis and Topology; Algebra; Discrete Mathematics;
- Applied Mathematics I (Differential Equations and related topics)
- Mathematics of Non-deterministic Phenomena and other topics and
- Applied Mathematics – II (Mathematical Models)

The Valedictory function was presided over by Prof. S. Raghavan, Formerly Dean, School of Mathematics, TIFR, Mumbai and Prof. P.R. Parthasarathy, IIT Madras, delivered the valedictory address.

5. The students programme Forays 2011 was organized on March 12-13, 2011. Our Director Prof. M.S. Ananth gave inaugural address. Prof. Bleicher, Professor Emeritus, University of Wisconsin, Madison delivered Forays Lecture. Several interesting events were organized by the students. The Dean of students, Prof. M. Govardhan gave the valedictory address and distributed prizes.
6. New lecture series called Srinivasa Ramanujan Memorial Lecture was instituted commemorating the death anniversary (April 26) of the Indian Mathematical prodigy Srinivasa Ramanujan to promote scholarship and disseminate progress made in the research on mathematical themes studied by Ramanujan. Prof. S. Raghavan, formerly Dean, School of Mathematics, TIFR Mumbai delivered the Srinivasa Ramanujan memorial lecture 2010 entitled "Glimpses Ramanujan's work".

## 4.13 DEPARTMENT OF MECHANICAL ENGINEERING

### 4.13.1 Introduction:

The Department of Mechanical Engineering was established in the year 1959. The department offers Ph.D., M.S., M.Tech, B.Tech. and Dual Degree programmes. The department has excellent facilities to carry out state-of-the-art research in three major disciplines of Mechanical Engineering, namely, Thermal Engineering, Mechanical Design and Manufacturing Engineering.

The Thermal Engineering Stream comprises of six laboratories, namely, Heat Transfer and Thermal Power, Hydro-Turbo Machines, I.C. Engines, Refrigeration & Air conditioning, Thermal-Turbo Machines and Thermodynamics & Combustion.

The Design Stream consists of the Machine Design Section, Machine Dynamics Laboratory.

The Manufacturing Engineering Stream consists of the Manufacturing Engineering Section and Precision Engineering & Instrumentation laboratories.

### 4.13.2 Academic Programmes:

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	83	67	62	53	12	277
Dual Degree	74	61	50	44	55	284
M.Tech.	97	89	-	-	-	186
M.S.	30	31	18	12	-	91
Ph.D.	32	36	24	17	38	147
<b>Total</b>	<b>316</b>	<b>284</b>	<b>154</b>	<b>126</b>	<b>105</b>	<b>985</b>

#### Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1.	Vinitha Ranaganathan	ME08S012	ICPER 2010	June 14-16th 2010, Malaysia	
2.	Vinitha Ranaganathan	ME08S012	MFMS 2010	September 14-18 <sup>th</sup> 2010, Korea	
3.	K. Anandavel		International Conference on Mechanical and Industrial Engineering-2010	Aug 23-28, 2010, Singapore	
4.	Gnaneseakaran N Prasanna S Kaushal Kumar Jha		14th International Heat Transfer Conference	Aug. 8-13, 2010	
5.	S. V. Diwakar	ME06D010	International Heat Transfer Conference	Aug. 8 –13 2010, Washington D.C. USA	DST and CCSTDS
6.	R. Ramakrishnan	ME09D025	International Conference on Plant Equipment and Reliability (ICPER 2010)	June 15 – 17, 2010, Kuala Lumpur, Malaysia.	
7.	P. Balamurugan	ME07D006	International Symposium on Innovative materials for processes in Energy Systems 2010 (IMPRES-2010)	Nov. 29 – Dec. 1, 2010, Furama Riverfront Hotel, Singapore	IIT Madras
<b>India:</b>					
8.	M. Chandra Sekhar Reddy (Ph.D)	ME09D038	International conference on ICTACEM	Dec 27-29,2010 IIT Kharapur	

9.	V. Alwan (MS)	ME10S019	International conference on ICTACEM	Dec 27-29, 2010 IIT Kharapur	
10.	M B Deepthikumar	ME07S013	International Conference on VETOMAC –VI	Dec 13-15,2010 IIT Delhi	
11.	K .Hariharan (Ph.D)	ME07S027	International Conference on Reliability safety and Hazard,ICRESH10”	Dec 14-12, 2010 Mumbai	
12.	K. Arun Kumar (MS)	ME08S026	International Symposium for Research Scholars 2010	Dec 20-22, 2010 IIT Madras	
13.	P.S. Suresh	ME07S012	ICAIEA 2010	Jan. 7, 2011 Anna University	
14.	M. Chandra Sekhar Reddy (Ph.D)	ME09D038	International conference on Condition Monitoring (ICCM-2011)	Feb. 24-25,2011 GITAM Univ. Visakhapatnam	
15.	K. Saravanan	ME08S024	International conference on Condition Monitoring (ICCM-2011)	Feb. 24-25,2011 GITAM Univ. Visakhapatnam	
16.	Y. Rajesh Kumar	ME08S028	6th International conference on vibration Engineering & Technology of Machinery	Dec 13-15 2010, IIT Delhi	
17.	Amandine Bernier	ME06S033	International conference on Industrial Tribology (ICIT -2010)	Dec 2-4 2010 , Ranchi	
18.	A. Ramanaiah	ME09M051	International conference on Industrial Tribology (ICIT -2010)	Dec 2-4 2010 , Ranchi	
19.	Ramkumar E	ME09S037	International conference on Industrial Tribology (ICIT -2010)	Dec 2-4 2010 , Ranchi	
20.	R. Ramakrishnan	ME09D025	4th International Conference on Fluid Mechanics and Fluid Power(ICFMFP2010)	Dec. 16-18, 2010, IITM	
21.	R. Ramakrishnan	ME09D025	Short term training programme on Mechatronics: Integrated Technologies for Intelligent Machines (attended)	Jan.18-23, 2010 IITM	
22.	R. Ramakrishnan	ME09D025	Short term training programme on Micromachining-A Breakthrough Technology (attended)	Jan.31 –Feb. 5 2011, IITM	
23.	Jinka Ranganayakulu	ME09S031	All India Manufacturing Technology, Design and Research Conference (AIMTDR 2010)	Dec.13-15 2010, IITM	
24.	Jinka Ranganayakulu	ME09S031	Short term training programme on Mechatronics: Integrated Technologies for Intelligent Machines (attended)	Jan. 18-23, 2010, IITM	
25.	Jinka Ranganayakulu	ME09S031	Short term training programme on Micromachining-A Breakthrough Technology (attended)	Jan.31- 5 Feb 2011, IITM	
26.	C. Kanthasamy	ME09S003	37th National & 4th International Conference on Fluid Mechanics & Fluid Power.	Dec. 16-18,2010, IIT Madras	IIT Madras
27.	P. Senthil Kumar	ME10D039	37th National & 4th International Conference on Fluid Mechanics & Fluid Power.	Dec.16-18,2010 IIT Madras	IIT Madras
28.	Raghu Vamsee	ME10D010	37th National & 4th International Conference on Fluid Mechanics & Fluid Power.	Dec.16-18,2010 IIT Madras	IIT Madras
29.	R. MOHAN	ME04D038	Indian Machine Tool Exhibition (IMTEX 2011)	January 20- 26,2011 Bangalore	IIT Madras ARDB Project

30.	R. K. Vimal Nandhan	ME06D022	3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Dec. 13-15 Andhra University Vishakapatnam	IIT Madras
31.	D. Giridhar	ME06D014	3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Dec. 13-15, 2010 Andhra University Vishakapatnam	IIT Madras
32.	R. Srikanth	ME07D017	3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Dec. 13-15, 2010 Andhra University Vishakapatnam	IIT Madras ARDB Project
33.	R. Srikanth	ME07D017	Indian machine Tool Exhibition (IMTEX 2011)	Jan. 20-26, 2011 Bangalore	IIT Madras
34.	U. Srinivas Rao	ME08D019	3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Dec. 13-15, 2010 Andhra University Vishakapatnam	IIT Madras
35.	V. Sivaraman	ME08D011	International Symposium for Reseach Scholars on Metallurgy, Materials science and Engineering (ISRS 2010)	Dec. 20-22, 2010 IIT Madras	IIT Madras
36.	A. Giridharan	ME09D028	4th International Conference on Advances in Mechanical Engineering (ICAME 2010)	Sep. 23-25, 2010 SVNIT, Surat	IIT Madras
37.	S . Saikumar	ME02D027	3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Dec. 13-15,2010 Andhra University Vishakapatnam	DRDL Hyderabad

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	A. Sadiq	ME06D033	Innovative Student Projects Award – 2010	Indian National Academy of Engineering (INAE) New Delhi

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes	Name of Donor
1.	Anurag Mapati	ME06B024	Bhagyalakshmi & Krishna Ayengar Award	
2.	S. V. Diwakar	ME06D010	Best Paper in CFD Award	CFD Center

**4.13.3 Faculty and their activities:**

**Faculty:**

**Name & Qualification**

**Major Arrea of Specialization**

**Professor:**

Venkateshan S.P., Ph.D. (**HEAD**)

Heat Transfer, Instrumentation

Ajit Kumar Kolar, Ph.D.

Fluidized Bed Combustion of Coal and Biomass, Fuel Cells, Advanced Power Generation System Analysis.

Babu Viswanathan, Ph.D

CFD, High speed reacting flows, High performance computing

Chakravarthy Balaji, Ph.D.

Fundamental Heat Transfer, Optimization of Thermal Systems, Inverse Problems in Heat Transfer, Satellite Meteorology, , Numerical Weather Prediction

Chandramouli P., Ph.D.

Non-linear Dynamics, Acoustics and Fluid-structure interactions

Das S.K., Ph.D.

Heat Exchangers, Two phase flow, Nano fluids, Jet Oscillations, Nuclear Heat Transfer

Ganesan N., Ph.D.	Finite Element Analysis, Vibration and Smart Structures
Gopinath K., Ph.D.	Design of test rigs, Presses, SPM, Process equipment, Powder metallurgy and superplastic forming equipment, Friction and wear, Brakes, Clutches, Bearings, Gears and filters, Powder metallurgy, Failure analysis and development of new materials
Govardhan M., Ph.D.	Compressors, Steam and gas turbines - cascade secondary flows - boundary layers-inlet flow distortion, Tip clearance flows, Wells turbine, Cross flow fans, CFD
Krishnan Balasubramanian, Ph.D.	Nondestructive Evaluation, Materials Characterization, Online Measurements
Kumaraswamy S., Ph.D.	Fluid Mechanics, Pumps and Hydroturbines, Cavitation in hydroturbomachines
Maiya M.P., Ph.D.	Refrigeration (Sorption systems and co-generation) Air Conditioning (Desiccant and evaporative cooling and energy aspects), Ventilation, Drying and effluent evaporation, Metal hydride energy conversion systems
Mani A., Ph.D.	Solar energy, Refrigeration and air conditioning, Cryogenic engineering, Alternate working fluids, Effluent treatment.
Mayuram M.M., Ph.D	Surface engineering, Wear and wear control, Thermal sprayed coatings, Fatigue and fracture aspects in design and analysis
Muthuveerappan G., Ph.D.	Machine design, Vibrations of structures in fluid environments, Generation of gear teeth and fillet profiles for stress analysis and design
Narayanan S., Ph.D.	Random and Nonlinear Vibration, Smart Structures, Acoustics
Pramod S.Mehta, Ph.D.	Combustion Modeling, Fluid Dynamics in IC Engines, Engine Emission Control
Prasad B.V.S.S.S., Ph.D.	CFD in turbo machines, Turbine blade cooling, Rotor-stator interactions, Heat flux measurements, Thermal hydraulics
Premananda Shet U.S., Ph.D.	Design of gas oil and solid fuel burners, Swirl combustion, Flame image analysis, Control of combustion generated pollutants, Supersonic combustion, Thermodynamics, Combustion and propulsion
Raju Sethuraman, Ph.D.	Computational Solid Mechanics, Fatigue and fracture of materials
Ramamoorthy B., Ph.D.	Metrology, Machine Vision Applications, Manufacturing and Coating Processes
Ramesh A., Ph.D.	IC Engine Combustion and Emissions, Electronic Engine Management, Alternative Fuels
Ramesh Babu N., Ph.D.	Laser Beam Machining (LBM), Abrasive Finishing Process, Abrasive Waterjet Machining (AWJM), Process Modeling, Computer Aided Manufacturing, CNC, PLC
Seshadri Sekhar A, Ph.D.	Rotordynamics, Tribology, Condition-monitoring
Shunmugam M.S., Ph.D.	Metrology, Manufacturing – gear, BTA Machining, reaming, Centreless grinding, EDM, friction welding, Manufacturing automation & robotics, Computer application in manufacturing – process planning, inspection planning, quality control.
Singaperumal M., Ph.D.	Mechatronic System Design, Oil Hydraulics System Simulation and Modeling
Sitaram N., Ph.D.	Turbomachinery / end wall flows, Computational fluid dynamics, Compressors and turbines, Boundary layers, Tip clearance flows
Siva Prasad N., Ph.D.	Finite element analysis, Computer aided design, Stress analysis, Machine design



Srinivasa Murthy S., Ph.D.	Refrigeration & Airconditioning, Energy Conservation & Heat Recovery, Solar & Hydrogen Energy Utilisation
Sujatha C., Ph.D.	Machine Dynamics, Vehicular Vibration, Instrumentation and signal analysis
Sundararajan T., Ph.D.	Droplet combustion, Supersonic reacting jet flows, Computational fluid dynamics
Swarnamani S., Ph.D.	Structural Health monitoring/Diagnostics/Active Control
Venkatarathnam G., Ph.D.	Refrigeration, Cryogenic Engineering, Heat Exchangers
Vijayaraghavan L., Ph.D.	Machining, CAD, Surface Engineering, Grinding
<b>Associate Professor:</b>	
Arunn Narasimhan, Ph.D.	Heat Transfer and Fluid Flow in Porous Media, Phase Change and Convection
Raghu Prakash V, Ph.D.	Experimental Fatigue Analysis, Structural integrity, Test systems design
Shankar Krishnapillai, Ph.D.	Structural vibrations, Design optimization, System identification
Srinivas Reddy K, Ph.D.	Renewable Energies, Solar Energy, Energy Conservation, Energy Environment, Heat Transfer in Two-Phase Systems
Srinivasan K., Ph.D.	Jet Flow and Noise, Active and Passive Flow Control, Measurement and Instrumentation
Sujatha Srinivasan, Ph.D.	Biomechanics, Mechanisms, Prosthetics and Orthotics
<b>Assistant Professor:</b>	
Abhijit Sarkar, Ph.D.	Vibration, Acoustics, Asymptotic Methods
Amitava Ghosh, Ph.D.	Machining & Grinding of advantage materials, Development of abrasive tools, Metal ceramic joining
Anand T N C	CFD simulations of I.C. engines processes, Laser-based diagnostics of sprays and combustion
Arvind Pattamatta, Ph.D.	Nanoscale Energy Transport, Computational Fluid Dynamics and Heat Transfer, Turbulence Modeling
Dhiman Chatterjee, Ph.D.	Fluid Mechanics, turbomachines, cavitation
Krishna Kannan, Ph.D.	Continuum mechanics, Thermodynamics and Constitutive modeling of polymeric materials
Mallikarjuna J M, Ph.D.	Simulation of Engine Processes, Data Acquisition, Design of Engine Components, In-cylinder flow analysis using PIV.
Manivannan P V, Ph.D.	Instrumentation and Controls, Mechatronic System Design, Microprocessor
Parag Ravindran, Ph.D.	Viscoelastic Fluids Constitutive Modeling
Prabhu Rajagopalan, Ph.D.	Acoustics and Ultrasonic wave methods, NDE
Raghavan V, Ph.D.	Combustion modeling, Droplet combustion, Laminar flames
Ravikiran Sangras, Ph.D.	Experimental Fluid Mechanics, Combustion, Turbulent Flows
Samuel G L., Ph.D.	Measurement and Inspection of Free Form Surfaces Evaluation of Form Errors, Micro Machining
Shaligram Tiwari, Ph.D.	Refrigeration and Airconditioning, Flow Transition, Vortex Dynamics, CFD, Marangoni Convection
Shamit Bakshi, Ph.D.	CFD in I.C. Engines, Liquid Atomization and Spray Systems, Fuel Nozzle Modeling
Somashekhar S Hiremath	Micromachining, Mechatronic System Design Oil Hydraulics, System Simulation and Modelling, FEM.
Viswanath K., Ph.D.	Turbomachinery noise

**Professor Emeritus:**

Ganesan V., Ph.D.

Theoretical and Experimental Studies in Fluid Flow, Heat Transfer and Combustion in I.C Engines, Gas Turbines, After-burners and Related Engineering Equipment.

**Visiting Professor:**

Ramamurthi K., Ph.D.

Combustion, Propulsion, Explosions

Manfred Groll

Nuclear Engineering

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1.	Dr. BVSSS. Prasad	37 <sup>th</sup> National & 4 <sup>th</sup> International Conference on Fluid Mechanics and Fluid Power	Dec. 16-18, 2010
<b>Seminar:</b>			
1.	Dr. V. Raghu Prakash	Damage Mechanics of Engineering and Engineered Materials at ASME International Congress and Exposition, 2010 at Vancouver, BC, Canada	Nov 12-18, 2010
<b>Workshop:</b>			
1.	Dr. N. Siva Prasad Dr. Shankar Krishnapillai	PDMA Lecture	May 28, 2010
2.	Dr. N. Siva Prasad Dr. Shankar Krishnapillai	NPD Workshop	June 25, 2010
3.	Dr. K. S. Reddy	International Workshop on Solar Power Generation Technologies	Dec. 6–8, 2010
4.	Dr. BVSSS. Prasad	IITM-BHEL International Workshop	Feb. 23-25, 2011
<b>Short term Course:</b>			
1.	Dr. N. Siva Prasad	Mechanical Design Caterpillar India Pvt. Ltd.	July 24 –Dec.18, 2010
2.	Dr. N. Siva Prasad	Mechanical Design Caterpillar India Pvt. Ltd.	Feb.26 – Sept. 17, 2011
3.	Dr. Somashekhar S. Hiremath Dr. M. Singaperumal	Short Term Training Programme (STTP) on “Mechatronics: Integrated Technologies for Intelligent Machines” for Engineering College Faculties, Industries and R&D Personnel	Jan. 18 –23, 2011
4.	Dr. Somashekhar S. Hiremath Dr. M. Singaperumal	Three Days workshop on “Industrial Hydraulics” for Ashok Leyland	In the month of April-May 2010
5.	Dr. Somashekhar S. Hiremath Dr. M. Singaperumal	Short Term Training Programme (STTP) on “Micromachining-A Breakthrough Technology” for Engineering College Faculties, Industries and R&D Personnel	Jan. 31- Feb. 5, 2011
6.	Dr. P V Manivannan Dr. M. Singaperumal	Mobile Robots and sensor Network Organized by PEIL, Department of Mechanical Engineering, IIT Madras, Chennai-36	Mar.28 to Apr.1, 2011
7.	Dr. BVSSS Prasad	CFD course for BHEL Engineers	April 15-21, 2010

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Dr. Sujatha Srinivasan	Wipro Mission 10 X Programme	RKM College	July 30, 2010
2	Dr. A. S. Sekhar	DST-workshop: Rotor Dynamics- Spinning into future	IIT Madras	Sept. 23-24, 2010
3	Dr. Abhijit Sarkar	Quiet Product Design – Challenges ahead	IIT Madras	Sept. 23, 2010

Sl. No.	Name of faculty	Title	Institution	Period
4	Dr. S. Narayanan	Efficient path integral solution of Fokker Planck equation, response, bifurcation and periodicity of nonlinear systems	Recent Advances in Mechanics IIT Madras	Nov. 25-26, 2010
5.	Dr. Parag Ravindran Dr. Krishna Kannan	A Study on Growth and Remodeling in Soft Tissues	Recent Advances in Mechanics IIT Madras	Nov. 25-26, 2010
6.	Dr. N. Siva Prasad	Prof Seetharamu 70th Birthday Workshop	Bangalore, India	July 15-16, 2010
7.	Dr. N. Siva Prasad	Application of Finite Elements Methods and Analysis 2010.	IBNM, Mumbai	Mar.14-15, 2011
<b>Seminar:</b>				
1.	Dr. A.S. Sekhar	Rotor Fault Identification	Technical University Darmstadt, Germany	May 18, 2010
2.	Dr. A.S. Sekhar	Current signature analysis for unbalance detection in a rotor supported on active magnetic bearings	Technical University Darmstadt, Germany	July 22, 2010
3.	Dr. A.S. Sekhar	Fault Identification in rotor systems	Technical University Vienna, Austria	July 7, 2010
4.	Dr.S. Narayanan	Numerical Solution of Fokker Planck equation of Non linear stochastic systems	University of Swansea, UK	June 9, 2010
5.	Dr. S. Narayanan	Control of Chaos in nonlinear dynamical systems	University of Aberdeen, UK	June 21, 2010
6.	Dr. A. S. Sekhar	Fluid Induced Vibrations in Rotor Bearing Systems - Oil whirl and Oil whip	IIT Guwahati	Dec 6-10, 2010
7.	Dr.M. Singaperumal	Investigation on Electrohydraulic Servovalve through a Finite Element Method	San Diego Convention Center, San Diego, California. USA.	February 27 - March 3, 2011
8.	Dr. Somashekhar S Hiremath	Self Organizing Sensor Networks for Automation and Process Monitoring".	Chinese University of Hong Kong in Hong Kong and the University of Macau	Aug. 16-20, 2010
9.	Dr.Somashekhar S Hiremath	Fluid structure interaction in electrohydraulic servovalve; a finite element approach	Chinese University of Hong Kong in Hong Kong and the University of Macau	Aug. 16-20, 2010
10.	Dr.P. V. Manivannan	Role of Advanced Sensing and real time control techniques in polymeric material based product control	CIPET, Chennai	Mar. 25-27, 2011
<b>Symposia:</b>				
1.	Dr. V. Raghu Prakash	Evaluation of Creep, Creep Fatigue Damage using Static, Cyclic Indentation Testing	ASTM International Symposium on Creep Fatigue Interactions	Nov 17-19, 2010
2.	Dr. Abhijit Sarkar	Coupled wavenumbers of a two-dimensional structural acoustic waveguide with bulk flow	National Symposium of Acoustics, Govt. P.G. College, Rishikesh, 2010	Nov. 11-13, 2010
3.	Dr.S.K.Das	The Second Indo-German Frontiers of Engineering Symposium	Potsdam, Germany	June 24-27, 2010
4.	Dr. V Ganesan	Advances in Automative Engineering	SA Engg. College	Aug.12, 2010
<b>Conference:</b>				
1.	Dr. V. Raghu Prakash	Structural Integrity Assessment of Aircraft – A safety criteria for durable operation of Airplanes	International Conference on Intelligent Design and Analysis of Engineering Products, Systems and Computation, Coimbatore	July 9-10, 2010

Sl. No.	Name of faculty	Title	Institution	Period
2.	Dr. S. Narayanan	Responses Statistics and Reliability analysis of a mistuned bladed disk assembly subjected to white noise excitation	ASME Turbo Expo 2010	June 14-18, 2010
3.	Dr. V. Raghu Prakash	International Conference	Durgapur NIT	Oct 28-30, 2010
4.	Dr. V. Raghu Prakash	In-situ damage evaluation using ball indentation test method	ASME International Mechanical Engineering	Nov 12-18, 2010
5.	Dr. A. S. Sekhar	Model based shaft crack identification in rotating machinery	ASME Turbo Expo 2010, Glasgow, Scotland	June 14-18, 2010
6.	Dr. A. S. Sekhar	Fault Identification in Rotor Systems using Residual Vibrations Minimization	International Conference on VETOMAC – VI, IIT Delhi	Dec 13-15, 2010 IIT Delhi
7.	Dr. Raghu Prakash Mr.Chinniah Madduri	Corrosion Fatigue crack growth studies in Ni-Cr-Mn steel	International Conference on Industrial and Mechanical Engineering 2010	Dec17-20, 2010 Singapore
8.	Dr. Raghu V. Prakash Mr. Veerasamy	Experimental and Numerical Assessment of crash Behaviour of welded thin wall rectangular steel sections	International Conference on Advances in Mechanical Engineering	Dec 21-22, 2010 Trivandrum
9.	R. Saravanan, Dr. Raghu V Prakash, R. Gnanamoorthy, Vinod Boniface	Study and Analysis of Impact of Power density increment of gears over crack severity	International Conference on Advances in Mechanical Engineering	Dec 21-22, 2010 Trivandrum
10.	Dr. N. Siva Prasad	Studies on Residual Stress and Distortion in Tig Welding of Thin Plates with a Trailing Heat Sink	International Conference on Multiscale Modelling and Simulation (ICMMS'10)	Dec 17-19, 2010 South China University of Technology, Guangzhou, China
11.	Dr. C. Sujatha	Analytical and experimental studies on lateral dynamics of a railway vehicle moving on straight track	International Congress on Sound and Vibration (ICSV17)	July 18-22, 2010 Cairo, Egypt
12.	Dr. C. Sujatha	Dynamics of an Indian Railway Vehicle Moving on Straight Track	The Tenth International Conference on Computational Structures Technology,	Sept.14-17, 2010 Valencia, Spain
13.	Dr. C. Sujatha	Reduction of Automotive Brake Squeal through Pad Geometrical Modifications: A Numerical Study'	International Conference on Frontiers in Automobile and Mechanical Engineering (FAME–2010)Chennai	Nov. 25-27, 2010
14.	Dr. SP Venkateshan Dr. SK Das Dr. C Balaji	14 <sup>th</sup> International Heat Transfer Conference		Aug. 8-13, 2010
15.	Dr SP Venkateshan Dr. S K Das	3 <sup>rd</sup> International Conference on Thermal Issues in Emerging Technologies, Theory and Applications	Cairo, Egypt	Dec. 19-22, 2010
16.	Dr. K. S. Reddy	National Conference on Renewable Energy Future Savior of the World	SKITMG, Jaipur	May 7 – 8, 2010
17.	Dr. K. S. Reddy	International Conference on Science and Technology Development in Creative Economy	Bangkok, Thailand	Nov.20–27, 2010
18.	Dr. Anand T.N.C.	Eighth Asia-Pacific conference on combustion	Combustion Institute – Indian Section	Dec. 10-13, 2010

Sl. No.	Name of faculty	Title	Institution	Period
19.	Dr. A. Mani	2nd International Conference on Plant Equipment and Reliability (ICPER)	Kualalumpur, Malaysia	June 15- 17, 2010
20.	Dr. A. Mani	13th International Refrigeration and Air-Conditioning Conference	Purdue University, West Lafayette, USA	July 12-15, 2010
21.	Dr.S. Srinivasa Murthy	4th Indo-US Round Table on Renewable Energy	NIAS, Bangalore	Sept. 21-23, 2010
22.	Dr. M. P. Maiya	ASHRAE Region At Large Chapters Regional Conference 2010	Cairo, Egypt	Oct. 2-3, 2010
23.	Dr. M. P. Maiya	The 10th International Conference for Enhanced Building Operation (ICEBO 2010)	Le Meridien Towers, Kuwait	Oct.26-28, 2010
24.	Dr. Shaligram Tiwari	The 10th International Conference for Enhanced Building Operation (ICEBO 2010)	Le Meridien Towers, Kuwait	Oct.26-28, 2010
25.	Dr.S. Srinivasa Murthy	Delhi International Renewable Energy Conference 2010 (DIREC 2010)	New Delhi	Oct.27-29, 2010
26.	Dr. G. Venkatarathnam	23rd National Symposium on Cryogenics	NIT Rourkela	Oct.28-30, 2010
27.	Dr.S. Srinivasa Murthy	3rd International Symposium on Thermal Issues in Emerging Technologies: Theory and Applications (ThETA3)	Cairo, Egypt	Dec. 19-22, 2010
28.	Dr. G. Venkatarathnam	3rd International Symposium on Thermal Issues in Emerging Technologies: Theory and Applications (ThETA3)	Cairo, Egypt	Dec. 19- 22, 2010
29.	Dr. A. Mani	International Symposium on Innovative materials for processes in Energy Systems 2010 (IMPRES-2010)	Furama Riverfront Hotel, Singapore	Nov. 29 – Dec.1, 2010
30.	Dr. M. P. Maiya	International Symposium on Innovative materials for processes in Energy Systems 2010 (IMPRES-2010)	Furama Riverfront Hotel, Singapore	Nov. 29 –Dec. 01, 2010
31.	Dr. M. P. Maiya	Golden Jubilee National Conference on Advances in Mechanical Engineering (AIM Engg 2011)	MIT, Manipal	Jan. 3-5, 2011
32.	Dr.S. Srinivasa Murthy	2nd International Polygeneration: Technologies and Perspectives	Tarragona, Spain	Mar. 28 – Apr.1, 2011
33.	Dr. G. Venkatarathnam	2nd International Polygeneration: Technologies and Perspectives	Tarragona, Spain	Mar. 28. to Apr.1, 2011
34.	Dr.N. Ramesh Babu	36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	University of Manchester, UK,	July 14-16, 2010
35.	Dr. G L Samuel	3rd International Conference on Advanced Design and Manufacturing	Nottingham Trent University, Nottingham, UK	September 8-10, 2010

Sl. No.	Name of faculty	Title	Institution	Period
36.	Dr. G L Samuel	Proceedings of the 3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Andhra University, Vishakapatnam	Dec.13-15, 2010
37.	Dr. Amitava Ghosh	Proceedings of the 3rd International and 24th All India Manufacturing Technology Design and Research (AIMTDR 2010) conference	Andhra University, Vishakapatnam	Dec. 13-15, 2010
38.	Dr. N. Ramesh Babu	36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	University of Manchester, UK,	July 14-16, 2010
39.	Dr. BVSSS Prasad	ASME TURBO EXPO 2010,	Glasgow, UK	June 14-18, 2010
40.	Dr. BVSSS Prasad	ANSYS User Conference	Bangalore	Oct. 26- 27, 2010
41.	Dr. M. Govardhan	13 <sup>th</sup> Asian Congress of Fluid Mechanics	Daka, Ba	Dec. 17-21, 2010
<b>Training:</b>				
1.	Dr. Abhijit Sarkar	From Fluid Mechanics to Acoustics	“Introduction to Turbulent Flows and their prediction”, - AICTE short term training program at IIT Madras	Mar. 22, 2011
2.	Dr. Abhijit Sarkar	Mechanics of Materials	Continuing Education Program for M/S Caterpillar Pvt. Ltd.	Mar. -May, 2011
<b>Short term Course:</b>				
1.	Dr. V. Raghavan	Eighth Asia Pacific Conference on Combustion (ASPACC 2010)	Hyderabad	Dec.10-13, 2010
2.	Dr. BVSSS Prasad	BHEL Workshop	Hyderabad	Nov. 11-12, 2010

**Special Lectures delivered by the faculty in other Institutions:**

S.No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Dr. V. Raghu Prakash	Creativity and Innovation and its role to new product development	Bannari Amman Institute of Technology	June 29-30 2010
2.	Dr. S. Narayanan	Numerical Solutions of the Fokker-Plank Equation for Non linear Stochastic Dynamical Systems	University of Swansea, UK	June 07, 2010
3.	Dr. S. Narayanan	Control of Chaos in Non linear Dynamical Systems	University of Aberden, UK	June 21, 2010
4.	Dr. A.S. Sekhar	Rotor Fault Identification	Technical University Darmstadt, Germany	May 18, 2010
5.	Dr. A.S. Sekhar	Current signature analysis for unbalance detection in a rotor supported on active magnetic bearings	Technical University Darmstadt, Germany	July 22, 2010
6.	Dr. A.S. Sekhar	Fault Identification in rotor systems	Technical University Vienna, Austria	July 7, 2010
7.	Dr. A. S. Sekhar	Fluid Induced Vibrations in Rotor Bearing Systems - Oil whirl and Oil whip	IIT Guwahati	Dec 6-10, 2010
8.	Dr. N. Siva Prasad	Industry–Institute Interaction	Engineering college of Andhra Pradesh	Dec 11 2010
9.	Dr. Sujatha Srinivasan	Effective Teaching for Enhanced Learning	FDP for QIP	Aug 7, 2010

S.No.	Name of faculty	Topic of Lecture	Institution	Date
10.	Dr. Sujatha Srinivasan	Teaching-Learning Principles	KLN College of Engineering, Pottapalayam (near Madurai),	Nov 29, 2010
11.	Dr. Sujatha Srinivasan	Interesting Classroom	KLN College of Engineering, Pottapalayam (near Madurai),	Nov 29, 2010
12.	Dr. Sujatha Srinivasan	Understanding human walking for prosthesis design at CEG	Anna University	Jan 25, 2011
13.	Dr. M M Mayuram	Guest Lecture on AICTE Sponsored Seminar	Kongu Engineering College, Perundurai, Erode	April 29, 2010
14.	Dr. C.Sujatha	Vibration monitoring and analysis	Ordinance Factories Institute of Learning, Avadi	June 8, 2010
15.	Dr. C.Sujatha	Vibration and noise standards	Ordinance Factories Institute of Learning, Avadi	June 8, 2010
16.	Dr. C Balaji	Development of Geo-Physical Retrieval Schemes and Validation of Data for the Megha Tropiques Mission	CIRA-Co-operative Institute for Research in atmosphere, Colorado State University	May 28, 2010
17.	Dr. C Balaji	Creativity of Research	Graduate School, Colorado State University	June 3, 2010
18.	Dr. C Balaji	Optimization Studies on conjugate heat transfer from protruding discrete heat sources	Dept. of Mech. Engg., Colorado State University	June 11, 2010
19.	Dr.S.K.Das	Electronic cooling and drug delivery : Two ends of the nano impact	98 <sup>th</sup> Indian Science Congress	Jan. 3-7, 2011
20.	Dr.S.K.Das	Use of Laser turned Nanoparticles for Cancer Therapy	3 <sup>rd</sup> Bangalore Nano 2010 Conference	Dec. 8-9, 2010
21.	Dr. K S Reddy	Concentrating Solar Power Technologies for Sustainable Development	Nat. Conf. on Alternate Energy Resources and Application, Sriram Engg. College	Apr. 22, 2010
22.	Dr. K. S. Reddy	Renewable Energy Technologies	Rajamangala University of Technology Thanyaburi, Thailand	Aug. 25 to Sept.06, 2010
23.	Dr. K. S. Reddy	Brainstorming session on Global Warming and Climate	NIT Warangal	Oct. 08, 2010
24.	Dr. K. S. Reddy	Recent Advances in Solar Power Technology	National Engineering College, Kovilpatti	Oct. 22, 2010
25.	Dr. K. S. Reddy	Solar Power Generation Technologies for Sustainable Development	JNTU, Anantapur	Oct. 27, 2010
26.	Dr. K. S. Reddy	Solar Thermal Power Generation: Central Tower Technology	TEDA, Chennai	Jan. 15, 2011
27.	Dr. K. S. Reddy	Latest Developments in Dish and Central Tower Technologies for Performance Improvement of Solar Power Plants	RENEWCON 2011, Mumbai	Mar.10, 2011
28.	Dr. K. S. Reddy	Solar Power Generation Technologies	SSN College of Engineering, Chennai	Dec.10, 2010
29.	Dr. K. S. Reddy	Design and Analysis of Energy Efficient Receivers for CSP Systems	Anna University, Chennai	Mar.21, 2011
30.	Dr. K. S. Reddy	Concentrating Solar Power Technologies for Sustainable Energy Development	School of Engineering and Physical Sciences HERIOT WATT UNIVERSITY Edinburgh, UK	June 24, 2010
31.	Dr. Arunn Narasimhan	Bioheat Transfer Model of Human Systems & Energy	Indian Institute of Science, Bangalore	July 21, 2011
32.	Dr. Somashekhar S. Hiremath	Overview of Robotic Applications: Present and Future"	Confederation of Indian Industry at Hotel Accord Metropolitan, Chennai.	Oct. 23, 2010

S.No.	Name of faculty	Topic of Lecture	Institution	Date
33.	Dr. Somashekhar S. Hiremath	Numerical Approach for Design of Mechatronic Component-Jet Pipe Electrohydraulic Servo Valve” and “Enduring Trends in Fluid Power Technology-Present and Past”	Department of Mechanical Engineering, Velagapudi Ramakrishna Siddhartha Engineering College, Vijayawada	Aug. 5-6, 2010
34.	Dr. Somashekhar S. Hiremath	Role of Microsensors and Microactuators”	IIT Kancheepuram	May 22, 2010
35.	Dr. Somashekhar S. Hiremath	2 days Lecture on Robotics	JNTU Hyderabad	Mar. 8–31,2010
36.	Dr. Somashekhar S. Hiremath	Jet Pipe Electrohydraulic Servovalve	Fluid Power Society of India, Madras Chapter, workshop division, CVRDE, Min. of Defence, Avadi, Chennai	Feb.10, 2010
37.	Dr. P. V. Manivannan	Embedded System	ISRO, Trivandrum	Sept. 28-29, 2010
38.	Dr. M.S. Shunmugam	Roundness measurement with Manufacturing applications	Anna university, Chennai	Sept. 23, 2010
39.	Dr. M.S. Shunmugam	Magnetorheological Abrasive Honing	Anna university, Chennai	Sept. 24, 2010
40.	Dr. M.S. Shunmugam	Trends in Design, Manufacturing, Quality and end Application in Gear and other Power transmission Products	Conference organized by The economic Times at Bombay Exhibition Centre	May 21, 2010
41.	Dr. M.S. Shunmugam	Faculty seminar	IIT Hydrabad	Aug. 21, 2010
42.	Dr. M.S. Shunmugam	Intelligent Manufacturing	PSG college of Technology Coimbatore	Feb. 15, 2011
43.	Dr. B. Ramamoorthy	Computer aided inspection	HBKR College of Engineering, Nellore	July 15, 2010
44.	Dr. B. Ramamoorthy	Advances in Metrology & Measurements	Anna University Chennai	Nov. 23, 2010
45.	Dr. B. Ramamoorthy	Advances in Metrology	SKP Engineering College Thiruvannamalai	Jan. 22, 2011
46.	Dr. B. Ramamoorthy	AICTE course on Micromachining, a breakthrough technology” Role of Machine Vision in Micro measurements”	IIT Madras	Feb. 3, 2011
47.	Dr. B. Ramamoorthy	National Workshop on Issues in Intelligent Manufacturing Systems and Evolving a Developmental Framework “Evaluation of Manufactured surfaces using Machine vision”	PSG College of Technology,Coimbatore	Feb. 15, 2011
48.	Dr.B. Ramamoorthy	AICTE Course on Mobile Robots and Sensor Network “ Machine Vision Sensor applications”	IITMadras	Mar. 30, 2011
49.	Dr. N. Ramesh Babu	Sensors for Intelligent Manufacturing	Anna University Chennai	Nov. 22, 2010
50.	Dr. L. Vijayaraghavan	Grinding of composites	NIIT, Jalandhar	Dec. 3-5, 2010
51.	Dr. L. Vijayaraghavan	Machinability of ceramics	IIT Madras	Feb. 2, 2011
52.	Dr. G.L. Samuel	Indo –Japan workshop on Micro/Nano manufacturing sciences	IIT Delhi	2011
53.	Dr. G.L. Samuel	National Workshop On Advanced Manufacturing Technologies	St. Peter’s College of Engineering and Technology	2010



**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1.	Dr. S. Narayanan	UK	June 07 -25, 2010	To Present a paper at ASME Turbo Expo 2010, Glasgow, UK	IIT Madras
2.	Dr. A. S. Sekhar	Technical University Darmstadt, Germany	May-July 2010	Humboldt Fellowship	IIT Madras
3.	Dr. A. S. Sekhar	Scotland, UK	June 14- 18, 2010	To Present a paper at ASME Turbo Expo 2010, Glasgow, UK	IIT Madras
4.	Dr. A.S. Sekhar	Technical University Vienna, Austria	July 6 -7, 2010	Seminar Talk	IIT Madras
5.	Dr. Raju Sethuraman	Technical University of Graz, Austria	July 5 – 9 2010	Summer School on Modeling in Biomechanical and Mechano-Biology at different length scales.	IIT Madras
6.	Dr. Krishnan Balasubramaniam	Sandigo, USA	July 17 -23 2010	Pre conference & conference	IIT Madras
7.	Dr. C. Sujatha	Cario, Egypt	July 18- 22 2010	Present the paper	IIT Madras
8.	Dr. S. Narayanan	Swansea, UK	June 9-10 2010	Seminar Talk	IIT Madras
9.	Dr. S. Narayanan	Aberdeen, UK	June 19-22 2010	Seminar Talk	IIT Madras
10.	Dr. S. Narayanan	Glasgow, UK	June 14 – 18, 2010	Present the paper	IIT Madras
11.	Dr. V. Raghu Prakash	San Antonio, TX, USA	Nov 17- 21, 2010	ASTM Symposuim	IIT Madras
12.	Dr. V. Raghu Prakash	Vancouver, BC, Canada	Nov 14-17, 2010	ASME Congress 2010	IIT Madras
13.	Dr. V. Raghu Prakash	Montreal, QC, Canada	Nov 21-24, 2010	NRC, Canada and McGill University	IIT Madras
14.	Dr. Raghu Prakash	Singapore	Dec 17-20 2010	International Conference	IIT Madras
15.	Dr. N. Siva Prasad	China	Dec 17-19 2010	International Conference	IIT Madras
16.	Dr. S.Narayanan	China	May 2010	International Conference	IIT Madras
17.	Dr.S.K.Das	Potsdam, Germany	June 24-27, 2010	Chairman, Second IndoGerman Frontiers of Engineering Symposia	DST
18.	Dr. C Balaji	USA	May 07, 2010 – June 14, 2010	To visit the Colorado State University as a part of the Swarna Jayanthi Fellowship Project to collaborate on developing combined radar-radiometer Algorithms Satellite Missions	IIT Madras
19.	Dr. K. S. Reddy	UK	June 13-27, 2010	Project Review Meeting	UKIERI - DST
20.	Dr. K. S. Reddy	Thailand	Aug.25, – Sept.06, 2010	As Visiting Professor to give lectures for Master Degree students in Faculty of Engineering	RMUTT

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
21.	Dr. K. S. Reddy	UK	Mar. 15, 2011	As an expert panel member for flagship Indo-UK initiative in "Bridging Urban – Rural divide"	EPSRC, RCUK
22.	Dr. V. Raghavan	USA	June 21, 2010	Research Collaboration	WPI, USA
23.	Dr. V. Raghavan	Malaysia	June 14, 2010	Conference	IIT Madras
24.	Dr. Somashekhar S. Hiremath	Hongkong, Macau	August 16-20 2010	Conference	IIT Madras
25.	Dr. Somashekhar S. Hiremath	Ecole Centrale de Nantes, FRANCE	June 1-30, 2010	Visiting Professor	European Erasmus Mundus External Cooperation Window WILLPower programme.
26.	Dr. M.Singaperumal	Germany	Feb. 19 -26, 2011	Undertake University visit in Germany	Without any financial commitment to the Institute
27.	Dr. M.Singaperumal	USA	Feb.27 – Mar. 3, 2011	Present paper at the TMS 2011 Annual Meeting& Exhibition to be held at san Diego,USA	With Institute financial assistance
28.	Dr. M.Singaperumal	USA	Mar. 4-9, 2011	Industrial visit to Boston	Without any financial commitment to the Institute
29.	Dr. A. Mani	Malaysia	June 19, 2010	To attend Conference	IIT Madras
30.	Dr. A. Mani	Singapore	Dec. 3, 2010	University Visit	IIT Madras
31.	Dr. M. P. Maiya	Singapore	Dec. 3-5, 2010	University Visit	IIT Madras
32.	Dr. S. Srinivasa Murthy	Sevilla / Almeria, Spain	Mar. 1-4, 2011	DST Sponsored Indian Delegation on Renewable Energy	DST
33.	Dr. B Ramamoorthy	France	June 1-30, 2010	Visiting Professor at Ecole Centrale Nantes,France	Erasmus Mundus WILL Power project
34.	Dr. B Ramamoorthy	Japan	Sept 4-11, 2010	Plenary Lecture at 10 <sup>th</sup> ISMQC 2010 at Osaka University, Japan	IIT Madras
35.	Dr. N Ramesh Babu	UK Manchester	July 14-16, 2010	To present technical paper at 36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	IIT Madras and Department of science and Technology
36.	Dr. N Ramesh Babu	UK Manchester	July 14-16, 2010	To present technical paper at 36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	IIT Madras and Department of science and Technology

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
37.	Dr. N Ramesh Babu	UK Manchester	July 14-16, 2010	To present technical paper at 36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	IIT Madras and Department of science and Technology
38.	Dr. N Ramesh Babu	UK Manchester	July 14-16, 2010	To present technical paper at 36 <sup>th</sup> International Conference on Manufacturing Automation and Systems Technology Applications Design Organisation and Management Research (MATADOR 2010)	IIT Madras and Department of science and Technology
39.	Dr. N Ramesh Babu	Pisa, Italy	Aug. 22-28, 2010	CIRP General Assembly	IIT Madras
40.	Dr. N Ramesh Babu	Paris, France	Jan. 26-28, 2011	CIRP General Assembly	IIT Madras
41.	Dr. L Vijayaraghavan	Japan	Sept. 5-9, 2010	Session chair in ISMQC - 2010, Osaka Japan	IIT Madras
42.	Dr. G L Samuel	UK	Sept. 8-10, 2010	To attend 3rd International Conference on Advanced Design and Manufacturing	IIT Madras
43.	Dr. BVSSS Prasad	Glasgow, UK	June 14-18, 2010	ASME Turbo Expo 2010	PCF Funds
44.	Dr. M. Govardhan	Daka, Bangladesh	Dec. 17-21, 2010	13 <sup>th</sup> Asian Congress of Fluid Mechanics	Inst. Funds
45.	Dr. BVSSS. Prasad	Glasgow, UK	June 14-18, 2010	ASME Turbo Expo 2010	PCF Funds
46.	Dr. M. Govardhan	Daka, Bangladesh	Dec. 17-21, 2010	13 <sup>th</sup> Asian Congress of Fluid Mechanics	Inst. Funds

#### Honours and Awards obtained by faculty:

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>Honours:</b>					
1.	Dr. Arvind Pattamatta	selected for DAAD faculty exchange programme			summer vacation, 2011 in BRAUNSCHWEIG
2.	Dr. Somashekhar S. Hiremath	Will Power scholarship	European Erasmus Mundus	Visiting Professor	Tuesday, 26 April 2011
3.	Dr. B Ramamoorthy	Outstanding academician	VIT University Vellore	-	2010 Convocation
<b>Awards:</b>					
1.	Dr. K. S. Reddy	Bhagyalakshmi & Krishna Ayengar Award		Best Project Award	April 21, 2010

#### Books, Monographs authored/co-authored:

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	N. Siva Prasad	Engineering Mechanics Volume I & II	Tata McGraw Hill	Adopted the book of Plesha
2.	V. Babu	Fundamentals of Incompressible Flow	ANE/CRC Press	V. Babu

3.	Shaligram Tiwari	Principles of Heat Transfer-7th Ed (Prepared SI edition of the book)	Cengage Publications	Frank Kreith, Raj M. Mangalik and Mark S. Bohn
4.	M S Shunmugam	Mechanical Engineering Design (in SI Units)	Tata McGraw Hill	Dr. N. Siva Prasad Dr. S. Krishnamurthy
<b>Monographs:</b>				
1.	Dr. Somashekhar S. Hiremath	Modeling and Analysis of the Jet Pipe Electrohydraulic Servovalve (2010).	Lambert Academy Publishing, Germany, Number # 5758, ISBN-NR 978-3-8383-5442-2.	Dr. M. Singaperumal Dr. R. Krishnakumar

#### Fellowships of Academies and Professional Societies:

Sl. No.	Name of faculty	Year of admission
<b>Humboldt Fellowship:</b>		
1.	Dr. A. S. Sekhar	Technical University Darmstadt, Germany. May-July 2010
2.	Dr. S. Narayanan	1984
<b>INAE:</b>		
1.	Dr. S. Narayanan	1997
2.	Dr. S. Srinivasa Murthy	2000
<b>Others:</b>		
1.	Dr. S. Srinivasa Murthy	International Academy of Refrigeration, 1994
2.		Institution of Engineers (India) (IE)1998
3.		International Energy Foundation, 1998
4.		American Society of Mechanical Engineers, 2002
5.		International Academy of Information Technologies, 2004
6.	Dr. M.S. Shunmugam	Precision Engineering
7.		International Journal of Machine Tools and Manufacture
8.		The International Journal of Advanced Manufacturing Technology
9.		Journal of Intelligent Manufacturing Systems
10.		American Society Of Mechanical Engineers
11.		Wear
12.		International Journal of Production Research
13.	Dr. B. Ramamoorthy	International Journal of Tribology and Surface Engineering
14.		Optics and Lasers in Engineering
15.		Measurement
16.		I MECH E ,Part B:Journal of engineering manufacture
17.		Surface and coating technology
18.	Dr. N. Ramesh Babu	Proceedings of Institution of Mechanical Engineers, Journal of Engineering Manufacture – Part B
19.		International Journal of Production Research
20.		Robotica
21.		International Journal of Computers in Industry
22.		Applied Soft Computing Journal
23.		International Journal of Machining and Machinability of Materials
24.	Dr. G.L. Samuel	Precision Engineering
25.		Computer Aided Design
26.		Assembly Automation
27.		Journal of Materials research
28.		International Journal of Automation and Control
29.		International Journal of Microstructure and Materials Properties
30.	Dr. M. Govardhan	Journal of Thermal Science

#### Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	Dr. Raju Sethuraman	Member	International Journal of Damage Mechanics
2.	Dr. C. Sujatha	Member	International J. of Vehicle Performance, Inderscience Publishers (UK)
3.	Dr. S. Narayanan	Member	International Journal of Computational Methods(world scientific)

4.	Dr. S. Narayanan	Member	Probabilistic engineering Mechanics(Elsevier)
5.	Dr. S. Narayanan	Member	Journal of Acoustical Society of India
6.	Dr. S. Narayanan	Member	International Journal of advances in Engineering Sciences and Applied Mathematics(Springer Verlag)
7.	Dr. S. Srinivasa Murthy	Member, Editorial Board	Journal of Energy, Heat and Mass Transfer
8.	Dr. S. Srinivasa Murthy	Member, Editorial Board	Innovative AC&R
9.	Dr. S. Srinivasa Murthy	Regional Editor: International Journal	Applied Thermal Engineering, Elsevier
10.	Dr. S. Srinivasa Murthy	Member, Editorial Board	International Journal of Low Carbon Technologies
11.	Dr. M. P. Maiya	Member, Editorial Board	International Journal of Low Carbon Technologies.

#### Design and Development Activities:

- Robot Calibration
- 6 Axis Simulator Remote Robot Experiment
- Basic Robotic Training program for vanavani school student
- Mechanical setup for remote operation

#### Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:

Ice bonded abrasive polishing process – micron/nano level polishing/finishing of flat metallic materials using self dressed fixed abrasive polishing tool

(Mohan R – Research Scholar; Dr. N. Ramesh Babu – Research Guide)

#### New facilities added or major equipment procured:

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1.	Servo control Trainer Kit	8.00
2.	Abrasive jet	0.50
3.	Electronic Weighing machine	0.07
4.	X-Y stage	1.20
5.	Linear Actuator	0.18
6.	Three Axis controller	0.47
7.	Power supply to the controller	0.11
8.	Struers Polishing Machine	6.00

#### Patents:

##### Patents filed:

Sl. No.	Name of faculty	Topic of patent
1.	Dr. M. Singaperumal	Tripod for submicron level positioning
2.	Dr. M. Singaperumal Dr. A. Ramesh	A method of measuring the air fuel ratio of a spark ignition engine
3.	Dr. T. Asokan Dr. M. Singaperumal	Design and Development of a 6 degree of freedom parallel platform type motion simulator.

##### Patents awarded:

Sl. No.	Name of faculty	Topic of patent
1.	Dr. N. Siva Prasad	Design and Development of a Cyclo Drive for an Automobile Wiper

#### 4.13.5 Research and Consultancy:

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1.	Above-knee (transfemoral) prosthesis design	11.01.2011 to 10.07.2014	Society of Biomedical Technology	5.55	Dr. Sujatha Srinivasan
2.	Design & development of large diameter slewing	28.1.2010 to 27.07. '11	IGCAR	4.50	Dr. N. Siva Prasad
3.	Residual stress and distortion control in welds using	14-09-2009 to 13-09-2012	DSTX	34.44	Dr. N. Siva Prasad
4.	Estimation of Anisotropic conductivity of Plates Using the Inverse Heat Transfer Methods	2 yrs	ISRO	13.20	Dr. SP Venkateshan Dr. C Balaji
5.	Studies on the transport of H <sub>2</sub> -Air-Stream mixture within a confinement	3 yrs from 12-05-2010	AERB, CSRD	27.30	Dr. SK Das Dr. T Sundararajan Dr. V Raghavan
6.	Study of cell migration under thermal and chemical gradients using microfluids based bio-MEMS	3 yrs	DBT New Delhi	69.48	Dr. SK Das Dr. T Pander Dr. N Dasgupta Dr. A Dasgupta
7.	Design and Development of Solar Parabolic Trough Collector for Direct Steam Generation	2010 - 2013	DST	34.00	Dr. K. S. Reddy Dr. A. K. Kolar
8.	Development of Solar Concentrator for Sea Water Desalination	2009 – 2012	DST- UKIERI	29.00	Dr. K. S. Reddy Dr. Tadhg O Donovan, HWU, UK
9.	Natural Evaporator for Textile Industry	16-03-2011 – 15-12-2011	Dept. of Environment, TN	9.60	Dr. Ligy Philip Dr. B. S. Murthy Dr. A. Kannan Dr. K. S. Reddy
10.	Investigation of Mixing in Gas Turbine listing rings with Porous Medicine Modelling	12-4-2010 – 11-4-2012	ARDB	17.30	Dr. Arunn Narasimhan Dr. Satyanarayana Chakravarthy
11.	Numerical and Experimental studies on thermal boundary resistance across nanostructure interfaces	3 years starting Nov 2010	ICSR, IIT Madras	9.67	Dr. Arvind Pattamatta
12.	Numerical Computation Studies on Air Breathing Propulsion System	28.05.2008 to 30.04.2011	ISRO	9.06	Dr. T. Sundararajan
13.	Assessment of stratification of corium on core-catcher plate	09.09.2010 to 02.09.2010	IGCAR	10.62	Dr. T. Sundararajan
14.	Augmentation of Research Facilities	2006-2008	DST	158.00	Dr. V. Ganesan Dr. J.M. Mallikarjuna
15.	Use of Straight Vegetable Oil in I.C. Engines	2008-2010	TIFAC-DST	36.84	Dr. Pramod S. Mehta Dr. Shamit Bakshi
16.	Experimental and numerical investigations on cold-flow of gasoline Direct injection (GOI) Engine using possible image velocimetry (PIV) and computational Fluid Dynamics (CFD)	2008-2011	DST	16.75	Dr. J.M. Mallikarjuna

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
17.	Development of a Fuel Efficient Two-stroke Direct Injection Spark Ignition (TDISI) Engine Running on Gaseous Fuels for Two and Three Wheeler Applications	March 2009 to 2012	DST	32.90	Dr. A. Ramesh Dr. M.K. Gajendra Babu
18.	Development of a compression-desiccant hybrid system for low humidity air conditioning	26.04.2008 to 25.04.2011 (3 years)	DST	26.65	Dr. M. P. Maiya Dr. Shaligram Tiwari
19.	Development of a numerical model to predict flame spread over liquid fuels	20.08.2008 to 19.20.2008 (3 years)	DST	9.66	Dr. Shaligram Tiwari Dr. V. Raghavan
20.	Development of mixed refrigerant cascade refrigerators operating with non-flammable refrigerants for cooling space simulation chambers	18.06.2009 to 17.06.2012 (3 years)	ISRO	26.40	Dr. G.Venkataraman Dr. S.Srinivasa Murthy
21.	Numerical study of wake characteristics for flow past single and multiple vibrating bluff bodies		Naval Research Board (DRDL)	12.94	Dr. Shaligram Tiwari Dr. V. Raghavan
22.	Investigations into Micro-mechanical machining of metals and Non-metals	2007-2011	DST	353.35	Dr. M S Shunmugam Dr. M Singaperumal
23.	Development of Ice bonded Abrasive Polishing	2007-2011	ARDB	18.57	Dr. N Ramesh Babu
24.	In process measurement and evaluation of surface roughness using non contact sensor based measurement system	2008-2010	CSIR	10.91	Dr. G.L. Samuel
25.	Multisensor Hot Film Anemometry for Periodic Flow Measurements	Dec. 2009 – Dec. 2011	ARDB	04.73	Dr. N. Sitaram
26.	Hot air calibration of five hole probes	July – 2009 July - 2012	BRNS	33.16	Dr. N. Sitaram Dr. M. Govardhan
27.	Design and Analysis of Ejection System for Towed Flexible Cylinder	3 years	NPOL, Kochi	30.00	Dr. BVSSS. Prasad Dr. Dhiman Chatterjee Dr. YVSS. Sanyasiraju Dr. Sandhipan
28.	Computational Investigations of Single and Two Phase Flows in Creep Distorted Rod-Bundles	3 Years	BRNS	16.80	Dr. BVSSS. Prasad Dr. BSV. Prasad Patnaik
29.	CFD analysis of Leakage Flows through labyrinth seals, tip shroud seals, platform gaps and stator-rotor gaps for varying GT engine conditions	2 Years	GATET GTRE	18.59	Dr. BVSSS. Prasad
30.	Conjugate Heat Transfer Experiments and Analysis for Predicting the External and Internal Heat Transfer Coefficients of Gas Turbine vanes and Blades	30.03.11 – 29.03.13	GATET GTRE	45.50	Dr. BVSSS Prasad Dr. Dhiman Chatterjee Dr. YVSS Sanyasiraju Dr. N. Sitaram

**Industrial Consultancy projects: (on going & new)**

Sl. No.	Name of faculty	Title	Industry	Amount (in Lakhs)
1.	Dr.V. Raghu Prakash	Failure Investigation of Evaporator Tubes	Sree Areya Enterprises, Trichy	1.10
2.	Dr.V. Raghu Prakash	High Temperature Compression Testing of Tubes	Sundram Clayton, Chennai	4.85

Sl. No.	Name of faculty	Title	Industry	Amount (in Lakhs)
3.	Dr. N. Siva Prasad	Development Of Seal Configuration Of Guillotine Gates To Improve	BHEL RANIPET	12.00
4.	Dr. N. Siva Prasad	FEA of Pneumatic Tyres	CEAT, Mumbai	10.00
5.	Dr. P. Chandramouli Dr. C. Sujatha	Seismic test of 120kv/198kv surge arresters	Elpro Intl Lt., Pune,	2.75
6.	Dr. P. Chandramouli Dr. Parag Ravindran	Seismic test of 220kv Voltage Transformer	BHEL Jhansi	1.54
7.	Dr. C. Sujatha	Seismic test on 400 kV circuit braker,	Siemens Aurangabad	2.05
8.	Dr. P. Chandramouli Dr. C. Sujatha	Seismic test of 800 Kv CT IBM	ABB, Vadodara, Baroda	2.31
9.	Dr. C. Sujatha Dr. Krishna Kannan	Seismic Test on 245 Kv HCB	Electrolities (Power) Pvt. Ltd.,Jaipur	1.5
10.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 12 kV 1250 A 26.3 KA	Areva TC India, Vadodara, Gurajtha	1.65
11.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 36 kV 1250 A 26.3 KA	Areva TC India, Vadodara, Gurajtha	1.65
12.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 36kV 1600 A 12kV	Megawin Switchgear Pvt. LTd	1.43
13.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 12 kV 1250 A 25 KA	Megawin Switchgear Pvt. LTd	1.43
14.	Dr. Swaranamani Dr. Parag Ravindran	Seismic test in CTS and CVTS	Areva TC India, Hosur	8.82
15.	Dr. Swaranamani	Mechanical trst for 800kV S CTS	Areva TC India, Hosur	0.66
16.	Dr. Chandramouli Dr. Parag Ravindran	Seismic test on 765 kV	Areva TC India, Padapai	USD 5515
17.	Dr. C. Sujatha Dr. Parag Ravindran	Seismic test on signal phase locohead mounted vacuum circuit braking	Areva TC India, Vadodara, Gurajtha	2.42
18.	Dr. C. Sujatha Dr. Sujatha srinivasan Dr. Chandramouli	Seismic test of 120 kV, 190 kV, Surge arrester	Elpro International Ltd, Puna	2.75
19.	Dr. C. Sujatha	Seismic test on 400 kV circuit braker,	Siemens Aurangabad	2.05
20.	Dr. C. Sujatha	Certification of vibration and noise measurements	MM Forgengres Ltd., Guindy	0.16
21.	Dr. P. Chandramouli Dr. G.Muthuveerappan	Seismic test on 245 kV SF6 circuit breaks	Mr. Barath Areva T & D India Ltd.	1.65
22.	Dr. Chandramouli Dr. Parag Ravindran	Seismic test on 220 kV VT	BHEL Jhansi	1.54
23.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 400 kV Double Break Isolator	Siemens Ltd, Hydatabad	2.04
24.	Dr. Chandramouli Dr. Swaranamani	Seismic test on 800 kV Lightning arrester	ABB, Sweden	2.63
25.	Dr. Swaranamani Dr. Parag Ravindran	Seismic test on 400 kV	GR Power switch gear, Hyderabad	2.04
26.	Dr. Swaranamani Dr. Shankar Krishnapillai	Seismic test on 400 kv CB isolater with 2 earth switch	GR Power switch gear, Hyderabad	2.04
27.	Dr. C. Sujatha Dr. A.S. Sekhar	Seismic test on 420kV 50 KA, 420kV 63 KA circuit beaker	Siemens Ltd, Auragabad	2.36
28.	Dr. Swaranamani Dr. A.Seshadri Sekhar	Seismic test on 400 kV , DBR	Siemens Ltd, Hyderabad	2.04
29.	Dr. Swaranamani Dr. Shankar Krishnapillai	Seismic test on 245 kV	Siemens Ltd, Hyderabad	2.04
30.	Dr. Swaranamani Dr. Parag Ravindran	Seismic test on 145 kV	Siemens Ltd, Hyderabad	2.04
31.	Dr. P. Chandramouli Dr. Swaranamani	Seismic test on 12 kV PCVCB Vacuum circuit brakes	Crompton Greaves Nashik	1.54



SI. No.	Name of faculty	Title	Industry	Amount (in Lakhs)
32.	Dr. P. Chandramouli Dr. Swaranamani	Seismic test on 800 kV CVT	ABB Ltd, Maneja, Vadodara	3.09
33.	Dr. P. Chandramouli Dr. C. Sujatha	Seismic test on 245 kV & 420 kV gass filled current transformer	Siemens Ltd, Aurangabad	2.98
34.	Dr. C. Sujatha Dr. A.Seshadri Sekhar	Seismic test on 800 kV CVT	Ms Crompton Greaves Ltd., Nashik, Ambad	1.76
35.	Dr. S. Swaramani Dr. C. Sujatha	Seismic Test on 400 kv, 270 kv current transformer	Universal Magnoflux Pvt. Ltd, Indore	5.96
36.	Dr. G. Muthuveerappan Dr. S. Swaramani	Seismic test on 1200 kV surge arresters	Lamco Industries, Hyderabad	3.75
37.	Dr. Swaranamani Dr. Parag Ravindran	Seismic test on 800 kV SF6 Circuit Breaker (Indian Make)	ABB Ltd, Maneja, Vadodara	1.81
38.	Dr. S. Swaramani Dr. C. Sujatha	Mechanical Endurance Test	Hirelum Isotors India	0.66
39.	Dr. S. Swaramani Dr. C. Sujatha	Seismic test on 400 kV DBR Isolators with earth switch single pole	HIVECM Industries, Alwder	2.21
40.	Dr. Swaranamani Dr. Parag Ravindran	Seismic test on 800 kV SF6 Circuit Breaker ( Sweden make)	ABB Ltd, Maneja, Vadodara	1.82
41.	Dr. Swaranamani Dr. C. Sujatha	Shock and Vibration Test on 60 kV A Transformer	Lamda Electro Ltd, Chennai	2.82
42.	Dr. P. Chandramouli Dr. V Raghu Prakash	Seismic test of 765 kV circuit breaker	Siemens Ltd, Gurgaon	2.32
43.	Dr. P. Chandramouli Dr. Swaranamani	Seismic test on 420 kV double breaker	Areva T & D India Pvt. Ltd, Padapai	1.87
44.	Dr. C. Sujatha	Generating MATLAB code for ride analysis	Wheel India Pvt. LTd, Padi	1.65
45.	Dr. C. Sujatha Dr. Parag Ravindran	Seismic test on 800 kV Circuit Breaker	Siemens Ltd, Aurangabad	2.21
46.	Dr. Swaranamani Dr. Shankar Krishnapillai	Seismic test on 145 kV, 3150 kV, 245 kV, 420 kV	Siemens Ltd, Hyderabad	6.12
47.	Dr. Swaranamani Dr. Shankar Krishnapillai	Seismic test on 216 kV C1.3 Lighting arreater as per IEC	CGL, Nashik, Ambad	1.54
48.	Dr. Swaranamani Dr. A.Seshadri Sekhar	Seismic test of 420 kV, 245 kV, 145 kV, PG HCB Isolators	Siemens Ltd, Hyderabad	6.12
49.	Dr. P.Chandramouli Dr. Shankar Krishnapillai	Seismic test on 220 kV CT, 132 kV Ct, 132 kV potential Transformer	Vidyuth Control System Pvt. Ltd, Secwadrabad	4.96
50.	Dr. C. Sujatha Dr. Krishna Kannan Dr. Parag Ravindran	Seismic test on 245 kV HCB, 170 kV HCB, 72.5 kV DB, 36.5 kV DB	Electrolite (Power) Pvt. Ltd, Jaipur	5.11
51.	Dr Raghu Prakash	Failure Analysis of piston rod of a damper.	Gabriel India Limited, Hosur	0.05
52.	Dr Raghu Prakash	Fatigue testing of Aluminum langes.	Wabco-TVS Limited	3.24
53.	Dr. Raghu Prakash Dr. S. Swanamani	Low Level Dust Concentration Measurements –Literature survey	BHEL, Ranipet	1.66
54.	Dr. K. S. Reddy	Thermal Conductivity Measurement of LRB samples	Rockwool India Pvt. Ltd.,	1.50
55.	Dr. K. S. Reddy	K-value testing of Rockwool Mattresses	Rockwool industries Pvt. Ltd.,	0.80
56.	Dr. Pramod S. Mehta	Testing of MK20 HSP Greaves Cotton Petrol Engine as per IS 7347	M/s Greaves Cotton Ltd., Chennai	1.51
57.	Dr. A. Ramesh	Performance Evaluation of a Single Cylinder SI Engine	M/s Greaves Cotton Ltd., Chennai	1.93

Sl. No.	Name of faculty	Title	Industry	Amount (in Lakhs)
58.	Dr.J.M. Mallikarjuna Dr. A. Ramesh Dr. V. Ganesan	Evaluation of Scavenging Characteristics of a different Port Configurations of a Two-Stroke Moped Engine using Skip Fire, Jante's Method and PIV Technique	M/s TVS Motors Limited, Chennai	12.00
59.	Dr. J.M. Mallikarjuna	Testing of Your Engine for Performance and Emission Characteristics	M/s Luminous Teleinfra Limited, Chennai	0.36
60.	Dr. S. Srinivasa Murthy Dr. M. P. Maiya	Consultancy for replacement of AC plant at DDK, Chennai	Doordarshan Kendra, Chennai	1.50
61.	Dr. G.L. Samuel	Determination of surface area	Global Engineering Company Ltd., Chennai	0.04
62.	Dr. M. Govardhan	Performance improvement of BAB2 fan using CFD analysis	BHEL, Ranipet	07.50
63.	Dr. BVSSS. Prasad	Studies on Lime Stone Characterization, Flue Gas Sampling, Sintering and Depositions Analysis of CFB Boiler Phase-I In-situ Experiments and Collection of Samples	BHEL, Trichy	20.00
64.	Dr. BVSSS. Prasad	Studies on Sintering and Deposition Analysis of CFBC Boilers Phase-II	BHEL, Trichy	42.00
65.	Dr. N. Sitaram	Calibration of venturimeter	BHEL, Trichy	00.11
66.	Dr. N. Sitaram	Calibration of venturimeter	Devi Electricals	00.11
67.	Dr. N. Sitaram	Calibration of S Type Pitot Probe	Mechtech	00.07
68.	Dr. BVSSS. Prasad	Characterization of sorbents for sulphur capture in circulating fluidized bed combustion boiler	BHEL, Trichy	20.30

**RBIC projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1.	Dr. Raghu V Prakash	Evaluation of Mechanical Properties of Boiler Materials Through Miniature Specimen Testing	RBIC BHEL, Trichy	15.50
2.	Dr. K. Gopinath Dr. A.Seshadri .Sekhar Dr. P.Chandramouli	Study of Power Train Torsional Vibrations	BEML, Kolar Gold Fields	5.13
3.	Dr. K Gopinath Dr. Seshadri Sekhar Dr. P. Chandramouli	Torsional vibration analysis of 800 HP transmission	BEML KGF	9.00
4.	Dr. Raghu Prakash	Development of pickup device for automobiles.	Chowgule & Co. Goa	4.62
5.	Dr. V. Ganesan	Modeling of Steady Flow Through Intake and Exhaust Manifolds	Infosys Technologies Ltd., Bangalore	15.00
6.	Dr. V. Ganesan	CFD Modeling and Analysis of Intake and Exhaust System	e-Engg Solution, L & T Technology, Vadodara	12.00
7.	Dr. V. Ganesan	Consultancy and Technical Study on Self-Cleaning Air Cleaning System and Compact Air Cleaning (Secondary Filtration After Turbocharger Compressor) for Armoured Fighting Vehicles	CVRDE Avadi Chennai	9.20

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
8.	Dr. A. Ramesh Dr. V. Ganesan Dr. J.M. Mallikarjuna Mr. P.V. Mannivannan	Development of Hydrogen Engine for Passenger Bus Application	M/s Tata Motors Limited, Pune	94.00
9.	Dr. V. Ganesan	Characterization of Urea Spray Delivery, Mixing and Hydrolysis in a SCR Device	M/s General Motors, Bangalore	15.34
10.	Dr. A. Ramesh	Bio-diesel Engine Performance , Emissions and Combustion Study	M/s Reliance Industries Ltd., Maharashtra	5.62
11.	Dr. A. Ramesh	Feasibility Study of a Wobble Plate Engine	M/s NSTL	12.00
12.	Dr. G. Venkatarathnam	Energy Analysis of Refrigeration Systems	Ingersoll Rand, Bangalore	5.00
13.	Dr. N Ramesh Babu	Development of intelligent algorithms for Nesting of 2D shapes in 2D sheets	Amada Co. Ltd. Japan	19.83
14.	Dr. N Ramesh Babu Dr. Uday Chakkingal	Predictive and corrective methods for addressing deformation in bending of sheets	Amada Co. Ltd. Japan	21.58
15.	Dr. BVSSS. Prasad	CFD study of 182MW gasifier along with loop seal pressure balance and the effect of recycling	BHEL, Trichy	10.00
16.	Dr. BVSSS. Prasad	Expert review of CFB boiler site performance and design development	BHEL, Trichy	16,00
17.	Dr. BVSSS. Prasad	Scale-down Models of 125MWe and 250MWe circulating fluidized bed boiler design, fabrication and testing	BHEL, Trichy	20.00
18.	Dr. BVSSS. Prasad	Effects of Coal feed points on the hydrodynamics in fluidized beds	BHEL, Trichy	15.00

#### Retainer Consultancy: (on going & new)

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1.	Dr. P. Chandramouli	Noise & Vibration reduction of electrical equipment	Crompton Greaves Mumbai	1.5
2.	Dr. P. Chandramouli	Noise & vibration reduction in air compressors	ELGI Coimbatore	2.5
3.	Dr. A. Ramesh	--	M/s Luminous	--
4.	Dr. G. Venkatarathnam	Retainer Consultancy on FDD of Refrigeration Systems	Pacific Controls, Dubai	4.80

#### Exchange programme with other Universities including Institutions/Universities under MOU;

Two Scholar went for Japan and One scholar went for TuMunich, Germany and One Faculty got Erasmus Mundus Scholarship as a visiting professor at FRANCE

#### Faculty members participation with other institution under MoU:

Sl. No.	Name of faculty	Participation details	Name of University/Institution which has MoU
1.	Dr Raghu Prakash	Academic Advisory committee member	IIIT D&M, Kancheepuram
2.	Dr. K. S. Reddy	As Visiting Professor to give lectures for Masters Degree students in Faculty of Engineering	Rajamangala University of Technology Thanyaburi, Thailand
3.	Dr. Somashekhar S. Hiremath	Visiting Professor	Ecole Centrale de Nantes, FRANCE
4.	Dr. L Vijayaraghavan	Member – Board of Studies	SESMV UNIVERSITY
5.	Dr. L Vijayaraghavan	Member - Academic council	Kalasalingam UNIVERSITY

### Research Publications of the faculty members & research scholars:

- Total No. of papers published in Refereed National Journals : 12
- Total No. of papers published in Refereed International Journals : 181
- Total No. of papers presented in National Conferences : 7
- Total No. of papers presented in International conferences : 103

### In Refereed National Journals:

1. K. Sathyan, K. Gopinath, H.Y Hsu, S.H. Lee. Development of a Positive Lubrication System for Space Application. Tribology Online, 5,1 (2010), 40-45.
2. Vinitha Ranganathan, K. Gopinath and K Shankar, "Characteristics of Commercially Available Brake Friction Material", National Journal of Technology, Vol. 6, No. 1,2010.
3. V.Balamurugan and S.Narayanan "Finite Element Modeling of Stiffened piezolaminated plates and shells with piezoelectric layers for active vibration control". Smart Materials & Structures 19(2010) 105003
4. P. Sivakumar, K. Gopinath and S. Sundaresh, Performance evaluation of high Contact ratio gearing for combat tracked vehicles – A case study, JAUTO1254 Proc. IMechE Vol. 224 Part D: J Automobile Engineering 2010(available on Net) pp 631-643
5. J.K.N. Murthy, K. Satya Prasad, K. Gopinath and B. Venkataraman, Characterisation of HVOF sprayed Cr3C2
6. K. Sathyan, K.Gopinath, Hsu, H.Y., and Lee, S.H., "Development of a Positive Lubrication System for Space Application. Tribology Online, 5,1 (2010), pp 40
7. I.R. Praveen Krishna & C. Padmanabhan, " Improved reduced order solution techniques for nonlinear systems with localized nonlinearities" To appear in Non Linear Dynamics
8. Amarnath. M, C. Sujatha and S. Swarnamani: "Detection and diagnosis of gear tooth wear through metallurgical oil analysis" Tribology Online, Vol.5(2010, No.2, pp. 102-110.
9. Jinesh Kumar, V.R. and Sujatha C: Forced vibration analysis of wind turbine rotor blade, Advances in Vibration Engineering, 9(3), 2010, pp. 285-296
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11. V. Raghu Prakash: Creep Damage characterization using a low-amplitude non linear ultrasonic technique," accepted by Materials characterization, Elsevier, November 2010
12. Pankaj Kumar and S. Narayanan "Efficient Path Interpret Solution of Fokker Planck Equation. Response, Bifurcation and periodicity of nonlinear systems, paper presented at the workshop in advance in mechanics. PP 25 – 27

### In Refereed International Journals:

1. Sathyan. K, Hsu. H.Y., Lee S.H, Gopinath K, Long term lubrication of momentum wheels used in spacecrafts – An overview, Tribology International, 43(2010) 259-267
2. Pankaj Kumar and S. Narayanan " Response Statistics and Reliability Analysis of a Mistuned Bladed Disk Assembly subjected to White Noise Excitation". Paper presented at the ASME Turbo Expo 2010, Glasgow, UK
3. S. Narayanan and Shamrao, "Robust Control of Chaotic Vibrations of Composite plate in the presence of Noise using sliding Mode Method." Paper presented at the International Conference on Dynamics, Vibration and Control (ICDVC-2010) May12-14,2010, Hangzhou, China.
4. S. Narayanan and Pankaj Kumar, " Numerical solution of Fokker-Planck Equation for Nonlinear Stochastic Dynamical systems" Invited paper presented at the IUTAM Symposium on Nonlinear Stochastic Dynamics and Control, Hangzhou, China, May10-14,2010.
5. V. Balamurugan and S. Narayanan "Experimental studies on structures with distributed PZT sensors and actuators" Paper presented at the International Conference on Composites for 21st Century: Current & Future Trends(ICC-CFT2011), Bangalore, 4-7, Jan.2011.

6. Sathyan, K, Hsu, H.Y., Lee, S.H, Gopinath. K. "Long term lubrication of momentum wheels used in spacecrafts – An overview". Tribology International, 43 (2010) 259-267
7. Sathyan, K., Gopinath, K., H.Y., Lee S.H. " Development of a Lubrication System for Momentum Wheels Used in Spacecrafts". Tribology Letters, 32,2008, 99-107.
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10. Corrosion Fatigue Crack Growth Studies in Ni-Cr-Mn Steel, " Chinmani Madduri and Raghu V Prakash, International Journal of Mechanical and Materials Engineering 1.1(2010) PP.20-25
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#### Distinguished Visitors to the Department:

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1.	Prof.T.Kapitaniak, University of Poland	Jan 25to 27, 2011	Seminar talk and Interaction
2.	Prof.M.Wiercigroch, University of Aberdeen, UK	Feb 10 to 12, 2011	Seminar talk and interaction
3.	John Leinhard, Professor, MIT, Cambridge USA	6 <sup>th</sup> Oct. 2010	Giving Lecture
4.	Prof. Alberto Coronas, Professor Universitat Rovira I Virgili, Tarragona, Spain	25.10.2010 to 02.01.2011	Research Collaboration / MOU Signing
5.	Prof. L. R. Oellrich University of Karlsruhe, Germany	17.02.2011 to 23.02.2011	Research Collaboration

#### 4.13.6 Other Activities of the Department/Centre:

Results obtained in research work (from M.S. & Ph.D thesis) of the scholar/faculty (last year sample enclosed from Director's Speech)

1.	Palani I.A.	ND <sup>3+</sup> : YAG Lase Assisted Annealing and Texturing of Amorphous Silicon (a-Si) Thin Films	Deg. in 2010	Dr.M. Singaperumal Dr. N. J. Vasa
2.	Manesh K. K.	Investigations on 3D Wall roughness Effect on Flow characteristics of micro-gap Fluid continuum	Deg. in 2010	Dr.M. Singaperumal Dr.B. Ramamoorthy
3.	Manivannan P. V	Investigations on control methods for engine management system of spark ignition engines	Deg. in 2010	Dr.M. Singaperumal Dr.A. Ramesh
4.	Kuppan Chetty RM.	Distributed Formation Planning and Control of Multiple Mobile Robots	Deg. in 2010	Dr.M. Singaperumal
5.	Muralidhara	Investigations on micro-EDM process with piezoactuated tool feed system	Deg. in 2010	Dr.M. Singaperumal Dr.N.J. Vasa
6.	Karunanidhi S	Investigations on micro actuators for hydraulic servovalve applications	Deg. in 2010	Dr.M. Singaperumal

- **Inter disciplinary group achievements of the Departments.**

Virtual Remote Laboratory is in function to gather many engineering college students, faculty.

- **Socially relevant activities carried out by the Department**

Training for school students for Virtual Remote Laboratory is.

- **International collaboration achievements by the Department**

**Student visit -03** : Two Scholar went for Japan and One scholar went for TuMunich, Germany

**Faculty visit – 01** Erasmus mundus Scholarship for visiting professor at FRANCE

- **Activities initiated**

Dr. S. Narayanan International Joint Research Project, Royal Society London, With University of Swansea. Project sanctioned for 3years. Project Title: Energy Harvesting from Randomly Excited Oscillators.

Dr. A. Ramesh has been nominated as a Member of Expert Groups on Analytical Instrumentation, Sensors, Allied Instrumentation and Industrial Instrumentation by DST

Dr. A. Ramesh, has been nominated as an expert member of the national mission on engine development in 2010 for the development of engine for armed forces.

- **Major infrastructure development made in the Department**

Added many types of equipment for UG/PG Laboratory, namely Servo Controller, temperature Controller, Micro Processors, Inverted Pendulum and Instrumentation sensors.

Establishment of Particle Image Velocimetry facility at I.C.E. lab under DST-FIST project

A common rail fuel injection system facility has been development for combustion study

## 4.14 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 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 & 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 the industry and the expertise of the faculty in industrial metallurgy. Over the years, the research interests of the faculty have diversified into many areas of materials science & engineering. The Department has excellent research infrastructure in the broad areas of materials processing (forming, joining, casting, particulate processing, nanostructured materials), characterisation (X-ray diffraction, electron microscopy, thermal analysis, scanning probe microscopy), mechanical testing, environmental degradation, surface engineering, and computational materials science. The Department continues to strive for excellence and realizing its vision of becoming 'a pioneering Department in the country for teaching, research, and consultancy in emerging areas of materials science and engineering, while consolidating the Department's strength in traditional areas of metallurgical engineering.' The activities for the year 2009-10 bear testimony to a vibrant department's progress in keeping with its vision.

### 4.14.2 Academic Programmes:

#### New Courses introduced:

Modelling of Transport Phenomena in Metallurgical Processes

#### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	37	24	23	21	4	109
Dual Degree	12	11	8	11	11	53
M.Tech.	18	22	1	0	0	41
M.S.	3	9	5	3	0	20
Ph.D.	15	15	8	8	19	65
<b>Total</b>	<b>85</b>	<b>81</b>	<b>45</b>	<b>43</b>	<b>34</b>	<b>288</b>

#### Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>				
1	Ms. R. Sangeetha	Presented a paper titled "Etching initiated corrosion of stainless steel 316L by the cement of the barnacle, Amphibalanus reticulatus", in 15th International Congress on Marine Corrosion and Fouling (ICMCF 2010), Newcastle University, UK	25 <sup>th</sup> - 29 <sup>th</sup> July 2010, Newcastle University, NewcastleGateshead, United Kingdom	
2	Ms. Swetha C. Sekaran	Presented a paper in the Junior Euromat 2010 conference titled "Mechanical and dielectric properties of hollow glass/ceramic microsphere reinforced polymer based syntactic foams"	26 <sup>th</sup> - 30 <sup>th</sup> July, 2010, Lausanne, Switzerland	
3	Mr.Prathap Chandran	Visited Deakin University , Auatralia (Sept. 2010-May 2011) for collaborative project work	Sept. 2010-May 2011)	

**Names of students/scholars who won outside prizes and awards:**

Sl.No.	Name of the Student/Scholar	Name of Prize	Prize awarded by
1.	Mr. Aslam Kunhi Mohammad	<i>Eiffel scholarship</i> to pursue his Masters degree in France	French Ministry of Foreign and European Affairs
2.	Mr. B.Baskar, Ph.D. Scholar	Best oral presentation award at the 1st Indian chitin and chitosan symposium on , 24th April, 2010 at , Coimbatore for the paper on Preparation and characterization of chitosan-gelatin composite films for biomedical applications coauthored with T.S.Sampath Kumar	ICCS 2010 Organizers
3.	Mr.Sandeep Kranthi Kiran	Best Oral Presenter Award at the ABC 2010 symposium held during Nov.2-5, 2010 at Yogyakarta, Indonesia for the paper on Processing of titania nanofibers by electrospinning co-authored with Rajkamal Balu and T. S. Sampath Kumar	Organizers of the Tenth Asian Bioceramics Symposium (ABC 2010)
4.	Mr.T.N.Raju MM08D005	Best paper award for paper presented in the session on Phase Transformations during ISRS 2010	Organizers of ISRS, IIT Madras
5.	Mr. Srivenkata Subramanian	IIW Best M.Tech Thesis Award 2010	Indian Institute of Welding

**Name of Students/Scholars who won Institute Convocation/Institute Day Prize:**

Sl.No.	Name of the Student/Scholar	Name of Prizes	Name of Donor
1.	Imteyaz Mohamad Ahmad	Sudarshan Bhat memorial prize for the best PhD thesis in MME	

**4.14.3 Faculty and their activities:**

**Faculty:**

**Name and Qualifications**

**Major area of specialization (only 3 areas)**

**Professor:**

Prasanna Kumar, T.S. [Head]  
Ph.D. (IIT Madras)

Process modeling, finite element analysis, higher level automation, modeling techniques related to steel plant technology

Kesavan Nair, P.  
Ph.D. (IIT Madras)

X-ray diffraction, residual stress analysis, electroless coatings, synthesis and characterization of carbon nanotubes

Bhattacharya, S.S.  
Ph.D. (IIT Madras)

Nanostructured and nanocrystalline materials: Synthesis, consolidation and characterisation; Superplasticity of materials (analytical and experimental); Superplastic forming; High temperature deformation behaviour of materials, Metal forming

Ganesh Sundara Raman, S.  
Ph.D. (IIT Madras)

Fatigue, fracture mechanics, fretting fatigue, fretting wear, short cracks, mechanical behaviour of materials, coatings, thermal spray processing

Kamaraj, M.  
Ph.D. (IIT Madras)

Creep deformation and fracture mechanisms of titanium aluminides, superalloys and welded joints, development of wearsurfacing materials; tribological tests on weld deposits (plasma transferred arc, plasma spray, HVOF processes etc.), studies of the relationships between processing, microstructure, deformation and fracture processes in advanced materials, fretting fatigue of structural materials, development of marine propeller materials

Murty, B.S. Ph.D. (IISc Bangalore)	Thermodynamics and kinetics of phase transformations, mechanical alloying and rapid solidification processing, nanocrystallization of bulk metallic glasses, nanocrystalline metals, alloys and intermetallic compounds, nanocomposites, grain refinement of Al alloys, in-situ composites, transmission electron microscopy
Pathak, S.D. Ph.D. (IIT Madras)	Mechanical metallurgy, fatigue and fracture mechanics, short crack initiation and propagation, fracture toughness of HSLA steels, stress rupture behaviour and life assessment of high temperature materials
Prasad Rao, K. Ph.D. (IIT Madras)	Welding, Surface Engineering (corrosion and wear)
Raghavan, S. Ph.D. (IISc Bangalore)	Thermodynamics of metal oxide systems using solid electrolyte galvanic cells, solid state chemical sensors in industry, hot corrosion and creep of superalloys, computer simulation of phase diagrams and theoretical models
Sampath, V. Ph.D. (IISc Bangalore)	Shape memory alloys and smart materials, composite materials, powder metallurgy, sol-gel processing, physical metallurgy, structure-property correlations
Sampath Kumar, T.S. Ph.D. (IISc Bangalore)	Regenerative nanobiomaterials for hard tissue applications, electro spinning of bioceramic nanofibers, antimicrobial materials and drug delivery systems; ultra fine grained metallic implants, innovative bio-ceramics by waste recycling
Paramanand Singh Ph.D. (IIT Bombay)	Study of advanced ceramics (both functional and structural ceramics), nanostructured materials, shape memory alloys and electronic materials, ceramic matrix composites, metal matrix composites, mechanical alloying, metallic foam and warm compaction, powder metallurgy, powder characterization
Balasubramanian, M. Ph.D. (IIT Madras)	Advanced ceramics & composites, nanocomposites processing, materials characterization
Uday Chakkingal Ph.D. (Rensselaer Polytechnic Institute)	Metal forming and materials processing, severe plastic deformation processes, aluminium alloys, fatigue
<b>Associate Professor:</b>	
Prathap Haridoss Ph.D. (U. Wisconsin – Madison)	Production and characterization of carbon nanotubes, synthesis of CdS nanocrystals, CO tolerant PEM fuel cell catalysts
Hari Kumar, K.C. Ph.D. (IIT Delhi)	Computational thermodynamics, CALPHAD: computer coupling of phase diagrams and thermochemistry, thermodynamic database for technology important materials, process metallurgy, physical metallurgy, Ab Initio methods, microstructure simulation
Phanikumar, G. Ph.D. (IISc Bangalore)	Solidification using electromagnetic levitation and melt spinning, transport phenomena in manufacturing processes, microstructure simulation and characterization.
Subramanya Sarma, V. Ph.D. (IIT Madras)	Materials processing, development, characterization and microstructure-mechanical properties correlations in engineering materials
<b>Assistant Professor:</b>	
Bauri, R. Ph.D. (IISc Bangalore)	Metal matrix composites, aluminium alloys, solid oxide fuel cells

Gandhi, A.S. Ph.D. (IISc Bangalore)	Physical ceramics; ceramic nanomaterials; high temperature protective coatings (environmental and thermal barrier coatings); materials for energy systems (solid oxide fuel cells, SOFC's); phase stability and transformations; metastable effects; thermally driven interactions in layered systems; surface engineering; zirconia ceramics; non-equilibrium phenomena in oxides
Janaki Ram, G.D. Ph.D. (IIT Madras)	Joining of materials, rapid manufacturing, aerospace materials, surface engineering
Ravi Kumar, N.V. Ph.D. (MPI-Stuttgart)	Polymer derived ceramics, silicon carbide/silicon nitride ceramics, nanostructured materials, high temperature mechanical properties, object oriented finite element programming-for prediction of macroscopic properties
Ravi Sankar, K. Ph.D. (IISc Bangalore)	High temperature deformation, superplasticity, nanocrystalline materials, size effects in plastic deformation
Sabita Sarkar Ph.D. (IISc)	Process modeling/design of metallurgical and chemical processes, modelling and simulation of flow through packed bed, fluidized bed, heat and mass transfer, granular flow, multi-phase flow, reacting flow etc.
Sankaran, S. Ph.D. (IIT Kanpur)	Mechanical behaviour of materials, electron microscopy, structure property correlations
Bakshi, Srinivasa Rao* Ph.D. (Florida International University, Miami, USA)	Thermal spraying, Carbon nanotube reinforced composites, Microstructure property correlations at different length scales

**Emeritus Scientist/ Emeritus Professor:**

Seshadri, S.K. Ph.D. (Imperial College London)	Electroless deposition of nickel and its composites. evaluation of wear and corrosion characteristics of electro and electroless composite coatings. Biomaterials
Venugopal, P. Ph.D. (IIT Madras)	Metal forming processes, component development, press tool design (inclusive of applied maths), metal forming machine tools dynamics, design & applications (inclusive of applied maths), cold extrusion of materials, solid state joining of dissimilar powder metallurgical preforms, ironing of friction prone materials, deep drawing and bending of sheet materials - powder metallurgical characterization, viscous extrusion of ceramics (ybco, nano-materials etc). energy related aspects relevant to metal deformation the main focus is towards ensuring cost effectiveness in metal forming with conservation of energy in terms of machines, tools and processes

**AICTE-INAE Distinguished Visiting Professor**

Baldev Raj Ph.D. (IISc Bangalore) *Joined in 2010-2011	Non-destructive testing, materials development and performance assessment, technology management
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**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Symposia:</b>			
1	Prof. T. S. Sampath Kumar	Organised a session on Bioinspired Materials at the Indo-German Frontiers of Engineering (INDOGFOE) Symposium during July 24-27, 2010. This series of symposiums held alternately in India and Germany is being sponsored by the Department of Science and Technology, Govt. of India and the Alexander von Humboldt Foundation, Germany.	24 <sup>th</sup> -27 <sup>th</sup> July, 2010, Potsdam, Germany
<b>Workshop:</b>			
1.	Dr. Subramanya Sarma	DST-SERC sponsored 5-day workshop on Texture and Microstructure	Oct.25-29, 2010



2.	Prof. B.S. Murty, (Co-Chairman)	Agriculture tools and traditional blacksmithy: Present trends and future prospects (Convener: Sri. Ram Kumar Singh, Director ATRC, Bardoli)	Bardoli, 20-22, January, 2011
3.	Prof. B.S. Murty	Discussion meeting on "Present Understanding and Future prospects of Phase and Microstructure Evolution in Severe Plastic Deformation Processes"	February 20-23, 2011, Coorg
4.	Prof. M. Kamaraj & Mr.G Jothinathan	Two day workshop entitled " <i>Material Selection, Metallography, Mechanical &amp; Nondestructive Testing</i> "	25-26 Feb. 2011
<b>Short term Course:</b>			
1	Prof. B.S. Murty and Dr. Ashutosh. S. Gandhi	Two-day course entitled " <i>Materials Characterization and Failure analysis</i> " with ASM International Chennai Chapter	March 4-5, 2011
2	Prof. P. Venugopal	Special course of 20 sessions to the 40 Executives of M/S Tube Products of India	Sep.2010 - January 2011
3	Prof. Kamaraj and Prof. Venugopal	Refresher course on Quality improvement for FL Smidth entitled "Hot drop forging and cold forging defect remedial measures"	25.03.2011

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1	Dr. Ranjit Bauri	EPSRC – DST Workshop for India – UK co-operation on Fuel Cells	Chennai	15.09.10 – 17.09.2010/
2	Prof. T.S. Prasanna Kumar, Prof. M. Kamaraj, Dr. N.V. Ravikumar and Dr. S.R. Bakshi	1 day workshop on M.Tech in Nuclear Engineering	III Madras	19.02.2011
<b>Symposia:</b>				
1	Dr. G. D. Janaki Ram	Rapidly solidified materials: present as Future trends in India	DMRL, Hyderabad	28.09.2010 Hyderabad
2.	Dr. G.D. Janaki Ram	IISc-DBT-UNSW-UQ Research Workshop on advanced materials	IISc, Bangalore	Feb. 7-8, 2011
3	Dr. Ranjit Bauri	International Symposium on Energy Materials	CGCRI, Kolkata	1-2 March 2011
<b>Conference:</b>				
1	Prof. S. S. Bhattacharya	Participation in an international conference and presentation of four papers (1 oral and 3 posters). The next ANM conference will be held in 2012 at IIT Madras. The Chairpersons for this conference will be Profs. Jose Gracio (Univ. of Aviero, Portugal), S. Ramaprabhu (PH dept, IITM), M.S. Ramachandra Rao (PH Dept, IITM) and S.S. Bhattacharya (MME, IITM).	Morocco	10.09.2010 to 17.09.2010
2	Prof. T. S. Sampath Kumar	Attended and presented paper in the Annual Conference of the International Medical Sciences Academy (IMSA 2010). London, UK	International Medical Sciences Academy, London, UK	10.09.10 to 11.09.10 London, UK
3	Dr. N.V. Ravi Kumar	International Symposium Molecular Bionics – From Biomineralization to Functional Materials" to be held at Schloss Ringberg (Rottach-Egern), Germany.	Schloss Ringberg (Rottach-Egern), Germany.	03.10.2010 to 06.10.2010 Germany
4	Dr. Ranjit Bauri	AMPT 2010 conference to be held in Paris, France.	Paris, France	24.10.2010 to 27.10.2010

5	Dr. N.V. Ravi Kumar	Delivered invited talk in the First International Conference on Composites and Nanocomposites (ICNC2011)	Kottayam, India	7th - 9th Jan 2011
6	Prof.V.Sam path	Studies on Effect of Ageing on Shape Memory Characteristics of Cu-Al-Fe Alloys, V.Sam path and T.N.Raju Annual Technical Meeting and Exhibition of The Minerals, Metals and Materials Society (TMS), San Diego, USA,	TMS, San Diego, USA	27 Feb. – 3 Mar. 2011
7	Prof.V.Sam path	Effect of Alloying Iron on the Shape Memory Characteristics of Cu-Al Alloys, T.N.Raju and V.Sam path Annual Technical Meeting and Exhibition of The Minerals, Metals and Materials Society (TMS), San Diego, USA,	TMS, San Diego, USA	27 Feb. – 3 Mar. 2011
8	Prof.V.Sam path	Shape Memory Effect in Cu-Al-Fe Alloys, V.Sam path and T.N.Raju Fifteenth International Congress on Metallurgy and Materials, Istanbul, Turkey	Istanbul, Turkey,	11-13 Nov. 2010
9	Prof.V.Sam path	Heat treatment studies of high strength 7010 Aluminium alloy extrusions; M.Angappan, V.Sam path, B.Ashok and V.P.Deepkumar International Conference on Advanced Materials, Manufacturing Management and Thermal Sciences 2010, Siddaganga Institute of Technology, Tumkur, India.	Tumkur, Karnataka, India	18-19 Nov. 2010
10	Prof.V.Sam path	Shape Memory Characteristics of Cu-Al-Fe Shape Memory Alloys with the Variation in Aluminium and Iron. T.N.Raju and V.Sam path International Symposium of Research Scholars (ISRS), IIT Madras, Chennai, India.	IIT Madras, Chennai, India,	20-22 Dec. 2010.
11	Prof.V.Sam path	Effect of friction stir processing and mechanical properties of AA 2219 Al alloy in situ TiB <sub>2</sub> composites N.R.Rajasekaran and V.Sam path International Symposium for Research Scholars (ISRS), IIT Madras, Chennai, India.	IIT Madras, Chennai, India,	20-22 Dec. 2010.
<b>Short term Course:</b>				
1	Dr. Sabita Sarkar	Attended short course on Computational Fluid Dynamics on Graphics Processing Units (GPU), IIT Hyderabad.	IIT Hyderabad	7.10.10 to 8.10.10

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Prof. S. S. Bhattacharya	Delivered Two lectures on mechanical characterization at the summer school, Dept of Materials engineering, IISc, Bangalore	Dept of Materials engineering, IISc, Bangalore	15-06-2010 to 17-06-2010

2	Dr. Ravi Sankar Kottada	Delivered three lectures titled Constant strain rate testing, Creep testing and Creep deformation mechanisms were delivered for invited faculty from various engineering colleges working in the area of Mechanical behavior of Materials	Dept of Materials engineering, IISc, Bangalore	17-06-2010
3	Prof. T. S. Sampath Kumar	Delivered a lecture on Nanostructured Implants.	Danish Technological Institute, Copenhagen, Denmark	29 <sup>th</sup> , June, 2010
4	Prof. T. S. Sampath Kumar	Delivered an invited talk on "The Role of Surfaces in Biomaterials" at the Symposium on Surfaces and Catalysis and Felicitation to Professor M. S. Hegde	Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore	26 <sup>th</sup> July, 2010
5	Prof. T. S. Sampath Kumar	Delivered a lecture on Nanophase Bioceramics	Max Bergmann Center of Biomaterials Dresden, Germany	28 <sup>th</sup> June, 2010
6	Prof. T. S. Sampath Kumar	Delivered a special lecture on Nanocrystalline Bioceramics for Minor Dental Surgery	Center for Interuniversity Research and Engineering of Materials (CIRIMAT), National Engineering School of Chemical and Technological Arts (ENSIACET), University of Toulouse, France	01 <sup>st</sup> , July, 2010
7	Dr. Ravi Kumar, N.V	Delivered a invited lecture titled "Bioadhesion of Amphibalanus reticulatus: Inspiration for Intelligent Design" during the 2nd Indo-German Frontiers of Engineering Symposium in Potsdam, Germany between 24 - 27 June 2010 on invitation. The visit was sponsored by the Department of Science and Technology, India and the Humboldt Foundation, Germany.	Potsdam, Germany	24 <sup>th</sup> – 27 <sup>th</sup> June, 2010
8	Dr. G. Phanikumar	Took two sessions on "Learning Assessment Strategies" and "Tools for Learning" at the first Faculty Development Programme for QIP scholars at IITM by CCE, IITM from 6 <sup>th</sup> to 7 <sup>th</sup> August, 2010.	IIT Madras	6 <sup>th</sup> to 7 <sup>th</sup> August, 2010
9	Prof. V. Sampath	Invited talk on "Smart Materials" at a National Workshop on "Synthesis and Characterisation of Smart Materials" Organised by Sriram Engineering College, Chennai.	Sriram Engineering College, Chennai.	25.08.2010
10	Dr. G. Phanikumar	Delivered two invited talk on phasefield simulation of solidification microstructures at the International Summer School 2010, University of Bayreuth, Germany.	University of Bayreuth, Germany.	19 <sup>th</sup> July to 25 <sup>th</sup> July-2010.
11	Dr. V. Subramanya Sarma	Delivered invited lecture on "Improving the ductility of ultra fine grained / nanostructured materials – recent developments", ASM Chennai Chapter and Madras Metallurgical Society organised the lecture for its members	Hotel Queens Park, Chennai	4.09.2010

12	Prof. M. Kamaraj	Delivered a talk on "Influence of Fe <sub>3</sub> Al intermetallic nanoparticles on wear behavior of P/M Fe based composite materials" on invitation in STTP-QIP Course on Energy, Environmental, and Biomedical Applications of Nanomaterials Sept 20-25, 2010 Organised by Department of physics, IIT Madras	Dept of Physics, IIT Madras	22.09.2010
13	Prof. M. Kamaraj	Delivered invited talk on "High temperature coatings for Industrial Applications", in 15th National congress on corrosion control, 16-18 Sept 2010, The accord Metropolitan, Chennai, India	Chennai	18.09.2010
14	Prof. M. Kamaraj	Delivered Invited talk on "Nanomaterials in Metallurgy" in National workshop on Nanomaterials and its application (NANOMAT 2010 )	Dept. of Manufacturing Engineeirng, Anna University, Chennai	21.09.2010
15	Prof. B.S. Murty	Gave a seminar talk on Rapidly solidified materials	DMRL, Hyderabad	28.09.2010
16	Prof. V. Sampath	Delivered a lecture at a one day workshop on New Materials at Sathyabama University.	Sathyabama University, Chennai	29.09.2010
17	Prof. V. Sampath	Delivered a lecture on "Shape Memory Alloys"	BHEL Ranipet	27.09.2010 Ranipet
18	Prof. T. S. Sampath Kumar	Delivered inaugural talk in The Biomaterials and Surfaces III symposium, 15.09.10 -18.09.10, at the study centre of the Faculty of Mechanical Engineering, Czech Technical University in Herbenov, jointly organized with the Institute of Rock Structure and Mechanics, Prague, Czech Republic	Faculty of Mechanical Engineering, Czech Technical University in Herbenov	15.09.10 Prague, Czech Republic
19	Prof. T. S. Sampath Kumar	Visited and given a talk at the Department of Biomaterials, King's College London Dental Institute and Guy's Hospital, London, England	King's College London Dental Institute and Guy's Hospital, London, England	09.09.10 London, UK
20	Prof. B.S. Murty	University of Central Florida, Orlando for possible collaboration and delivered lecture	University of Central Florida, Orlando	20.10.2010
21	Dr. G. Phanikumar	"Phase Field Simulations" as part of a workshop on materials modeling and simulation organized between Dec 27-31, 2010	School of engineering sciences and technology & Centre for Modeling and simulation, University of Hyderabad; DMRL Hyderabad and IIM Hyderabad Chapter.	Dec 29, 2010
22	Dr. G. Phanikumar	Invited lecture on "Material Flow during Welding" as part of a workshop on materials joining organized by the Network Resource Center for Materials, IISc Bangalore, WRI and NIT Trichy	IISc Bangalore	Dec 13, 2010
23	Prof. T. S. Sampath Kumar	Delivered an invited lecture on "Nanostructured polymeric composites for hard tissue applications" at the ICMR supported National Seminar on "Polymers in Medicine and Biology"	Bannari Amman Institute of Technology, Sathyamangalam	7-8 January 2011

24	Prof. T. S. Sampath Kumar	Delivered an invited talk on "Ultrafine-grained titanium: processing and bioactivity evaluation" at the 4th Indo-Australian conference on biomaterials, tissue engineering and artificial organs	Sardar Patel University, Vallabh Vidyanagar	10-12th Feb., 2011
25	Prof. Uday Chakkingal	Delivered invited lecture titled "Microstructure evolution during processing after severe plastic deformation - some issues for further investigation"	Discussion meeting organised by Indian Academy of Sciences in Coorg	21 <sup>st</sup> February 2011
26	Prof. M. Kamaraj	Delivered three invited presentations on " <i>Introduction to Materials Selection: Properties of Metals</i> ", " <i>Principles of fractography and Failure Analysis</i> " and " <i>Mechanical Testing of metallic materials</i> "	Two-day workshop entitled "Material Selection, Metallography, Mechanical & Nondestructive Testing" conducted at IC&SR, IIT Madras	25-26 <sup>th</sup> February 2011
27	Dr. Ranjit Bauri	Delivered an Invited lecture on "Nano Materials for Solid Oxide Fuel Cells Applications"	International Symposium on Energy Materials: Opportunities and Challenges (ISEM - 2011) held at CGCRI, Kolkata	1-2 March 2011
28	Dr. N.V. Ravi Kumar	Deliver an invited lecture on the occasion of 7th National Technical Symposium (Concert 11)	Anna University	11 <sup>th</sup> March 2011
29	Dr.M.Balasubramanian	Intelligent Materials	Annamalai University, Chidambaram	25 <sup>th</sup> November 2010
30	Dr.M.Balasubramanian	Ceramic Matrix Composites	Anna University	11 <sup>th</sup> March 2011
31	Prof.V.Sampath	Biomedical Applications of Shape Memory Alloys V.Sampath 2 Dec. 2010.	Two Day National Level Third Workshop on Emerging Materials and Applications (WEMA), Aarupadai Veedu Institute of Technology (Vinayaka Missions University), Chennai,	2 Dec. 2010.
32	Prof.V.Sampath	R & D Opportunities in Smart Materials	One Day Workshop on R & D Opportunities in Advanced Materials, Dr.M.G.R. Educational and Research Institute University, Chennai,	29 Oct. 2010.
33	Prof.V.Sampath	Talk and Demo on SMA	One Day Workshop on Recent Development in Advanced Materials and Analysis, Anna University, Chennai	13 Oct. 2010.
34	Prof.V.Sampath	An Overview of Smart Materials V.Sampath	One Day Workshop on New Materials and Applications (NMA 010) Sathyabama University, Chennai	29 Sept. 2010.
35	Prof.V.Sampath	An Overview of Shape Memory Alloys	One Day National Level Workshop on Synthesis and Characterization of Smart Materials, Sriram Engg. College, Chennai	25 Aug. 2010

36	Prof. P. Venugopal	Delivered an invited lead speech on Cold Extrusion and its significances	National Forging Conference NFS-2010 organised by Advanced Forming Technologies Centre Bangalore in association with Scientific Forming Technologies Corporation, Ohio	15 Nov. 2010
36	Prof. P. Venugopal	Delivered an invited lead speech on Process Design of Forging and Heat Treatment	National Forging Conference NFS-2010 organised by Advanced Forming Technologies Centre Bangalore in association with Scientific Forming Technologies Corporation, Ohio	15 Nov. 2010
37	Prof. T. S. Sampath Kumar	Invited talk at on "Innovative bioceramics frm eggshell waste" at the International Conference on Recent Advances in Biomaterials between 17-18 Dec 2010	Saveetha University, Chennai	17.12.2010
	Prof. T. S. Sampath Kumar	Delivered lectures on "NanoBiomaterials" at the Enhanced understanding on the Concepts of Nano Technology and its applications – Faculty Improvement Programme	<a href="#">National Institute of Technical Teachers' Training and Research</a> , Chennai	17.02.2010

#### Visits abroad by faculty:

Sl. No	Name of faculty	Country Visited	Date	Purpose of visit
1	Dr. Ravi Kumar, N.V	Berlin Neutron Scattering Centre, Germany	01 <sup>st</sup> – 04 <sup>th</sup> July, 2010	Visited the Berlin Neutron Scattering Centre with Dr. John Banhart, Director of the Institute of Applied Materials and had discussions with Dr. Schumacher, Head, Microstructures group for possible collaborations.
2	Dr. Ravi Kumar, N.V	Vestas Technology R & D Centre in Arhus, Denmark	30 <sup>th</sup> June, 2010	Visited the Vestas Technology R & D Centre in Arhus, Denmark and had discussions with the staff for possible collaborations.
3	Dr. Ravi Kumar, N.V	Technical University of Denmark	28 <sup>th</sup> June, 2010	Visited the Corrosion and Surface Technology Group, Division of Materials Science and Engineering at the Technical University of Denmark for a technical interaction on the 28 <sup>th</sup> June, 2010.
4	Dr. Ravi Kumar, N.V	University of Kiel, Technical University of Clausthal and Max Planck Institute for Metals Research, Stuttgart, Germany.	07.10.2010 to 16.10.2010	Discussions with the staff for possible collaborations
5	Prof. B.S. Murty	USA	19.10.2010	To receive the fellow of ASM International Award at the function to be held at Houston, Texas, USA.
6	Prof. S.S. Bhattacharya	Agadir, Morocco	10 <sup>th</sup> to 17 <sup>th</sup> September	To participate in the ANM 2010 conference and present 4 papers
7	Prof. T. S. Sampath Kumar	Germany	28 <sup>th</sup> June, 2010	To plan for interactions with the Max Bergmann Center of Biomaterials, Dresden
8	Prof. T. S. Sampath Kumar	Denmark	29 <sup>th</sup> – 30 <sup>th</sup> June, 2010	To plan for interactions with the Danish Technological Institute, Copenhagen

9	Prof. T. S. Sampath Kumar	France	01st – 05th July, 2010	To plan for interactions with the Center for Interuniversity Research and Engineering of Materials (CIRIMAT), National Engineering School of Chemical and Technological Arts (ENSIACET), University of Toulouse
10	Prof. T. S. Sampath Kumar	United Kingdom	09.09.10	To plan for interactions with the Department of Biomaterials, King's College London Dental Institute and Guy's Hospital, London
11	Prof. T. S. Sampath Kumar	Czech Republic	13.09.10 to 19.09.10	For study stay and to plan for interactions with the Institute of Rock Mechanics, Prague

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>i. Honours:</b>					
1	Dr. V. Subramanya Sarma	Invited for special presentation at the 2011 Acta Materialia Gold Medal Symposium on Advances in Nanostructured Materials and Applications. The symposium will be held as a part of the MS&T 2011 meeting in Columbus, Ohio, October 16-20, 2011.	ASM International		
2	Prof. T.S. Sampath Kumar	Elected President of Society for Tissue Engineering & Regenerative Medicine (India) (STERMI)	STERMI		
3	Prof. B.S. Murty	Selected as Member of Expert Committee for BOYSCAST programme of DST (2011)	DST		
4	Prof. B.S. Murty	Selected as Member of Expert Committee, National Board of Accreditation (2011)			
5	Prof. B.S. Murty	Selected as Sectional President of Materials Science Section, Indian Science Congress (2012)	Indian Science Congress		
6	Prof. B.S. Murty	Selected as Member of Research Council, Indian Institute of Chemical Technology (IICT), CSIR (2010-2013)	CSIR		
7	Prof. B.S. Murty	Selected as Member of Research Council, Advanced Materials and Processes Research Institute (AMPRI), CSIR (2010-2013)	CSIR		
8	Dr. N.V. Ravi Kumar	Invitation to participate in the 4th Indo-American Frontiers of Science (FOS) Symposium	The Indo-US S&T Forum (IUSSTF)		17 - 20 April 2011

9	Prof. S. Ganesh Sundara Raman	Certificate of merit	International Thermal Spray Conference & Exposition, ITSC 2010 held in Singapore	Paper entitled Microstructure and Enhanced Mechanical Properties of WC-Co Coatings obtained by Warm Spraying coauthored by S. Kuroda, S. Ganesh Sundara Raman, M. Watanabe, M. Komatsu, K. Sato and J. Kitamura	May 3-5, 2010
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**ii. Awards:**

1	Prof. S. K. Seshadri	LIFE TIME ACHIEVEMENT AWARD - 2010	NACE International Gateway India Section (NIGIS)	In recognition of meritorious contribution to the field of Corrosion Science and Technology	Presented during CORCON-2010, International conference and expo on corrosion, held in Goa between 23-26 September 2010.
2	Prof. K. Prasad Rao	Prof. D.R.G. Achar Distinguished Academician Award	Indian Welding Society		January 22 - 23, 2011
3	Prof. B.S. Murty	Distinguished Alumnus Award,	VNIT Nagpur (2010)		

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1	T. S. Sampath Kumar	Biomaterials: A Nano Approach	CRC Press (Taylor & Francis Group)	Seeram Ramakrishna, Winston O. Soboyejo, Murugan Ramalingam
2	B.S, Murty	Introduction to Nano Science and Technology	Universities Press (Orient Longman	P. Shankar, Baldev Raj and B.B. Rath,

**Fellowships of Academies and Professional Societies:**

Sl. No.	Name of faculty	Year of admission
<b>ASM:</b>		
1.	Prof. B. S. Murty	2010 Fellow of ASM International
<b>SBAOI:</b>		
1.	Prof. T. S. Sampath Kumar	2010 Fellow of Biomaterials and Artificial Organs of the Society for Biomaterials and Artificial Organs, India (SBAOI)

**Journal Editorial Boards:**

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1	Prof. T. S. Sampath Kumar	Regional Editor (Asia-India)	Journal of Biomaterials and Tissue Engineering
2	Prof. T. S. Sampath Kumar	Editorial Board Member	The Indonesian Journal of Dental Research
3	Prof. T. S. Sampath Kumar	Editorial Board Member	Trends in Biomaterials & Artificial Organs



**Other professional services:**

<b>Name of Faculty</b>	<b>Service</b>	<b>Date and details</b>
Dr. N.V. Ravikumar	Served as an external examiner for 8 <sup>th</sup> semester BE Project for Materials Science and Engineering students	30 <sup>th</sup> April, 2010, Department of Mechanical Engineering., College of Engineering-Guindy, Anna University
Prof. B.S. Murty	Attended ARDB project review meeting	6 <sup>th</sup> April, 2010
Prof. M. Balasubramanian	Served as an external examiner in the Dept of Ceramic Technology, Anna University for the project work of 8th Semester B.Tech. (Ceramic Technology) students.	10 <sup>th</sup> May, 2010, Department Ceramic Technology, Anna University
Prof. M. Balasubramanian	Served as an external examiner of Ph.D. viva voce examination	13 <sup>th</sup> May 2010, 2010, Department of Production Engg., National Institute of Technology, Tiruchirappalli
Prof. S. Ganesh Sundara Raman	Served as an external viva voce examiner for the M.Tech Students, NIT Trichy.	10-06-2010, NIT Trichy
Dr. N. V. Ravi Kumar	Served as an examiner for the PhD viva voce examination in the Department of Biotechnology, IIT Madras for the PhD thesis of Mr. Artham Trishul.	02-06-2010, Department of Biotechnology, IIT Madras.
Prof. T.S. Sampath Kumar	Served as an expert member of the Senior Staff Committee, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram	22.06.2010, SCTIMST, Thiruvanthapuram
Prof. Kamaraj	Technical expert to conduct comprehensive Viva-voce examination at NIT Trichy.	27.09.2010 NIT Trichy
Prof. M. Balasubramanian	Ph.D. Viva Voce Examination	13.09.2010 / NIT Trichy
Prof. K. Prasad Rao	NRB (DRDO) Materials Panel meeting to Mazagon Dockyard Ltd., Mumbai for a discussion on project funding directions.	09.09.2010 Mumbai
Dr. Ashutosh S. Gandhi	NRB (DRDO) Materials Panel meeting to Mazagon Dockyard Ltd., Mumbai for a discussion on project funding directions.	09.09.2010 Mumbai
Dr. Ashutosh S. Gandhi	Review committee meeting / Coorg, Karnataka.	24.09.2010 Karnataka
Prof. M. kamraj	Ph.D. Viva Voce Examination	13.09.2010 NIT Trichy
Prof. K. Prasad Rao	NRB (DRDO) Materials Panel meeting to Mazagon Dockyard Ltd., Mumbai for a discussion on project funding directions.	09.09.2010 Mumbai
Dr. Ashutosh S. Gandhi	NRB (DRDO) Materials Panel meeting to Mazagon Dockyard Ltd., Mumbai for a discussion on project funding directions.	09.09.2010 Mumbai
Prof. B.S. Murty	Review Committee Meeting of AMPRI, Bhopal.	03.09.2010 Bhopal
Dr. Ashutosh S. Gandhi	Review committee meeting / Coorg, Karnataka.	24.09.2010 Karnataka
Dr. Ravi Sankar Kottada	Project Review Committee Meeting – DRDO, Bangalore	15.09.2010 / Bangalore
Dr. Ranjit Bauri	DST project review meeting in coorg, Karnataka	23.09.2010 – 29.09.10 Coorg

Dr. Sabita Sarkar	Discussion on Ph.D work of Mr. Sujay Padit Patil & verification of experimental setup and computational facility.	24.09.2010 – 27.09.10 Bellary
Prof. K. Prasad Rao	Finalize the syllabi for UG and PG programme meeting at JNTUH, College of Engineering, Hyderabad	24.09.10 & 25.09.2010, Hyderabad
Prof. T.S. Sampath Kumar	Examiner to conduct comprehensive examination at BMT Wing, SCTIMST, Thiruvanthapuram	22.10.2011, , Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram
Prof. Uday Chakkingal	Technical expert to conduct Ph.D Viva-voce examination at NIT Trichy	1.10.10 NIT Trichy
Prof. M. Kamaraj	To conduct Ph.D viva voce examination at SNE Sons College, Coimbatore.	13.10.10 SNE, Coimbatore
Prof. V. Sampath	To conduct Ph.D viva voce examination at University B.D.T College of Engineering, Davangere, Hyderabad.	15.10.10 Hyderabad
Prof. V. Sampath	Lecture on Shape Memory Alloys and Live Demonstration”	13.10.10, Chennai
Prof. K. Prasad Rao	Attended the Project Meeting at DRDL, Hyderabad	14.10.10, Hyderabad
Prof. K. Prasad Rao	Served as an expert member of the Selection Committee of the Central University of Hyderabad.	22.10.10, Hyderabad
Prof. V. Sampath	Delivered a technical talk for Madras Metallurgical Society.	22.10.10, Chennai
Dr. N.V. Ravikumar	Chaired the following sessions on invitation during the international conference ICNC 2011 (7th - 9th Jan 2011) at Kottayam, India: Polymer matrix micro and nanocomposites VIII and IX	7th - 9th Jan 2011
Prof. T.S. Sampath Kumar	Served as a member of the committee for MAHE Award for the best paper presented by a scientist/academic faculty at the 25th Anniversary of the Society for Biomaterials and Artificial Organs (India) during Feb. 10-12, at Sardar Patel University, Vallabh Vidyannager.	Feb. 10-12, at Sardar Patel University, Vallabh Vidyannager.
Dr. Srinivasa R. Bakshi	Chaired the session on Processing of Metals (PMX) held in ISRS-2010, IIT Madras, Chennai	December 20-22, 2010.
Dr. Srinivasa R. Bakshi	Technical visit to Ion Beam and Computer Simulation Section and FBTR, IGCAR	March 30, 2011
Prof. S. Ganesh Sundara Raman	Served as an expert in the Selection Committee for recruitment of faculty members of Mohamed Sathak Engineering College, Kilakarai.	July 2010
Prof. S. Ganesh Sundara Raman	Served as an expert member of selection committee for promotion of candidates at ISRO, Bangalore.	November 2010

***A Report on the***  
**International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering**  
**(ISRS-2010)**  
**December 20-22, 2010, IIT Madras, Chennai, India**

Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras successfully organized the **International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering (ISRS-2010)** in association with the Indian Institute of Metals (IIM), Chennai Chapter, the Metallurgical and Materials Engineering Student Association (METSAs), IIT Madras, and the Material Advantage Chapter of IIT Madras, and during December 20-22, 2010. The Symposium was inaugurated by Prof. Dipankar Banerjee of IISc Bangalore, who also released the Souvenir of the Symposium. Prof. M.S. Ananth, Patron of ISRS-2010, addressed the gathering

Three plenary lectures were delivered by eminent researchers. They are Dr. Shrikant Joshi (ARCI), Prof. Indradev Samajdar (IIT Bombay) and Dr. N. Ravi Shankar (IISc Bangalore). These talks motivated the students and exposed them to research efforts and accomplishments in research laboratories and academia. Apart from the plenary lectures, a few members of the international advisory committee addressed the student participants to motivate them to excel in their careers.

This international symposium was fourth in the series of symposia dedicated to research scholars working on metallurgy, materials science and engineering. Research scholars, i.e. students of Ph.D., M.S., M.Phil. and equivalent research-based programmes, from various academic institutions, scientists of various research laboratories and industry across India and abroad presented their research work during ISRS-2010. Abstracts from 227 national and 13 international scholars, belonging to 75 Indian institutions and organisations and 10 overseas institutes from Algeria, Belgium, Canada, China, Germany, Iran and Sri Lanka, were accepted for presentation.

The 240 abstracts accepted were assigned to 23 technical session themes. Papers were divided into oral and poster sessions. Of the abstracts received, 147 were assigned to the oral sessions and the remaining 93 to poster sessions. The abstracts of all the papers, along with advertisements from sponsors, have been printed in the souvenir. A unique feature of ISRS-2010 is that selected papers will be published as a special issue of the international journal 'Transactions of the Indian Institute of Metals'. The remaining papers will be published as CD-ROM proceedings.

Local hospitality in the form of boarding and lodging, was made available to all of the outstation participants. Based on need, some of the presenting authors of the papers were also provided with domestic TA in addition to having their registration fee waived.

The following were the session themes in ISRS 2010:

Steels	Functional Materials
Computational Materials Science	Casting and Solidification
Polymer Matrix Composites (PMC)	Electronic materials
Environmental Degradation	Processing of Non-metallic materials
Energy Materials	Materials Forming Technology
Biomimetic Synthesis & Characterization	Magnetic Materials
Mechanical Behaviour of Materials	Phase Transformations & Physical Metallurgy
Surface Engineering	Nanostructured Materials
Ceramics	Processing of Metals
Materials Joining Technology	Biomedical Materials
Optical Materials	Metal Matrix Composites (MMC)
Nano-structured Oxides	

Under each session theme, oral as well as poster sessions were organized. The presentations were evaluated by a panel of experts in the respective fields and the best papers/posters were selected to receive awards. Some of these awards were Endowment Awards by AWS-India International Section, Prof. O. Prabhakar, and Prof. V. M. Radhakrishnan and the remaining were by the Dept. of Metallurgical & Materials Engineering, IIT Madras. The awards consisted of a merit certificate and a cash prize and were presented during the valedictory session by Prof. K. Krishnaiah, Dean (Academic Research), IIT Madras. Dr. Malakondaiah (Director DMRL Hyderabad) was the chief guest of the Valedictory Function.

The Organizers wish to thank all the International Advisory Committee members, participants, plenary speakers and the sponsors for their support in making ISRS-2010 a grand success. The Department is extremely happy to announce that ISRS-2012 will be held during December 19-21, 2012 at IIT Madras. We look forward to your support and suggestions for better organization of ISRS-2010.

#### 4.14.4 Design and Development Activities:

**Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:**

**New facilities added or major equipment procured:**

Sl. No.	Name of Equipment	Value (Rs. in lakhs)
1	High velocity (24m/s) drop tower impact tester has been installed in the Metallurgy Workshop bay for the DRDO project titled Synthesis and evaluation of impact energy absorption characteristics of Al-SiC composite foams.	
2	Air Compressor model TC 200M, delivering 197 CFM of free air at 7.0KG/CM <sup>2</sup> G discharge pressure when running at 525 RPM	
3	Single dip coating unit (Model no.: Sdc 2007c) has been procured from Apex instruments, India, through IITM-Research park - BHEL project. Specifications: Deposition speed can be programmed from 1 to 100 mm/min, deposition arm movement: 150 mm, unlimited deposition cycles, unlimited delay times, automatic computer controlled unit.	
4	Knoop indenter was procured and successfully installed in the Physical Metallurgy Lab	

**Patents:****Patents filed:**

Sl. No.	Name of faculty	Topic of patent
1	Prathap Haridoss, Sreenivas Jayanti, Abhijit P Deshpande, and Patnaikuni V Suresh	Enhanced Cross-flow Serpentine Flow Fields for Fuel Cell Applications
2	Prof.T.S.Prasanna Kumar.	QuenchProbe

**4.14.5 Research and Consultancy:****Sponsored Research Projects:**

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Spray atomization and deposition of light alloys for near-net shaped products	07.11.2010 to 07.11.2012	IIT Madras	7.5	Dr. rer. nat. Ravi Kumar (PI) and Dr. S. Sankaran (co-PI)
2	Evaluation of Mechanical Properties of Type 304LN Stainless Steel A-TIG Weld Joint	September 2010 – September 2011	IGCAR-IITM	5.28	Prof. S. Ganesh Sundara Raman
3	Ultra fine grain refinement of metals for implant applications	4/2009 to 4/2011	DRDO	Rs.14.96	Prof. T.S. Sampath Kumar and Prof. Uday Chakkingal
4	Development and implementation of a phase field model for dry snow metamorphism		Defence Research and Development Organisation	2.50	Dr. G. Phanikumar
5	Welding, cutting and machining of borated stainless steels	4/27/2010 to 2/28/2012	Board of Research in Fusion Sciences	60.00	Prof. K. Prasad Rao and Dr. G.D. Janaki Ram
6	Enhancing ballistic performance of armor welds using carbide-free bainite fillers	April 2010 to March 2012	Armament Research Board	9.48	Dr. G.D. Janaki Ram and Prof. B.S. Murty
7	Joining of stainless steel pipes to titanium pipes	Dec. 2009 to Dec. 2012	IGCAR	18.45	Dr. G.D. Janaki Ram
8	A new route to manufacture titanium matrix composites – Diffusion bonding of ultrasonically welded monotapes	Sept. 2009 to Sept. 2012	Naval Research Board	34.45	Dr. G.D Janaki Ram and Dr. V.Subramanya Sarma and Prof. K. Prasad Rao
7	Establishment of a Nano Functional Materials Technology Centre at IIT Madras	3/2007 to 9/2011	Department of Science and Technology with Industrial support (Murugappa Group and Orchid Chemicals)	2,448.0	Prof. S.S. Bhattacharya, Prof. S. Ramaprabhu (Physics) and Prof. M.S. Ramachandra Rao (Physics)
8	Development of Bulk Nanocrystalline Materials: Nanoparticle Synthesis and Consolidations	2008 to 2011	Department of Science and Technology	215.42	Prof. B.S. Murty, Prof. S.S. Bhattacharya, Dr. V. Subramanya Sarma and Dr. A.S. Gandhi

**Industrial Consultancy projects:**

SI.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Prof. T. S. Prasanna Kumar	Assessment of Indian Steel Industry from Technology and R&D perspectives.		6.75
2	Dr. Ravi Kumar (co-PI) and Prof. Nagarajan, Dept. of Chemical Engineering (PI)	Development of non-stick coatings for boilers and modeling.	BHEL-IITM research park consultancy project	20
3	Janaki Ram G D	Failure analysis of sour gas compressor components	Chennai Petroleum Corporation Ltd.,	1.65
4	Murty B S	TEM Analysis	Bengal Engg. & Science University	0.23
5	Kamaraj M	Failure analysis	The Oriental Insurance Company Ltd.,	1.51
6	Kesavan Nair P	Residual stress analysis	Wheels India Ltd	0.26
7	Kesavan Nair P	Retained Austenite Analysis on Auto Components	Kamatchi Agencies	0.23
8	Murty B S	TEM ANALYSIS	Common Code	1.00
9	Bhattacharya S S	Sem Analysis	Common Code	1.00
10	Janaki Ram G D	Analysis of solenoid failures	Comstar Automotive Technologies P Ltd.,	0.83
11	Sankaran S	TEM Analysis	Indian Institute of Science Kolkata	0.33
12	Kesavan Nair P	Residual stress analysis on worm & compression spring	Madras Engineering Industries Pvt. Ltd.,	0.26
13	Kesavan Nair P	Xray Analysis	Common Code	2.00
14	Kamaraj M	Material Testing	Southern Railway	0.22
15	Kesavan Nair P	Residual stress analysis on worm wheel & shaft - 4 Samples	Madras Engineering Industries Pvt. Ltd.,	0.26
16	Bhattacharya S S	Failure analysis SEM	Dynamic Technologies Limited	0.30
17	Bhattacharya S S	SEM/EDX analysis of samples	Saint-Gobain Glass India Ltd.	0.88
18	Kesavan Nair P	Residual stress analysis on shot peened chain plate samples - 14 points	Tube Investments of India Ltd.,	1.08
19	Kesavan Nair P	Failure analysis on shaft	Sri Meenatchi Enterprises	0.64
20	Kesavan Nair P	Residual Stress Analysis	Sri Meenatchi Enterprises	0.23
21	Murty B S	TEM Analysis	National Environmental Engineering (Research Institute)	0.26
22	Murty B S	Tem Analysis	Common Code	1.00
23	Kesavan Nair P	Residual stress analysis on worm & wheels (4 Samples)	Madras Engineering Industries Pvt. Ltd.,	0.26
24	Janaki Ram G D	Through-thickness tensile testing of steel plates with friction welded extensions	Steel Authority of India	2.10
25	Bhattacharya S S	Sem Analysis	Common Code	1.00
26	Kesavan Nair P	Residual stress analysis	Wheels India Ltd	0.26
27	Kesavan Nair P	Residual stress analysis on Cam Roller - 3 Points	Sri Meenatchi Enterprises	0.23
28	Kesavan Nair P	Residual stress analysis on Cam Roller	Sri Meenatchi Enterprises	0.23
29	Kesavan Nair P	Residual stress analysis on steel samples	National metallurgical Laboratory	0.73
30	Kesavan Nair P	Residual stress analysis on two leaf springs	Wheels India Ltd	0.26

31	Kesavan Nair P	Residual stress analysis	Sri Meenatchi Enterprises	0.46
32	Murty B S	Tem and analysis	Essar Steel Limited	1.99
33	Janaki Ram G D	Failure analysis of RTB assembly	Caparo Engineering India Pvt. Ltd.,	0.44
34	Ganesh Sundararaman S	Tensile and Hardness Testing of DI pipe samples	Garrison Engineer	0.30
35	Kesavan Nair P	Failure Analysis on TP 70 screw	M/s L & T Plastic Machinery Ltd	0.69
36	Janaki Ram G D	Characterization of Submerged Arc Welding Flux	Corewire Surface Technology Pvt. Ltd.,	0.99
37	Kesavan Nair P	Residual stress analysis on two leaf springs	Wheels India Ltd	0.26
38	Kesavan Nair P	Xray Analysis	Common Code	2.00
39	Ganesh Sundararaman S	Fatigue Testing of slack adjuster casting	Madras Engineering Industries Pvt. Ltd.,	1.32
40	Kamaraj M	Chemical analysis Test	Public Works Department	0.26
41	Janaki Ram G D	Microstructural analysis of duplex Stainless Steel Weld overlay coatings	Galfar Engineering	1.93
42	Kesavan Nair P	Residual stress analysis	Wheels India Ltd	0.27
43	Kesavan Nair P	Gear failure analysis employing SEM, OM,XRD & EDX	Winergy Drive Systems India (P) Ltd	0.80
44	Kamaraj M	Creep Testing of pipe samples	Industrial Quality Concepts	1.38
45	Kamaraj M	Creep Testing of Pipe Samples	Industrial Quality Concepts	1.38
46	Kamaraj M	Creep Testing of pipe Samples	Industrial Quality Concepts	1.68
47	Bhattacharya S S	SEM & EDS Analysis	Gowri Ventures Pvt. Ltd.,	0.22
48	Kamaraj M	Creep Testing of Pipe Samples	Quality Network Pvt Ltd	0.97
49	Kesavan Nair P	Residual stress analysis on worm wheel (5 samples)	Madras Engineering Industries Pvt. Ltd.,	0.28
50	Kesavan Nair P	Fatigue analysis	Sharda Sejong Auto Components India Ltd.,	1.13
51	Kamaraj M	Creep Testing of Pipe Samples	Quality Network Pvt Ltd	0.97
52	Murty B S	TEM Analysis (6Samples)	Bengal Engg. & Science University	0.27
53	Janaki Ram G D	Failure analysis of crude tank 20-D-105 Bottom plate	Chennai Petroleum Corporation Ltd.,	1.37
54	Harikumar K C	Calculation of thermodynamic properties of R-phase in Fe-Mo-Cr, and Co-Mo-Cr alloy systems	Carpenter Technology Corp.,	19.28
55	Venugopal P	Retainer Consultancy	Tube Products of India	6.62
56	Prasanna Kumar T S	Indain Steel Industry	Indo-Korea Science and Technology Center	0.08
57	Ranjit Bauri	To Provide some technical service to solve the issues in their Cu-Ni bronze castings	Best & Crompton Engineering Ltd	0.39

**RBIC projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	M.Balasubramanian	Development of nanocomposite brake disk material	Madras Engineering Industries Pvt. Ltd. Chennai – 600 113	5.53
2	Prof. N. Ramesh Babu and Prof. Uday Chakkingal	Predictive And Corrective Methods for Addressing Undesirable Deformations In Bending of Sheets	AmadaSoft India Pvt. Ltd. Chennai	20.97

3.	JANAKI RAM G D	Aluminum Structures for Deep Sea Mining Crawlers	National Institute of Ocean Technology	33.56
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**Retainer Consultancy:**

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Prof. P. Venugopal		M/S Tube Products of India	6.0

**Exchange programme with other Universities including Institutions/Universities under MOU;**

**Faculty members participation with other institution under MoU:**

Sl.No.	Name of faculty	Name of University/Institution which has MoU
1	Prof. T.S. Sampath Kumar	University of Toulouse, France
2	Dr. N.V. Ravikumar	Polytech Lille, France

**Research Publications of the faculty members & research scholars:**

- Total No. of papers published in Refereed National Journals : 05
- Total No. of papers published in Refereed International Journals : 118
- Total No. of papers presented in National Conferences : 0
- Total No. of papers presented in International conferences : 32

**In Refereed National Journals:**

1. Kulvir Singh and M. Kamaraj, "Creep ductility evaluation of low alloy steels used for steam turbine components", Transactions of the Indian institute of Metals, 2-3, 63, 391-395 (2010)
2. Sree Harsha Nandam, S. Sankaran and B.S. Murty, "Precipitation Kinetics in Al-Si-Mg/TiB<sub>2</sub> in-situ Composites", Trans. IIM. (in Press).
3. Nikhil Charbhai, B.S. Murty and S. Sankaran, "Microstructural characterization of the Al-Cu-TiB<sub>2</sub> in-situ Composites", Trans. IIM. (in Press).
4. A. Lombardi, F. D'Elia, C. Ravindran, B.S. Murty, R. MacKay, "Analysis of the Secondary Phases in the Microstructure of 319 Type Al Alloy Engine Blocks using Electron Microscopy and Nanoindentation", Trans. IIM. (in Press).
5. P. Gerald Tennyson and G. Phanikumar, "Computational modelling of dendritic to globular transition using an isothermal binary phase-field model", Transactions of Indian Institute of Metals, (in press, 2011)

**In Refereed International Journals:**

1. R. Sangeetha, Ravi Kumar, "Barnacle cement: an etchant for stainless steel 326L Colloids and Surfaces B: Biointerfaces", Colloids and Surfaces B: Biointerfaces, 2010 (accepted)
2. R. Elanzezhian, B. Ramamurthy and P. Kesavan Nair, "Influence of surfactants on the tribological behaviour of electroless Ni-P coatings", Int. J. Surface Science and Engineering, 2010, No. 3, Vol. 4, 258 – 268.
3. Indrani Sen, Ravi Sankar Kottada, and U. Ramamurthy, "High temperature deformation processing maps for boron modified Ti-6Al-4 V alloys", Materials science and engineering -A, <http://dx.doi.org/10.1016/j.msea.2010.06.044> (2010)
4. V. Subramanya Sarma, J. Wang, W. Jian, H. Conrad, J. Freudenberger, A. Kaufmann, Y.T. Zhu, "Role of stacking fault energy in strengthening due to cryo-deformation of FCC metals", Materials Science and Engineering A, in press (2010)
5. Vijay Radhakrishnan, Prathap Haridoss, "Differences in structure and property of carbon paper and carbon cloth diffusion media and their impact on Proton Exchange Membrane", Materials and Design, (2010)
6. Vijay Radhakrishnan, Prathap Haridoss, "Effect Of Cyclic Compression On Structure And Properties Of A Gas Diffusion Layer Used In PEM Fuel Cells", International Journal of Hydrogen Energy, (2010)

7. Sumantra Mandal, A.K. Bhaduri, V. Subramanya Sarma, "A study on microstructural evolution and dynamic recrystallization during isothermal deformation of a Ti-modified austenitic stainless steel", *Metallurgical and Materials Transactions A*, in press (2010)
8. Aravind Vadiraj and M.Kamaraj, "Fretting fatigue behavior of surface modified biomedical titanium alloys", *Transactions of the Indian Institute of Metals, Special issue on creep, fatigue and Creep-Fatigue interactions*, 2-3, April-June 2010 (2010)
9. K. Babu and T.S. Prasanna Kumar, "Effect of CNT Concentration and Agitation on Surface Heat Flux during Quenching in CNT Nanofluids", *Int. J of Heat and Mass Transfer*, Accepted for publication (2010)
10. Sumantra Mandal, A.K. Bhaduri, V. Subramanya Sarma, "One-step and iterative thermo-mechanical treatments to enhance 3n boundaries in a Ti-modified austenitic stainless steel", *Journal of Materials Science*, in press (2010)
11. G. Rajaram, S. Kumaran, T. Srinivasa Rao, M. Kamaraj, "Studies on high temperature wear and its mechanism of Al-Si/graphite composite under dry sliding conditions", *Tribology International*, Volume 43, Issue 11, November 2010, Pages 2152-2158 (2010)
12. Devinder Yadav, Ranjit Bauri, "Processing, microstructure and mechanical properties of nickel particles embedded aluminium matrix composite", *Materials Science Engineering A*, Article in press (2010)
13. V. Vijaya Lakshmi, Ranjit Bauri, Soumalya Paul, "Effect of fuel type on microstructure and electrical property of combustion synthesized nanocrystalline Scandia Stabilized Zirconia", *Materials Chemistry and Physics*, Article in Press (doi:10.1016/j.matchemphys.2010.12.050) (2011)
14. Devinder Yadav, Ranjit Bauri, "Microstructural Characterization of Friction Stir Processed Aluminium", *Materials Science and Technology*, Accepted (2011)
15. Srinivasa R. Bakshi, Anup K. Keshri, and Arvind Agarwal, "A Comparison of Mechanical and Wear Properties of Plasma Sprayed Carbon Nanotube Reinforced Aluminum Composites at Nano and Macro Scale", *Materials Science and Engineering A Vol. 528* (2011) 3375-3384
16. Ashish Singh, Srinivasa R. Bakshi, David A. Virzi, Anup K. Keshri, Arvind Agarwal, and Sandip P. Harimkar, "In-situ Synthesis of TiC/SiC/Ti<sub>3</sub>SiC<sub>2</sub> Composite Coatings by Spark Plasma Sintering", *Surface and Coatings Technology Vol. 205* (2011) 3840-3846
17. V.M.J. Sharma, K. Sree Kumar, B. Nageswara Rao, S.D. Pathak, "Fatigue crack growth of AA2219 under different aging conditions", *Mats Sci & Engg.A*, Online from 26 January 2011 (2011)
18. K Babu and T.S.Prasanna Kumar, "Estimation and Analysis of Surface Heat Flux during Quenching in CNT Nanofluids", *ASME Journal of Heat Transfer*, Accepted for publication (2011)
19. P. Susila, D. Sturm, M. Heilmaier, B.S. Murty, and V. Subramanya Sarma, Effect of yttria particle size on the microstructure and compression creep properties of nanostructured ODS ferritic alloy *Materials Science and Engineering A*, in press (2011)
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22. V. Vijaya Lakshmi, Ranjit Bauri, Ashutosh S. Gandhi, S. Paul, "Synthesis and characterization of nanocrystalline ScSZ electrolyte for SOFCs" *International Journal of Hydrogen Energy*, In press (2011)
23. T. Prakash, S. Ramasamy and B.S. Murty "Effect of bias voltage dielectric relaxation of nanocrystalline anatase TiO<sub>2</sub> using modulus formalism" *J. Appl. Phys.* (in Press)
24. Mubarak Ali, M. and Ganesh Sundara Raman, S., Influence of Plasma Nitriding Environment and Time on Plain Fatigue and Fretting Fatigue Behaviour of Ti-6Al-4V, *Tribology Letters*, 38, 291-299, 2010.
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42. A. Thirugnanam, T.S. Sampath Kumar and Uday Chakkingal (2010) Bioactivity of grain refined Titanium sheets by groove pressing, *Materials Science and Engineering C*, 30, 203 – 208.
43. G. Ganesh Niranjana and Uday Chakkingal (2010) Improvement in drawability (r value) of an aluminium alloy subjected to groove pressing, *Materials Science Forum*, 638-642, 1911-1916.
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45. V. Udhayabanu, K.R. Ravi, V. Vinod and B.S. Murty, "Synthesis of in-situ NiAl – Al<sub>2</sub>O<sub>3</sub> nanocomposite by reactive milling and subsequent heat treatment", *Intermetallics*, 18 (2010) 353-358.

46. S. Varalakshmi, M. Kamaraj and B.S. Murty, "Processing and Properties of Nanocrystalline CuNiCoZnAlTi High Entropy Alloys by Mechanical Alloying", *Mater. Sci. Eng. A*, 527 (2010) 1027-1030.
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116. Deepu J. Babu, Azad J. Darbandi, Jens Suffner, S.S. Bhattacharya and Horst Hahn, "Flame Spray Synthesis of Nano Lanthanum Strontium Manganite for Solid Oxide Fuel Cell Applications", *Transactions of the Indian Institute of Metals*, 2011, in press
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**In Proceedings of International Conferences:**

1. K. Babu and T.S. Prasanna Kumar, "Finite Element Modeling of Quenching Heat Treatment of AISI 4140 Steel with Phase Transformation", *Int. Conf. on Thermal Process Modeling and Computer Simulation, Shanghai, China, May 31-Jun2, 2010* (Presentation only)
2. Sumantra Mandal, A.K. Bhaduri, Baldev Raj and V. Subramanya Sarma, "Dynamic recrystallization during isothermal hot deformation in a titanium modified austenitic stainless steel: Aspects of mechan", *4th International Conference on Recrystallization and Grain Growth, University of Sheffield, UK, during July 4-9, (2010)* (Presentation only)
3. N. Arun Prakash, R. Gnanamoorthy and M. Kamaraj, "Fretting wear behavior of controlled ball impact treated aluminium alloy", *24th International conference on Surface Modification Technologies, (SMT 24), (2010)*
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5. N. Raghukiran, S. Devaraj, Ravi Kumar, "Spray atomization and deposition of near-eutectic aluminum-silicon alloys: Processing & microstructural evaluation", *International Conference on Automotive Materials & Manufacturing 2010*, pp175-178, (2010)
6. T.S. Prasanna Kumar- "Coupled Analysis of Surface Heat Flux and Phase Transformation During Immersion Quenching of an Alloy Steel" Accepted for ASM Heat Treating Society Conference, Oct 31 - Nov 2, 2011, Cincinnati, OH , (2011)
7. K. Babu and T.S. Prasanna Kumar- "Effect of Bath Temperature on Surface Heat Flux during Quenching in CNT Nano Fluids", Accepted in ASM Heat Treating Society Conference, Oct 31 - Nov 2, Cincinnati, OH, (2011)
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9. Kranthi Kiran, B. Rajkamal and T.S. Sampath Kumar "Processing of Titania nanofibers by Electrospinning" *Archives of BioCeramics Researches* 10 (2010) 42-45
10. Tennati Adithya Prakash, B. Rajkamal and T.S. Sampath Kumar" Effective formulations for macroporous calcium phosphate bone cements" *Archives of BioCeramics Researches* 10 (2010) 157-160
11. Namitha Varadarajan, B. Rajkamal and T. S. Sampath Kumar "Effect of ultrasonic radiation during calcium deficient hydroxyapatite nanoparticle synthesis" *Archives of BioCeramics Researches* 10 (2010) 106-109
12. Sumit Goenka, B. Rajkamal and T.S. Sampath Kumar "Effects of nanocrystalline calcium deficient hydroxyapatite on the resorption of conventional Glass Ionomer Cements (GIC)" *The Minerals, Metals & Materials Society (TMS) - Annual meeting and Exhibition*, February 27 - March 3, San Diego, USA (2011) (Presentation only)
13. B Ratna Sunil, T.S.Sampath Kumar, Uday Chakkingal and T.S.N.Sankara Narayanan, "Characterization of surface modified pure magnesium processed by SMAT for implant applications" in 4th Indo-Australian conference on biomaterials, tissue engineering and artificial organs, 10-12th Feb., Vallabh Vidyanagar, (2011) (Presentation only)
14. B. Rajkamal and T.S. Sampath Kumar "Nano-Calcium deficient hydroxyapatite as carriers for controlled release of cefalexin antibiotic" , 4th Indo-Australian conference on biomaterials, tissue engineering and artificial organs, 10-12th Feb., Vallabh Vidyanagar, (2011) (Presentation only)
15. B.Rajkamal and T.S. Sampath Kumar "Electrospinning of eggshell derived apatite nanofibers", *International Symposium on Nanotechnology-Present and future Trends (INSYN) 25-26 Aug., Vellore (2010)* (Presentation only)
16. V.Sampath and T.N.Raju, "Studies on Effect of Ageing on Shape Memory Characteristics of Cu-Al-Fe Alloys", Annual Technical Meeting and Exhibition of The Minerals, Metals and Materials Society (TMS), San Diego, California, USA, 27 Feb. – 03 Mar. 2011. (Presentation only)
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19. M.Angappan, V.Sampath, B.Ashok and V.P.Deepkumar, "Heat treatment studies of high strength 7010 Aluminium alloy extrusions", International Conference on Advanced Materials, Manufacturing Management and Thermal Sciences 2010, Siddaganga Institute of Technology, Tumkur, India, 18-19 Nov. 2010.(Presentation only)
20. T.N.Raju and V.Sampath, "Shape Memory Characteristics of Cu-Al-Fe Shape Memory Alloys with the Variation in Aluminium and Iron", International Symposium of Research Scholars (ISRS), IIT Madras, Chennai, India, 20-22 Dec. 2010.(Presentation only)
21. N.R.Rajasekaran and V.Sampath, "Effect of friction stir processing and mechanical properties of AA 2219 Al alloy in situ TiB<sub>2</sub> composites", International Symposium for Research Scholars (ISRS), IIT Madras, Chennai, India, 20-22 Dec. 2010. (Presentation only)
22. B.Rajkamal and T.S. Sampath Kumar "Electrospinning of eggshell derived apatite nanofibers", *International Symposium on Nanotechnology-Present and future Trends (INSYN) 25-26 Aug., Vellore (2010)* (Presentation only)
23. Deepu J. Babu, Azad J. Darbandi, Jens Suffner, S.S. Bhattacharya and Horst Hahn, "Direct Synthesis of Cathode Nanoparticles for Solid Oxide Fuel Cell Applications", Third International Conference on Advanced Nano Materials ANM-2010, September 12-15, Agadir, Morocco.

24. A. Suganya and S.S. Bhattacharya, "Effect of pH on the Phases of Nanocrystalline Alumina Prepared by Combustion Technique", Third International Conference on Advanced Nano Materials ANM-2010, September 12-15, Agadir, Morocco.
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26. Saurabh Verma, B. Manjith Kumar and S.S. Bhattacharya, "Flame Synthesis of Nanocrystalline Zirconia and Ytria Stabilised Zirconia (YSZ) Composites using Inorganic Precursors", Third International Conference on Advanced Nano Materials ANM-2010, September 12-15, Agadir, Morocco.
27. Deepu J. Babu, Azad J. Darbandi, Jens Suffner, S.S. Bhattacharya and Horst Hahn, "Flame Spray Synthesis of Nano Lanthanum Strontium Manganite for Solid Oxide Fuel Cell Applications", International Symposium for Research Scholars (ISRS-2010) on Metallurgy, Materials Science & Engineering, December 20-22, 2010, Chennai, India.
28. R.K. Rayudu, S.S. Bhattacharya and V.P. Deepkumar, "Experimental studies on the superplastic forming of square shaped components from sheets of Ti-6Al-4V alloy", International Symposium for Research Scholars (ISRS-2010) on Metallurgy, Materials Science & Engineering, December 20-22, 2010, Chennai, India, (awarded the **best paper award** in the Materials Forming session).
29. Cheryl Maria Tellis, Prathap Haridoss and S.S. Bhattacharya, "Tribological Properties of Carbon Nanotubes and their Effectiveness as Lubricant Additive", International Symposium for Research Scholars (ISRS-2010) on Metallurgy, Materials Science & Engineering, December 20-22, 2010, Chennai, India.
30. Gowthama S. Gowda, S.S. Bhattacharya and P. Venugopal, "Coining Test for Evaluation of Tool Performance", International Symposium for Research Scholars (ISRS-2010) on Metallurgy, Materials Science & Engineering, December 20-22, 2010, Chennai, India.
31. Mahesh Katagam, S. Sankaran and P. Venugopal,, "On Formability of Dual Phase Steel through Sintered Route", International Symposium for Research Scholars (ISRS), IIT Madras, Chennai, India, 20-22 Dec. 2010. (Presentation only)
32. Anand, S. Sankaran and P. Venugopal, "Formability of Dual Phase Steels", International Symposium for Research Scholars (ISRS), IIT Madras, Chennai, India, 20-22 Dec. 2010. (Presentation only)

#### Distinguished Visitors to the Department:

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Dr. Cho (Principal Researcher of IKST), Mr. Paul Jeong (President of IKST), Mr. Matthew Ma (IKST)	11 <sup>th</sup> May, 2010	Visited to discuss steel project on behalf of POSCO Steel, Korea, INDO – KOREA Science & Technology Centre
2	Prof. Ramamurthy 'Rampi' Ramprasad of Department of Chemical, Materials & Biomolecular Engineering, Institute of Materials Science, University of Connecticut, Storrs, CT, USA	March 3 <sup>rd</sup> 2011	Delivered IIM Seminar talk "Oxides in Electronics"
3	Dr. Anandh Subramaniam, Department of Indian Institute of Technology Kanpur.	March 23 <sup>rd</sup> 2011	Delivered IIM Seminar talk "Anglepoise Lamps, Zero Stiffness, Image Forces and Eshelby Bends"

#### 4.14.6 Other Activities of the Department/Centre:

- **International collaboration achievements by the Department**

**Student visit** : Mr. Achal Kothari, DD Student, Deakin University, Australia

- **Major infrastructure development made in the Department**

- 1 Setaram Dilatometer (1650 °C) (DMRL CARS Project)
- 2 Zoz Simoloyer (high energy ball mill) (DMRL CARS Project)
- 3 High velocity (24m/s) drop tower impact tester
- 4 Air Compressor model TC 200M
- 5 Single dip coating unit (Model no.: Sdc 2007c)
- 6 Knoop indenter

## 4.15 DEPARTMENT OF OCEAN ENGINEERING

### 4.15.1 Introduction:

The Department offers following academic programs:

1. B. Tech (Naval Architecture and Ocean Engineering)
2. Dual Degree (Naval Architecture and Ocean Engineering)
3. M. Tech (Ocean Engineering)
4. M. Tech (Ocean Technology and Management)
5. M. Tech (Petroleum Engineering)
6. M. S. (Ocean Engineering)
7. Ph. D (Ocean Engineering)
8. M.S. (Petroleum Engineering)
9. Ph.D. (Petroleum Engineering)

The major areas of teaching and research at the Department are:

1. Offshore structures
2. Deepwater technology
3. Ships and underwater vehicles
4. Marine hydrodynamics
5. Coastal engineering
6. Port and harbour structures
7. Ocean energy
8. Marine instrumentation
9. Ocean acoustics
10. Ocean optics
11. Oceanography
12. Oil and gas exploration and production
13. Reservoir engineering

### 4.15.2 Academic Programs:

#### New Courses introduced:

1	<b>OE5011</b>	Rajiv Sharma	arine Robotics
2	<b>PE 6180</b>	Jitendra Sangwai	Natural gas Engineering
3	<b>PE 6314</b>	Rajiv Sharma	Drilling Fluid Design and Analysis

#### New lab(s) established:

##### Rajesh R Nair

- Acquired GPR system through IITM project
- Signed MOU's with Paradigm and GOCAD Consortium University of France for seismic interpretation software PARADIGM, which is installed in high end Workstations with high end graphics cards.
- Brought 4 Sun/Dell workstations from IIT Kharagpur to IIT Madras, also procured and installed Geosoft software (through Department funds) towards setting up a computational geophysics lab for PE students.

##### Abdus Samad

Made a working Model of Sucker Rod Pump with the help of M. Tech students.

#### Students on roll:

Program	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	37	25	24	18	2	106
Dual Degree	18	14	10	10	8	60
M.Tech.	34	31	0	0	0	65
M.S.	17	11	4	0	0	32
Ph.D.	16	12	5	4	6	43
<b>Total</b>	<b>122</b>	<b>93</b>	<b>43</b>	<b>32</b>	<b>16</b>	<b>306</b>



**Endowment prize instituted:****Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>India:</b>					
1.	Nimmy Thankom Philip	OE09S005	Design of Ships and Offshore Structures	17.06.10 & 18.06.10 DNV, Chennai	Consultancy Project
2.	All Petroleum Engg students		ICDT 2010, IIT Madras	Nov 18-20 2010	

**4.15.3. Faculty and their activities:****Faculty:****Name and Qualifications****Major Area of Specialization****Professors:**

V. Anantha Subramanian, Ph.D., (IIT, Madras)	Computer aided ship design, Ship hydrodynamics and CFD applications.
S.K. Bhattacharyya, Ph.D. (IIT, Madras) Head	Computer aided structural analysis, Analysis of motion characteristics of floating bodies, Model studies.
K. Ganesh Babu, Ph.D. (IIT Madras)	Analysis and design of ocean structures, Behaviour of materials in ocean environment.
Srinivasan Chandrasekaran, Ph.D (IIT Delhi)	Offshore structural dynamics, Structural health monitoring; wave energy; structural reliability; seismic analysis and design
V.G. Idichandy, Ph.D.(IIT, Madras)	Experimental techniques, Instrumentation, Analysis and testing of structural models and prototypes.
P. Krishnankutty, Ph.D (IIT Madras)	Wave-structure interaction, ship maneuvering and motions, high-speed vessel passenger comfort, wave wash study
S. Surendran, Ph.D. (Yokohama National Univ., Japan)	Structural dynamics, Random v ibrations, Structural control and stability
Deepak Kumar, Ph.D (IIT Delhi)	
J.S. Mani, Ph.D.(IIT, Madras)	<i>Coastal engineering, wave hydrodynamics</i>
K. Murali, Ph.D (IIT Madras)	Numerical modelling of coastal hydrodynamics; Sediment transport & pollutant transport. CFD modelling for pollutant transport. CFD application to ship and underwater hydrodynamics.
Rajesh R. Nair, Ph.D (Osmania Univ)	Geophysics, Seismic AVA inversion and interpretation
S. Nallayarasu, Ph.D (NUS, Singapore)	Analysis and design of offshore structures, Wave-structure interaction, Reliability in offshore structural design.
R. Natarajan, Ph.D. (IIT, Madras)	Ship hydrodynamics, Design of small crafts, Model testing of launches, Tugs, Trawlers etc., Mooring analysis of floating structures.
R. Panneer Selvam, Ph.D (IIT Madras)	System identification, Nonlinear dynamics.
V. Sundar, Ph.D.(IIT, Madras)	Wave-structure interaction, Coastal protection, port & harbour structures, Fluid flow problems.
SP.Subramanian, Ph.D. (Madras University)	Geological oceanography, Engineering geology.

R. Sundaravadivelu, Ph.D. (IIT, Madras)	Computer aided analysis, Design and experimental studies of coastal and offshore structures, Port and harbour structure.
S.A. Sannasiraj, Ph.D (IIT Madras)	Wind-wave generation, Data assimilation, Breaking wave simulation and its dynamics, Wave-structure interaction, Dynamics of floating bodies.
P. Shanmugam, Ph.D (Anna Univ., Madras)	Satellite oceanography, Ocean optics.
G Suresh Kumar, Ph.D (IISc)	Numerical Modeling of Fractured Reservoirs, Groundwater Contaminant Transport, Reservoir Engineering and Simulation, Microbially/Thermally Enhanced Oil Recovery
Rajiv Sharma, Ph.D (IIT Kharagpur)	Design of deepwater drilling solutions and floating structures; Computer aided geometric design, computational geometry, visualization, and their applications in design, robotics and manufacturing; Dynamic data driven forecasting systems
Jitendra Sangwai, Ph.D (IIT Kanpur)	Gas Hydrates, Enhanced Oil Recovery, Rheology of complex fluids, Polymer Science and Engineering
Nilanjan Saha, Ph.D (IISc)	Offshore wind and wave energy, Stochastic analysis of offshore structures, Structural dynamics, Structural reliability
Abdus Samad, Ph.D (Inha Univ., Korea)	CFD, Heat Transfer, Turbomachinery, Optimization, Artificial Lift
C.P. Vendhan, Ph.D., (IIT, Kanpur)	Structural dynamics, Offshore structures, Finite element method, Ocean acoustics.

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1.	R. Sundaravadivelu, SP. Subramanian and R. Sharma	First International Conference on Drilling Technology (ICDT - 2010)	18-20 Nov. 2010
2.	V.Sundar and K.Murali K. Srinivasan K.P. Sudheer	International Conference on Hydroscience and Engineering (ICHE-2010)	2-5 Aug. 2010
<b>Workshop:</b>			
1	V. Sundar S.A. Sannasiraj Dr Gary Mocke	Workshop on applications of geo-synthetics and modern materials in coastal protection	6-7 August 2010.
2	R. Sundaravadivelu, SP. Subramanian and R. Sharma	National Workshop on Manpower Development in Petroleum Engineering (NWMDPE - 2010),	20-21 Nov. 2010.
3	K.Murali	Marine Hydrodynamics	5, 6 and 14th May
4	S.Nallayarasu and K.Murali	Recent Developments in Offshore Engineering	7-9 Jun. 2010
5	S.K. Bhattacharyya	Environment committee meeting of International Ship & Offshore Structure Congress	Jan 10-11, 2011
<b>Short term Course:</b>			
1.	Srinivasan Chandrasekaran R. Pannerselvam	Offshore structures- Materials, analysis, design and construction	14-18 <sup>th</sup> Dec 2009
2.	Srinivasan Chandrasekaran Nilanjan Saha	Reliability of offshore structures	22-26 <sup>th</sup> Nov 2010
3.	S. Nallayarasu S. K. Bhattacharyya	Subsea Engineering (for TCS)	23.07.10 - 24.07.10 & 06.08.10 - 07.08.10

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Period
<b>Workshop:</b>			
1.	S. Chandrasekaran	Invited seminar on <i>Use of fibre optic sensors on structural health monitoring</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	March 10-12, 2010
2		Invited seminar on <i>wireless networking of sensors and response control of offshore structures</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	March 10-12, 2010
3		special workshop on Safety and Risk assessment at the International HSE Meet on Oil and Gas exploration and production- IBC Asia, Kaulalumpur, Malaysia	Dec 6-8 <sup>th</sup> 2010
4		Invited seminar on <i>Hazard identification and Management in oil and Gas industry using Hazop</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	April 19-23, 2011
5		Invited seminar on <i>Quantitative Risk assessment at Group Gathering Stations of oil exploration and production</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	April 19-23, 2011
6		Invited seminar on <i>Health, Safety and Environmental Management in petroleum and Offshore Engg</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	April 19-23, 2011
7	S. K. Bhattacharyya	Invited seminar on <i>Risk assessment of offshore gas field</i> at Human Resource Development Center (HOPE) for Offshore and Plant Engineering, Changwon National University, South Korea	April 19-23, 2011

Sl.No	Name	Title	Institution	Period
<b>Symposia:</b>				
1.	Jitendra Sangwai	REACH symposium	IITM	2-4 December 2010
<b>Conference:</b>				
1.	R. Sundaravadivelu	SPE Annual Technical Conference and Exhibition	Tuscany, Italy	20-24 September 2010
2.	V. Sundar	11 <sup>th</sup> FPSO Congress 2010	Marina Bay Sands, Singapore	27-30 September 2010
3.	V. Sundar	32 <sup>nd</sup> PIANC MMX Congress	Liverpool, U.K.	10-14 May 2010
4.	V. Sundar	International conference on Hydro Science and Engineering, ICHE2010	IIT Madras	2-5 Aug 2010
5.	V. Sundar	Ninth International Conference on Hydrodynamics	Shanghai, China	11-15 Oct'10
6.	V. Sundar	Second International Conference on Coastal Zone Engineering and Management (Arabian Coast 2010)	Muscat, OMAN	November 1-3, 2010
7.	V. Sundar	International Conference on Advances in Engineering and Technology – AET 2010	Thiruvananthapuram	21.12.2010 to 22.12.2010
8.	V.G. Idichandy	29 <sup>th</sup> International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2010)	Shanghai, China	June 6 -11, 2010
9.	V.G. Idichandy	Asia Pacific Offshore Conference (APOC 2010)	Kuala Lumpur, Malaysia	13-14, December 2010
10.	S.A. Sannasiraj	10th PIANC-MMX Congress	PIANC, Liverpool, UK	10-14 May 2010
11.	S.A. Sannasiraj	9th Int Conf on Hydro-Science and Engineering	IIT Madras	2-5 August 2010

12.	S.A. Sannasiraj	2nd Int Conf on Coastal Zone Engineering and Management	Oman	1-3 Nov. 2010
13.	Jitendra Sangwai	ICDT-2010, IITM, Chennai	IITM	18-20 November, 2010
14.	P. Shanmugam	Retrieval of Particulate Backscattering in Coastal Oceans	Ocean Optics XX, Anchorage, Alaska	25 Sept-1 Oct. 2010
15.		Modification of Sea WiFS atmospheric correction algorithm	Ocean Optics XX, Anchorage, Alaska	25 Sept-1 Oct. 2010
16.	V. Anantha Subramanian	7 <sup>th</sup> HIPER International Florida		7 <sup>th</sup> to 17 <sup>th</sup> oct 2010
17.	S. Chandrasekaran	29 <sup>th</sup> International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2010)	Shanghai, China	June 6 -11, 2010
18.	Abdus Samad	International Conference on Modelling, Optimisation and Computing (ICMOC 2010)	NIT Durgapur	October 28-30, 2010
<b>Training:</b>				
1.	Jitendra Sangwai Nilanjan Saha Abdus Samad Rajesh Nair	Faculty Development Program - 2010	IITM	8-10 December, 2010

#### Special Lectures delivered by the faculty in other Institutions:

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1.	V. Sundar	Effects of tsunami and coastal protection measures	Velammal Engg. College	27.08.2010
2.		Coastal Structures and their behavior in the littoral zone – case studies	NIOT Campus, Chennai	18.01.2011
3.	R. Panneer Selvam	An overview of floaters of offshore wind turbine	Centre for Wind Energy C-WET	
4.	V.G. Idichandy	Simulation of coupled dynamics of deep water platforms in laboratory – Research at IIT M	APOC 2010 – Intl. Conference	13-14 Dec 2010
5.	V.G. Idichandy	Design of Transducers for Hydrodynamics - Research faculty of Marine Tech. Lab of UTM	UTM, Malaysia	15-16 Dec 2010
6.	V.G. Idichandy	Nurturing Creativity among students in an Informal setting - Students & Faculty of Mechanical Engg. UTM	UTM, Malaysia	15-16 Dec 2010
7.	S.A.Sannasiraj	Wind-wave modelling and wave breaking studies	University of Edinburgh, UK	17 May 2010
8.	S.A.Sannasiraj	Sloshing dynamics in barge mounted containers	City University, UK	18 May 2010
9.	S.A.Sannasiraj	Developments in offshore systems	NIT Tiruchirappali	24 Aug. 2010
10.	S.A.Sannasiraj	Acoustic Characterization of dynamics of breaking waves	Oregon State University, US	11 Feb. 2011
11.	Rajiv Sharma	Development of a Logic Based Product Lifecycle Management (PLM) Model for Manufacturing Based Industries	ICSCI-2011, Hyderabad, India	5-8 Jan. 2011

#### Visits abroad by faculty:

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	Rajesh R Nair	Brazil	8-12 <sup>th</sup> AUGUST 2010	Session Chair, AGU meeting, Brazil	American Geophysical Union
2	R. Sundaravivelu	University of Naples, Rome	11- 19 September 2010	Visit to University	Dean IC &SR
		Tuscany, Italy	20-24 September 2010	Conference	
		Marina Bay Sands, Singapore	27-30 September 2010	Conference	11 <sup>th</sup> FPSO congress 2010

3	V. Sundar	Liverpool, U.K	10-14 May 2010 9May to 21 <sup>st</sup> June 2010	Conference Visit to University	Institute IC & SR
		Shanghai, China	11-15 Oct 2010	Conference	Institute and IC & SR
		Muscat, OMAN	1-3 Nov 2010	Conference	Institute and IC & SR
		Singapore	21-23 Feb2011	Workshop	IC&SR
4	V.G. Idichandy	Shanghai,China	June 6 -11, 2010	29 <sup>th</sup> International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2010)	
		Kuala Lumpur, Malaysia	12- 16 December 2010	Asia Pacific Offshore Conference (APOC 2010)	
5	S.A.Sannasiraj	UK	9-19 May 2010	Conference	Institute
		Oman	1-4 Nov. 2010	Conference	Institute
		US	2 Jan.-10 Jun 2011	Fulbright fellowship	CIES, US
6	Rajiv Sharma	Republic of Korea	24 <sup>th</sup> June 2010 to 30 <sup>th</sup> July 2010	Research	SNU, Republic of Korea
7	P. Shanmugam P. Shanmugam	Anchorage, Alaska, USA	25 Sept-1 Oct. 2010	Ocean Optics XX Conference	- Partial funding from IUSSTF and Project
		Optical Oceanography Lab., University of South Florida, USA	Oct.-Dec. 2010	Visiting Professor	Indo-US Science & Technology Forum (IUSSTF)
8	V. Anantha Subramanian	USA	22.5.2010 to 08.06.2010	Visit to University of LOWA	PCF
		USA	07.10.2010 to 17.10.2010	Conference	Institute
9	S. Chandrasekaran	Shanghai,China	June 6 -11, 2010	29 <sup>th</sup> International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2010)	
10	S.K. Bhattacharyya S. Chandrasekaran	South Korea	March 10-12, 2010	Changwon National University, South Korea	By invitation
11	S. Chandrasekaran	Kaulalumpur, Malaysia	Dec 6-8, 2010	IBC Asia, Malaysia	By invitation
12	S.K. Bhattacharyya S. Chandrasekaran	South Korea	April 19-23, 2011	Changwon National University, South Korea	By invitation
13	Dr. S. Nallayarasu	Malayasia	30.07.10 to 31.07.10. 27.08.10 to 28.10.10. 11.10.10 to 12.10.10. 26.11.10 to 27.11.10. 15.04.11 to 16.04.11	Meeting and Discussion with Client	By invitation

**Honours and Awards obtained by faculty:**

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
<b>Honours:</b>					
1.	G. Suresh Kumar	Committee Member for Conducting Peer Review of the Centre of Excellence at IIT Guwahati	IIT Guwahati	Conducting Peer Review of the Centre	Jan 2011
2.	P. Shanmugam	IUSSTF Research Fellowship	Indo-US Science & Technology Forum (IUSSTF)	Conducting research in ocean optics at University of South Florida	Oct-Dec. 2010
3.	Jitendra Sangwai	DAAD-IIT Fellowship	DAAD	Research in gas hydrates	March 2011

**Books, Monographs authored/co-authored:**

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
<b>Books:</b>				
1.	R.Sundaravadivelu	Kadar Porieyar KalaiChorkal (Mini Encyclopedia for Ocean Engineering in Tamil)	Research Centre, International Institutes of Tamil Studies, Chennai	R. Ramaswamy,
2.	K.Murali	Proc. of the 9 <sup>th</sup> Intl. Conf. on Hydro-science and Engg., Aug. 2-5, IIT Madras, pg.1722.	Conf. volume	V.Sundar K.Srinivasan K.P.Sudheer
3.	K.Murali	Resistance of flexible emergent vegetation and their effects on the forces and run-up due to waves" published as Chapter 8, pp 129-160 in the book "Tsunami, Research and Technologies"	In Tech.	V.Sundar
4.	R.Sundaravadivelu SP. Subramanian and Rajiv Sharma	Advances in Drilling Technology: E-proceedings of the First International Conference on Drilling Technology (ICDT - 2010) and National Workshop on Manpower Development in Petroleum Engineering (NWMDPE - 2010), November 18-21, 2010	IIT Madras	
<b>Monographs:</b>				
1.	Rajesh R.Nair	Effective elastic thickness in active passive margins and its implications	DST Newsletter, v21, January 2011,DST	Rajesh R Nair, D.Sengupta and R.T.Ratheesh Kumar
2.	Rajesh R Nair	Subsurface images shed light on Past Tsunamis in India	Eos, American Geophysical Union, 91,50,489-490, 2010	Rajesh R.Nair, I.Buynevich, R.J.Goble, P.Srinivasan, S.GN.Murthy, S.C.Kandpal, C.S.Vijayalakshmi and D.Trivedi

**Fellowships of Academies and Professional Societies:**

Sl. No.	Name of faculty	Year of admission
<b>INAE:</b>		
1.	R. Sundaravadivelu	
<b>Others:</b>		
2.	R. Sundaravadivelu Society of Petroleum Engineers	May 2010

**Journal Editorial Boards:**

SI.No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	S Surendran	Member Editorial board, and Publicity Director.	Ships and Offshore Structures.
2.	V. Sundar	Member	Indian Journal of Marine Sciences
		Associate Editor	Journal of Hydro-Environment Research
		Associate Editor	Ocean Engineering journal (International)
		Member	International Journal of Ecology and Development on Coastal and Estuarine Environment
		Member	Journal of Engineering for the Maritime Environment
		Member	international journal(s) on Engineering and Mechanics
		Member	International Centre for urban water hydro informatics Research and Innovation (ICUH)
		Member	Indian Society of Hydraulics Journal
3.	Rajiv Sharma	Assistant Editor	International Journal of CAD/CAM ( <a href="http://www.ijcc.org">http://www.ijcc.org</a> )
4.	K.Murali	Guest Editor	International Journal of Ocean and Climatic systems
5.	S.K. Bhattacharyya Anantha Subramanian	Editor	Journal of Ship Technology

**4.15.4 Design and Development Activities:****Brief and specific details of Process/Instruments/Equipment/ Software designed and developed:****Dr. Srinivasan Chandrasekaran:**

1. Computer program coding being developed for nonlinear dynamic analysis of offshore triceratops
2. Design and development of new mechanical wave energy converter to generate power from ocean wave energy.

**New facilities added or major equipment procured:**

SI. No.	Faculty	Name of Equipment	Value (Rs. in lakhs)
1.	Rajesh R. Nair	GPR System	15 Lakhs
		Fujitsu Workstation	5 Lakhs
		Gesoft software	4 Lakhs
		NVIDIA Graphics card	0.5 Lakhs
		Paradigm Training	6 Lakhs
2.	Jitendra Sangwai	Rocking cell viscometer	3.31
3.	P. Shanmugam	Laboratory equipments	6.5 Lakhs
4.	Nilanjan Saha	SESAM Software added	1.2

**Patents:****Patents filed:**

SI.No	Name of faculty	Topic of patent
1	S. Chandrasekaran	Oscillating arm for double acting ocean wave energy converter
2	S. Chandrasekaran	Power generation using mechanical wave energy converter
3	Rajesh Nair	Early warning earthquake alarm system

#### 4.15.5 Research and Consultancy:

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Coastal sedimentary archives in Indian coast	2008-2011	INCOIS	50	Rajesh R. Nair
2	Spatio spectral localization of coherence anisotropy	2008-2011	INCOIS	15	Rajesh R. Nair
3	A new wavelet method for isostaic estimation	2008-2011	DST	15	Rajesh R. Nair
4	Distinguishing between storms vs Tsunamis from subsurface records	2010-2013	IIT Madras seed grant	15	Rajesh R. Nair
5	Assessment of functional performance of groin field along the north of Chennai harbor	31.08.2010 to 31.03.2012	ICMAM	91.87	V. Sundar S.A. Sannasiraj K. Murali
6	Investigations into vortex induced oscillations of a spring mass systems	30.09.2009 to 29.09.2012	Naval Research Board	31.813	V. Sundar K. Murali
7	Investigations on functional performance of coastal structures	12.04.2010 to 11.04.2013	National Institute of Ocean Technology	59.688	V. Sundar K. Murali
8	Study of an energy exchange between wind and waves and variability of their climate characteristics in the Indian Ocean	19.07.2010	Department of Science and Technology	11.76,62	V. Sundar S.A. Sannasiraj
9	Enhancing wave forecating capabilities in indian ocean using body and altimeter derived wave data	09.11.2008 to 10.09.2011	INCOIS	25	V. Sundar S.A. Sannasiraj
10	Assimilation of satellite data to improve wave forecast	09.03.2009 to 08.03.2012	SAC, Ahemedabad	21.048	V. Sundar S.A. Sannasiraj
11	Coupled dynamic sloshing of liquid in a container and the barge	31.08.2009 to 30.08.2012	Naval Research Board	22.416	V. Sundar S.A. Sannasiraj
12	Performance Modeling of Free Floating Wave Energy Converter	26 March 2010-May 2011	Office of the Principal scientific advisor	7.3	R Panneer Selvam S.A. Sannasiraj
13	Study of Automation in Maneuvering / Control of Ships	9 Jan 2008 to 21 March 2011	Naval Research Board	13.38	R Panneer Selvam S.K.Bhattacharyya
14	Design And Development Of An Underwater Propeller Dynamometer	16/04/2007-31/05/2011	NSTL	9.91	V.G. Idichandy
15	Drag Studies On Axisymetric Bodies	1/10/2008-31/07/2011	DRDL	19	V.G. Idichandy S.K. Bhattacharyya
16	Weight And Cg Indicator	1/9/2010-31/08/2011	DRDL	16.545	V.G. Idichandy
17	Testing And Analysis of Carbon Composite Components For DRDL	15/07/2008-15/07/2009	DRDL	5	V.G. Idichandy
18	Water Impact Studies Of A 3 -t Class Capsule	14/08/2008-31/08/2010	VSSC	21.9102	V.G. Idichandy C.P. Vendhan S.K. Bhattacharyya
19	Study of an energy exchange between wind and waves and variability of their climate characteristics in the Indian ocean.	Jul.'10 – Jun.'12	DST & Russian foundation for basic research	14.302	V. Sundar, R. Ramesh, Alexander S. Ginzburg Polnikov Vladislav



20	Numerical Modeling and Spatial Moment Analysis of Mobility and Mixing of Reactive Contaminants in Low Permeability Hard Rocks under Non-Isothermal Conditions.	April 2008 – April 2011	DST	2.76	G. Suresh Kumar
21	Decentralized Wastewater Management – Benchmarking of Public Utilities and PPP	May 2009 – October 2011	MoUD	379.6	G. Suresh Kumar (Co-investigator) with other faculty from civil and chemical engg
22	Sustainable Water and Waste Management in the Chennai Basin	April 2010 – April 2011	IIT - Madras	22.5	G. Suresh Kumar (Co-investigator) with other faculty from civil engg.
23	Experimental and Modeling Studies on the Simultaneous Formation and Dissociation of Natural Gas Hydrates	3 yrs	IITM	10	Jitendra Sangwai
24	Experimental investigations on the formation and dissociation mechanism of natural gas hydrates	3 Yrs	NIOT, Chennai	26	Jitendra Sangwai
25	Investigations into vortex induced oscillations of a spring mass systems	30.09.2009 to 29.09.2012	Naval Research Board	31.813	K. Murali V. Sundar
26	Investigations on functional performance of coastal structures	12.04.2010 to 11.04.2013	National Institute of Ocean Technology	59.688	V. Sundar K. Murali
27	Improvement and validation GOCI data processing algorithms	July 2009- June 2010	Korea Ocean Research and Development Institute, Seoul, Korea	11.7	P. Shanmugam
28	Detection and classification of algal blooms in Indian coastal waters using OCM-2 data	November 2009-Oct. 2012	ISRO-IITM Cell	19.7	P. Shanmugam
29	Development of a new atmospheric correction algorithm for geostationary ocean color satellite sensor	July 2010- June 2011	Korea Ocean Research and Development Institute, Seoul, Korea	11.7	P. Shanmugam
30	Development of algorithms for monitoring and forecasting hazardous algal blooms in Indian waters using OCM-2 data	August 2010- July 2013	INCOIS, Hyderabad	40	P. Shanmugam
31	Development of new inversion model for retrieving coloured dissolved organic matter from IRS OCM-2 data	Jan 2009- Dec 2011	Space Application Centre, Ahmedabad	20	P. Shanmugam
32	Generic Design Methodology For Underwater Towed Bodies	13-08-2009 to 28-05-2011	NPOL	10	V. Anantha Subramanian P. Krishanan Kutty
33	Study on the Non-Linear Effects of Free Surface Waves on Fixed and Floating Marine Structures/ Vehicles	42 months	Naval Research Board	18.168	C.P.Vendhan, P.Krishnankutty
34	Generic Design Methodology For Underwater Towed Bodies	18 months	NPOL Kochi	10	V.Anantha Subramanian P.Krishnankutty

35	Hydrodynamic response of perforated cylinders and their applications in offshore structures	3 years (2011-13)	NRB	31.02	S. Chandrasekaran
36	Dynamic analysis of offshore triceratops- Capston design project	6 months (Aug,2010-Mar2011)	Human Resource Development Center for offshore and Plant Engg, Changwon University, South Korea	US\$5000	S. Chandrasekaran S.K. Bhattacharyya
37	Design and development of wave energy device using double oscillating arm- Capston design project	6 months (Aug,2010-Mar2011)	Human Resource Development Center for offshore and Plant Engg, Changwon University, South Korea	US\$5000	S. Chandrasekaran S.K. Bhattacharyya
38	Flow Visualisation and Measurement around Damping Elements for Floating Bodies in Waves	-	Naval Research Board	31.128	S. Nallayarasu S. K. Bhattacharyya
39	Development of Simulation strategies of scaled wind turbine models under parked conditions	2 years	IIT Madras	5	Nilanjan Saha
40	Low Frequency Acoustic Propagation in Shallow Water Ocean with Seabed Effects	3 years	NIOT	17	S.K. Bhattacharyya C.P. Vendhan
41	Development of Computer Aided Tutorials and Lecture Notes for Training Scientists and Engineers in Ocean Acoustics	2 years	NIOT	15	S.K. Bhattacharyya C.P. Vendhan
42	Performance of newly developed nonlinear turbulence models in cfd simulation of low and high speed underwater vehicles	3 years	Naval Research Board	28.64	S. Vengadesan S.K. Bhattacharyya
43	High Speed Pump Design for Oil and Gas Applications	2years	IIT Madras	5	Abdus Samad
44	Sloshing and slamming of liquid in Tuned Liquid Damper	3 years	IIT Madras	10	Deepak Kumar
45	National Program In Mariine Hydrodynamics	5 years	NRB	450	V.G. Idichandy S.K. Bhattacharyya

**Industrial Consultancy projects:**

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	S Surendran R Sundaravadivelu	Interaction of ships with basin entrance and approach channels.	Ministry of Shipping	32.7
2	V. Sundar S.A. Sannasiraj	Fishing Harbour at Chellanam – Construction of Breakwaters	Harbour Engg. Dept.	3.309
3	V. Sundar S.A. Sannasiraj K. Murali	Shore Protection for Colachel fishing harbor	Institute of Hydraulics & Hydrology	10.4785

4	V. Sundar S.A. Sannasiraj	Maldives Tsunami Reconstruction project, Harbour Rehabilitation in selected islands (ungoofaaru, Manadhoo & Makundhoo), Republic of Maldives	Central Engineering Consultancy Bureau	8
5	V. Sundar K. Murali	Brine dispersion study for reject water desalination plant at NTECL	NTECL	8.824
6	V. Sundar	Measurement of uplift pressure on a concrete pavement over the crest of the Krishnapatnam port breakwater	Krishnapatnam port	4.512
7	V. Sundar S.A. Sannasiraj K. Murali	Technical study in connection with the sea erosion occurring along the coast of fort Kochi Chellanam	Cochin Port Trust	4.412
8	V. Sundar S.A. Sannasiraj K. Murali	Shore protection along adjacent coastal stretches of cochin port due to deepening of navigation channel	Cochin Port Trust	29.472
9	V. Sundar S.A. Sannasiraj	Littoral transport study	Rajakamangalamthurai	4.412
10	V. Sundar K. Murali S.A. Sannasiraj	DPR for Kanakesanturai harbor project at Srilanka	Port and Water Resources Rites Limited	22.06
11	K. Murali	Design the outfall from proposed CETP to below the sealevel for Mangalore SEZ project	Voyants Solutions Pvt. Ltd.	1.6545
12	K. Murali	Testing of Kolos Armour Units	Krishnapatnam Port	18.751
13	K. Murali	Design & model testing of 120m long floating canopy	Ultra Dimensions Pvt Ltd, Vishakapatnam	15.8832
14	K. Murali	Detailed project report for jetty facility to import coal for proposed power project	Maharastra State Power Generation co. Ltd, Mumbai	11.03
15	K. Murali R. Sundaravadivelu	Sea water intake & discharge system study for thermal power plant at village palavalasa.	Hinduja National Power Corporation Limited, Mumbai	30
16	K. Murali	Consultancy work for preparation of preliminary design and BOQ/BOM for 1x600mw ennore thermal power project	Bharat Heavy Electrical Ltd, Noida	2.206
17	R. Sundaravadivelu S.A. Sannasiraj K. Murali	Conducting model studies and Concept design of SFBW & TFBW for the proposed floating Breakwater Development" at Agathi Island of Lakshadweep	Ministry of Shipping Lakshadweep Harbour Works, Kavaratti	40
18	K. Murali	Hydrodynamic study of cooling water pumphouse at 220MW Barge Mounted powerplant at Kakinada – GMR Energy Limited	GMR Energy Limited	28
19	V. Anantha Subramanian	Designs, advice and quality control of pleasure boats for titc	Tamilnadu tourism development corporation chennai	2
20	V. Anantha Subramanian	Roll algorithm of stabilizer control system for defense surface ships	Veljan hydrair pvt ltd hyderabad	5
21	V. Anantha Subramanian	2000 lpg carrier	Shoft shipyard pvt ltd., Maharashtra	5.515
22	V. Anantha Subramanian	Resistance, sea keeping and anti-roll tests for geotechnical offshore vessel	Modest infrastructure ltd., mumbai	10.4785
23	V. Anantha Subramanian	Design of 7.3m rib vessel	Gee pee reinforced products pvt ltd	5
24	V. Anantha Subramanian	Design of solar powered boat	Yu.ga design, padi, chennai	1

25	R. Sundaravadivelu	Handling of coal at Cuddalore minor port - selection of port users for Tamilnadu Maritime Board, Govt of Tamilnadu	Tamilnadu Maritime Board, Chennai	2.2
26	R. Sundaravadivelu K. Murali	Detailed project report for jetty facility to import coal for proposed power project, Mumbai	Mahagenco , Mumbai	11.03
27	R. Sundaravadivelu	Sea water intake & Discharge system study for thermal power plant at village Palavalasa, Visakhapatnam District	Hinduja National Power Corporation Ltd, Mumbai	30
28	R. Sundaravadivelu	Providing berthing facility at Probandar port	Gujarat Maritime Board, Gujarat	1.5
29	R. Sundaravadivelu	Proof checking of design of pile foundation for M/s. Indianoil Petronas Pvt. Ltd.	Indianoil Petronas Pvt. Ltd., Chennai	0.27
30	R. Sundaravadivelu	Fishing Harbour at Rajakamangalam Thurai	Rajakamangalam Thurai fishing harbour pvt. ltd	6
31	R. Sundaravadivelu	Development of 13 <sup>th</sup> Multipurpose cargo berth at Kandla Port	Kandla Port Trust, Gandhidham	72
32	R. Sundaravadivelu	Proof consultancy for 2X150 MW thermal power plant at Bhadreswar Dist, Kutch, Gujarat	OPG Power, Chennai	2.2
33	R. Sundaravadivelu	Consultancy for submission of report on foundation for Greenfield bridge across river Ganges connecting NH 31 near Bakhtiyarpur & NH - 28 at Tajpur on Bihar	Navayuga Engineering company, Hyderabad	0.27
34	R. Sundaravadivelu	Design of marine jetty and diaphragm wall for DGNP at Visakhapatnam	Naval Project, Naval Base, Visakhapatnam	19.3
35	R. Sundaravadivelu	Consultancy charges for capacity evaluation of Malpe shipyard facility	Tebma Shipyard Ltd, Chennai	1.5
36	R. Sundaravadivelu Srinivasan Chandrasekaran	Consultancy service for assessing structural stability of Matsya Dock for provision of two additional 210 Ton EOT crane	Naval Project, Naval Base, Visakhapatnam	8.27
37	R. Sundaravadivelu	Consultancy service for construction of sea wall at Km 183/2 of NH49 at Ramanathapuram	National Highways Division, Ramanathapuram	2.2
38	R. Sundaravadivelu	Techno feasibility study of Bichitrapur Port in Balasore District	Orissa Industrial Infrastructure Development corporation, Bhubaneswar	1.1
39	R. Sundaravadivelu	Checking Technical viability of Oil Jetties for handling 13m/14m draught vessel	Kandla Port Trust, Gandhidham	9.92
40	R. Sundaravadivelu	Proof checking of cost estimation of dredger at Safeway Dredging Enterprises	Safeway dredging enterprises, Nagapattinam	0.27
41	R. Sundaravadivelu	Revise Cost estimates for the work of strengthening the RCC jetty at new port, Bhavnagar of Gujarat Maritime Board	Gujarat Maritime Board, Gujarat	1.65
42	R. Sundaravadivelu	Erosion of land mass along sea-shore of Hare Island at Tuticorin Port	Tuticorin Port Trust, Tuticorin	4.19
43	R. Sundaravadivelu Srinivasan Chandrasekaran	Consultancy services for Repair/ Replacement of mooring at DG range Naval Dockyard, Visakhapatnam	Naval Dockyard, Visakhapatnam	6.61
44	R. Sundaravadivelu	Design Approvals for extension of rail system at Matsya Dock at Larsen and Toubro Limited	Larsen and Toubro Limited, Chennai	2.5

45	R. Sundaravadivelu	Construction of Approach Trestle & Jetty for NOCI cargoes at Tiruchopuram at Vax Consultants Pvt. Ltd.	Vax Consultants Pvt. Ltd., Chennai	5
46	R. Sundaravadivelu	Proof checking of design & drawings of quay structure for Modular Fabrication facility at Larsen & Toubro Limited, Chennai	Larsen & Toubro Ltd, Chennai	5.51
47	R. Sundaravadivelu	Repair of IOCL Jetty at Kandla	Indian Oil corporation, Ahmedabad	13.23
48	R. Sundaravadivelu	Construction of Tidal Observatory Building at Rameswaram at Tamil Nadu Maritime Board	Tamilnadu Maritime Board, Chennai	0.27
49	R. Sundaravadivelu Srinivasan Chandrasekaran	Consultancy for repairs of CG Dry at Naval Dockyard Mumbai	Naval Dockyard, Mumbai	16.54
50	R. Sundaravadivelu	Proof Checking of Designs of foundation of Elevated carriage in NH-47 at Bengaluru at Navayuga Engineering Company Ltd.	Navayuga Engineering Company Ltd	2.2
51	R. Sundaravadivelu	Provision of EOT Crane at INS DEGA, Vizag.	Military Engineer Services, Visakhapatnam	2.2
52	R. Sundaravadivelu	Study of Construction of Additional Oil Jetties at Old Kandla	Kandla Port Trust, Gandhidham	8.82
53	R. Sundaravadivelu	Proof Checking of Designs of foundation for Dhola-Sadia bridge in Assam	Navayuga Engineering company, Hyderabad	2.2
54	R. Sundaravadivelu Srinivasan Chandrasekaran	Consultancy for SBW Jetty for Installation of new portal crane for Naval Dockyard, Mumbai	Naval Dockyard, Mumbai	8.27
55	R. Sundaravadivelu Srinivasan Chandrasekaran	Consultancy for undertaking feasibility study for enhancing crane capacity at covered shed at Jetty 'X'	The project Director, Naval Project	7.5
56	R. Sundaravadivelu	Construction of 3rd Stage Breakwater at Androth Island of Lakshadweep	Lakshadweep Harbour works, Kavaratti	11.22
57	R. Sundaravadivelu	Port Department – New wharf at Vizhinjam	Kerala Port Department	2.75
58	R. Sundaravadivelu	BG AC Satellite Loco shed at Royapuram	RPN Engineers Chennai pvt. ltd	0.4
59	R. Sundaravadivelu	Consultancy work for preparation of preliminary design and BOQ/BOM for 1 x 600 MW Ennore thermal power station sea water intake system	Bharat Heavy electrical ltd	2.2
60	R. Sundaravadivelu	Development of North Cargo Berth – II, preparation of design and drawing	Tuticorin coal terminal pvt ltd	31.98
61	R. Sundaravadivelu	Consultancy work for design of abutments of Elevated carriageway in NH 47 at Bengaluru – Proof checking	Navayuga Engineering company Ltd.,	2.2
62	R. Sundaravadivelu	Recording initial, final levels and computation of quantity for the Desilting and dewatering work of Ansupa lake	Chilika Development Authority	6.61
63	R. Sundaravadivelu	Consultancy for strengthening of existing berths WQ-1, WQ-2 and WQ-3 in the Northern arm of inner harbour to cater to 14.00m draft vessels (-16.10m dredged depth)	Visakhapatnam Port Trust	11.03

64	R. Sundaravadivelu	Conducting model studies and concept design of SFBW & TFBW for the proposed floating breakwater development" at Agathi Island of Lakshadweep	Lakshadweep harbour works, Kavaratti	0.44
65	R. Sundaravadivelu	Consultancy work for extension of coast guard jetty at Port Blair	Military Engineering Services, Port Blair	14.73
66	V.Anantha Subramanian P.Krishnankutty	Resistance And Sea Keeping Computation For 4 Hulls	Neilsoft Ltd, Pune	
67	V.Anantha Subramanian P.Krishnankutty	Roll Algorithm Of Stabilizer Control System For Defense Surface Ships	Veljan Hydrair Pvt Ltd Hyderabad	5.0
68	C.P.Vendhan, P.Krishnankutty S.K.Bhattacharya	Computer Program For SLOSH Analysis Using Finite Element Method	ISRO, Trivandrum	9.92
69	V.Anantha Subramanian & P.Krishnankutty	Drag Evaluation Of Infantry Combat Vehicle In Towing Tank	Vrde, Ahmednagar	9.592
70	V.Anantha Subramanian & P.Krishnankutty	Resistance And Self Propulsion Tests For Condensate Tanker	Cybermarine Technologies Pte Ltd, Mumbai	4.50
71	V.Anantha Subramanian & P.Krishnankutty	Manoeuvring And Seakeeping Studies For 500t Oil Barge For The Indian Navy	Modest Infrastructure Ltd., Mumbai	16.545
72	V.Anantha Subramanian & P.Krishnankutty	Design Of Solar Powered Boat	Yu.Ga Design, Chennai	1.0
73	V.Anantha Subramanian & P.Krishnankutty	Design of a 7.3m RIB Vessel	Gee Pee Reinforced Products Pvt Ltd, Delhi	5.00
74	V.Anantha Subramanian & P.Krishnankutty	Resistance, Sea Keeping And Anti-Roll Tests For Geotechnical Offshore Vessel	Modest Infrastructure Ltd., Mumbai,	10.4785
75	Srinivasan Chandrasekaran S.K.Bhattacharyya	Seismic response of 6.6KV SPBG bus-duct systems for Bhavini, Kalpakkam	BGR Energy Systems Ltd	3.5
76	Srinivasan Chandrasekaran R. Sundaravadivelu	Strength assessment of Steel Gate at Matsya Dock, Vizag (new project)	Director General Naval Projects, Visakhapatnam	11.03
77	S. Nallayarasu	Structural Integrity of the existing NF/MNW platforms for the proposed bridge between MNW-NF.	ONGC, Mumbai	10
78	S. Nallayarasu	Structural Design Review of GSPC jacket Engineering work	L&T Valdel Engineering Limited, Bangalore.	8
79	S. Nallayarasu	Structural Consultancy Services for B-Series (B-46, B-48, B-105, B-188 and N-15 & N16 Well Platforms)	ONGC, Mumbai	15
80	S. Nallayarasu	Design of Jetty and Approach Trestle at ICS Marine terminal in Sendou Port, Senegal.	Afcons Infrastructure limited, Mumbai	6
81	S. Nallayarasu	Alternate Design of Quay wall for Ennore Container Terminal	Afcons Infrastructure Limited, Mumbai	10
82	S. Nallayarasu	Structural Design Review of B-193 Platform Project ( Float over Method)	ONGC, Mumbai	26
83	S. Nallayarasu	Structural Analysis and Design of Fiscal Metering Module	Oil Tech Engineering India Pvt. Ltd, Chennai	6
84	S. Nallayarasu	Structural design for fishing harbor/passenger jetty at Malpe	Port and Fisheries Division, Udupi	6
85	S. Nallayarasu	Structural analysis and design of MWAJ for NKT	Aker solutions, Malaysia	27

86	S. Nallayarasu	Modification in berthing arrangement at Cuddalore jetty	Chemplast Sanmar Limited	9.5
87	S. Nallayarasu	Pile driveability analysis for FYA, FZA platforms	Saipem Triune Pvt Ltd.	15
88	S. Nallayarasu	Consultancy services for Ennore container terminal project	Proes Consultores S.A	30
89	S. Nallayarasu	Pre-Feasibility Study for Barge Unloading Facility at Tuticorin.	Portman India Private Limited	2
90	S. Nallayarasu	Pre-Feasibility Study Report for Coal Import facility at Chidambaram.	Portman India Private Limited	2
91	S. Nallayarasu	Consultancy Services for Certification of strength and life of temporary load out jetty	DNV Chennai	2
92	S. Nallayarasu	Detailed Project Report for NOCL Marine Terminal at Cuddalore.	Portman India Private Limited	10
93	S. Nallayarasu	Collaborative projects on "Finite Element analysis of tubular joints of offshore jacket platforms	IEOT, ONGC Mumbai	5

#### RBIC projects:

Sl.No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	K. Murali	Study of fairing for underwater towed cables	Naval Physical Oceanographic Lab	8.44
2	S. Chandrasekaran	Consultancy for Development of new offshore macro-algae cultivation systems	Sea6 Energy Pvt Ltd, Chennai	2.2066

#### Exchange program with other Universities including Institutions/Universities under MOU;

##### R. Panneer Selvam

Exchange program with other Universities including Institutions/Universities under MOU;  
 Visiting Professor – University of Windsor, Windsor, Canada - May 2010 – July 2010  
 Taught a course on Introduction to Coastal and Offshore structures  
 Engaged in experiments related to wave induced scour on bridge piers

##### S. Chandrasekaran

1. MoU with University of Naples Italy 2010-2015- Champion Operator on behalf of IIT Madras
2. MoU with Human Resource Center for offshore and Plant Engg, Changwon National University, South Korea- Champion Operator on behalf of IIT Madras

#### Faculty members participation with other institution under MoU:

Sl. No.	Name of faculty	Participation details	Name of University/Institution which has MoU
1.	Rajesh R.Nair	Project participation in sharing of scientific ideas and analysis of GPR data	SERC, Chennai PRL, Ahmedabad
2.	K.Murali	Joint Ph.D Student	University of Western Australia
3.	S. CHandrasekaran	Joint Ph.D student	University of Naples Federico II, Italy
4.	S. Chandrasekaran	Joint Ph.D Student	Anna University, Coimbatore

#### Research Publications of the faculty members & research scholars:

Total No. of papers published in Refereed National Journals : 03  
 Total No. of papers published in Refereed International Journals : 49  
 Total No. of papers presented in National Conferences : 07  
 Total No. of papers presented in International conferences : 70

### In Refereed National Journals:

1. Dhinakaran.G, Sundar.V, Sundaravadivelu.R and Graw. K.U (2010) "Hydrodynamic characteristics of submerged semicircular breakwater", Journal of Ocean and Ship Technology, Indian Institute of Technology Kharagpur, December 2010 Issue
2. Anand,K.V. and Sundar, V." Comparison of pressures due to random waves on vertical and curved seawalls" Indian Society for Hydraulics Journal, Vol.16, special issue.1, pp 26-34.
3. Sundar,V. and Anand, K.V." Dynamic pressure and run-up on curved seawalls compared with vertical wall under cnoidal waves" Indian Journal of Geo-Marine Sciences, 39,(4), Dec 2010, pp 579-588.

### In Refereed International Journals:

1. Rajesh R Nair and Suresh Ch Kandpal, Effect of co-operative fuzzy c-means clustering on estimates of three parameters AVA Inversion, Journal of Earth System Science,, 119(2), pp 1-9, 2010.
2. Vijaya Lakshmi C S, Srinivasan P, Murthy S G N, Deshraj Trivedi, Rajesh R Nair, Granularity and textural analysis as a proxy for extreme wave events in Southeast coast of India, Journal of Earth System Science, 119,3, 297-305, 2010.
3. Rajesh R. Nair,Tanmay K. Maji, Tannishta Maiti, Suresh Ch. Kandpal, R.T. Ratheesh Kumar, Sharat Shekhar, Multitaper coherence method for appraising the elastic thickness of the Indonesian active continental margin, J. Asian Earth Science, 40, 1, 326–333, 2011.
4. Rajesh R.Nair, Ilya Buynevich, Ron J Goble, P.Srinivasan, S.G.N. Murthy, Deshraj Trivedi, C.S.Vijyalakshmi, Subsurface Images Shed Light on Past Tsunamis in India, EOS, TRANSACTIONS AMERICAN GEOPHYSICAL UNION, 91(50), pp. 489-490, 2010.
5. Chandrasekaran, S., L. Nunziante, G. Serino and F. Carannante (2010), "*Axial force-Bending moment limit domain and Flow Rule for reinforced concrete elements using Euro Code*", International Journal of Damage Mechanics, SAGE publications, 19, pp 523-558.
6. Srinivasan Chandrasekaran, S.K.Gupta, Federico Carnanante (2010), "*Design aids for fixed support reinforced concrete cylindrical shells under uniformly distributed loads*", International Journal of Eng, Science and Technology, Vol. 1, No. 1, pp. 148-171.
7. Chandrasekaran Srinivasan, Luciano Nunziante, Giorgio Serino, Federico Carannante (2010), "*Curvature ductility of RC sections based on Euro Code: Analytical procedure*", Journal of Civil Engineering, Korean Society of Civil Engineers, Springer, 15(1), pp 131-144.
8. Srinivasan Chandrasekaran and Harinder (2010). *Proposed Mechanism for Mechanical Wave Energy Converter*, Ship and Offshore, July-August (4), pp. 101.
9. Dhinakaran.G, Sundar.V, Sundaravadivelu.R and Graw. K.U (2010) "Regular wave measurements on a submerged semicircular breakwater" Journal of Offshore Mechanics and Arctic Engineering, Vol.132, August 2010, pp.034501/1- 034501/6.
10. Ramaswamy R., Subramanian. SP and Sundaravadivelu.R. (2010) "Composite variations of olivine in shonkinite and its associated ultrabasic rock from the carbonatite complex of Tiruppattur, Tamilnadu" Current science, Vol.99, No.22, pp.1428-1433.
11. Rajasekaran, C., Sannasiraj, S.A. and Sundar,V. "Breaking wave impact pressure on a vertical wall" *International Journal of Ocean and Climate Systems*,vol.1, No.3, Sept 2010,pp 155-166.
12. Behera, M.R., Murali. K. and Sundar V., "Identification of suitable grid size for accurate computation of run-up height", *International Journal of Ocean and Climate Systems*,Vol.1, No:3&4, Sept 2010, pp 223-237.
13. Suresh, P.K., Sundar, V and Selvaraja, A. "Numerical modelling and measurement of sediment transport and beach profile changes along south west coast of India" *Jl.of coastal research*, NO.1, Vo. 27, 2011, pp 26-34
14. Sundar,V., Murali,K. and Norayanan,L. " Resistance of flexible emergent vegetation and their effects on the forces and run-up due to waves" published as Chapter 8, pp 129-160 in the book "Tsunami, Research and Technologies" Edited BY Nils-Axel Moerner published by InTech, Jan 2011, ISBN 978-953-307-552-5.
15. Behera, M.R., Murali. K. and Sundar V., "Effect of tidal currents at amphidromes on the characteristics of N-wave type tsunami", *Journal of Engineering for the Marine Environment*, Part M: Vol. 225, pp 43-59
16. Sriram, V., Sannasiraj, S.A., Sundar, V., Schlenkhoff, A. and Schlurmann, T. 2010, Quantification of phase shift in the simulation of shallow water waves, *International Journal for Numerical Methods in Fluids*, 62, 1381-1410.
17. Balaji, R., Sannasiraj, S.A. and Sundar, V. 2010. Identification of breaking events from the responses of a data buoy. *Proc. IMechE, Part M: J. of Engineering for the Maritime Environment*, 224 (2), 127-139.



18. Nasar, T., Sannasiraj, S.A. and Sundar, V. 2010. Motion responses of barge carrying liquid tank. *Ocean Engineering*, 37 (10), 935-946.
19. Rajasekaran, C., Sannasiraj, S.A. and Sundar, V. 2010. Breaking wave impact pressure on a vertical wall. *International Journal of Ocean and Climate Systems*, 1 (3), 155-166.
20. R. Sharma and Tae-wan Kim (2010), "Development of a Logic-Based Product Life-Cycle Management (LBPLM) System for Shipbuilding Industry - Conceptual Development", *Journal of Ship Production and Design (JSPD)*, ISSN: 8756 - 1417, Vol. 26, No. 4, November 2010, pp. 231 - 251.
21. R. Sharma, Tae-wan Kim, O. P. Sha and S. C. Misra (2010), "Issues in offshore platform research - Part 1: Semi-submersibles", *International Journal of Naval Architecture and Ocean Engineering (IJNOE)*, ISSN: 2092-6782, Vol. 2, no. 3, pp. 155 – 170.
22. R. Sharma, Tae-wan Kim and O. P. Sha (2010), "Computing Solutions of Systems of Nonlinear Polynomial Inequalities and Equations", *International Journal of Advanced Computing (IJAC)*, ISSN: 0975 - 7686, Vol. 2, no. 2, April 2010, pp. 51 - 59.
23. Natarajan. N., P. Seetal., and G. Suresh Kumar. (2010) "Robust Image Segmentation Based on Optimal Thresholding". *International Journal of Engineering Studies*, vol. 2, no. 2, pp. 105-114.
24. Natarajan. N., and G. Suresh Kumar. (2010) "Solute Transport in a Coupled Fracture-Matrix System with Sinusoidal Fracture Geometry". *International Journal of Engineering Science and Technology*, vol. 2(6), pp. 1886-1992.
25. Natarajan, N., and G. Suresh Kumar. (2010) "Thermal Transport in a Coupled Sinusoidal Fracture-Matrix System". *International Journal of Engineering Science and Technology*, vol. 2(7), pp. 2645 - 2650.
26. Natarajan, N., and G. Suresh Kumar. (2010) "Finite difference approach for modeling multispecies transport in porous media". *International Journal of Engineering Science and Technology*, vol. 2(8), pp. 3344-3350.
27. Natarajan, N., and G. Suresh Kumar. (2010) "Radionuclide and colloid co transport in a coupled fracture-skin-matrix system". *Colloids and Surfaces A: Physicochemical and Engineering Aspects (Elsevier Publications)*, vol. 370, pp. 49-57.
28. Natarajan, N., and G. Suresh Kumar. (2010) "Effect of Non-Linear Sorption on Solute Transport in a Coupled Fracture-Matrix System". *International Journal of Environmental Sciences* (ISSN: 0976-4402), vol. 1(3), pp. 323-333.
29. Natarajan, N., and G. Suresh Kumar. (2010). "Solute Transport in a Coupled Triangular Fracture Matrix System". *International Journal of Advances in Science and Technology (Silicon Valley Publishers)*, vol. 1(3), pp. 78-85.
30. Natarajan, N., and G. Suresh Kumar. (2010) "Numerical modeling of solute transport in a coupled sinusoidal fracture matrix system in the presence of fracture skin". *International Journal of Energy and Environment* (ISSN: 1109-9577), vol. 4(4), pp. 99-104.
31. Natarajan, N., and G. Suresh Kumar. (2010) "Colloidal Transport in a Coupled Sinusoidal Fracture Matrix System". *International Journal of Geology (NAUN Publications)*, vol. 4(2), pp. 41-47.
32. Natarajan, N., and G. Suresh Kumar. (2011). "Spatial Moment Analysis of Colloid Facilitated Radionuclide Transport in a Coupled Fracture-Matrix System". *International Journal of Energy and Environment* (ISSN: 2076-2895), vol. 2(3), pp. 491-504.
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3. An assessment of non linear AVA inversion for reservoir parameter estimation using two global optimization methods, Rajesh R. Nair<sup>1</sup>, Yudhvir Singh<sup>2</sup> and Suresh Ch. Kandpal<sup>3</sup> ICDT Conference, IIT Madras, Nov., 2010
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**Distinguished Visitors to the Department:**

Sl.No	Name of the visitor and Designation	Date of visit	Purpose of visit
1	John Hoppe Shell, Petroleum Engineer Discipline manager	11 <sup>th</sup> March 2011	Shells Campus ambassador program and presentation on research topics of interest to Shell. Five faculties presented their research contributions and focus
2	Vladislav Polnikov & Mr S. Pogarsky Fedor, Obukhov Institute for Physics of Atmosphere of the Russian Academy of Sciences	26/09 to 09/10/2010	Indo-Russia joint research project
3	Professor Ramanan Krishnamoorti, Chair Professor, University of Houston	1 <sup>st</sup> December, 2010	Petroleum Engineering collaboration
4	Professor Vemuri Balakotaiah	1 <sup>st</sup> December, 2010	Petroleum Engineering collaboration
5	Srinivas Better, Chairman, Quasitum Inc.	1 <sup>st</sup> December, 2010	Give a talk on BP Oil spill
6	Professor Kishore Mohanty, University of Texas, Austin	23 <sup>rd</sup> July, 2010	Give talk on Petroleum Engineering

#### **4.15.6 Other Activities of the Department/Centre:**

##### **1. Inter disciplinary group achievements of the Departments.**

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Expression of interest submitted with Prof Sundaravadivelu as chief Principal Investigator for Chilka Development Authority. The geophysical aspects will be dealt by myself.

##### **2. International collaboration achievements by the Department**

1. MoU is signed with University of Naples Federico II, Italy with IIT Madras for a joint academic cooperation and industrial sponsored research. Our Faculty, Dr Srinivasan Chandrasekaran is identified as Champion to operate the MoU on behalf of IIT Madras.
2. A Joint academic cooperation titled *Network of Excellence* proposal with University of Naples Federico II (Italy), University of Bristol (UK), Northeastern University (USA), Chalmers University of Technology (Sweden), Technical University of Delft (The Netherlands), Tun Abdul Razak Research Center (UK) is submitted to European Union for 3 Million Euros. The proposal identifies IIT Madras as the only non-European Union country participating in this joint research. This cooperation is initiated and being operated by our Faculty Dr Srinivasan Chandrasekaran
3. MoU is signed with Changwon National University South Korea for a joint academic cooperation and industrial sponsored research. Our Faculty, Dr Srinivasan Chandrasekaran is identified as Champion to operate the MoU on behalf of IIT Madras.

##### **3. Visit:**

S. Surendran visited BUET, Bangladesh, during Dec11-12 2010

##### **4. Major infrastructure development made in the Department**

S. Surendran - Setting up of drawing halls and getting drawing equipments with consumables.

S. Surendran - Chaired a session of MARTEC 2010, BUET, DHAKA.

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1. Procured GPR system useful for Petroleum Engineering students practical training
2. High end workstation for installation of Paradigm Seismic software obtained after signing MOU with GOCAD consortium
3. Geosoft modeling software for potential data modeling for sedimentary basins

## 4.16 DEPARTMENT OF PHYSICS

### 4.16.1 Introduction:

The Department of Physics was established in the year 1959 and now has Ph.D., M.Tech., M.Sc., Dual Degree programmes in M.S. and B.S., and B.Tech (Engg. Physics) programmes. In addition, department teaches various core and elective courses in physics to B.Tech students of other branches. The Physics department also undertakes a large number of sponsored research and consultancy projects.

### 4.16.2 Academic Programmes:

Engg. Physics (B.Tech), M.Sc, Dual Degree programmes in M.S. and B.S., M.Tech. (Solid State Technology) and Ph.D.

### New Courses introduced:

Sl. No.	Course No.	Title
1.	PH5890	Ultrafast Lasers and Applications
2.	PH5462	Magnetism in Solids
3.	PH5461	Physics of the cell
4.	PH7660	Advanced Condensed Matter Physics

### Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech. - EP	23	21	21	14	1	80
Dual Degree (BS & MS)	6	10	-	-	-	16
M.Sc.	36	39	-	-	-	75
M.Tech.	9	8	-	-	-	17
Ph.D.	28	24	11	21	36	120
<b>Total</b>	<b>102</b>	<b>102</b>	<b>32</b>	<b>35</b>	<b>37</b>	<b>308</b>

### Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
<b>Abroad:</b>					
1.	Tessy Theres Baby	PH07D016	BIOsensor 2010	May 13 -16,2010	IITM
2.	Jyothirmayee Arvind S.S	PH07D022	BIOsensor 2010	May 13-16, 2010	IITM
3.	Adarash Kaniyoor	PH07D037	International Conference	6 <sup>th</sup> to 10 <sup>th</sup> March 2011 Strasburg, France	
4.	N. Ravichandra Raju,	PH06D018	XXII International Conference on Raman Spectroscopy (ICORS 2010)	Boston, MA, USA from 08-08-2010 to 13-08-2010	
5.	Tessy Theres Baby	PH07D016	20 <sup>th</sup> Anniversary World Congress on Biosensors	26-05-2010 to 28-05-2010 Glasgow, UK	
<b>India:</b>					
1.	Sreenath V	PH10D004	Physics of Strong Correlations	10-11-2010 to 16-11-2010 at Harish-Chandra Research Institute, Allahabad.	IITM
2.	Dantham Venkata Ramanaiah	PH06D020	DAE-BRNS National Laser Symposium (NLS-19)	29-11-2010 to 06-12-2010 at Raja Ramanna Centre for Advanced Technology, Indore.	IITM
3.	Syed Akbar Ali	PH08D004			



4.	Ramesh G	PH07D017	National Seminar on Ferroelectrics & Dielectrics (NSFD-XVI)	30-11-2010 to 06-12-2010 Guru Ghasidas Vishwavidyalaya, Bilaspur.	IITM
5.	Prathyusha K.R	PH07D005	Computational Technique in Soft matter – 2010 (CTSM10)	03-12-2010 to 12-12-2010 at S.N.B.N.C.B.S. Kolkata	
6.	Ramakrishnan N	PH06D017			
7.	Jaidev	PH08D020	55 <sup>th</sup> DAE Solid State Physics Symposium	26-12-2010 to 30-12-2010 - Manipal University Karnataka	
8.	Vinayan B.P	PH08D002			
9.	Vidya G Nair	PH08D019			
10.	Prashant Dabas	PH08D025			
11.	Adarsh Kaniyoor	PH07D037			
12.	Tessy Theres Baby	PH07D016			
13.	Ramesh G	PH07D017			
14.	Rajasekhar Pothala	PH10D014	International Symposium for Research Scholars (ISRS 2010)	20-12-2010 to 22-12-2010 - IIT Madras	
15.	Rajim Ali Mandal	PH09D010			
16.	Nibedita Ram	PH05D012	Topical Conference on interaction of EM radiations with Atoms, Molecules and Clusters (TC 2010)	01-3-2010 to 09-03-2010 RRCAT-INDORE	
17.	Gagan Bihari Pradhan	PH06D012			
18.	Manas Ranjan Parida	PH06D024			
19.	Robin John	PH07D003	"Emergent properties and novel behavior at the nanoscale"	19-04-2010 to 27-04-2010	

**Names of students/scholars who won outside prizes and awards:**

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1.	V. Eswaraiah	PH07D033	Best paper presentation award	ISRS-2010 held at IIT Madras
2.	S.S Jyothirmayee Aravind	PH07D022	Best paper presentation award	ISRS-2010 held at IIT Madras
3.	B.P. Vinayan	PH08D002	Best paper presentation award	ISRS-2010 held at IIT Madras
4.	Jaidev, Ashish Kumar Mishra	PH08D020 PH07D004	Received first prize for oral presentation	NCMCN-2011 January 06-08, University of Rajasthan

**Name of Students/Scholars who won Institute Convocation/Institute Prize:**

Sl.No.	Name of the Student/Scholar	Roll No.	Name of Prizes
1.	Biju K.P	PH03D013	Prof A L Laskar Prize
2.	Sunil Kumar S	PH05D008	Prof A L Laskar Prize
3.	Amartya Awasthi	PH08M002	Institute Merit Prize
4.	Sinha Kishan Kumar	PH08C025	Prof Chilukuri Ramasastry Memorial Prize
5.	Sripoorna Bharadwaj P K	EP07B017	Best academic record in the 3 <sup>rd</sup> and 4 <sup>th</sup> semesters
6.	Srinath K	CE07B037	Rajalakshmi Krishnamurthy English Prize

**4.16.3 Faculty and their activities:**

**Faculty:**

**Name and Qualifications**

**Major area of specialization (only 3 areas)**

**Professor:**

Arul Lakshminarayan, Ph.D  
SUNY Stony Brook, USA

Quantum chaos, Quantum information theory, Chaos and transport

Deshmukh P C, Ph.D  
Nagpur Univ., Nagpur

Atomic and Molecular Physics

Hariharan K, Ph.D, IIT Madras

Solid State Ionics/Electronics

Kasiviswanathan S Ph.D  
IIT, Madras

Thin Films

Kothiyal M P, Ph.D IIT, Madras	Applied Optics
Lakshmi Bala S., Ph.D Madras Univ.	Classical and quantum dynamical systems, Nonlinear dynamics and chaos, Chaos in gauge theories, Quantum information theory
Markandeyulu G Ph.D [Head] IIT, Madras	Magnetism and magnetic materials
Murthy V R K, Ph.D IIT, Madras	Microwave physics and materials
Natarajan T S, Ph.D IIT, Madras	Conducting polymers, Molecular electronics, Instrumentation
Neelima M. Gupte, Ph.D SUNY Stony Brook, USA	Dynamical systems, Statistical Physics
Prem B. Bisht, Ph.D Kumaun Univ., Nainital	Ultrafast laser optics and spectroscopy
Ramachandrao Rao M S, Ph.D IIT Kharagpur	Electronic and Magnetic Materials: Oxide Electronics, Thin films and Nanostructures, ZnO nanostructures for light emission, nanocrystalline diamond for mechanical and electronic applications, Magnetic nanoparticles, Nanoparticles for photovoltaic applications, Magnetoelectric coupling in oxides, Magnetotransport, and SPINTRONICS.
Ramaprabhu S, Ph.D IIT, Madras	Nanotechnology, Hydrogen energy technology, Fuel cell technology
Sankaranarayanan V, Ph.D IIT, Madras	Low temperature physics, Cryogenics, Thermal and Electrical properties
Sathyanarayana M V, Ph.D IMSc. Madras	Quantum optics
Sethupathi K, Ph.D Moscow State Univ., Russia	Low Temperature Physics, Superconductivity and Magnetic materials
Srinivas V, Ph.D. IIT Bombay	Experimental condensed Matter Physics, Low temperature Electronic properties, Magnetic Properties of intermetallic alloys and Low dimensional and disordered materials.
Subrahmanyam A. Ph.D. IIT, Kharagpur	Semiconductor devices, Photovoltaics
Sunil Kumar P B, Ph.D. RRI, Bangalore	Complex Fluids, Biological Physics and Statistical Mechanics
Suresh Govindarajan, Ph.D. U.Penn., Philadelphia	Theoretical physics, Quantum field theory string theory, Solitons and D-branes
Vijayan C, Ph.D IIT, Madras	Photonics, Nonlinear Optics
<b>Associate Professor:</b>	
Ganesan A R, Ph.D IIT Madras	Adaptive Optics, Vision Science, Laser Instrumentation, Interferometry, Holography and Optical metrology
Harish Kumar N, Ph.D, University of Hyderabad	Superconductivity, Novel magnetic materials, Instrumentation and automation
Krishnamurthy C V, Ph.D IIT Madras	Modeling and simulation of electromagnetic, acoustic, elastic wave propagation and scattering; Nonlinear ultrasonic wave propagation in liquids and solids; Modeling and simulation of heat transport in micro- and nanoscale structures; Infrared thermography; Quantitative imaging schemes; Tomography; Material characterization

James Libby, Ph.D Univ. of Oxford	Experimental particle physics, CP-violation and flavour physics
Rajesh Narayanan, Univ. of Onegon	Condensed Matter Theory: Quantum Field Theories applied to condensed matter systems, Quantum Phase Transitions, Strong disorder physics
Santhosh P N, Ph.D, National Chemical Laboratory	Magnetism in Condensed Matter Physics, Electroceramics, Magnetic Materials, Low Temperature Characterization of Advanced Materials
Subramanian V, Ph.D, IIT Madras	Microwave and Dielectrics, Semiconductors
Sriramkumar L. Ph.D. IIUCAA, Pune	Semi-classical Gravity and Cosmology
<b>Assistant Professor:</b>	
Aditi Simha, Ph.D IISc, Bangalore	Non-Equilibrium Statistical Physics: Heat Conduction, Drifting Flux Lattices, Sedimental suspensions, Sheared Complex Fluids, 'Active' Matter, Transition rates in some nonequilibrium steady states.
Aravind G, Ph.D TIFR, Bombay	Photoelectron spectroscopy, Photoabsorption studies on Biomolecules and Reactions involving trapped ions to study the constituents and dynamics of the Inter-Stellar Medium (ISM)
Jain M. K., Ph.D IIT Delhi	Semiconductor Physics Semiconductor, Photovoltaics, Chemical Sensors
Manoj Gopalakrishnan, Ph.D IMSc. Madras	Theoretical Biophysics, Stochastic Processes, Nonequilibrium Statistical Physics
Murugavel P, Ph.D IISc, Bangalore	Physics of dielectric, ferroelectric and magnetoelectric oxide materials in Bulk, Film and Nanocrystalline forms
Nirmala R, Ph.D IIT Madras	Rare earth intermetallics
Pattabiraman M, Ph.D., IIT Madras	Experimental Atomic Physics, Quantum Optics and Magnetometry
Padhan, Prahallad, Ph.D., IIT Kanpur	Experimental Condensed Matter Physics
Tripathy, Prasanta, Ph.D., Utkal Univ.	String Theory
Sudakar Chandran, Ph.D., IISc, Bangalore	Defect-structure property correlations, Materials for memory and energy applications; Oxides and Nitrides, Spectroscopic techniques (such as Raman, XPS, UV-Vis, IR)
Somnath Chanda Roy, Ph.D., IIT Delhi	Thin Films, Materials Science, TiO <sub>2</sub> nanotubes and Photocatalysis
Visiting Faculty:	
Prafulla Kumar Behera, Ph.D., Utkal University	Experimental particle physics
Nanda, Ranjit Kumar, Ph.D., IIT, Bombay	Condensed Matter Theory (Electronic Structure)
<b>Emeritus Scientist/ Emeritus Professor:</b>	
Balakrishnan V., Ph.D., Brandeis Univ.	Dynamical Systems , Quantum Dynamics and Stochastics
<b>Scientific Officers / Engineers:</b>	
Krishna Mohan N, Ph.D., IIT Madras	

**Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:**

Sl. No.	Coordinator(s)	Title	Period
<b>Conference:</b>			
1.	Dr. Arul Lakshminarayan	"Perspectives on Nonlinear Dynamics"	July 26-29, 2010 IISc Bangalore
<b>Seminar:</b>			
2.	Dr. S. Ramaprabhu	Nanotechnology -an initiative on curriculum development	27.09.2010 IITM
3.	Dr. Prem B Bisht	1 day seminar on "50 years of lasers"	Oct. 30, 2010
<b>Workshop:</b>			
4.	Dr. Arul Lakshminarayan	"Quantum Information and quantum chaos"	July 21-25, 2010 IIT Madras
5.	Dr.V.Sankaranarayanan	Concept Enhancement Programme for Physics High School Teachers	Dec. 2010- Jan. 2011 for 8 days
6.	Dr.M.V.Sathyanarayana and Dr.S. Kasiviswanathan	A Workshop on Physics Education and Research	20-25 Dec 2010
<b>Short term Course:</b>			
7.	Dr. S. Ramaprabhu	STTP-QIP Course on Energy, Environmental and Biomedical Applications of Nanomaterials	September 20-25, 2010

**Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:**

Sl. No.	Name of faculty	Title	Institution	Period
<b>Workshop:</b>				
1.	Dr. James Libby	India-based neutrino observatory collaboration meeting	American College, Madurai, Tamil Nadu	23 <sup>rd</sup> -26 <sup>th</sup> January 2011
2.	Dr. Sudakar Chandran	Faculty Development Programme-2010	Centre for Continuing Education, IIT MADRAS	December 8 – 10, 2010: IIT-Madras
<b>Symposia:</b>				
3.	Dr.Prem B Bisht	National Laser Symposium (NLS-19)	RR CAT, Indore	Dec. 1-5, 2010
<b>Conference:</b>				
4.	Dr. M P Kothiyal	XXXV <i>OSI International Symposium on Contemporary trends in Optics and Optoelectronics</i> ,	IIST Thiruvananthapuram, India	17 <sup>th</sup> – 19 <sup>th</sup> January 2011.
5.	Dr. A.R. Ganesan	International Conference on Contemporary Trends in Optics and Optoelectronics	Indian Institute of Space Science & Technology, Trivandrum	17 <sup>th</sup> to 19 <sup>th</sup> January, 2011
6.	Dr. James Libby	Charm 2010	Institute for High-energy Physics, Beijing, China	19 <sup>th</sup> -25 <sup>th</sup> October 2010
7.	Dr. Neelima M. Gupte	Science Meet	Mother Teresa University, Kodaikanal	28-02-2010 to 02-03-2010
8.	Dr. Umesh R. Kadhane	Topical Conference 2010 Indian society of Atomic & Molecular Physicists	RRCAT INDORE	2 <sup>nd</sup> -3 <sup>rd</sup> March 2010
9.	Dr. P.B. Sunil Kumar	A Meeting on Soft Condensed Matters	School of Physical Science, JNU-New Delhi	4 <sup>th</sup> -5 <sup>th</sup> March 2010
10.	Dr. Ramaprabhu	National level Symposium on The Future Prospects of Nano biotechnology-Health & Environment	Seshadripuram First Grade College, Bangalore	18 <sup>th</sup> March 2010
11.	Dr. P.C. Deshmukh	DST PAC Meeting	New Delhi	22 <sup>nd</sup> -23 <sup>rd</sup> March 2010
12.	Dr. Ramaprabhu	DRDO sponsored National Conference on Recent Advances in Crystal Growth and Nanosciences	Kongu Engg. College Perundurai, Erode	26 <sup>th</sup> -27 <sup>th</sup> March 2010
13.	Dr.M.V.Satyanarayana	School Board Meeting of School of Physical, Chemical & Applied Sciences (SOPCAS)	Pondicherry University	29-03-2010

14.	Dr. A.R. Ganesan	11 <sup>th</sup> Programme Advisory Committee meeting in Health Sciences	Bangalore Organized by DST	09-04-2010
15.	Dr. A. Subrahmanyam	PRSG Meeting	Bose Institute Kolkata	16-04-2010
16.	Dr.V.R.K. Murthy	To Discuss Finance & Technical aspects of New project in Defence Lab	Hyderabad	28-04-2010 to 29-04-2010
17.	Dr. S. Lakshmi Bala	To attend the 6 <sup>th</sup> Meeting of the Subject Expert Committee (SEC) – Physical and Mathematical Sciences	Hyderabad	17-05-2010 to 18-05-2010
18.	Dr. A. Subrahmanyam	Project Meeting of DST	PSG College, Coimbatore	07-05-2010
19.	Dr. V.S. Murty	NRSA-Atmospheric division Meeting with Heads	NRSA, Hyderabad	14-05-2010
20.	Dr. V.S. Murty	Meeting with ISRO-SDSC Atmospheric Groups	SDSC, Sriharikota	24-05-2010
21.	Dr. V.Subramanian	Board of Studies Meeting	B.I.T, Ranchi	10-05-2010
22.	Dr. V.Subramanian	DC Meeting	SRM, University	13-05-2010
23.	Dr. Ramaprabhu	Demonstration of the filter for waste-waters	Tirupur	20-05-2010
24.	Dr.Prem B Bisht	JSPS Alumni Meeting	IIT Delhi	10-05-2010 to 11-05-2010
25.	Dr. Prasanta Kumar Tripathy	SERC Review Meeting	IIT Bombay	21-05-2010 to 22-05-2010

**Special Lectures delivered by the faculty in other Institutions:**

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Dr. Arul Lakshminarayan	Workshop on Nonlinear Dynamics	Nehru Memorial College, Puthanampatti, Trichy.	April 1 2010.
2.	Dr. Arul Lakshminarayan	75 Years of Quantum Entanglement: Foundations and Information Theoretic Applications	SN Bose Center, Bose Institute	January 6-10, 2011, Kolkata, India
3.	Dr. Arul Lakshminarayan	Quantum Information Processing and Applications:	Harishchandra Research Institute	14-20 February, 2011, Allahabad.
4.	Dr. Arul Lakshminarayan	Singapore India Joint Physics Symposium	NUS, Singapore	Feb. 22-25, 2011, Singapore
5.	Dr. M P Kothiyal	Optical Interferometry and Testing (Invited talk)	XXXV OSI International Symposium on Contemporary trends in Optics and Optoelectronics, IIST, Trivandrum	17 <sup>th</sup> – 19 <sup>th</sup> Jan. 2011.
6.	Dr. Prem B Bisht	Impact of Lasers After 50 Years: National Science Day 2011	Popular Lecture Series ; Stella Maris College, Chennai.	Feb. 28, 2011
7.	Dr. Prem B Bisht	Ultrafast lasers in science and technology	National Laser Symposium (NLS-19), RRACT, Indore.	Jan 7, 2011
8.	Dr. Prem B Bisht	Parametric and nonparametric processes in ultrafast optics	Seminar on 50 years of Lasers, IIT Madras, Chennai	Dec. 3, 2010
9.	Dr. Prem B Bisht	50 years of laser: Brief History and Landmarks	IITM	Oct 30, 2010
10.	Dr. S.Ramaprabhu	Guest lecture on the Nanomaterials in Workshop in 'Physics Education and Research'	Loyola College, Chennai	20 – 25 Dec 2010

11.	Dr. S.Ramaprabhu	Invited talk on Introduction to nanomaterials, in Physics Symposium	Madras University	December 10, 2010
12.	Dr. S.Ramaprabhu	Invited talk on Graphene:- a wonderful material, in Refresher Course in Nanosciences”	Madras University	November 22, 2010
13.	Dr. S.Ramaprabhu	Invited talk on Energy related applications of Carbon based nanomaterials, in Refresher Course in Nanosciences”	IITM	November 22, 2010
14.	Dr. S.Ramaprabhu	Talk on Nanoscience and Nanotechnology, in Nissan day”	IIT Madras	October 26, 2010
15.	Dr. S.Ramaprabhu	Talk on Nanoscience and Nanotechnology activities at IITM during an interactive session with DRDO	IITM, Chennai	1 <sup>st</sup> October 2010
16.	Dr. S.Ramaprabhu	Talk on “Importance of nanotechnology in the knowledge of economy” , at the brain storming session on “Nanotechnology: an initiative on curriculum development”	ANM Conference, Morocco	September 27, 2010
17.	Dr. S.Ramaprabhu	Invited talk “Energy related applications of Carbon based nanomaterials”	IISc, Bangalore.	September 10-17, 2010
18.	Dr. S.Ramaprabhu	Invited talk “Energy related applications of nanomaterials” in “INDO-US Fourth Round Table	IITM, Chennai	September 22, 2010
19.	Dr. S.Ramaprabhu	Talk on “Carbon Nanotubes: Energy Related Applications”, AICTE-QIP program, Energy, Environmental and biomedical applications of Nanotechnology	IITM, Chennai.	September 20-25, 2010
20.	Dr. S.Ramaprabhu	Talk on “Carbon Nanotubes: Synthesis”, AICTE-QIP program, Energy, Environmental and biomedical applications of Nanotechnology	IITM, Chennai	September 20-25, 2010
21.	Dr. S.Ramaprabhu	Talk on “Nanomaterials: Processing”, AICTE-QIP program, Energy, Environmental and biomedical applications of Nanotechnology	IITM, Chennai	September 20-25, 2010
22.	Dr. S.Ramaprabhu	Talk on “Nanomaterials:- basic properties”, AICTE-QIP program on the aspect of “Energy, Environmental and biomedical applications of Nanotechnology”	Science City Auditorium, Chennai.	September 20-25, 2010
23.	Dr. S.Ramaprabhu	Invited talk in “Workshop on nanoscience and nanotechnology”	Sri Venkateswara College of Engineering	August 24-27, 2010
24.	Dr. S.Ramaprabhu	Invited talk in “One day workshop on Nanomaterials”	Anna University, Chennai.	August 21, 2010
25.	Dr. S.Ramaprabhu	Invited talk titled “Applications of nanomaterials for renewable energy” in	Sathyabama University, Chennai.	August 20, 2010

		“International Conference on Emerging Technologies in Renewable Energy”		
26.	Dr. S.Ramaprabhu	Invited talk titled “Application of Nanotechnology in Energy & Environment”	University College of London, UK.	July 23-25, 2010
27.	Dr. S.Ramaprabhu	Invited talk titled “Hydrogen energy related applications of nanomaterials”	IITM, Chennai.	June 2, 2010
28.	Dr. S.Ramaprabhu	Invited talk on the course “Nanotechnology for various industry and academia”	Kongu Engineering College, Erode.	April 25, 2010
29.	Dr. S.Ramaprabhu	DRDO sponsored national conference on “Recent advances in crystal growth and nanoscience”	Seshadripuram First Grade College, Bangalore.	March 26-27, 2010
30.	Dr. S.Ramaprabhu	National Level Symposium on “The Future Prospects of Nanobiotechnology-Health & Environment”	National Institute of Technology Karnataka, Surathkal, Srinivasnagar, Mangalore.	March 18, 2010
31.	Dr. S.Ramaprabhu	Invited talk in “NCRTCR-2010”	SRM University, Chennai.	March 7, 2010
32.	Dr. S.Ramaprabhu	Invited talk in “International Conference on Nanoscience and Nanotechnology (ICONN 2010)”	Bharathiar University, Coimbatore.	February 24-26, 2010
33.	Dr. S.Ramaprabhu	Invited talk in “Multifunctional Nanomaterials and Nanocomposites”	Tata Steel, Jamshedpur.	February 4-5, 2010
34.	Dr. S.Ramaprabhu	Invited talk titled “Nano fluids”	Department Of Physics, Sri Venkateswara University, Tirupati, India.	February 1-2, 2010
35.		Invited talk in National Conference on “Materials for Energy Storage and Conversion (NCMES-2010)”		
36.	Dr. S.Ramaprabhu	Invited talk titled “Energy related applications of nanomaterials:- an overview”	97 <sup>th</sup> Indian Science Congress, Trivandrum.	January 23, 2010
37.	Dr. A.R. Ganesan	Adaptive Optics and its Applications” in the Workshop on “Emerging Applications in Photonics and Information Processing”	Shri Andal Alagar College of Engineering, Mamandur	January 6, 2010
38.	Dr. A.R. Ganesan	Science – The DNA of Engineering	Muthayammal Engineering College, Rasipuram	17 <sup>th</sup> July, 2010
39.	Dr. R. Nirmala	Magnetism of Small Particles	AICTE-QIP	23 <sup>rd</sup> October 2010
40.	Dr. N. Harish Kumar	Advanced Magnetic Materials for optoelectronic applications	St. Xavier’s College Pallayamkottai in the National Seminar on Advances in Smart Materials for Optoelectronics Applications	September 20-25, 2010, at IITMadras, Chennai 21/01/2011
41.	Dr. Natarajan T.S Professor	Learning Physics through Simple Experiments	St John’s International School, Chennai	28 <sup>th</sup> Feb 2011
42.	Dr. Sudakar Chandran	Lecture on “Chemical Bonding” in Workshop on ‘Physics Education and Research’	IITM	20 – 25 Dec 2010

43.	Dr. T S. Natarajan	Lecture Demo under the INSPIRE Program of DST to address selected group of about 500 School Students ( 11 <sup>th</sup> and 12 <sup>th</sup> )	NIT Calicut, Kerala	20 <sup>th</sup> Dec 2010
44.	Dr. T S. Natarajan	Lecture Demo under INSPIRE program of DST to talk to selected group of of about 250 School students (11 <sup>th</sup> and 12 <sup>th</sup> )	VelTech University, Tamilnadu	28 <sup>th</sup> Dec 2010
45.	Dr. V.S. Murty (Retired)	Experiments in science education	Baptla College Arts and Science	6 <sup>th</sup> -9 <sup>th</sup> March 2010
46.	Dr. V. Balakrishnan (Emeritus)	urrence Statistics in Dynamical Systems	JNU University New Delhi	6 <sup>th</sup> -9 <sup>th</sup> March 2010
47.	Dr. V. Balakrishnan	Extreme Value Statistics in Deterministic Dynamics	New Delhi	6 <sup>th</sup> -9 <sup>th</sup> March 2010
48.	Dr. C. Vijayan	Thinking differently in Science and Mathematics	MG, University, Kottayam	6 <sup>th</sup> Apr. 2010
49.	Dr. V.S. Murty	Science education in India	India International Friendship Society, New Delhi	7 <sup>th</sup> Apr 2010
50.	Dr. M.V.Satyanarayana	An Invitation to Physics	MG, University, Kottayam	7 <sup>th</sup> -8 <sup>th</sup> April 2010
51.	Dr. James Libby	The Large Hadron Collider: Big Bang Science	Central lecture Theater IIT Madras	13 <sup>th</sup> Apr 2010

**Visits abroad by faculty:**

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1.	Dr. Arul Lakshminarayan	Singapore	Feb. 22-25, 2011		CPDA
2.	Dr. S. Ramaprabhu	UK	14.05.2009-31.05.2010	Invited speaker	-
3.	Dr. S. Ramaprabhu	USA	01.08.2010-07.08.2010	Invited speaker	-
4.	Dr. S. Ramaprabhu	Morocco	12.09.2010 - 15.09.2010	Invited speaker	-
5.	Dr. C. Vijayan	Singapore	22-25 Feb 2011	Invited talk in a symposium at NUS, Singapore	CPDA
6.	Dr. James Libby	China	19 <sup>th</sup> to 25 <sup>th</sup> October 2010	Plenary talks at Charm 2010, 4 <sup>th</sup> International Workshop on Charm Physics	CPDA and the local host (IHEP, Beijing)
7.	Dr. V. Subramanian	Boston	05-07-2010 – 08-07-2010	To attend and present paper in the Progress in Electromagnetic Research Symposium 2010	-
8.	Dr. Neelima M Gupte	Seoul, South Korea	12-07-2010 - 16-07-2010	Invited talk in the Satphys24 Satellite Conference “New Frontiers in Complex networks”	-
9.	Dr. P. B. Sunil Kumar	Nara, Japan	09-08-2010 – 20-08-2010	To attend and present paper in the International Symposium of Non-equilibrium soft matter	-
10.	Dr. A. Subrahmanyam	Germany	08-09-2010 - 10-09-2010	Presented paper in the 12 <sup>th</sup> International Conference on Plasma Surface Engineering (PSE 2010) in Gramisch Partenkirchen.	-
11.	Dr. M.S. Ramachandra Rao	Morocco	13-09-2010 - 16-09-2010	Present paper and Chaired a session in the Third International Conference on Advanced nano materials (ANM 2010) in Agadir.	



12.	Dr. Neelima M Gupte	Canada	20-09-2010 - 24-09-2010	Presented paper in the 2 <sup>nd</sup> International Conference on Applications of Nonlinear Dynamics (ICAND 2010) in Alberta.	
13.	Dr. Manoj Gopalakrishnan	UK	01-09-2010 - 03-09-2010	Present paper at the Physics meets Biology 2010 at Catherine's College, University of Oxford	
14.	Dr. M.S. Ramachandra Rao	UK	29-10-2010	Attended the Editorial Board Meeting for the Journal of Physics at the Institute of Physics, London	
15.	Dr. V. Subramanian	USA	04-10-2010 - 21-12-2010	Collaborative Research Work on "Microwave Near Field Imaging" at Oakland University, Rochester, Michigan.	
16.	Dr. M. S. Ramachandra Rao	Japan	22-11-2010 - 03-12-2010	Attended and delivered a talk in the IEEE Conference TENCON 2010 at Fukuoka	
17.	Dr. A. Subrahmanyam	USA	15-11-2010 - 19-11-2010	Attended the 15 <sup>th</sup> international Conference on Photocatalysis of TiO <sub>2</sub> at San Diego	
18.	Dr. K. Sethupathi	USA	14-11-2010 to 18-11-2010	Attended and paper presented in the 55 <sup>th</sup> Annual Conference on Magnetism and Magnetic Materials (MMM 2010) in Atlanta, Georgia	
19.	Dr. T.S. Natarajan	UAE	09-02-2011 to 11-02-2011	Invited talk titled "Recent Developments in Physical Sciences for Faculty and Students by Global Education Mission" at Department of Physics, Ras Al Khaimah	
20.	Dr. T.S. Natarajan	Singapore	17-02-2011 to 18-02-2011	Invited talk titled "Electrospinning of Polymer Nanofibers and their applications" at National University of Singapore Nanotechnology and Nanoscience Initiative (NUSNNI)	
21.	Dr. T.S. Natarajan	Malaysia	20-02-2011 to 21-02-2011	Invited talk titled "Electrospinning its applications" at National University of Malaya, Kuala Lumpur	
22.	Dr. Suresh Govindarajan	Italy	28-02-2011 to 18-03-2011	Attending the School and Conference on Modular Forms and Mock Modular Forms and their applications in Arithmetic, Geometry and Physics at Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste	
23.	Dr. M.S Ramachandra Rao	UK	31-03-2011 to 01-04-2011	As an Editorial Board Member of Journal of Physics, attended Board Meeting at the Institute of Physics, London.	
24.	Dr. Rajesh Narayanan	USA	05-03-2010 to 13-03-2010	To Present Paper at the American Physical Society March Meeting 2010	
25.	Dr. Neelima M. Gupte	Japan	24-03-2010 to 26-03-2010	Physics Research between European and Asian countries and involving developing countries in basic research	
26.	Dr. A. Subrahmanyam	Germany	25-03-2010 to 26-03-2010	To attend the European Joint Committee meeting on Plasma and Ion Engineering	
27.	Dr. M.S. Ramachandra Rao	UK	26-03-2010	To attend the board meeting as an Editorial board member of Journal of Physics	

28.	Dr.Suresh Govindarajan	Bonn, Germany	10-05-2010 to 14-05-2010	Invited talk at the Workshop on Modular Forms, Borcherds algebras organized by Max Planck Institute for Mathematics at Bonn	
29.	Dr. M.S. Ramachandra Rao	Garching Germany	19-05-2010 to 13-05-2010	To visit Walther-Meissner-Institute, Technical Universitate Munich Under DAAD Exchange Program	
30.	Dr. M.S. Ramachandra Rao	University of Rennes, France	14-05-2010 to 23-05-2010	To visit University of Rennes, under Erasmus Mundus Scholarship for Academics	
31.	Dr P.B.Sunil Kumar	Spain	21-05-2010 to 01-06.2010	To visit the Departmental of Fundamental Physics at the University of Barcelona	
32.	Dr P.B.Sunil Kumar	Solvenia	01-06-2010-10-06- 2010	To visit the University of Ljubljana	
33.	Dr P.B.Sunil Kumar	Southern Denmark	10-06-2010 to 25-06-2010	To visit the MEM;PHYS Center for Biomembrane Physics at the University of Southern Denmark	
34.	Dr S.Ramaprabhu	Glasgow, UK	26-05-2010-28-05-2010	To attend the 20 <sup>th</sup> Anniversary World Congress on Biosensors	
35.	Dr S.Ramaprabhu	London, UK	30-05-2010-04-06-2010	To visit various Universities	

#### Fellowships of Academies and Professional Societies:

Sl. No.	Name of faculty:	Year of admission
<b>Others:</b>		
1.	Dr. M. P. Kothiyal, Fellow, Optical Soc. of America	2011

#### Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	N. KRISHNA MOHAN	Associate Editor	Optics and Lasers in Engineering
2.	Dr. A.R. Ganesan	Member	International Journal of Holography and Speckle
3.	Dr. M.S Ramachandra Rao	Editorial Board Member	Journal of Physics

#### 4.16.4 Design and Development Activities:

##### New facilities added or major equipment procured:

Sl.No.	Name of Equipment	Value (Rs. In lakhs)
1.	Fluorescence microscope	10
2.	DPPS laser Millennia 6W	20
3.	MPMS SQUID Magnetometer	~ 300
4.	Mini Helium Liquefier	
5.	Picosecond Pulsed Laser	30 lakhs

#### Patents - Patents filed:

Sl.No	Name of faculty	Topic of patent
1.	Dr. S. Ramaprabhu and Sathish Kumar	Development of Nanocomposite based Novel, Flexible, Nerve Guide Conduit ((091859-0384197) US Patent(2010)) (1963/CHE/2010)
2.	Dr. S. Ramaprabhu and Tessy Theres Baby	Development of SiO <sub>2</sub> coated Fe <sub>3</sub> O <sub>4</sub> magnetic nanoparticle dispersed MWNT nanocomposite based Glucose sensor for food industry (US Patent(2010)) (IN-800668)
3.	Dr. S. Ramaprabhu and Ashish Kumar	Magnetite Decorated Multiwalled Carbon Nanotube Based Portable Water Filter ( US Patent (2010)) ( IN-810799)
4.	Dr. S. Ramaprabhu, Adarsh K and Tessy Theres Baby	Scalable and Rapid synthesis of high quality two dimensional 375icrossys material (US Patent(2010)) (IN-811389)

5.	Dr. S. Ramaprabhu and Neetu Jha	Nanofluids for coolant application (US Patent(2010)) (IN-800559) Y
6.	Dr. C.V. Krishnamurthy, K. Balasubramaniam, S. Alavudeen,	Technique for Imaging using Virtual Array of Phased Sources (TIVAS) 2010

#### 4.16.5 Research and Consultancy:

##### Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. In lakhs)	Co-ordinators
1.	Microscopic TV Holography for Vibration fringe analysis of Micro Electro Mechanical Systems (MEMS)	6-07-2009 to 5-07-2011	DRDO	27.57	Dr. N. Krishna Mohan Dr. M.P. Kothiyal
2.	Study of nanomaterials...LITG technique for photonic applications	Jun 2010- June 2013	CSIR, New Delhi	10.76	Dr. Prem B Bisht
3.	Whispering gallery modes of a microcavity:....rate of molecules	Sept 2010- Sep. 2013	DST, New Delhi	27.70	Dr. Prem B Bisht
4.	Nano Functional Materials Technology Centre (NFMTC)	2007-2011	DST	2300.6	Dr. M.S. Ramachandra Rao Dr.S.S.Bhattacharya
5.	Hybrid polymer Dye sensitizer solar cell	2008-2010	DRDO	39.40	Dr S.Ramaprabhu Dr.V.Sankara-Narayanan
6.	CNT based filter for water treatment	2007-2010	Alumini Association, IITM	14.00	Dr S.Ramaprabhu
7.	Development of Hydrogen storage nanomaterials	2009-2014	MNRE	581	B. Viswanathan (PI) Dr S.Ramaprabhu (Co-PI)
8.	Thermal and electrical conductivity studies of carbon nanostructures based nanofluids	2010-2011	DRDO	14.94	Dr. S. Ramaprabhu Dr.V. Sankaranarayanan (Co-Investigator)
9.	Augmentation of Research Facilities in the Area of Low Temperature Physics	5 years	Department of Science & Technology under FIST	295	HoD, Physics Dr V.Sankara-Narayanan (coordinator)
10.	Investigations of partial discharge activity in liquid nitrogen insulation under different voltage profiles	Nov.2009- Nov. 2011	Department of Science & Technology. India	37.6	Dr V.Sanakara-Narayanan
11.	Development of smart optical materials based on nonlinear absorption	2009-2011	DRDO	40.00	Dr. C. Vijayan Dr. Prathap Haridoss
12.	Development of Wavelet Based Wavefront Sensing and Characterization for Adaptive Optics Imaging	June 2010 to June 2013	DRDO, New Delhi	40.22	Dr. A.R. Ganesan
13.	Phased array inspection of Friction Stir Welded (FSW) components	2 years (27.10.2010 – 26.10.2012)	ISRO, Bangalore	21.5	PI: Dr Krishnan Balasubramaniam, ME Co-PI: Dr C.V.Krishnamurthy, PH
14.	Development of transient finite element models for guided wave NDE of hexcan sheath in PFBR sub-assemblies	2 years	IGCAR, Kalpakkam	18.88	PI: Dr Krishnan Balasubramaniam, ME Co-PI: Dr C.V.Krishnamurthy, PH

15.	Model based investigation of Non-destructive Techniques of Thick and Multilayered Composites	3 years (15.03.2010-30.07.2013)	DRDO, Hyderabad	49.75	PI: Dr Krishnan Balasubramaniam, ME Co-PI: Dr C.V.Krishnamurthy, PH
16.	Development of a Near Field Ultrasonic Nanoscopy under a Project to set up a centre for Nano-electromechanical Systems (NEMS) and Nanophotonics at IITM, Chennai	5 years (sanctioned on March 30, 2011)	Nanotechnology Initiative Division, Ministry of Communications & Information Technology, Department of Information Technology, Govt. Of India	4946.50 (total)	PI: Dr Krishnan Balasubramaniam , ME Co-Pis: Dr C.V.Krishnamurthy (Dept. of Physics) Dr B.K.Das,EE Dr. Enakshi Bhattacharya, EE
17.	Indian-based neutrino observatory	July 2010-July 2011	DST	10	Dr N. Krishnapurna (EE), Dr. N. Chandrachoodan (EE), Dr. A. Prabhakar (EE) and JL (PH)
18.	Rare earth intermetallic compounds for magnetic cooling/heating applications	II year	DAE-BRNS	12. 66	Dr R.Nirmala
19.	Synthesis, Crystal structure and Magnetic phase diagram of Novel Rare earth Intermetallic Compounds and their functional property studies	II year	DST-RFBR	11. 20	Dr R Nirmala
20.	India based neutrino observatory	One Year	DST	10.04	Dr. James Libby (Co-Investigator)
21.	Synthesis of oxide based magnetic nanoparticles for bio-compatibility studies, magnetic microsystems and MRI applications	3 Years	DST	22.68	Dr. M. S Ramachandra Rao
22.	Surface engineered coating on mechanical heart valves: Diagnostics of thrombosis	3 Years	DST	27.70	Dr A.Subrahmanian
23.	Development of heating pads for soldiers in high mountain areas	12 months	Defence Institute of Physiology & Allied Sciences	9.61	Dr. T. S. Natarajan
24.	Phased array inspection of Welded (FSW) Components	2 Years	ISRO	21.50	Dr. C. V. Krishnamurthy (Co-investigator)
25.	Mathematical modeling of bacterial chemotaxis: From single cell to collective behaviour	3 Years	DST	12.96	Dr. Manoj Gopalakrishnan
26.	Study and design of oxygen generator for strategic and remote locations	12 months	Defence Institute of Physiology and Allied Sciences IGCAR	9.82	Dr. A Subrahmanyam
27.	Surface engineered coating on mechanical heart valves: Diagnostics of thrombosis	2 Years	DBT-Gol	27.99	Dr. A. Subrahmanyam Dr. Mahaveer Kumar Jain (Co-Investigator)
28.	Studies on surface Plasmon resonance enhanced fluorescence of nano silver oxide with gold and copper for ultra high density optical memories	2 Years	Department of Information Technology	43.30	Dr. A. Subrahmanyam

29.	Department of wavelet based wavefront sensing characterization for adaptive optics imaging	3 Years	DRDO	40.22	Dr. A.R. Ganesan
30.	Development of low loss low temperature cofired ceramic glass tapes for future MIC device applications	30 Months	DRDO	107.01	Dr. V.R.K. Murthy

**RBIC projects:**

SI.No.	Name of faculty	Title	Industry	Amount (Rs. In lakhs)
1.	Dr.S.Ramaprabhu	Development of Nanomaterials based transformer oil	Tata Steel Ltd	20
2.	Dr.S.Ramaprabhu	Development Of High Efficient And High Durable Pt Dispersed Nitrogen Doped Functionalized Carbon Nanomaterials	Renault Nissan	24
3.	Dr.S.Ramaprabhu	Development of Nanocomposites for trans dermal delivery of antioxidants	EID Parry	36
4.	Dr.S.Ramaprabhu	Development of Nanocoolant	Tata Steel Ltd	20

**Faculty members participation with other institution under MoU:**

SI. No.	Name of faculty	Participation details	Name of University/Institution which has MoU
1.	Dr. A.Subrahmanyam	Exchange of students on a reciprocal basis	York University Canada
2.	Dr. A.Subrahmanyam	Exchange of faculty members	York University Canada
3.	Dr. A.Subrahmanyam	Exchange of publications, research materials, newsletters, etc.	York University Canada
4.	Dr. A.Subrahmanyam	Joint projects related to research, teaching, faculty development and service	York University Canada

**Research Publications of the faculty members & research scholars:**

Total No. of papers published in Refereed National Journals	: 03
Total No. of papers published in Refereed International Journals	: 108
Total No. of papers presented in National Conferences	: 07
Total No. of papers presented in International conferences	: 10

**In Refereed National Journals:**

1. Prem B Bisht, Parametric and nonparametric processes in ultrafast optics, KIRAN- Bulletin of Indian Laser Association, 21(3) Dec. 2010. P. 53-56.
2. Symmetry Principles and Conservation Laws in Atomic and Subatomic Physics -2, P.C. Deshmukh and J. Libby, Resonance Vol. 15 No. 10, 926 (2010).
3. Symmetry Principles and Conservation Laws in Atomic and Subatomic Physics -1, P.C. Deshmukh and J. Libby, Resonance Vol. 15 No. 9, 832 (2010).

**In Refereed International Journals:**

1. John R. Elton, Arul Lakshminarayan and Steven Tomsovic, "Fluctuations in classical sum rules", Phys. Rev. E 82, 046223 (2010).
2. U. Paul Kumar, U. Somsundaram, M.P. Kothiyal, and N. Krishna Mohan, TV Holography for 2-D Displacement Fringe Analysis, Journal of Instrumentation, 40, 298-301(2010).
3. R. Imran Jafri, S. Ramaprabhu, Multi walled carbon nanotubes based micro direct ethanol fuel cell using printed circuit board technology, International Journal of Hydrogen Energy, 35, 2010, 1339-1346.
4. V.Eswaraiah, Ashish Kumar Mishra, V. Sankaranarayanan and S. Ramaprabhu, Electromagnetic interference (EMI) shielding of carbon nanostructures films, IEEE Xplore, DOI: 10.1109/ICCENG.2010.5560383, 2010, 150-152,

5. S.S. Jyothirmayee Aravind, S. Sathish Kumar and S. Ramaprabhu, Au/TiO<sub>2</sub> nanotubes for the selective Detection of Dopamine International Journal of Nanoscience, in press (2010)
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8. A.L.M. Reddy, M. M. Shajumon, N. Rajalakshmi and S. Ramaprabhu, Performance of PEMFC using Pt/MWNT-Pt/C composites as electro catalysts for oxygen reduction reaction in PEMFC, J. Fuel Cell Science and Technology, 7, 2010, 021001.
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#### **In Proceedings of National Conferences:**

1. U. Paul Kumar, N. Krishna Mohan, and M.P. Kothiyal, Microscopic TV Holography for Microsystems Metrology, *Proceedings of conference on Convergence of Optics and Electronics, JIS College of Engineering, Kalyani and University of Calcutta Kolkata pp 14-21, March 26-27, 2011.*
2. U. Paul Kumar, U. Somasundaram, N. Krishna Mohan, and M.P. Kothiyal, Laser based Stroboscopic Illumination Microscopic TV Holographic System for Vibrating Microsystems Analysis, *Proceedings of 50 Years of Lasers, IIT Madras, pp. 20, 30<sup>th</sup> October 2010.*
3. U. Paul Kumar, U. Somasundaram, N. Krishna Mohan, and M.P. Kothiyal, Laser based stroboscopic illumination microscopic TV holographic system for vibrating 384microsystems analysis, *National Laser Symposium held at CAT Indore, 1-3, 1<sup>st</sup> – 4<sup>th</sup> December 2010.*
4. V. R. Dantham, P. B. Bisht, and P. S. Dobal, Studies of single optical microcavities by using laser Raman microscopy, *Proc. National Laser Symposium (NLS-19)*, held at RRCAT, Indore, Dec. 1-4, 2010, p.90.
5. S. Akbar Ali, P. B. Bisht, A. Nautiyal, V. Shukla, K. S. Bindra and S. M. Oak, Filamentation and nonlinear X-wave formation in  $\beta$ -barium borate under femtosecond pumping, *Proc. National Laser Symposium (NLS-19)*, held at RRCAT, Indore, Dec. 1-4, 2010, p.77.
6. Brindha, Manas R. Parida, C.Vijayan, "Fluorescence emission from a novel dendrimer-stabilized Ag:PbS nanocomposite" NANOS-2010, Gitam University, Vishakhapatam, Dec 17-19, 2010
7. S. Radhu, C. Vijayan, Suchand Sandeep, Reji Philip, "Tunable Optical Limiting Action due to Non-linear Absorption in ZnO/Ag Nanocomposites", 55<sup>th</sup> DAE Solid State Physics Symposium Jan 2011

#### **In Proceedings of International Conferences:**

1. U. Paul Kumar, N. Krishna Mohan, and M.P. Kothiyal, Red-Green-Blue wavelength microscopic interferometry for 3D surface profiling, *Proceeding of XXXV OSI International Symposium on Contemporary trends in Optics and Optoelectronics*, IIST Thiruvananthapuram, India pp. 470-471, 17<sup>th</sup> – 19<sup>th</sup> January 2011.
2. U. Paul Kumar, U. Somasundaram, N. Krishna Mohan, and M.P. Kothiyal, Comparative Study of Time Average and Stroboscopic Illumination Techniques for Vibration Fringe Analysis *Proceeding of XXXV OSI International Symposium on Contemporary trends in Optics and Optoelectronics*, IIST Thiruvananthapuram, India pp. 245-246, 17<sup>th</sup> – 19<sup>th</sup> January 2011.
3. Basanth S. Kalanoor, Prem B. Bisht, Two-photon absorption at 1064 nm for a modelocking dye" Meghnnad Saha Memorial international symposium-cum-workshop on laser induced breakdown spectroscopy, University of Allahabad, Allahabad, dec 21-23, 2010, pp 85.

4. Manas Ranjan Parida, C.Vijayan, P.C.Deshmukh, "Nonlinear optical properties of PAMAM dendrimer based metal nanoclusters", SPIE-2010, San Diego, USA, Aug1-5, 2010
5. A.R. Ganesan, "Adaptive Optics in Vision Science", in Proc. Of the International Conf. On "Contemporary Trends in Optics and Optoelectronics" held at IISc Trivandrum, 17-19 Jan, 2011, pp.26-27 (2011)
6. Global material characterization of composite structures using lamb wave STMR array technique Vepakomma, R., Janapati, V.V.; Balasubramaniam, K.; Krishnamurthy, C.V. AIP Conference Proceedings, v 1211, p 1812-19, 2010
7. Huygen-Fresnel diffraction model (H-FDM) for the simulation of ultrasonic time-of-flight diffraction technique in 2D Geometries Reddy, K.S., Krishnamurthy, C.V.; Balasubramaniam, K.; Balasubramanian, T. AIP Conference Proceedings, v 1211, p 2031-7, 2010
8. Numerical simulation of pulsed meander coil EMAT Dhayalan, R., Balasubramaniam, K.; Krishnamurthy, C.V. AIP Conference Proceedings, v 1211, p 972-9, 2010
9. Simultaneous estimation of electrical and thermal properties of material from the tone-burst eddy current thermography (TBET) time-temperature data Biju, N., Ganesan, N.; Krishnamurthy, C.V.; Balasubramaniam, K. AIP Conference Proceedings, v 1211, p 719-24, 2010
10. Axial higher order modes cluster (A-HOMC) guided wave for pipe inspection Chandrasekaran, J., Krishnamurthy, C.V.; Balasubramaniam, K. AIP Conference Proceedings v 1211, p 161-8, 2010

**Distinguished Visitors to the Department:**

SI.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1.	Prof. John T. Costello, (Dublin City University delegation)	16/12/2010	Collaboration with IIT Madras
2.	Professor Raju Raghavan, Virginia Tech, Director of the Institute for Particle, Nuclear & Astronomical Sciences	04/01/2011	Seminar on the Low Energy Neutrino Spectroscopy (LENS)
3.	Dr. David Jiles, Wolfson Magnetics, School of Engineering, Cardiff University, Cardiff, UK	07/07/2010	Invited lecture on "Recent progress in magnetocaloric materials "
4.	Prof. S.K. Date, Centre for Advanced Studies in Condensed Matter Physics and Materials Science, Department of Physics, University of Pune	23/07/2010	Invited lecture on "Mossbauer Effect: A Dual Method for Myriad Applications"
5.	Dr. R. Ranjith, Alexander Von Humboldt Fellow Institute of Electronic Materials and Devices, Leibniz University of Hannover, Germany	04/08/2010	Invited lecture on "Oxide heterostructures for multiferroic and nano-electronic applications"
6.	Prof. Pradeep Guduru, Division of Engineering, Brown University, USA	13/08/2010	Invited lecture on "Mechanics Aspects of Energy Storage Materials"
7.	Dr. Harish Viswanathan, Comsol India	19/08/2010	Invited lecture cum demonstration on COMSOL
8.	Dr. Selva Vennila Raju, Lawrence Berkeley National Laboratory, USA	02/09/2010	Invited lecture on "Thermodynamics of materials under high pressure using synchrotron techniques – some studies on binary transition metal alloys"
9.	Dr. Prafulla Behera, University of Iowa, USA & CERN, Geneva	23/09/2010	Invited lecture on "First physics results from LHC:ATLAS Measurements at $\sqrt{s} = 0.9$ and 7 TeV"
10.	Dr. Daniel R Manoharan, Business Development Manager, DSRC Private Limited, Chennai	24/09/2010	Invited lecture on "DSRC e-Learning Software Suite"
11.	Dr. Ananth Krishnan Department of Electrical Engineering, IIT Madras	13/10/2010	Invited lecture on "Passive and Active Plasmonic Waveguide Devices"
12.	Dr. Paul Matsudaira Professor of Biological Sciences, National University of Singapore	02/11/2010	Invited lecture on "Structure and Mechanics of Tissue Migration"

13.	Dr. R S Raghavan Virginia Tech., Blacksburg VA USA	04/01/2011	Invited lecture on "Low Energy Neutrino Spectroscopy (LENS) for Astrophysics and Particle Physics: Science, Technology and Outlook"
14.	Dr. Dillip K Satapathy Department of Physics, University of Fribourg Switzerland	05/01/2011	Invited lecture on "Confinement-induced ordering of complex fluids"
15.	Prof. Ashwin K Iyer Department Electrical and Computer Engineering U. Alberta	06/01/2011	Invited lecture on "Transmission-Line Metamaterials and the Development of the Free-Space Metamaterials ? Superlens ?"
16.	Dr. Chelakkot Raghunath Forschungszentrum Julich GmbH	07/01/2011	Invited lecture on "Polymer flow in homogeneous and structured microchannels"
17.	Dr. Baladitya Suri Department of Physics University of Maryland at College Park	10/01/2011	Invited lecture on "Superconducting Charge Qubits (Cooper pair box)"
18.	Dr. Joe T. Evans Jr. Radiant Technologies, Inc, 2835D Pan American Fwy NE, Albuquerque, NM, USA.	21/01/2011	Invited lecture on "Characterizing Ferroelectric Materials "
19.	Dr. Alan J Drew Condensed Matter Physics School of Physics Queen Mary University of London	10/02/2011	Invited lecture on "Local probe investigation of spin transport and dynamics in organic semiconductors"
20.	Dr. Matthias Brack University of Regensburg	15/02/2011	Invited lecture on "From the Rydberg formula to quantum chaos triumph, fall and renaissance of Bohr's old quantum theory"
21.	Dr. Samal Department of Physics IISc., Bangalore	18/02/2011	Invited lecture on "Emergence of exotic phenomena in the study of superconductor/ferromagnet Heterostructures"
22.	Dr. Krishnendu Sengupta IACS, Kolkata	18/02/2011	Invited lecture on "Aspects of non-equilibrium dynamics in closed quantum systems"
23.	Dr. R Suryanarayanan University of Paris Orsay, France	23/02/2011	Invited lecture on "Diamond like carbon coatings – for auto parts to heart valves"
24.	Prof. P Senthilkumaran Dept. of Physics, IIT Delhi	03/03/2011	Invited lecture on "Optical Phase Singularities"
25.	Dr. Abdul Kariem Bin Hj Mohd. Arof Head, Dept. of Physics, Faculty in Science Building, University of Malaya Kuala Lumpur, Malaysia	07/03/2011	Invited lecture on "Polymer Electrolytes and their Applications"
26.	Dr. Koushik Dutta Deutsches Elektronen-Synchrotron (DESY)	07/03/2011	Invited lecture on "Models of Inflation: New Developments"
27.	Prof. G. Rajasekaran	31/03/2011	Invited lecture on "The elusive neutrinos and their importance"
28.	Prof. Jacqueline Fayeton and Prof. Michel Barat Institut des Sciences Moléculaires d'Orsay (ISMO), University Paris-Sud, France	10/03/2010	Invited lecture on "Unraveling multiple fragmentation of bio molecules using multi coincidence imaging techniques"
29.	Dr. Soumen Roy, Institute for Genomics and Systems Biology the University of Chicago	12/03/2010	Invited lecture on "Networks and Emergence"
30.	Dr. Pramod S Dabal Department of Physics, VSSD College, CSJM University, Kanpur	16/03/2010	Invited lecture on "Micro Raman study of Stress Relaxation in ABO <sub>3</sub> Perovskite thin films and Multilayered Structures"
31.	Prof. T.Venky Venkatesan Director, Nanocore group,NUS, Singapore	01/04/2010	Invited lecture on "Experiments on the Frontiers of Nanotechnology at Nanocore"
32.	Dr. Ramesh Babu Gangineni SPINTEC, UMR 8191 CEA/CNRS CEA/Grenoble, 380524 Grenoble Cedex 9, France	21/04/2010	Invited lecture on "Electronic Transport In Fully Epitaxial Fe/MgO/Fe Nano-Pillars From Static & Dynamic (RF) Measurements"
33.	Dr. Ganesh Subramania Sandia National Laboratories Albuquerque, New Mexico, USA	03/05/2010	Invited lecture on "Three-Dimensional Photonic Crystals for Nanoscale Light Control"

#### **4.16.6 Other Activities of the Department/Centre:**

1. Dr. P.C Deshmukh, Professor has been invited for the teaching and guidance assignment at IIT, Mandi by availing EOL with FST for the period from 13-07-2010 to 15-12-2010.
2. Awareness - Workshop of UGC—DAE Consortium for Scientific Research jointly organized by Department of Physics, IIT Madras and UGC—DAE Consortium for Scientific Research, Mumbai centre during September 27 - 29, 2010.
3. Celebrated “50 years of Lasers” - One day Programme was organized by Department of Physics, IIT Madras [supported by SPIE and OSA student chapters] on Oct. 30, 2010. 3 lectures, a poster session and a quiz was organised. 10 Higher secondary students (each) from Vana Vani and Kendriya Vidyalaya, IIT Campus also participated.
4. INSA Prize for Materials Science 2010 - Prize lecture delivered by Dr. Baldev Raj, FNA, Distinguished Scientist and Director, India Gandhi for Atomic Research, Kalpakkam on “Science and technology of sodium cooled fast reactors and associated fuel cycles” Jointly organized by Institute of Mathematical Sciences, Chennai and Department of Physics, IIT Madras on 14<sup>th</sup> March 2010. Faculty and Students attended.
5. Dr. P.C Deshmukh, Professor has taken up the teaching and guidance assignment at IIT, Mandi by availing EOL with FST condition upto 12-07-2011.
6. Prof. G.Baskaran, IMsc, presented a seminar on ‘Physics: from Boredom to Excitement.
7. Debate on “Climate Change: is it real? If so are human activities responsible for it?” Quiz programme.

#### **Results obtained in research work (from M.S. & Ph.D thesis) of the scholar/faculty:**

- D.V. Ramaniah, Ph.D. student work summary is as follows:  
Modification of radiative rates and energy transfer in molecules embedded in microspheres was studied by fluorescence and Raman microscopy.

#### **Inter disciplinary group achievements of the Departments.**

Collaborative work between Prof. Bisht and Prof. Indrapal Singh, Chemistry Department has resulted in 1 patent and 2 publications in the past 2 years.

#### **International collaboration achievements by the Department:**

##### **Faculty visit:**

Faculty visit J. Libby, member of the LHCb collaboration based at CERN Switzerland, CLEO collaboration based at Cornell University, USA and the Belle/Belle-II collaborations based at KEK, Japan.

#### **Major infrastructure development made in the Department**

- Microscopic TV holographic and interferometric system for Microsystems Metrology.
- Scanning Probe Microscope a Sophisticated Characterization/Measurement facility costing ~ 1.3 crores

## 5.1 SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY

### 5.1.1 Introduction:

Sophisticated Analytical Instrument Facility (SAIF) established with financial support from the Department of Science and Technology provides sophisticated instrument and equipment facilities to Scientists / Faculties of Educational Institutions, National Laboratories, Industries and IIT Madras.

SAIF also undertakes on specific request, servicing of sophisticated instruments at other institution and also provide training for operation and maintenance.

Periodically SAIF conducts workshops, seminars and conferences to expose new trends in sophisticated instrumentation and methods. Contact programs for college students and open house for school children are conducted every year to motivate them towards scientific careers.

### 5.1.2 Faculty and their activities:

#### Faculty :

##### Name and Qualification

##### Major area of specialization (only 3 areas)

Professor: Dr. G.K.Surashkumar (HEAD)

Scientific Officers :

Dr.M.S.Moni

Dr.R.Murugesan

Dr.Babu Varghese

NMR Spectroscopy

Mass Spectroscopy

X-ray crystallography

#### Short-term Courses/Workshops/Seminars/Symposia/Conferences organised by the faculty members:

Sl. No.	Co-ordinators	Title	Perd & Venue
<b>Workshop</b>			
1.	Dr. (Mrs.) C.Baby	BRU – NMR 500MHz SAIF Instrumentation	28/05/2009 and 29.05.2009 - SAIF, I.I.T., Madras
2.	Dr. Babu Varghese	Single Crystal XRD SAIF Instrumentation	20/07/2009 and 21.07.2009 - SAIF, I.I.T., Madras
3.	Mr. N.Sivaramakrishnan	HR – SEM SAIF Instrumentation	06/11/2009 - SAIF, I.I.T., Madras
4.	Dr. R.Murugesan and Dr. (Mrs.) K.V.Rama	FT – IR and ICP-OES SAIF Instrumentation	07/01/2010 and 08.01.2010 – SAIF I.I.T. Madras

#### Short-term courses Workshops/Seminars/Symposia/Conference /Training attended by the faculty members in Academic institutions and Public Sector undertakings:

S.No	Name of faculty	Title	Period	Venue
<b>Workshop:</b>				
1.	Dr. Babu Varghese	'Materials Characterization by Diffraction Methods'	24.02.2010 and 25.02.2010	Department of Physics, Mahatma Gandhi University, Kottayam, Kerala

#### Special Lectures delivered by the faculty in other Institutions:

S.No.	Name of faculty	Topic of Lecture	Institution	Date
1.	Dr. Babu Varghese	Crystal structure elucidation of 4-amino azobenzene- A centrosymmetric crystal with second harmonic generation efficiency Materials Science' (MATS 2009)	Department of Chemistry, Annamalai University	09.10.2009 and 10.10. 2009.

### Visit abroad by faculty

S.No.	Name of faculty	Country Visited	Date	Purpose of visit
1.	Mr. N.Sivaramakrishnan	Singapore	17.12.2009 to 23.12.2009	Training on HR-SEM EDS
2.	Mr. N.Sivaramaiahkrishnan	U.S.A	22.03.2010 to 24.03.2010	Training on New VSM

### 5.1.3 Design and Development Activities:

New facilities added or major equipment procured through project funds:

S.No	Name of Equipment	Value [Rs. In lakhs]
1.	VSM (Equipment will be installed in May 2010)	Rs.1.30 ( DST – PLAN )

### 5.1.4 Research and Consultancy:

Research Publications:

No. of papers published in Refereed International Journals ... 13

In Refereed International Journals:

S.No	Name of Faculty	Title of the paper	Name of the Journal
1.	Balasubramanian Sridhar, Krishnan Ravikumar and Babu Varghese	Supramolecular hydrogen-bonded networks in adeninedium hemioxalate chloride and adeninium semioxalate hemi(oxalic acid) monohydrate	Acta Cryst. (2009). C65, o202–o206
2.	Rajendran Saravanakumar, Babu Varghese, Sethuraman Sankararaman	Hydrogen-bond network in isomeric phenylenedipropionic acids and their DABCO salts. Water mediated helical hydrogen bond motifs.	CrystEngComm, 2009, 11, 337 - 346, DOI: 10.1039/b816658g
3.	Anbu, S., Kandaswamy, M., Suthakaran, P., Murugan, V., Babu Varghese.	Structural, magnetic, electrochemical, catalytic, DNA binding and cleavage studies of new macrocyclic binuclear copper(II) complexes.	Journal of Inorganic Biochemistry, 2009, 103, Issue 3, 401 - 410
4.	ShahulHameed Sabiah,z., Babu Varghese, and Narasimha N. Murthy.	First hexanuclear copper(II) pyrophosphate through hydrolysis of phosphodiester with a dicopper complex.	Chem. Commun., 2009, 5636–5638
5.	P. Subash-Babu, S. Ignacimuthu, P. Agastian, Babu Varghese	Partial regeneration of $\beta$ -cells in the islets of Langerhans by Nymphayol a sterol isolated from <i>Nymphaea stellata</i> (Willd.) flowers.	Bioorganic & Medicinal Chemistry, Volume 17, Issue 7, 1 April 2009, Pages 2864-2870
6.	Franklin, S., Balasubramanian, T., Babu Varghese.	<a href="#">Bis[2,4-diamino-5-(3,4,5-trimethoxybenzyl)pyrimidin-1-ium] DL-malate.</a>	Acta Crystallographica, Section C: Crystal Structure Communications (2009), C65(2), o62-o65
7.	Udaya Lakshmi, K., Rajesh, N. P., Ramamurthi, K., Babu Varghese.	Crystal growth and characterization of organic single crystal 1-(4-N,N-Dimethylaminopyridinium)acetic acid bromide monohydrate	Journal of Crystal Growth (2009), 311(8), 2484-2489
8.	Sabiah Shahulhameed, Babu Varghese, Murthy Narasimha, N	Mononuclear [(BP)(2)MX](n+) (M = Cu(2+), Co(2+), Zn(2+); X = OH(2), Cl(-)) complexes with a new biphenyl appended N-bidentate ligand: structural, spectroscopic, solution equilibrium and ligand dynamic studies	Dalton transactions (Cambridge, England) (2009), (44), 9770-80.



9.	V. Jeseentharani, J. Selvakumar, A. Dayalan, Babu Varghese, K.S. Nagaraja.	Preparation, characterization and crystal structure of some imino Schiff bases.	<i>Journal of Molecular Structure</i> , vol 966, (2010), 122–128
10.	Subbiah Nagarajan, Anup Kumbhar, Babu Varghese and Thangamuthu Mohan Das	Structural and DNA cleavage of sugar-derived Schiff base ligands and their dinuclear Cu(II) complexes	<i>Carbohydrate Research</i> , vol 345, (2010) (in press)
11.	Shubhankar Kumar Bose, K. Geetharani, V. Ramkumar, Babu Varghese, Sundargopal Ghosh.	Chemistry of Vanadaboranes: Synthesis, Structures, and Characterization Organovanadium Sulfide Clusters with Disulfido Linkage	<i>Inorg. Chem.</i> 2010, 49, 2881–2888
12.	R.Murugesan, N.Chinnasamy, S.Baskaran and M.Probhakaran	Ultra structural studies of Osmophores in the Petals and Pollen Grains of Jasminum grandiflorum, jasminum sambac and Polianthes tuberosa	Biosciences, Biotechnology Research Asia Vol.07 No.01 2010
13.	R.Murugesan, N.Chinnasamy, M.Prabhakaran and S.Baskaran	Essential oil Analysis of FT-IR and GC-MS studies of Jasmnum grandiflorum Jasminum sambac and Polianthus tuberosa flowers	Biomedical & Pharmacology journal Vol. 03 No. 01 2010



## 6.1 CENTRES FOR CONTINUING EDUCATION

### 6.1.1 Introduction:

The Centre for Continuing Education (CCE) at IIT Madras was established in June 1986. The Centre facilitates faculty members towards meeting the following Mission of IIT Madras:

- To provide knowledge-based technological services to satisfy the needs of the society and the industry.
- To help in building national capabilities in science, technology, humanities, management, education and research.

The faculty effectively participates and contributes to the Institute's commitment of providing a broad base of learning opportunities through the following major activities:

- Academic Programmes (M.Tech & PhD) under the Quality Improvement Programme (AICTE Sponsored).
- Short Term Training Programme under QIP (AICTE- sponsored STTP).
- Curriculum Development Activities under CDC.
- Book Writing Scheme under CDC.
- Continuing Education Programmes (CEP) for Industry.
- User Oriented Programme (UOP).
- National Programme on Technology Enhanced Learning (NPTEL).
- Web Studio.
- Educational Technology Cell (ETC).
- Activities related to MBA budget.
- Conference Registration.
- ISBN number allotment.

### 6.1.2 Quality Improvement Programme (QIP):

The faculty development activities of AICTE funded by Ministry of Human Resources Development are geared to ensure quality, relevance, excellence and equity in Technical education by supporting activities under the QIP Scheme. Deputation to the academic programmes of the Institute viz., M.Tech & Ph.D facilitates career development of the faculty of AICTE approved technical institutions in the country.

Since inception, 464 faculty members from other institutions have obtained Ph.D degrees and 559 faculty members have obtained M.Tech degrees under this programme till 2009-10. The following table provides the data of the Engineering College Teachers benefited under QIP:

Items	Ph.D			M.Tech		
	Admitted	On roll	Awarded	Admitted	On roll	Awarded
2010-11	13	98	27	13	13	8
Since Inception	604	-	491	619	-	567

### 6.1.3 Short Term Training Programmes under QIP (AICTE-STTP):

Organisation of short-term courses under QIP for faculty in engineering institutions is supported by AICTE and it opens up avenues for sharing expertise of our faculty with rich experience in new and upcoming areas. Under this programme, 14 courses for a total duration of 14 weeks were conducted during 2010-11 and 411 teachers of Engineering Institutions as well as a few professionals from industries / R & D organizations have participated in these programmes. From 1970-71 to 2010-11, 288 programs have been held and 7061 teachers from various engineering colleges participated and benefited from these courses.

**Programmes held during 2010-11 under AICTE-STTP**

Sl.No.	Coordinator(s)	Title	Participants	Department	Date
1	Dr. T. Asokan Dr. M. Sreekumar, IIITDM	Robotics and Robot Applications	36	Engineering Design	21/06/2010 to 26/06/2010
2	Dr. Arun K. Tangirala	Time-Series Modelling & Spectral Analysis – Theory and Applications	37	Chemical Engineering	12/07/2010 to 17/07/2010
3	Dr. S.M. Shiva Nagendra Dr. S. Mohan	Environmental Impact Assessment: Guidelines & Procedures	35	Civil Engineering	19/07/2010 to 24/07/2010
4	Dr. S. Ramaprabhu	Energy, Environmental, and Biomedical Applications of Nanomaterials	24	Physics	20/09/2010 to 25/10/2010
5	Dr. Pramod S. Mehta Dr. Preeti Aghalayam Dr. Niket S. Kaisare	A short course on Automotive Emissions Control	23	Mechanical/ Chemical	04/10/2010 to 09/10/2010
6	Dr. Anil Prabhakar Dr. Bijoy K. Das, Dr. Deepa Venkitesh	Quantum Electronics and Lasers	17	Electrical Engineering	22/11/2010 to 26/11/2010
7	Dr. A. Arockiarajan Dr. M.S. Sivakumar	Introduction to Smart Materials and Structures	26	Applied Mechanics	4/01/2011 to 08/01/2011
8	Dr. K. Rajagopal Dr. V.B. Maji	Numerical Methods for Optimal Geotechnical Designs	28	Civil Engineering	17/01/2011 to 22/01/2011
9	Dr. R. Ravi Krishna Dr. Indumathi Nambi	Environmental Chemodynamics	23	Chemical/ Civil	17/01/2011 to 22/01/2011
10	Dr. Somashekhar S. Hiremath Dr. M. Singaperumal	Micromachining-Breakthrough Technology	30	Mechanical Engineering	31/01/2010 to 05/02/2011
11	Dr. T. Thyagaraj Dr. R.G. Robinson	Geotechnical Site Investigation	30	Civil Engineering	31/01/2011 to 05/02/2011
12	Dr. Balaji Narasimhan Dr. K.P. Sudheer	GIS and Remote Sensing Techniques for Water Resources Assessment	30	Civil Engineering	31/01/2011 to 05/02/2011
13	Dr. B.S.V. Prasad Patnaik	Introduction to Turbulent Flows and their Prediction	36	Applied Mechanics	19/03/2011 to 23/03/2011
14	Dr.P.V.Manivannan & Prof. M. Singaperumal	Mobile Robots and Sensor Network	36	Mechanical Engineering	28/3/2011 to 01/04/2011
<b>Total</b>			<b>411</b>		

**6.1.4 Curriculum Development Cell Activities (CDC)**

To explore interesting avenues for innovation in design and delivery of courses, activities such as Course Structuring, Preparation of Instructional and Resource materials such as Monograph, Laboratory Manual, Problem Book etc., as well as development of Computer aided Instruction Packages; support is available under the CD Cell funded by AICTE. Curriculum Development Cell (CD Cell) caters to the needs of all Departments in the Institute. The materials developed under this activity can be made available for use by the various engineering institutes in the country. During the year under review the following programmes were conducted and about 71 faculty participants have benefited:

Sl.No.	Coordinator(s)	Title	Participants	Department	Date
1.	Prof.Promod S Mehta	Faculty Development Program 2010	36	Mechanical Engineering	08/12/2010 to 10/12/2010

2.	Prof.M.V.Satyanarayana	Workshop on Physics Education and Research	35	Physics	20/12/2010 to 25/12/2010
3.	Prof.K.Mangalasunder	Online and Video Supplemented Laboratory Instructions in Chemistry	For the IGNOU Students	Chemistry	Work is under progress

### 6.1.5 Book Writing Scheme (BWS):

The Book Writing Scheme is designed to encourage textbook writing by teachers. Fifty One books have so far been published by our faculty, under this scheme. During the year under review the following work is under progress:

S.NO.	Name of the Author	Department	Title of the Book
1.	Dr.Aysha	Humanities	City in Post-Liberalisation Cinema from India
2.	Prof.V.Jayashankar	Electrical Engineering	Book on Wave Energy

### 6.1.6 Golden Jubilee Book Writing Scheme (GJBWS):

A part of Golden Jubilee Celebrations, Golden Jubilee Book Writing Scheme is introduced. Under Golden Jubilee Scheme, 23 text books, including one e-book have been published. The following is the list of Books released under Golden Jubilee Book Writing Scheme:

S.NO.	Name of the Author	Department	Title of the Book
1	Dr. M.S. Sivakumar, Dr. Arun R. Srinivasa, Texas A&M	Applied Mechanics	Inelasticity of Materials: An Engineering Approach and a Practical Guide
2	Dr. K. Ramesh	Applied Mechanics	Experimental Stress Analysis (e-book)
3	Dr. Devdas Menon	Civil Engineering	Advanced Structural Analysis
4	Dr. Kamala Krithivasan Dr. R. Rama	Computer Science and Engineering	Introduction to Formal Languages, Automata Theory and Computation
	Dr. Anjan Chakravorty Dr. Michael Schroter, University of Dresden, Germany	Electrical Engineering	Compact Hierarchical Bipolar Transistor Modelling with HICUM
6	Dr. Shreesh Chaudhary	Humanities and Social Sciences	Foreigners and Foreign Languages in India - A Sociolinguistic History
7	Dr. Aysha Iqbal Viswamohan	Humanities and Social Sciences	English for Nurses
8	Dr. S. Ponnusamy	Mathematics	Foundations of Mathematical Analysis
9	Dr. Arindama Singh	Mathematics	Elements of Computation Theory
10	Dr. Ch. Srinivasa Rao, Dr. P.L. Sachdev, IISc (Retd)	Mathematics	Large Time Asymptotic for Solutions of Nonlinear Partial Differential Equations
11	Dr. M. Thamban Nair	Mathematics	Linear Operator Equations: Approximation and Regularization
12	Dr. T.E. Venkata Balaji	Mathematics	An Introduction to Families, Deformations and Moduli
13	Dr. V. Ganesan Dr. A.F. Mills, UCLA, USA	Mechanical Engineering	Heat Transfer (Second Edition)
14	Dr. C. Sujatha	Mechanical Engineering	Vibration and Acoustic Measurements and Signal Analysis
15	Dr. V. Balakrishnan	Physics	Elements of Nonequilibrium Statistical Mechanics

16	Dr. Anil Prabhakar Dr. D.D. Stancil, CMU, USA	Electrical Engineering	Spin Waves -Theory and Applications
17	Dr. Mani Subramanian	Electrical Engineering	Network Management: Principles and Practices (Second Edition)
18	Dr. S. Devaki Reddy Dr. Shreesh Choudhary	Humanities and Social Sciences	Technical English
19	Dr. G. Venkatarathnam	Mechanical Engineering	Cryogenic Mixed Refrigerant Processes
20	Dr. K. Ramamurthy	Mechanical Engineering	Rocket Propulsion
21	Dr. Shreesh Chaudhary	Humanities and Social Sciences	English for the World: IELTS Writing and Speaking Modules
22	Dr. Srinivasan Chandrasekaran	Ocean Engineering	Seismic Design Aids for Nonlinear Analysis of Reinforced Concrete Structures
23	Dr. S.P. Venkateshan	Mechanical Engineering	Heat Transfer

### 6.1.7 Continuing Education Programme (CEP):

Several Short Term Courses were organized under Continuing Education Programme for the professionals from industry and R & D establishments on need-basis. The programmes were organized as tailor-made to suit the requirements of the Industries. From the date of inception, i.e., between 1980 and 2011, 1048 STCs have been conducted benefiting 24,023 participants. Approximately 60 to 65 such programmes are organized every year. During 2010-11, 69 Short Term Courses have been conducted and 2381 participants attended these programmes. The following Short Term Courses were conducted under Continuing Education Programme during the Year 2010 – 11:

Sl. No.	Dept.	Coordinator	Title	Duration	No. of participants
1.	Bio- technology	Dr.Sathyanarayana Prof.Mukesh Doble Prof.N Gummadi	Summer Workshop on Bioprocess Technology	12-07-10 21-07-10	30
2.	Bio- Technology	Dr.Rama Dr.S.Verma	Environmental Management System is Pharma and Chemical Sector	22-03-11 24-03-11	25
3.	Central Library	Dr.Harish Chandra Mr.M.Jadav, Mr.C.R.Sekhar	Indest – AICTE consortium	18-02-11 20-02-11	0
4.	Chemical Engineering	Prof.Shankar Narasimhan	Data Reconciliation and Gross Error Detection	26-10-10	15
5.	Chemistry	Prof. T. Pradeep	STAT Program on Nanomaterials for faculties Sponsored by the state of kerala	30-08-10 03-09-10	32
6.	Chemistry	Prof.K. Mangala Sunder	Online And Video Supplimented Laboratory Courses.	6 Months From 01-11-10	0
7.	Chemistry	Prof.K. Mangala Sunder	STAT, KERALA 2011	10-01-11 14-01-11	30
8.	Civil Engineering	Dr.R.G. Robinson Dr.T.Thyagaraj	Ground Investigation and Interference	23-06-10 25-06-10	30
9.	Civil Engineering	Dr.S.M. Shiva Nagendra Prof.S.Mohan	Environmental Impact Assessment Guidelines & Procedures	19-07-10 24-07-10	10
10.	Civil Engineering	Dr.R.G. Robinson Dr.T.Thyagaraj	Training Programme On Laboratory Soil Testing	19-07-10 23-07-10	15
11.	Civil Engineering	Prof.S.R. Gandhi	Training Programme for Adani Port Engineers	28-08-10	30
12.	Civil Engineering	Prof.R.Sivanandan	Short Programme in Ghana at the Kaware NKRUMAH University of Science & Technology	27-09-10 01-10-10	0

13.	Civil Engineering	Dr.Koshy Varghese	Training programme on "Management of construction for Enhanced operation	23-09-10 25-09-10	25
14.	Civil Engineering	Dr.Koshy Varghese Dr.Lakshmana Rao	Fireday Training Program on Open Source "Gram Panchayat QGIS"	03-10-10 07-10-10	19
15.	Civil Engineering	Dr.R.G. Robinson Dr.T.Thyagaraj	Soil Investigation and Design of Foundation for Building	20-10-10 22-10-10	25
16.	Civil Engineering	Prof.A.Boominathan Prof.P.Alagusundaramoorthy	Written test for Recruitment for the post of AEE for TT Devasthanams	24-10-10 26-10-10	15
17.	Civil Engineering	Prof.C.V.R Murty	Writting of Three Technical Books on Earthquake	Oct'10 April'11	10
18.	Civil Engineering	Dr.G.Appa Rao	Fracture Mechanics of Concrete Research and Application	02-05-11 07-05-11	36
19.	Civil Engineering	Prof.K.N.Satyanarayana Dr.Koshy Varghese Dr.Ashwin Mahalingam	Executive Program on Effective Project Management for Senior Executives	28-01-11 30-01-11	25
20.	Civil Engineering	Dr.Balaji Narasimhan Dr.K.P.Sudheer	GIS & RS Technique for water Resource Assessment using open Source Tools.	21-01-11 05-02-11	10
21.	Civil Engineering	Dr.R.G.Robinson Dr.Thyagaraj	Geotechnical Site Investigation	31-01-11 05-02-11	20
22.	Civil Engineering	Prof.K.Rajagopal Prof.S.R.Gandhi Prof.A.Boominathan	Dynamics and Machine Foundations/ Ground Improvement Techniques	27-01-11 29-01-11	20
23.	Civil Engineering	Prof.Ravindra Gettu Prof.K.N.Satyanarayana	Training Program On Construction Technology and Management for Shapooriji Pallonji Constructions Co.Ltd.	21-02-11 26-02-11	34
24.	Computer Science and Engg.	Prof.Krishna Moorthy Sivalingam	Fundamental Concept of Data Structures, Algorithms and Software	15-11-10 15-05-11	20
25.	Computer Science and Engg.	Prof. A. Hema Moorthy	User Oriented ICT Design and Development	20-11-10 21-11-10	10
26.	Computer Science and Engineering	Prof.V.Kamakoti Dr.Shnakar Balachandran	Secure System Engineering	31-01-11 01-02-11	40
27.	Dean (AC)	Prof.R.Dhamodaran Prof.S.Sundar Prof.Sankaranarayanan Prof.Kamakoti	Concept Enhancement Program for Hr.Secondary Teachers	08-12-10 29-01-11	122
28.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	03-05-10 15-05-10	60
29.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	24-05-10 05-06-10	60
30.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	07-06-10 19-06-10	60
31.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	21-06-10 03-07-10	60
32.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	12-07-10 24-07-10	60
33.	Electrical Engineering	Dr.Deepa Venkatesh Dr. Anil Prabhakar	Workshop on Optics	30-08-10 04-09-10	12
34.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	20-12-10 04-01-11	46
35.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor and Applications	07-01-11 21-01-11	65
36.	Electrical Engineering	Dr.Ashok Jhunjunwala	Digital Signal Processor	8 Days	20
37.	Electrical Engineering	Prof.Shanthi Pavan	Low Power Analog Mixed Signal Design	14-03-11 18-03-11	20

38.	Engineering Design	Prof.Asokan T	Workshop on Industrial Hydraulics	06-05-10 08-05-10	30
39.	Humanities and Social Sciences	Prof.S.C. Choudhary	Aeronautical English Language Training Testing	5 Weeks From 18-10-10-	432
40.	Management Studies	Prof.G.Srinivasan	Supply Chain Management	26-04-10 28-04-10	30
41.	Management Studies	Prof.T.J.Kamalanabhan Prof.M.Thenmozhi	Supervisory Development Programme	26-04-10 01-05-10	25
42.	Management Studies	Prof.L.S.Ganesh	First Source Leadership Programme	01-03-10 05-03-10	30
43.	Management Studies	Prof.L.S.Ganesh	Knowledge Management	05-05-10 07-05-10	30
44.	Management Studies	Prof.T.J.Kamalanabhan Prof.M.Thenmozhi	Executive Development program for exporters of leather products	20-09-10 25-09-10	30
45.	Management Studies	Dr.L.Prakash Sai Dr.K.Chandrasekaran	Business Excellence Through Cloud Computing	13-12-10 15-12-10	60
46.	Management Studies	Prof.C.Rajendran Prof.T.J.Kamalanabhan Prof.M.Thenmozhi	Management Training for HMs of Chennai Schools	06-10-10 08-10-10	100
47.	Management Studies	Prof.T.J.Kamalanabhan Prof.M.Thenmozhi	Supervisory Development Programme	28-02-11 05-03-11	25
48.	Management Studies	Prof.T.J.Kamalanabhan Prof.M.Thenmozhi	Supervisory Development Programme	20-03-11 26-03-11	25
49.	Management Studies	Prof.G.Srinivasan	Modern Manufacturing management Techniques	06-02-11 07-02-11	30
50.	Mechanical Engineering	Prof.N.Sivaprasad	Mechanical Design	24-07-10 31-03-11	30
51.	Mechanical Engineering	Dr.K.Srinivasa Reddy	International Workshop on Solar Power Generation Technologies	06-12-10 08-12-10	20
52.	Mechanical Engineering	Dr.N. Ramesh Babu	Training Programme on Sheet Metal Product Manufacture	17-08-10 19-08-10	6
53.	Mechanical Engineering	Dr.S.Vengadesan Prof.B.V.S.S.S. Prasad	Computational Fluid Dynamics	15-03-11 21-03-11	10
54.	Mechanical Engineering	Prof.N.SivaPrasad	Mechanical Design	26-02-11 17-09-11	30
55.	Metallurgical & Materials Engineering	Prof.P.Venugopal	Lectures on Fine Blanking and on Extrusion	May'10 June'10	0
56.	Metallurgical & Materials Engineering	Prof.M.Kamaraj	QA/QC Refresher Programme for FL Smith Quality Control Engineers	23-07-10 24-07-10	20
57.	Metallurgical & Materials Engineering	Dr.V.Subramanya Sarma Dr.B.S Murthy	DST & SERC School in Texture and Micro-Structure	25-10-10 29-10-10	20
58.	Metallurgical & Materials Engineering	Prof.M.Kamaraj	QA/QC Refresher Program for FL Smith QC Engineer	25-03-11 26-03-11	20
59.	Ocean Engineering	Dr.S.Nallayarasu	Subsea Engineering	23-07-10 24-07-10	30
60.	Ocean Engineering	Prof.S.K. Bhattacharyya	Educational Assistance to naval architecture program	Aug'10 Nov'10	0
61.	Ocean Engineering	Prof.V.Ananthasubramanian Prof.P.Krishnakutty	Hydrodynamic Model Testing Training	Aug'10 Feb' 11	86
62.	Ocean Engineering	Prof..S.K. Bhattacharyya Dr.S.Chandrasekaran	Academic Cooperation with Human Resource Development centre for Offshore & Plant Engineering	5 Years	15



63.	Ocean engineering	Dr.Srinivasan Chandrasekaran Dr.Nilanjan Saha	Short Term Course on Reliability of Offshore Structures	22-11-10 26-11-10	30
64.	Ocean Engineering	Prof.S.K. Bhattacharyya	Experiments in Offshore Structures and Ships	10-01-11 15-01-11	8
65.	Ocean Engineering	Prof.S.K. Bhattacharyya	Design of Offshore Structure and Ships.	11-02-11 01-05-11	20
66.	Ocean Engineering	Prof.S.K. Bhattacharyya Dr.S.Chandrasekaran	Academic Co-operation with HRD Centre for Offshore & Plant Engg.	Jan-11 July-11	3
67.	Ocean Engineering	Prof.S.K. Bhattacharyya Dr.S.Chandrasekaran	Academic Services for University of Naples Fedarics	Jan-11 July-11	5
68.	Ocean Engineering	Prof.S.K. Bhattacharyya Prof.R.Natarajan	Small Craft Engineering	March-11 30-04-11	40
69.	Ocean Engineering Mechanical Engineering	Prof.K.Murali Prof.V.Ananthasubramani an Prof.Kumaraswamy	Training Course in Hydrodynamics and Hydro-Turbomachines	05-05-10 07-05-10	30
			<b>Total</b>		<b>2381</b>

### 6.1.8 User Oriented Programme (UOP):

The User Oriented Programmes are designed to suit the requirements of the industrial organizations. Long duration, 2 years M.Tech Programmes are being organized to meet the specific needs of associated industries. Such programmes will ultimately pave-way for long-term consultancy assignments with the organizations.

The following M.Tech programmes are being offered under UOP:

1. Construction Technology & Management in Civil Engineering Department
2. Automotive Technology in Mechanical Engineering Department
3. Ocean Technology and Management in Ocean Engineering Department

The following two more programmes are finalized under UOP:

- M.Tech Program on Offshore Structural Engineering to be exclusively conducted for Larsen & Toubro Limited (L&T).
- Metro Rail Technology and Management to be exclusively conducted for the Indian Railways.

### 6.1.9 Faculty Development Programme at IIT Madras:

A three-day Faculty Development Programme (FDP) was organized by the Centre for Continuing Education during 08-10 Dec, 2010 for 32 young faculty of the Institute. Two educational technology experts from Texas A and M University, USA, namely, Dr. Jeff Froyd, and Dr. Chandrika Rajagopal of the Centre for Teaching Excellence as well as Dr. Prudence Merton, from Dartmouth University Hanover, conducted the programme. Prof Ajit Kumar Kolar and Prof Pramod S Mehta were the FDP coordinators. Prof. V.G.Idichandy, Dy.Director, inaugurated the FDP, on the 08 Dec 2010.

The participating faculties were trained in the state-of-the art teaching methodologies. Learning Outcome Processes, Minute-papers, Student Assessment Methods, Cooperative and Interactive Learning Methods, Joint Student Projects, Student Group Sitings, and other teaching techniques which enhance the effectiveness of teaching – learning process were some of the topics of discussion. The FDP was marked by a constant interaction between the experts and the participants on the one hand and also among the participants themselves, which made the FDP lively, exciting and productive. The printed material prepared by the experts and distributed to the participants were of a long-term value while being extremely useful during the programme itself.

The visiting experts and the CCE have taken independent assessment of the FDP from the participants which indicates that it was very beneficial to the faculty. Indeed, the participants (faculty members) assured the experts and the CCE that they will implement some of the new teaching techniques in the ensuing academic session itself. The faculty participants and the experts were very happy with the overall conduct of the programme.

The CCE plans to conduct similar programmes in the future, but more importantly, would like to develop an in-house core group of “trainers” from among the present participants towards establishing a Teaching-Learning Unit in the Institute. At the end of the FDP on 10th Dec., Prof.K.Ramamurthy, Dean (AC) distributed the certificates to the participants, and Prof. V.G. Idichandy, Deputy Director, delivered the valedictory address.

#### **6.1.9 National Programme on Technology Enhanced Learning (NPTEL) A joint initiative of the IITs and IISc, funded by MHRD:**

**NPTEL** is India's largest technical knowledge dissemination programme in the higher education sector, through Information and Communication Technology (ICT). Its main objective is to increase the reach of high quality engineering and sciences education across our country, which will transform India into a strong and vibrant knowledge economy.

**NPTEL - Phase I** is a pioneering joint initiative of 7 IITs and IISc Bangalore in developing 135 video based courses and 125 web based courses. IIT Madras is the coordinating institute for this project. Both the web and video course contents are freely available to everyone through our website at: <http://npTEL.iit.ac.in> and through the YouTube at <http://www.youtube.com/iit>

For the benefit of students and faculty, free and easy downloads of web and video-based courses are available from the NPTEL website and also distributed to Individuals / institutions for a nominal fee. The video courses are currently telecast through the Eklavya channel made available by MHRD exclusively for this purpose.

NPTEL is being extensively used by students, faculty members and working professionals. NPTEL channel in YouTube has received more than 45 million upload views and has crossed 5.5 million channel views. NPTEL site has recorded more than one crore visits from the inception in 2006.

**NPTEL - Phases II and III:** Preparations are underway for adding more than 1000 new courses (more than 900 under graduate level and 100 post graduate level web and video courses). IIT Madras is the coordinating institute for this project. These courses cover various disciplines including Technology, Engineering, Management, Sciences, and Humanities and are expected to be completed by 2012. These courses will also be available to every one free of cost and without any formal registration.

All courses developed under NPTEL Phase I and the list of courses (along with the syllabi) for the various courses developed under NPTEL Phase II are now available at the NPTEL website at: [www.npTEL.iitm.ac.in](http://www.npTEL.iitm.ac.in)

#### **6.1.10 Web studio:**

The web studio at IIT Madras is equipped with state-of-the-art studio facilities, hardware and software for the production of educational multimedia videos. The web studio assists faculty members in the creation of electronic course contents, supplements; lecture notes, quizzes etc., and enable them to be available to the student community. All NPTEL video and web courses created by faculty of IITM are recorded and edited here. In addition to the creation and maintenance of the NPTEL website, other departmental websites, conference websites, conference and meeting brochures are also created at the web studio. The web studio has extended its services to include the following:

- Meet the curriculum demands of IIT Hyderabad: IIT Madras faculty have used the facilities available in the web studio, provided under the National Knowledge Network, to teach courses for IIT Hyderabad and IIT Mandi students
- Support all projects sanctioned to IIT Madras under the National Mission on Education through ICT (Sakshat)
- Preparation of online and video supplemented laboratory experiments in Chemistry for IGNOU
- Innovation in teaching methodology with access to web based learning, for high school children, under the Kuruvila Jacob Initiative
- Text transcription of NPTEL video lectures to provide video indexing, searching and database creation for bootstrapping semi-automatic and automatic transcription algorithms, for MHRD, New Delhi
- Maintenance of course management system (Moodle) for IIT Madras
- State of the art video conferencing facility, under the Country - wide Classroom Network, enabling faculty, research scholars and students to use as virtual classrooms and for video conferencing
- Conduct educational programs and research initiatives for high school children

### 6.1.11 Educational Technology Cell

#### CCE - T.V Studios

Two numbers Digital T.V studios of Broadcast quality, equipped with state-of-the-art equipment like Digital video cameras, vision mixers/special effects generators, audio mixers, presentation computer connected through VGA to PAL converters, Tele-Prompter etc., are available in a class room atmosphere lit by Cine-cool-lights.

Two numbers 3-CCD portable video camcorder units for outdoor video coverage and Digital Non-Linear editing machines are available for Video production. All video courses created by faculty are recorded here.

Three numbers remote controlled video cameras with a remote control room, in IC&SR Auditorium for video recording and video streaming, is maintained by CCE.

### 6.1.12 ISBN number allotment

A 13 digits ISBN is allotted for the proceedings to be published by the faculty members of the Institute. This year we have allotted the following ISBN numbers to the faculty members:

### 6.1.13 Conference Registration

In order to streamline all matters connected with the conduct of conferences/ workshops/ seminars etc. CCE has been entrusted with the work of allotment of Registration Number. Accordingly the following Registration numbers are allotted:

S.No.	Department	Coordinator	Title of the Proceedings	ISBN number
1.	Mechanical Engg.	Dr.Shankar Krishnapillai Dr.Arshinder Kaur Prof.N.Sivaprasad Prof.L.S.Ganesh	Proceedings of International Conference on New Product Development: Challenges in Meltdown Times –NPDC09	978-93-80689-00-5
2.	Ocean Engg.	Dr.K.P.Sudheer Prof.V.Sundar Prof.K.Srinivasan Prof.K.Murali	Proceedings of the 9th International Conference on Hydro-Science and Engineering 2010	978-93-80689-01-2
3.	Civil Engg.	Prof.Ravindra Gettu Prof.K.Jayasankar Prof.K.P.Pradeep	Advances in Concrete: An Asian Perspective	978-93-80689-02-9
4.	Ocean Engg.	Dr.Rajiv Sharma Prof.R.Sundaravadivelu Prof.S.P.Subramanian	Advances in Drilling Technology	978-93-80689-03-6

S.No.	Department	Coordinator	Title of the Proceedings	Registration Number
1.	Bio-Technology	Dr.Michael Gromiha	IITM-Tokyo Tech Joint Workshop on Bioinformatics and Large Scale Data Analysis	CCE/IW/MG/BT/01/2011
2.	Ocean Engg.	Prof.S.K.Bhattacharyya Prof.P.Krishnan Kutty	International Conference on Developments in Marine CFD (ICMCFD 2011)	CCE/IC/SKB/OE/02/2011
3.	Electrical Engg.	Prof.Balaji Srinivasan Prof.Shanti Bhattacharyya	International Conference on Fibre Optics and Photonics.	CCE/IC/BS&SB/EE/03/2011
4.	Mechanical Engg.	Prof.M.Singaperumal Prof.BVSSS Prasad	11 <sup>th</sup> Asian International Conference on Fluid Machinery (AICFM) & 3 <sup>rd</sup> Emerging Challenges in Fluid Power Technology (EMCHAFT 2011)	CCE/IC/MSP&BVSSSP/ME/04/2011

5.	Chemistry	Prof.S.Sankararaman Prof.S.Baskaran	Conference on INDIGO-III (Indo-German Conference)	CCE/IC/SS&SB/CHY/05/ 2011
6.	Mechanical Engg.	Prof.S.Narayanan Prof.A.Sekhar	National Symposium on Rotor Dynamics (NSRD-2011)	CCE/NS/SN&ASS/ME/06 /2011

#### 6.1.14 Central Photographic Section:

The Central Photographic Section caters to photographic needs of the Departments and Centres of the Institute. The jobs include photographic coverage of most of the important functions such as Convocation, conferences, etc. held in the Institute. Besides this, the section renders assistance to the UG, PG students, Research Scholars and Faculty of all the Departments / Centres for their activities including technical photography, conference poster preparation etc. The in-house processing and printing work is confined to Black and White photography. After recent modernization this section provides digital / high resolution photography for all the needs of the Institute.

The Central Photographic Section has undertaken 110 Departmental job orders and covered 85 functions as well during 2010-11. In addition, Central photographic section has contributed a large percentage of photographs to the Heritage Centre. Passport size photos for 2011 convocation, graduants taken and made ready for degree certificates.

## 6.2 CENTRE FOR INDUSTRIAL CONSULTANCY AND SPONSORED RESEARCH

### 6.2.1 Introduction:

The Centre for Industrial Consultancy & Sponsored Research was set up in 1973 to promote interaction with industries. It facilitates active participation of the faculty in various interactive programmes organized for the benefit of the industries and the Institute. The Centre also provides administrative support for carrying out consultancy and sponsored research projects, particularly for recruitment of project staff, maintenance of accounts and purchase of equipments as well as materials.

Some of the major activities that the Centre is involved are:

- Sponsored Research programmes
- Plan Schemes
- Technology Development Mission Schemes
- Consultancy programmes: Project / research based / retainer / institutional
- Collaborative projects with foreign countries
- Industrial Associateship Scheme
- ISRO-IITM Space Technology Cell joint projects
- IGCAR-IITM Cell joint projects
- NIOT-IITM Ocean Technology Cell
- Patenting and Technology Transfers
- Faculty & Student Entrepreneurship and Incubation

**Dean** : Prof. Job Kurian

### Staff

Sri R. Sundaram	Chief Techno Economic Officer
Dr. V. Suresh	Senior Techno Economic Officer
Smt. Prema Chakrapani	Assistant Registrar (F&A)

### 6.2.2 Sponsored Research:

113 projects of value totaling to Rs.11715 Lakhs were taken up by the Institute during 2010 -2011 as given below.

S. No.	Agency	No. of Projects	Value (Rs. In Lakhs)
1	Aeronautics Research & Development Board	3	39.59
2	Board of Research in Nuclear Sciences	1	10.18
3	Board of Research in Fusion Sciences	1	60
4	Building Materials & Technology Promotion Council	1	3.95
5	Bureau of Indian Standards	1	13.46
6	Council of Scientific and Industrial Research	8	133
7	Defence Institute of Physiology and Allied Sciences	2	15.47
8	Defence Research and Development Laboratory	1	9.98
9	Defence Research and Development Organisation	9	300.4
10	Department of Biotechnology	14	692.24
11	Department of Environment	1	9.6
12	Department of Information Technology	4	355.5
13	Department of Science & Technology	31	3423.51
14	Gas Turbine Research Establishment	3	329.43
15	IBM CORPORATION , USA	1	13.66

16	Indian council for Medical Research	1	23.88
17	Indian National Centre for Ocean Information Services	3	45.2
18	Indian National Science Academy	1	0.25
19	Indian Space Research Organisation	2	30.38
20	Indira Gandhi Centre for Atomic Research	6	97.74
21	Indo_French Centre for the Promotion of Advance Research	1	37.63
22	International Development Research Centre	1	11.22
23	Korea Ocean Research and Development	1	11.84
24	Lafarge Aggregate and Concrete India	1	9
25	Lafarge Centre de Recherche	1	90
26	Microsoft Research Labs India Private Ltd.	1	1.44
27	Ministry of Environment & Forests	2	88.54
28	National Program on Micro and Smart Systems	3	434.7
29	National Institute of Ocean Technology	2	39.81
30	National Internet Exchange of India	1	7
31	Office of the Principal Scientific Adviser	1	7.32
32	Regional Government of Lombardy	1	30
33	Society for Biomedical Technology	1	5.55
34	Tamil Nadu Pollution Control Board	1	8.63
35	The Royal Academy of Engineering, UK	1	5.2
Total		113	6395.3
Others and Additional Grants			5319.28
		<b>113</b>	<b>11714.58</b>

This includes International Collaborative and Industry Sponsored Projects. About 126 faculty members are coordinators for projects sanctioned in 2010 – 2011. The value of the on-going Sponsored Projects during 2010 – 2011 is Rs. 33183 Lakhs. About 319 faculty members were actively involved.

### 6.2.3 Consultancy Programmes:

570 Consultancy assignments of value totaling to Rs.3639 Lakhs were taken up during 2010 – 2011 as given below:

S. No	Type of Consultancy	Number of Jobs	Value (Rs. in Lakhs)
1	Research Based Industrial Consultancy	72	1413
2	Institutional Consultancy	479	1763
3	Retainer Consultancy	19	52
Other and additional value			411
Total		<b>570</b>	<b>3639</b>

146 faculty members were actively involved in Consultancy Projects. The value of the on-going Consultancy Projects during 2010-2011 is Rs.5146 Lakhs.

### 6.2.4 New Faculty Scheme:

The Institute provides funds for new faculty to initiate research in their area of specialization at IIT Madras. This funding will also help them to 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 Rs.5.00 Lakhs will be recommended by the Dean, IC&SR to the Director for approval. In the case of proposals where there is

an experimental activity requiring special equipments, Institute support to the project up to Rs.20.00 Lakhs may be possible.

During the year, 30 proposals were approved for funding under the New Faculty Scheme for a total sum of Rs.236 Lakhs.

#### **6.2.5 Industrial Associateship Scheme:**

227 Industries were members of this Scheme (Large scale 27, Medium scale 135 and Small Scale 65) for the Year 2010.

#### **6.2.6 Other Programmes:**

##### **a. ISRO-IITM Space Technology Cell joint projects:**

This is an on-going activity sponsored by the ISRO where research projects of interest to ISRO are being taken up at IIT Madras. 15 on-going projects totaling to a value of Rs.270 Lakhs were continued and 2 new projects for a value of Rs.30 Lakhs were taken up during the year 2010-2011.

##### **b. IGCAR-IITM Cell:**

10 on-going projects were continued during 2010-2011, totaling to a value of Rs.175 Lakhs and 6 new projects for a value of Rs.98 Lakhs were taken up during the year 2010 – 2011.

##### **c. NIOT-IITM Cell:**

NIOT-IITM Cell has been setup in IIT Madras to initiate further NIOT Sponsored Research activities at IIT Madras during 2010 – 2011. 8 on-going projects were continued during 2010-2011, totaling to a value of Rs.260.22 Lakhs and 2 new projects for a value of Rs.41.65 Lakhs were sanctioned for the year 2011 – 2012.

##### **d. Technologies for Social Development:**

IIT Madras initiated activities for transfer of technologies which 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)

A write-up on the activities of the above projects is given in **Annexure – 1**.

#### **6.2.7 Distinguished Visitors to the Centre:**

The following is a partial list of Companies who visited the Institute during the year 2010-11, for Collaborative Research.

- Shell India Markets Private Limited
  - Goodyear Innovation Centre, Akron
  - Volvo 3P India, Bangalore
  - Volvo Aero India Pvt. Ltd., Bangalore
  - Samsung India Software Operations, Bangalore
  - Renault Nissan Technology & Business Centre India Private Limited (RNTCBI)
- A team of senior level scientists from DRDO led by Dr. Prahlada, CC (R&D) visited IIT Madras on 1<sup>st</sup> October 2010 for an interactive session with IITM faculty in the areas of Aeronautics and related topics.
- A team of Director / Senior Scientists led by CC R & D (ECS) & OS from DRDO visited IIT Madras on 13<sup>th</sup> October 2010 for an interactive session with IITM faculty in the areas of Cognitive Radios (Spectrum sensing, MAC layer algorithm & cross layer optimization to achieve desired QoS), FPGA, High Speed ADC & DAC, MEMS and GaAs Technology.
- Dr. K.D. Nayak, CCR&D (MED & MIST) & OS and a team of scientists from DRDO (CAIR, Bangalore, ANURAG, Hyderabad, SAG, New Delhi, MIST, Director and Joint Director, DIITM) visited IIT Madras on 27<sup>th</sup> October 2010 for an interactive session with IITM faculty in the areas of Cyber Security related issues.

## MoUs / Agreements signed

32 new MoUs / Agreements have been signed by IIT Madras with the following organizations / Institutions during 2010-11:

1. Tata Power Company Limited Strategic Electronics Division
2. AMADA Co. Ltd. & AMADA Soft (India) Pvt. Ltd.
3. Centre for Fuel Cell Technology (CFCT), Chennai
4. Triviron Healthcare Private Limited, Chennai
5. Korea Institute of Science & Technology
6. Intellectual Ventures India ( Invention Development Management Company, LLC)
7. NOKIA, Finland
8. IBM, New Delhi
9. Ministry of Urban Development, Government of India, New Delhi
10. Indian Oil Corporation Ltd., Mumbai
11. National Institute of Technology, Chennai
12. Korea Ocean Research and Development Institute (KORDI), Korea
13. Ministry of Environment and Forests, Government of India and all IITs
14. Cognizant Technology Solution India Pvt. Ltd, Chennai
15. Hindustan Unilever Ltd.(HUL), Mumbai
16. GE India Technology Centre Private Limited, Bangalore
17. Physics Equipments Co., Chennai
18. Lafarge Research Centre, France & Lafarge Aggregate and Concrete India, Chennai
19. Ingersoll Rand Engineering & Technology Centre and Ingersoll Rand International (India) Limited, Bangalore
20. RTBI & Sasken Communication Technologies (P) Ltd., Bangalore
21. Bloom Energy Corporation
22. Bharat Petroleum Corporation Ltd., Mumbai
23. Sree Chitra Tirunal Institute of Medical Science & Technology & CMC
24. Infrared Medical Solutions Pvt. Ltd., Bangalore
25. Renault Nissan Technology & Business Centre India Private Limited
26. Nielsen Company, New York
27. Apex Laboratories Private Limited
28. Venture Intelligence a division of TSJ Media Pvt. Ltd.
29. Norut Narvik AS, Narvik
30. Institute of Engineering and Ocean Technology (IEOT), ONGC
31. Korea Institute of Science & Technology
32. CEAT Limited, Mumbai

### 6.2.9 Patents:

Details of patent applications filed during the year 2010-2011 are given below:

S. No	Title	Inventor	Dept.
1.	An affordable process to remove fluoride from drinking water using nanostructured -boehmite on organic templates	Dr. T Pradeep Mr. Shihabudheen M Maliyekkal Mr. Anshup	CHY
2.	A novel methodology towards the synthesis of N-( $\beta$ -glycosyl) asparagines based on the alkylation of ethyl nitroacetate and equivalents using N-( $\beta$ -glycosyl) haloacetamides	Dr. Loganathan Mr. katuri J V Paul Mr. Laxminarayan Sahoo	CHY
3.	Enhanced cross-flow serpentine flow fields for fuel cell applications	Dr. Sreenivas Jayanti Dr. Abhijit P Deshpande Dr. Prathap Haridoss Dr. Patnaikuni V Suresh	CHE
4.	Reduced graphene oxide-based-composites for the purification of water	Dr. T Pradeep Mr. Mundampra Maliyekkal Shihabudheen Mr. Theruvakkattil Sreenivasan Sreeprasad	CHY
5.	Gravity-fed axial flow filter block for domestic water purifiers and the method of making the same.	Dr. T Pradeep Mr. M Udhaya Sankar Mr. Anshup Mr. Amrita Chaudhary	CHY



6.	Online assessment of moisture in power transformer insulations	Dr. V Jayashankar Mr. M K Illampoornan	ELE
7.	Technique for imaging using virtual array of n sources using phased excitation	Dr. Krishnan Balasubramaniam Dr. C V Krishnamurthy Mr. S. Alavudeen	MEE
8.	Mobile Unit for Cataract Surgery	Dr. Mohanasankar Sivaprakasam	ELE
9.	A method of removing organic pollutants from water and wastewater	Dr. Ligy Philip	CIE
10.	A Sustained silver release composition for water purification	Dr. T Pradeep	CHY

#### Patent granted during the Year 2010-2011:

S.No	Title	Inventor(s)	Dept.
1.	A device for converting single phase AC to three phase balanced AC	Dr. P Sasidhara Rao Ms. M R Poonguzhali	ELE
2.	Synthesis of various salts of cross-linked polyallylamine polymer by Ion exchange metathesis	Dr. S Sankararaman	CHY
3.	A multi block heat exchanger	Dr. Sarit Kumar Das	MEE

#### Technology Transfer:

S. No.	Principal Investigator	Title	Company Name	Sanction Value (Rs. In Lakhs)
1	Dr. Mangala Sundar K	Distribution and marketing of NPTEL educational material	BodhBridge Educational Services Private Ltd	36.44
2	Dr. Deepak Khemani	Alternative Analytical Technology	Murugappa Chettiar Research Centre	2.10
3	Dr. S. V. Raghavan	Exploitation of algorithm to locate precise depth and size of abnormality from the observed temperature differentials of the humal body	Infrared Medical Solutions Pvt Ltd	5.00
4	Dr. Anil Prabhakar	Development of optoelectronic module	Telekom Malaysia R & D	13.57

#### 6.2.10 Publications:

- The quarterly publication titled IIT Madras News was continued.

#### 6.2.11 Other information:

- ISRO project coordinators meeting was held on 9<sup>th</sup> February 2011.
- The Institute Diaries and Calendars were brought out and distributed to all faculty and staff members.
- IC & SR Board meeting was held on 5<sup>th</sup> May 2010 and 23<sup>rd</sup> November 2010.
- NISSAN Day was organized on 26<sup>th</sup> October 2010 at IIT Madras.
- A meeting of the committee constituted by the undersigned to evaluate the proposals for innovative student projects was held on 1<sup>st</sup> September 2010. Out of the seventeen proposals presented **six** were considered for funding for a total value of **Rs.5.15 Lakhs**.
- Dean, IC & SR attended the Indo-UK Innovation Forum organized by IIT London Chapter (IITLC), at London, UK and also Association of University Research Parks (AURP) International Conference at Minneapolis, USA between 8<sup>th</sup> and 22<sup>nd</sup> September 2010.

**SOCIALLY RELEVANT PROJECTS (SRP) PROGRAM**

at

**I.I.T. MADRAS**

The Socially Relevant Projects program, which started in the year 2003, with an initial grant of Rs. 10.0 lakhs from IIT Madras, is currently being supported by funds received from the IIT Madras alumni.

“Ramachandran Jaikumar project for rural technologies: An initiative by 1967 batch alumni” had supported two projects with a funding of Rs. 17 Lakhs. Project on Water Quality Test Kit was completed in the year 2009, while the project on bio-gas generation was completed last year. Prof. T.S. Chandra and Prof. K.B. Ramachandran (Department of Bio-Technology) developed an inexpensive, easy to operate and easy to maintain reactor for biogas generation from non-edible oil-seed cakes, for producing electricity for running a micro-industry in rural areas.

The Class of 1981 of the IIT Madras Alumni has allocated Rs. 30 lakhs, to support eight projects. Out of these eight projects, three projects were successfully completed in the year 2009, three were completed in 2010, and two are in different stages of completion.

To increase the efficiency of healthcare spending by the government, new models of public sector health funding that directly targets the payers (i.e., patients) are now being explored. Dr. G. Arun Kumar (Department of Management Studies), Dr. D. Acharya (Department of Humanities and Social Sciences) and Dr. A. Thillai Rajan (Department of Management Studies) completed a project on “Government Funding for Healthcare: Developing a Model for Payer Targeted Approach”. They have worked in collaboration with Hand in Hand, a non-governmental organization working in the field of rural healthcare. This project aims to bring healthcare facilities to doorsteps of rural masses. Melpakkam, a remote village of 800 people in Kancheepuram has been selected for the pilot project, which was run successfully for more than a year.

In recent times the lack of availability of sufficient labor has caused severe problems in the collection of agricultural resources and is a big discouragement to the farming profession. Dr Shankar Krishnapillai of the Department of Mechanical Engineering and Mr. T.N. Sivasubramanian of *Pothu Vivasayeegal Sangam* have developed an innovative cable way system capable of carrying a load of farm produce to the collection point. The project covered both design and implementation of the cableway in the field.

With rampant electricity shortages in outlying villages and remote areas, it would be ideal to exploit the micro-hydro potential of irrigation canals to produce electricity. The NGO *Pothu Vivasayeegal Sangam* based in Karur has proposed this problem in order to provide electricity for street lighting and/or domestic purposes. Dr Shankar Krishnapillai of the Department of Mechanical Engineering, Mr. Abhijit Date (RMIT University, Australia) and Mr. T.N. Sivasubramanian of *Pothu Vivasayeegal Sangam* have developed an economical, reliable, robust and efficient Savonius hydro-turbine capable of producing 0.5 kW @500rpm, at 2 m head and 60 litres/sec flow rate.

**RURAL TECHNOLOGY ACTION GROUP (RUTAG), TAMILNADU**  
at  
**IIT Madras**

**1. Introduction:**

In the early nineties, IIT Madras started development of technologies which are of immediate relevance to the society. RuTAG is one such project initiated by the Principal Scientific Advisor to the Government of India. Started in June 2004, RuTAG is aimed at identifying technology gaps through S&T NGOs and improving these for the benefit of rural India utilizing the expertise in IITs and other academic and R&D Institutions in the country. A number of technologies have been identified and upgraded by RuTAG Tamil Nadu, IIT Madras for rural application.

**2. Technologies upgraded till last year:**

Sno	Project	NGO involved
1.	Natural Dyes	Gandhigram Trust (GGT)
2.	Developing Physical and Biochemical Parameters to determine the Quality Standards in Selected Siddha and ayurvedic Preparations	Lakshmi Seva Sangam, GGT
3.	Modernization of coir spinning ratt	Small Industries Service Institute, Trichur
4.	Sanitary Napkins	Gandhigram Trust
5.	Mud Blocks for Low cost Housing	Pothu Vivasayeegal Sangam (PVS), Karur
6.	Bridge across small canal	PVS, Karur
7.	Rain Gun	Villgro Ltd. IITM Research park
8.	Physico-bio-chemical standardization of selected Ayurvedic Preparations	Lakshmi Seva Sangam, GGT
9.	Design of Low Bed Tractor trailer	Pothu Vivasayeegal Sangam, Karur
10.	Biogas from non-edible oil cakes	Vivekananda Kendra, Kanyakumari
11.	Market Study for baby diapers	Gandhigram Trust
12.	Semi-automatic mechanical Hammer for quarry workers	Mitraniketana, Kerala
13.	Solar Energy Operated Electric Tricycle for rural Physically Challenged	Spastic Society of Tamil Nadu
14.	Mud Blocks for Low cost Housing	Pothu Vivasayeegal Sangam, Karur
15.	Design and Manufacture of modernized coir ratt	SISI, Trichur
16.	Optimisation of extraction and drying of natural dyes from Annatto, Beetroot and Tacoma flower	Gandhigram Trust
17.	Herbally treated baby diapers	Gandhigram Trust
18.	Retention of Nutrients in earthen pots while cooking	Centre for Social Development, Nagercoil
19.	Cono Weeder	Pondicherry Science forum
20.	Performance evaluation study of different types of hand-loom	Co-Optex, Tamilnadu
21.	Natural dyed textile from banana fiber	Industree Crafts Foundation
22.	Standardization of Spray Dried Natural Dyes	Gandhigram Trust

**3. Technologies upgraded during the current year (2010 – 2011)**

Sno	Project	NGO involved
1.	Development of Artificial foot	Kasturba Hospital, GGT
2.	Multi speed Potter's wheel	Centre for Social Development, Nagercoil
3.	Optimization and modernization of soap making process	Gandhigram Trust

4.	Design of energy efficient low power wind turbine systems for rural applications	Field research Laboratory, Leh
5.	Physico-bio-chemical fingerprinting and nutrient analyses of selected Ayurvedic	Gandhigram Trust
6.	Effect of physical, chemical and herbal agents on sanitary napkins	Gandhigram Trust
7.	Powered Tricycle for physically Handicapped	Sukrithi Social Foundation, Chennai
8.	Modification in the cutting machine of the binding unit, Automatic edge binding machine and Power operated sewing machines	Amar Seva Sangam, Ayikudi
9.	Implementation of Efficient 3.6kW Solar Power System	Amar Seva Sangam, Ayikudi
10.	Envelope Making Machine	Rehabilitation Centre for Blind Women(RCBW)

#### 4. Some of the significant work carried out:

- Preparation of database and a web site on rural technologies to bridge information gap on Technologies
- Coir Spinning Machines undergoing trial at Alleppey for close to one year
- A Low bed tractor trailer being manufactured at Karur for safe transport of sugarcane
- Pirn Winding machine for handlooms introduced in the market in large numbers
- Development of 500 W wind mill for Leh and 3 KW micro hydel generator for Uttarakhand. Final modifications being undertaken.
- Training programme using JAWS software for blind women conducted at Rehabilitation Centre for Blind Women, Trichy and at IIT Madras
- Helped in streamlining of biogas plant in IIT Madras
- Unused Solar Panels (3.6kW) being put to use fully at Amar Seva Sangam, Tenkasi
- Sewing machines / binding machines modified to suit the convenience of the physically challenged operators at Amar Seva Sangam
- Improved envelope making machine for the blind at Rehabilitation Centre for Blind Women Tiruchirappalli

**CENTER FOR SOCIAL INNOVATION & ENTREPRENEURSHIP (CSIE)**  
**Sponsored by '84 batch**  
Project Report

**Concept:**

C.K. Prahalad's book, "Fortune at the Bottom of the Pyramid," introduced the idea that businesses ought to consider the poor as consumers – a veritable fortune at the bottom of the economic pyramid. Building on this work, several multinationals and Indian companies have tried to create products and services tailored to the needs of the poor, or those in low-income categories. Within the global context, the recent economic turmoil has not only laid emphasis on ethical business practices, but also highlighted the need to "do good, and to do it well." Social enterprises have a strong role to play within this context.

The Center for Social Innovation and Entrepreneurship (CSIE) at IIT-Madras will focus on teaching and research related to social enterprise in India, with a focus on two fronts:

1. **Education about social enterprises:** It is widely recognized that if the poor are to pay for innovative products and services being developed by social enterprises, these products and services need to be designed for affordability. Academic institutions have a strong role to play in educating the scientists of tomorrow with the knowledge and skill needed to design and innovate for affordability.
2. **Contributing to existing literature about social enterprise:** The social enterprise sector is still relatively new. There is little common understanding on what constitutes a social enterprise. There is also little information available on what are the best ways to help the sector grow. Academic interest in this sector within India has been limited. Consequently, available literature is also hard to come by. It is estimated that in the whole of Asia there are just 25 universities that conduct research on social enterprises. Academic institutions such as IIT have a strong role to play in contributing to existing literature on the sector, through primary and secondary research methods.

IIT-Madras, with its strong emphasis on academic rigor and, more recently, on entrepreneurship, is ideally suited to host a center that will further the dual goals of education and research related to social innovation and entrepreneurship.

**Mission:**

To build an environment that will facilitate the creation of social enterprise knowledge through research, and empower young entrepreneurs to develop solutions for greater social impact through academia by:

- *Catalyzing innovation* – encouraging young innovators and entrepreneurs by assisting in the development of socially-beneficial products and ideas.
- *Research* – providing an enabling environment for both student and faculty researchers interested in social enterprise research within the IIT campus.
- *Education* – Offering academic programs on social innovation and entrepreneurship for students across disciplines and degrees at IIT Madras.
- *Collaboration* – creating an ecosystem that extends to other IITs and other related technological institutes by involving IIT/Pan IIT alumni in the development and fundraising of our center.

CSIE seeks to distinguish itself from other work being done (e.g., at MIT Deshpande Center, Stanford CSI, IIT Delhi FITT, Skoll Center at Oxford) in the following ways:

- In its focus on delivering social enterprise knowledge to students of science, with the aim of developing their ability to develop and deliver technology solutions.
- In its focus on academic research that will seek to address problems exclusively in the Indian context.

**Status:****1. Funding transferred to Project account:**

The first-year installment of Rs. 22.3 lakhs has been credited to the project a/c as of Nov 11, 2010. This supplements an initial seed-funding of Rs. 5.1 lakhs received from The Lemelson Foundation (Portland, USA) on April 1, 2010.

**2. Minor course in Innovation and Social Entrepreneurship Started:**

This course is currently offered to undergraduate engineering students, as well as MBA students and practitioners; the maximum number of enrollments allowed is 30, and the Minor is fully subscribed. The minor is a 10 credit minor program spread over four courses. The objective of the minor program is:

- a. Enable participants to understand what social enterprise is and analyze different models of social enterprises
- b. Develop participants' primary research and writing skills, through creating case studies of social enterprises
- c. Begin to develop a body of case studies on social enterprises in India that can be used in subsequent iterations of the minor, through the participants' assignments
- d. Enable participants to experience the worlds of an innovator and social entrepreneur, through creating their own product or service and business plan

The individual courses include:

- a. An Introduction to Social Enterprises in India
- b. Product Design and Business Models
- c. Innovation and Social Entrepreneurship (Laboratory based—at Center for Innovation, CFI)
- d. Innovation and Social Entrepreneurship (Rural Field study)

Other academic initiatives under development and implementation:

- M.S. and Ph.D. programs in SIE
  - CFI-lab training and field-training & fellowships related to SIE
  - Conferences and workshops with allied
- 3.** A canvas of potential research areas is being drawn up by Villgro Innovations Foundation, Chennai (located in IIT Madras Research Park). Villgro will be working closely with CSIE to establish the research initiative. External sponsorship (from Government, corporate and Foundations) of research projects will also be pursued. Some of the research areas proposed are:
- Research on funding and financial models
  - Building a social enterprise's organization structure
  - Legal and regulatory issues surrounding social enterprise

**4. Governance structure established:**

An oversight committee consisting of representatives from sponsors (The Lemelson Foundation, '84 batch), IIT Madras faculty and partnering agency (Villgro) has been formed, and biweekly meetings are being held.

**5. Staffing:** A full-time Project Consultant has been hired (Nishant Goyal), with the following job description:

- Responsible for the overall running of the Center for Social Innovation and Entrepreneurship
- Responsibilities include:
  - Coordinating faculty and student research projects
  - Issuing call for papers, for research topics
  - Evaluating submitted proposals
  - Coordinate research activities with guidance of the Steering Committee
  - Coordinating activities under the Social Entrepreneurship Minor stream
  - Engaging with external partners to establish research and training partnerships
  - Tracking project funding, and reporting on project activities

## 6.3 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 in this institute. A key attribute of this Centre is the blend of an academic environment and an industry-like working atmosphere.

The Centre is housed in dust-free environment. CEC has a team of qualified, experienced and talented staff members, trained in India and Germany in various fields of electronic instrumentation, testing and calibration. The infrastructural facilities and equipment have been continually enhanced over the years by GOI funds and successive Indo-German collaborative Projects.

While establishing this Centre, in 1971, the critical need for training service engineers for maintaining the electronic equipment was foreseen and an 18 month training program, the first of its kind, in the country was started in the same year. In view of large demand for these trained personnel both within the Institute as well as outside, conducting such long term training programs 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 programs for manpower development
- Calibration of electronic test & measuring instruments
- Testing of electronic products
- Development of custom-built equipment
- Consultancy services to industries in the above mentioned areas.

So far, CEC has provided expertise and services in the above areas to more than 230 industries/ organizations inside and outside the country.

In the area of Renewable Energy, CEC has been playing a key role by conducting several training programs in the area of Solar Photo Voltaics (SPV). Forty SPV training programs have been conducted and more than 860 personnel have been trained. The project was sponsored by IREDA (Indian Renewable Energy Development Agency), New Delhi. SPV Laboratory (indoor and outdoor) facilities have been established to promote the developmental activities in this area. CEC is active in diverse projects involving SPV technology.

As a part of customized training programs, four special 12-week training programs have been organized for the Radio Officers of Merchant Navy to become Electro-Technical Officers. The project was sponsored by AMET (Academy of Maritime Education and Training), Chennai.

As the Centre had expanded its activities, most of the laboratories have been upgraded. In 2001, CEC received ISO 9001:2000 Quality Certification from RWTÜV, Germany, for having established the 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. In CEC both ISO and NABL accreditation are actively maintained through adherence to the specified processes and procedures.

### 6.3.2 Activities:

#### 1. CEC Two-year Technician Training Program:

Preparations are ongoing for the admission of XXVI Batch of Training Program (2 years duration). The total numbers of candidates to be admitted is twelve. The previous batch comprises of seven trainees.

#### 2. Workshop Sessions for B.Tech Students:

Electronics Workshop/ Laboratory Sessions for B.Tech I Year (part of WS1010) were conducted during both odd and even semesters of 2010-2011. Laboratory Sessions on 'Mechatronics Systems Design Laboratory Course' (ED5080) for B.Tech Dual Degree Students of the Department of Engineering Design was conducted during January – April 2011.

### 3. Some of the Important Consultancy Projects completed in 2010-11:

S.No.	Co-ordinator	Title of Project	Organisation	No of Assign.	Project value Rs. in Lakhs
1.	Dr.M.Kumaravel	Linear Encoder	Design Desk India Pvt.Ltd.	4	0.18
2.	Dr.M.Kumaravel	Pole Reversal Unit	ICF	1	0.36
3.	Dr.M.Kumaravel	Kit Vehicle Tracking System	eLogistics p Ltd	1	0.27
4.	Dr.M.Kumaravel	Oscilloscope	Phoenix Medical System (p) Ltd	1	0.12
5.	Dr.M.Kumaravel	Oily Water Separator, Speed Watch Relay and Gas Analyser	Dhanalakshmi Electricals & Electronics	5	0.325
6.	Dr.M.Kumaravel	Oscilloscope	Easun- MR Tap Changers (p) Ltd	1	0.165
7.	Dr.M.Kumaravel	Function Generator	Elmack Engineering Services	5	0.46
8.	Dr.M.Kumaravel	Testing of UPS	Amara Raja Electronics Ltd	2	0.22
9.	Dr.M.Kumaravel	Tracker mounted PV array	Sun flower Solutions	1	0.88
10.	Prof.R.David Koilpillai	Wear Sensor	Madras Engineering Industries Pvt Ltd	1	1.00
11.	Prof.R.David Koilpillai	Desktop Note Sorting Machine	INFRES Methox Ltd, New Delhi	1	0.25
12.	Prof.R.David Koilpillai	Note Sorting Machine	Indian Bank	1	0.25

**Total CEC Consultancy Projects: 38**

**Total Values: Rs 5.6 Lakhs**

### 4. Conference Presentations:

- Dr.M.Kumaravel attended the International Conference ISDC 2010 on Space Solar Power Systems organized by NSS, USA in Chicago from May 27-31, 2010 and gave presentation on "PV Powered Seawater Desalination plants: Space Solar Power Perspective".
- Mr.C.R.Jeevandoss presented a paper on "A Novel Method for the Measurement of the C-V Characteristic of a Solar Photo Voltaic Cell" by C.R.Jeevandoss, Dr.M.Kumaravel, V.Jagadesh kumar at 2010 IEEE International Instrumentation and Measurement Technology Conference, held in Austin, TX, from May 3-6, 2010.
- Dr. M.Kumaravel attended Solarcon 2010 Conference on July 29, 2010 in Hyderabad. He chaired a session on PV Balance Of Systems and also gave an invited talk on 'PV BOS Reliability Aspects and PV Standards
- G.Amutha and S.Veeraraghavan attended the Conference on "Recent Trends and Technologies in Advanced LED Lighting Systems" by organized by CPRI Bangalore on Dec 13-14, 2010 and presented a paper "Design, Development, Performance Evaluation and Test results of LED Lighting Systems at IIT Madras" by Dr.M.Kumaravel, G.Amutha and S.Veeraraghavan.

### 5. Professional Activities

- C.R.Jeevandoss has been selected as Member for the Technical committee by NABL to revise NABL105 "Specific Criteria for Electronic Testing Laboratories".



## **6. Training Programs attended by CEC Staff**

- V.Neelamani, K.K.Muthuswamy and P.Sadasivam attended the Labview and Basic DAQ organized by Dept of Electrical Engineering on Dec15-17, 2010.
- G.Saravanan attended the Workshop on "Calibration of Pressure, Temperature and Flow measuring Instruments" conducted by IDEMI, Mumbai from Dec 14-17, 2010
- Fire Fighting Training including mock drill exercise was conducted on Jun17, 2010. Thirty three participants attended the program

## **7. Development Works completed:**

Development of Solar Photo Voltaic (SPV) Powered white LED Lighting Systems for Sittiling, a tribal village in Dharmapuri District. The project was funded by RUTAG.

## **8. Ongoing Development Activities:**

- (i) Evaluation of "Sollektor" (Indoor Lighting Systems by guiding of natural sunlight through polymer optical fibres) developed by George Simon Ohm University, Nürnberg, Germany.
- (ii) Solar Photo Voltaic powered Seawater Desalination ('Suryajal') Systems in standalone as well as hybrid versions jointly with EE and CH Depts.
- (iii) Solar Photo Voltaic Powered Fans and Air Coolers at IIT Madras

## **9. Other Activities:**

- Preventive Maintenance of all UPS units installed in the Institute has been taken up in coordination with the UPS Suppliers.
- Testing of UPS from new vendors for entering into Rate Contract.

## **10. Staff Strength:**

The Centre has 10 Technical and 2 Administrative staff.

## 6.4 COMPUTER CENTRE

### 6.4.1 Introduction:

The Computer Centre was established in 1973 to provide Central Computing resources, facility and support to the research initiatives of the Institute. Be it IBM 370 in the 70s, Siemens system in the 80s, SGI and sun system in the earlier part of this millennium the computer centre at IIT Madras has maintained a reputation of a professionally managed centre with the state of the art facilities. In keeping with the trend, the High Performance Computing Environment (HPCE), the back bone net work, data centre and the workflow environment are being upgraded continually to cater to the ever-increasing demand on the resources of Computer Centre at IIT Madras.

### High Performance Computing Environment:

Aerospace engineering, Atmospheric and Ocean Modeling, Design of large structures, Flows and Combustion, Material Science and Engineering, Modeling social, Ecological and Physical Networks, Molecular Modeling, Spectroscopy and VLSI are some of the active research areas in IIT Madras, where such large scale computing will be used.

The Vega Super cluster has compute nodes based on HP Proliant DL160 G5 servers with Quad-core Intel Xeon processors. This Cluster consists of 256 nodes of which 128 nodes are in infiniband (IB) and the rest 128 nodes are in gigabit (GB) with one head node in each. Each compute node consists of Dual Processor, Quad-core, Intel E5472 processor, 16 GB RAM and 250 GB SATA Hard disk. The HP Proliant Rack server DL160 based Cluster options are built with:

- Seven HP 10642 G2 Racks hosting 2048 core Compute Server with HP's XC cluster software and PBS-Pro for batch processing.
- One separate rack for Infiniband Switch option
- One separate rack for NAS with a configured storage of 30TB and Tape Library containing 48 tapes for automatic backup.
- Three separate racks for HP SFS parallel file system with RAID-5, having a licensed storage of 80TB bundled.
- SFS is shared by both the clusters.

Information about HPCE, usage of clusters etc. is available in the website <http://hpce.iitm.ac.in> .

The following application soft ware are available to the users on these clusters :

Abaqus 6.10 EF1, Ansys CFX Ver 13.0, Fluent 13, Gambit 2.46, Mathematica 5.2, Matlab 2010, Gromacs, Namrd and Star CD 5.0.

COMPILERS: IntelC, C++ and Fortran

### 6.4.2 Libraries:

Intel Cluster Open MPI for Intel Compilers for Linux, Intel MPI Lib. 3.1, Intel Math Kernel Lib. 10.0, GSL and GSLCBCLAS Lib., and IT++ 4.0.6.

The HPCE group is under the guidance of Prof. P B Sunil Kumar, Member, Computer Committee.

### 6.4.3 Networking:

The Campus Network was established in 1994 connecting about 18 buildings in the academic zone using telephone cables to interconnect local area network in the buildings. A high speed campus network was established connecting all the buildings in the academic zone on Fibre Backbone and ATM 622 Mbps communication technology. The campus network has a 10Gbps backbone interconnecting the three zones, Academic, Hostel and Residential. Number of nodes in the campus is more than 6000. The network equipments in the academic zone are upgraded to provide 1 Gbps and 10/100 Mbps connectivity to the nodes. All the buildings in the academic zone were provided with dual fibre connectivity. The Internet bandwidth started with 64Kbps in 1996 is 45Mbps to-day.

In view of the proliferation of the use of desktop PC's, the Centre runs a PC Maintenance cell to provide services to handle hardware problems and maintenance of PCs and peripheral devices in the institute, including those used in projects.

The networking is generally monitored by Dr. Devendra Jalihal, Member, Computer Committee.

**Workflow:**

The on-going administrative computerization efforts through computer centre include the following services:

- Administration
- Finance & Accounts
- Hospital
- Engineering Unit
- Hostels
- Stores & Purchase
- Academic Section

These services are undertaken by the work flow group headed by Prof. Koshy Varghese, Member of Computer Committee.

**Website:**

The information updates from various sections of the institute are carried out periodically by the website group, headed by Dr. K. Srinivasan, member of the Computer Committee.

**PC Cell:**

The Academic zone personal computers and peripherals are repaired at PC Cell on call basis. PC's are repaired either at the customer's site or at the PC cell of the computer centre depending on the nature of complaint.

**Data Centre:**

The Chairman of the Computer Committee, Dr. B V SSS Prasad, takes care of the Data centre activities and general administrative work related to the computer centre.

Mr. P Y Sreekumar, has resigned and has been relieved of his responsibilities with effect from 4.2.2011

**Details of Staff****Major Area Specialization****Title/Name and Qualification****Senior Systems Engineer**

Dr. S. Jayaprakash  
Ramesh S.K., M.S.

Software Engineering, Computer Networks, e-Governance

System Administration, MIS, Data Management, Data Processing, System Programming

**Systems Officer Gr.I**

Sourirajan C.S., M.Sc.

System Administration, Programming Languages, Application Software Development, Data centre activities.

**Assistant System Engineer**

Baman Banavath B.Tech (CS)

System Analysis & Design, AIX A, Windows NT server Administration, INTERNET, Database Management System, Power builder, Visual Basic GUI Applications

Venkatesan C.S., B.E.(CS), M.Tech.(IT)(MBA),  
M.Tech (C level), MBA

Software Engineering, Operating Systems (Unix, Windows, Sun, IBM), Database management systems, Programming Languages (C,C++, Cobol), Computer Networking, System administration, HRD Management.

**Technical Officers (Systems) Gr.I**

Ravichandran V., M.Sc.

Application Programming, Database Management systems, Systems Programming, System Administration

Vijayaragavan C.N., M.Sc., & M.Tech.  
in Ind. Maths

Computer Network and Data Centre Operations, Operating Systems, System Administration

D. Hariharan  
Senior Superintendent

Antivirus Maintenance and Supervising, and Software  
Library Maintenance

**Technical Superintendents:**

Selvaraju V., B.E. (ECE)

PC hardware and software maintenance,  
trouble shooting. System development  
and BIOS programming using Microcontroller and  
Microprocessor based Training; PC Cell Trainees in  
Hardware and OS (Windows 9X/NT/XP/2000 and Linux), In-  
charge, Residential Zone, Campus Networking.

Venkata Subba Rao T., B.Tech. (CS)

Maintenance, Troubleshooting and Repair of SMPS, Mother  
boards, Printer, Monitors and other peripheral devices,  
Installation, Administration and Maintenance of Windows 9X,  
NT, XP, 2000, Linux, Novel Netware operating systems.  
Training of PC Maintenance Cell Project Technicians on  
repairing personal computers and peripherals.

Anandkumar S., B.E. (ECE)

Computer Networks, Operating systems, Server and PC  
Hardware, Email service,  
System Administration.

**Project Associates/Project Technicians**

There are ten Project Associates and 10 Project Technicians in the Computer Centre to support the Centre operations.

**DST Project**

Dr. S. Jayaprakash is involved in DST Project.

Title	:	Development of Gigabit capable Passive optical Network (G-PoN) technology and its performance analysis under a new DBA algorithm
Coordinator/ Dept	:	Dr. Manivasakan, EE Dr. Harishankar Ramachandran, EE Dr. S. Jayaprakash, CC
Sponsoring Agency	:	DST
Value (Rs. in lakhs)	:	18.79
Duration	:	2 years

**Accomplishments:**

**GATE and JMET Examinations; M.Tech.and M.Sc.admissions 2010-2011**

Mr. S.K. Ramesh and Mr V Ravichandran assisted in the successful conduct of the GATE 2010 and JAM 2010 examinations along with the process of admissions to M.Tech and M.Sc.

**JEE 2010-2011 Data Processing**

Mr. C.S. Sourirajan and S. Anandkumar involved in the successful conduct of the JEE 2010 related computer operations that included Applications query on Web/IVR, Data Processing, and results publishing in Web/IVR.

Mr.S. Anandkumar is involved in developing website for CEC for online lab notes and assignments for B.Tech students.

Mr. C S Venkatasean is involved in the maintenance of CEC web site management

**Antivirus**

Server-based McAfee software has been installed in a server at the Computer Centre that provides automatic updating. Installation in individual machines is provided through a website at Computer Centre. Help is provided to the users who face difficulties in activating or updating this from time to time. Clean-ups/reinstallation are carried out.

**Other Activities:**

- Computer Centre organized a Workshop on “PBS Pro” on 12/03/2011.
- Computer Centre organized a Workshop on “Intel Compilers” on 12.1.2011.
- Computer Centre organized a workshop on “An overview of Mathematica for Education and research” on 23/09/2010.
- Computer Centre organized a workshop on Mathcad software on Thursday, 26th August 2010
- Computer Centre organized a Workshop on Matlab on Wed, 21st and Thursday, 22nd April 2010.

**Publication**

1. V G Renumol, D. Jankiram and S. Jayaprakash, “Identification of Cognitive Processes of Effective and Ineffective Students during Computer Programming” ACM Transaction on Computing Education (to be published)

**Memberships of Committees**

- Dr. S. Jayaprakash was invited to serve as a Member of Executive Committee of Ramanujan Computing Centre, Anna University, Chennai
- Dr. S. Jayaprakash was invited to serve as a Steering Committee Member ‘e-Governance”, University of Madras
- Dr. S. Jayaprakash was invited to serve as a Member Technical Committee, Tamilnadu State Data Centre, ELCOT.
- Dr. S. Jayaprakash was invited to serve as Member of Doctoral Committee for about 10 Ph.D students, Dept. of Computer Science & Engineering, Anna University, Chennai
- Mr. C.S. Venkatesan, Asst. Systems Engineer was enrolled as a Life Member in ISTE from 2004.
- V Ravichandran is an external expert committee member for Pondichery University for their cluster facility.

**Institute Projects:**

S. No	Title	Coordinators / Staff
1.	Campus Network	Dr. S. Jayaprakash, Mr. P.Y. Sreekumar Mr. C.N. Vijayaragavan, Mr. V. Selvaraju Mr. S. Anandkumar
2.	JEE Data Processing	Mr. C.S. Sourirajan, Mr. S. Anandkumar
3.	GATE Data Processing	Mr. S.K. Ramesh, Mr. V.Ravichandran
4.	M. Tech Admission	Mr. S.K. Ramesh
5.	Academic Processing	Mr. P.Y. Sreekumar
6.	Institute Workflow (New)	Mr.C.S. Sourirajan, Mr.V.Ravichandran
7.	Teachers Evaluation	Mr. C.S. Sourirajan
8.	Anti-virus facility	Dr. S. Jayaprakash, Mr. D. Hariharan
9.	Institute payroll	Mr. S.K. Ramesh
10.	High Performance Computing Environment	Mr. V Ravichandran



## 7. CENTRAL FACILITIES

### 7.1 Central Workshop Facilities:

Central Workshop was established in the year 1959. Initially it consisted of shops associated with three major production processes, i.e. metal cutting, metal joining and metal forming. Later on, sections of other modern production processes and control systems were introduced in workshop training.

Presently Central Workshop of our Institute is having the facilities in different shops and sections. The list shops and section with their activities are given below.

S.No	Shops	Facilities
1	Carpentry	Wood working with Planning, crosscutting, turning, thickness reduction, polishing processes and power operated hand tools.
2	Fitting & Tool Room	Filing, drilling, tapping, jig boring, tool milling, engraving, marking, slotting, grinding, cutting and power tools
3	Machine Shop	Shaping, milling, turning, planing, radial drilling and tool and cutter grinding
4	Gear Shop	Spur, helical & bevel gear cutting Gear inspection
5	Electrical Shop	Trainers for electrical circuit, DOL and star-delta starter trainers
6	Instrument Shop	Calibration of Pressure gauges upto 1000 bar. NC trainer lathes, milling machines
7	Welding Shop	Arc welding, gas welding, brazing, and Plasma Arc cutting.
8	Foundry Shop	Moulding work stations, Oil fired furnace and sand mixing plant
9	Smithy Shop	Hand forging, power hammer, heat treatment
<b>Sections</b>		
10	Pneumatics and Hydraulics	<ol style="list-style-type: none"> <li>1. Basic Pneumatic trainers</li> <li>2. Electro Pneumatic trainers</li> <li>3. PLC for Pneumatics trainers</li> <li>4. Basic Hydraulic trainer</li> </ol>
11	FRP	Manufacturing polymer composites by hand lay-up process
12	Plastics	Introduction to plastics, Demonstration and production in hand operated, semi automatic injection and compression moulding of plastics
13	Instrumentation & Communication Lab	<p>Introduction to basic communication systems. Exercises on optical fiber communication.</p> <p>Introduction to various kinds of transducers.</p> <p>Microprocessor based control applications, Example of stepper motor control and traffic light controller and PLC</p>
14.	Quality control lab	<p>Measurements, metrology Terminologies, Measuring instruments properties, Calibration Standards,</p> <p>Traceability and Errors in Measurements</p>

## ISO 9001/2000 recertified in August 2008

In addition to above, Central Workshop is maintaining institute vehicles (Light & Heavy). During the year 2010-11, Central Workshop trained 837 undergraduate students (1<sup>st</sup> year B.Tech) of course code WS1010 (4 credit), WS1020 (2 credit) and WS 1030 (CREDIT) course exclusively for the students of Engineering Design department during 1<sup>st</sup> semester). The details of the training modules are given below.

Department	No. of students	Training received in
Electrical Engineering	124	
Engineering Physics	23	
Mechanical Engineering	152	
Metallurgical & Materials Engineering	54	
Aerospace Engineering	57	
Chemical Engineering	96	
Naval Architecture & Ocean Engineering	55	
Civil Engineering	92	
Bio- Technology	58	
Computer Science	62	
Physics ( Dual degree)	7	
Engineering Design	57	
<b>Total</b>	<b>837</b>	

Central Workshop executes fabrication of test set-ups and their accessories related to PhD, PG and UG Projects. 563 work orders were executed during the year 2010-2011. Besides the above, Central workshop also bears the responsibility of maintaining the vehicle belonging to the Institute. Eight new Ashok Leyland LYNX buses have been inducted into service. These buses have a seating capacity of 31 seats. The battery operated vehicle which were in use earlier were withdrawn from the service for its inadequate capacity to meet the larger students population.

### 7.2 Central Gas Supply Unit

***The CGSU procure Industrial Gases and Special Gases from various manufacturers/suppliers and issues to various Dept/Labs and sections of the Institute for research and practical classes.***

### 7.3 Central Glass Blowing Section:

The Central Glass Blowing Section is one of the important infrastructures facilities of the Institute since 1972. Being a central facility these sections undertake design and fabrication of sophisticated glass apparatus for research and development in various departments.

This section has a range of modern glass working equipments largely procured from Germany as a component of the collaborative program and these include; horizontal cum vertical lathe, universal lathe forming lathe and high vacuum system. The section is also well equipped with a good number of sophisticated burners, drilling and cutting machine, grinding and polishing equipments and such other tools necessary for fashioning out a variety of glass apparatus. The section has adequate facility for quartz working and has developed high level of expertise in this area.

Following are some of the sophisticated apparatus fabricated:

Cryostat, spherical and cylindrical Dewar flasks, lugging probe, laser housing tube with water jacket, reactor tube, vacuum tube collector for solar energy and quartz wares.

During April 2010 to March 2011 the section undertook 259 work orders from various departments.



## 8. CENTRAL LIBRARY

The Central Library is well equipped with all modern facilities and rich information resources in the forms of CD-ROMs, on-line databases, e-journals, e-books, e-standards, e-patents and various other printed information materials on Applied Science, Engineering, Technology, Humanities, Management, Social Science and other new emerging areas. The Central Library holds 4,49,364 collections, 1039 current journals, catering to the information needs of 8046 members through providing various value added services with the help of modern information handling tools and techniques. The major activities added in the Central Library during April 2010 – March 2011 are given below:

### 8.1 Library Information Services Statistics:

Item	2009-2010	2010-2011
<b>A. Collections</b>		
Books	2,42,720	2,47,590
Ph./D Theses	4,457	4,567
Pamphlets and Reports	4,123	4,123
Microfilms/Fische	1,842	1,842
Book-Bank	15,639	15,803
Current Periodicals by Subscription	1,297	952
Current Periodicals by Exchange/Gift	87	87
Back Volumes of Periodicals	1,05,677	1,07,818
Patents & Specifications	20,261	20,418
German Collection	44,280	44,280
CD-ROMs	1,344	1,436
Audio/Video Cassettes	448	448
<b>Total</b>	<b>4,31,785</b>	<b>4,49,364</b>
<b>B. Membership</b>		
Staff	779	790
Faculty Members	477	513
Students	5,232	5,848
Alumni Members	341	347
Corporate Members	200	202
Special Members	89	94
IAS Members	289	182
Project Co-ordinators	68	70
<b>Total</b>	<b>7,466</b>	<b>8,046</b>
<b>C. Services: Circulation</b>		
1. Number of Books/Journals issued	1,56,102	93,993
2. Number of Books issued Book Bank (GS)	3583	1783
3. Number of Books issued Book Bank (WS)	3872	1631
4. Consultation Cards issued to users	45	01
5. Overdue & other Charges collected	Rs.9,41,938.00	Rs.4,07,635.50
6. Photocopy Charges collected	Rs. 78,366-10	Rs.40,261.40
<b>D. Permanent Loan to Depts/Centres</b>		
1. Books Issued	1,182	1,217
<b>E. Inter Library Loan Transactions</b>		
1. Borrowed from other Libraries	70	08
2. Loaned to other Libraries	57	09
<b>F. Reprint Service</b>		
1. Reprints received from other Institutions	556 p	181p
2. Reprints supplied to other institutions	1742 p	2334p
	2523	2995
<b>G. Smart Cards Generated/issued</b>		
<b>H. Expenditure on</b>		
1. Purchase of Books	90.10 lakhs	91.17 lakhs
2. Subscription of Journals	756.62 lakhs	817.57 lakhs
<b>I. New Journals/Databases Added</b>		
	119	06

## **8.2 ISO 9001:2008 Activities:**

The Central Library actively participated in ISO-9001: 2008 activities and also maintained the quality based library system, services and procedures. Major activities related to ISO-9001: 2008 are listed below:

1. ISO Internal Quality Audit was conducted on 10-11-2010
2. Detailed presentation was made to Management Review Meeting on 02.7.2010
3. ISO Surveillance Audit (Recertification (TUV NORD) was conducted on 08-07-2010
4. Project loan form was redesigned and uploaded in the library website as the part of continuous improvement
5. The students smart cards were redesigned and issued to all the students
6. Review Meetings: The Central Library has taken initiative to conduct periodical review meeting of the library staff comprising Chairman LAC, Librarian, Deputy Librarian, Assistant Librarians and Section In-charges for effective functioning of the Central Library. For this purpose 06 meetings were conducted on 26.4.2010, 31.5.2010, 13.7.2010, 20.9.2010, 29.10.2010 and 24.03.2011 during April 2010 to March 2011

## **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 programs and policy of the Institute. In this regard, some of the selected initiatives are listed below:

### **8.3.1 Introduction of Token System:**

For operating 170 newly created pigeon holes for "User property deposition" with effect from April 4, 2010.

### **8.3.2 Equipments Added:**

The following equipments have been added during April 2010 to march 2011

- a. Two Photocopiers machine from M/s. Kilburn Office Automation Ltd, Chennai and installed at Level –IV & Library Office on 26-08-2010.
- b. Three Laser Jet printers and installed in Book Acquisition, Technical Processing and Journals Information Sections 06-09-2010.
- c. One Smart Card Printer and 2000 Smart Cards on 11<sup>th</sup> Jan 2011
- d. Two 30 KVA Numeric Digital HP Series UPS for use in Digital Knowledge Centre.
- e. 100 computers procured for the use in Digital Knowledge Centre

### **8.3.3 INDEST -AICTE Consortium Workshop and 8<sup>th</sup> Annual meet:**

INDEST-AICTE Consortium Workshop and 8<sup>th</sup> Annual meet was organized by the Central Library, during Feb 18-20, 2011.

- Chief Guest Inauguration : Prof. V.G. Idichandy, Deputy Director
- Chief Guest Valedictory : Prof. Job Kurian, Dean, IC&SR
- Participants attended : 190
- Industrial Presentations : 09
- Invited Talks : 16
- Technical Sessions : 03

### **8.3.4 Review of Discount and Exchange Rate:**

The Library Advisory Committee in its 127<sup>th</sup> meeting held on 23.11.2010 discussed the book discount offered by the vendors as well as exchange rate. It was decided to enhance the existing discount of 20% to 25% uniform discount and also to follow the bank exchange rate instead of GOC rate with effect from April 1, 2011. Accordingly, the list of new vendors was prepared and sent to all Heads of Departments, members of Library Advisory Committee and also uploaded in the library website.

### **8.3.5 User Training Program:**

The Central Library has initiated to conduct the user training programme with the objective to create user awareness among the faculty and students. In this direction,

1. Training Program on ISI Emerging Market Database was conducted on 12.11.2010 by Mr. Vishsheshwar Mensumance, Accounts Manager, Internet Data Services (I) Pvt. Ltd., Bangalore
2. User Training Programme on "SCOPUS database" was conducted on 14.10.2010 by Mr.RVG Pradeep Khumar, Area Manager, South India & Sri Lanka, SWETS, Bangalore.

### **8.3.6 On-line Access to E-Journals**

On-line access to the following 6 databases/packages has been added based on the recommendations of the faculty.

1. One petro database 2. Journal Citations Report (JCR) 3. Thomson Core Patents 4. Taylor & Francis package 5. Indian Economy Database 6. Science (online subscription) besides a large number of e-journals from various publishers including the major publishers like American Chemical Society, AIAA, American Mathematical Society, Blackwell, John Wiley, Oxford University Press, Royal Society of Chemistry, SAGE, SIAM, Taylor and Francis, Thomas Telford, JSTOR, have been subscribed.

### **8.3.7 Extended Working Hours on Saturday & Sundays**

The Central Library has extended the working hours up to 12.00 midnight during Quiz/End Semester and Make-up Exams on Saturdays & Sundays for the benefit of students.

### **8.3.8 Systematic Re-shelving of Books**

To facilitate easy retrieval of books for the benefits of our students and faculty, two Groups consisting of 22 members have been formed who devotes one hour daily in the morning/afternoon in stack areas. The first phase of the re-shelving of books has been completed and the second phase is in progress. This initiative has generated considerable satisfaction among users.

## **8.4 Binding Facilities**

In order to accelerate the process of binding and to facilitate "Quick repair" of books and journal back volumes, the Central Library installed "Automatic Binding Machine" with the facility to bind the books in few seconds using strong glue. During the period April 2010 to March 2011, 9614 books/Journals have been bound and repaired. This has resulted in economical, faster binding/repair operations resulting in great satisfaction among users.

## **8.5 Retirement of Staff:**

1. Smt. Lalitha Rajendran, Senior Library Information Officer retired from service on 31.5.2010.
2. Mr. C. David Vincent, Jr.Superintendent retired from service on 31.01.2011.

## **8.6 Library automation**

1. The data 2030 patrons records (students, faculty, staff, Alumni, IAS members) have been added in the Virtua VTLS database
2. The automatic back up of VTLS database has been set up by the Computer Centre and daily manual back up is done in the Central Library
3. The Virtua-VTLS software upgraded from version 49.5 to 2009.4.1
4. The email addresses of all IAS members, faculty and students were updated
5. The sub category for Project Loan books created in VTLS database and issued to the project coordinators initially for three years

## **8.7 Professional Development Lecture Series**

In view of upgrading and updating the level of information and knowledge of library staff, it has been decided to arrange series of lectures every month by experts on various topics. So far, we have arranged lectures as given below:

Sl.No	Name of the Speaker	Topic	Date
1.	Dr. N. Sreekumar, Asst. Professor Dept. of Humanities and Social Sciences, IIT Madras	Professionalism: Issues & Concerns	26-04-2010
2	Dr. V. Kasirao, Documentation Officer (EII) & Head Documentation Division Central Leather Research Institute Chennai	Application of Scientometrics in R&D Sector	19-05-2010
3	Dr. S. Muralidharan, Scientist E, CVRDE, Avadi Chennai	Institutional Repository with Reference to Special Libraries	28-06-2010
4	Dr. R. Ravichandran, Senior Librarian, NITTTTR, Taramani Chennai	Library Management in Digital Environment	20-09-2010
5	Dr. R.K. Barman, Professor and Head Dept. of Library & Information Science Gauhati University, Guwahati	IT Application in Librarianship	14-10-2010
6	Dr. K. Nithyanandam, Librarian, (Former University Librarian & Director, Anna University Chennai) Vels Srinivasa College of Engg & Tech. Thalambur, Chennai	E-Resources for Academic Excellence	30-11-2010
7	Mr. John Paul Anbu, Head, Periodicals, University of Suraziland, South Africa	Beyond Web 2.0	20-12-2010
8	Prof. Shreesh chaudhary, Dept. of Humanities & Social Sciences, IIT Madras	Technical Communication	19-01-2011
9	Prof. V. Pulla Reddy, Dept. of Library & Information Science, Sri Venkateswara University, Tirupati	Job Satisfaction among Library Staff	31-01-2011
10	Prof.(Retd.) Sewa Singh, Dept. of Library & Information Science, Guru Nanak Dev University, Amristar	Changing Concept of LIS	08-02-2011
11	Dr. Shailendra Kumar Associate Professor, Dept. of Library & Information Science, University of Delhi	Designing of e-Book	22-02-2011
12	Dr. D. Chandran Prof & Chairman, BOS (Combined) Dept. of Library & Information Science, Sri Venkateswara University, Tirupati	Modern trends in information retrieval	02-03-2011

### 8.8 Faculty and their Activities

Name	Qualifications	Major Area of Specialization
Harish Chandra Librarian	M.A., M.L.I.Sc., Ph.D.	Rural Information System, ISO application in Libraries, Digital Libraries. Website Design & Maintenance, Industries Information Service
Mahendra N. Jadhav Deputy Librarian	M.Sc., M.L.I.Sc., M.Phil.	Library Automation, Digital Libraries, Open Source Software, Library Portal etc.
C.R.Sekar Assistant Librarian	B.A., M.L.I.Sc.	SDI Service, CAS, Bibliographic Compilation.
P. Natarajan Assistant Librarian	M.A., M.L.I.Sc.	Resource Sharing, Document Delivery, Inter Library Loan.

**8.9 Short term Courses / Workshops / Seminars / Symposia / Conferences / Training/ Meeting attended by faculty/Staff in recognized Academic Institutions:**

SI.No	Name of the staff	Title	Institution	Period
1.	Dr. Harish Chandra, Librarian	External Expert in the Assessment Committee meeting	DRDO, New Delhi	30-04-2010
2.	Dr. Harish Chandra, Librarian	Selection Committee Meeting	Thiyagaraja College of Engineering, Madurai	08-05-2010
3.	Dr. Harish Chandra, Librarian	Selection Committee Meeting in the Post of Librarian	<a href="#">Dr. Baba Saheb Bhim Rao Ambedkar University</a> , Lucknow	13-05-2010 and 14.05.2010.
4.	Mr. Mahendra N. Jadhav, Dy. Librarian	E-Content 2010 National Seminar Series on Library – Publisher Partnership	Informatics India Pvt. Ltd. Chennai	02-08-2010
5.	K. Sethu (LIO)	E-Content 2010 National Seminar Series on Library – Publisher Partnership	Informatics India Pvt. Ltd. Chennai	02-08-2010
6.	Dr. Harish Chandra, Librarian	LAC Meeting as an External Member	B.S. Abdur Rahman University, Chennai	18-10-2010
7.	Dr. Harish Chandra, Librarian	Meeting to scrutinize the applications for the post of Librarian	University of Madras	21-12-2010
8.	Mr. K. Kamaraj (SLIO)	<sup>nd</sup> 2 ETTLIS-2010 International Conference	Shimla	3-5 June 2010
9.	Mr. M. Ramani (SLIA)	<sup>nd</sup> 2 ETTLIS-2010 International Conference	Shimla	3-5 June 2010
10.	Mr. Mahendra N. Jadhav, Dy. Librarian	Fire fighting “Mock Drill”	CEC, IIT Madras	17 <sup>th</sup> June 2010
11.	Mr. K. Kamaraj (SLIO)	Fire fighting “Mock Drill”	CEC, IIT Madras	17 <sup>th</sup> June 2010
12.	M. K. Sethu (LIO)	Fire fighting “Mock Drill”	CEC, IIT Madras	17 <sup>th</sup> June 2010
13.	Mr. P. Natarajan (Asst. Librarian)	<sup>th</sup> 13 NACLIN Conference 2010	GOA	<sup>th</sup> 15-18 June 2010
14.	Mr. G. Kumar (LIO)	<sup>th</sup> 13 NACLIN Conference 2010	GOA	<sup>th</sup> 15-18 June 2010
15.	Mr. Mahendra N. Jadhav, Dy. Librarian	Conducted Hindi Training Workshops for TOLIC (town official Language implementation committee)	IIT Madras	01-07-2010
16.	Mr. Mahendra N. Jadhav, Dy. Librarian	Selection Committee Meeting for the post of Librarian	Meenakshi College, Chennai	3 <sup>rd</sup> July 2010
17.	Mr. K. Saravanan, SLIA	National Workshop on FLOSS based Library Automation Software-KOHA	Birla Institute of Management Technology, Greater Noida	Sep 17-19, 2010
18.	Mr. S. Muthumari, SLIA	National Workshop on FLOSS based Library Automation Software-KOHA	Birla Institute of Management Technology, Greater Noida	Sep 17-19, 2010
19.	Mr. A.V. Selvavinayagam	National Workshop on FLOSS based Library Automation Software-KOHA	Birla Institute of Management Technology, Greater Noida	Sep 17-19, 2010
20.	Mr. K.T. Naheem, Jr. Tech. (Lib)	Workshop on “Delnet:Resources, Services and Facilities”	V.R. Siddartha Engg. College, Vijayawada	13th Nov 2010
21.	Mr. P. Velmurugan, Jr. Tech. (Lib)	Workshop on “Delnet:Resources, Services and Facilities”	V.R. Siddartha Engg. College, Vijayawada	13th Nov 2010

### 8.10 Special Lectures Delivered by Faculty in other Institutions

Sl. No	Name of Faculty	Topic of Lecture	Venue and Date
1	Dr. Harish Chandra, Librarian	Expectations from Library Building in a University	<a href="#">Dr. Baba Saheb Bhim Rao Ambedkar University</a> , Lucknow on 14-05-2010
2	Dr. Harish Chandra, Librarian	Invited Asian Speaker on Quality Assurance for Stakeholders: Through ISO 9001:2008 Standard : A Doorway for Asian Libraries	SLA Conference, New Orleans, USA on 14-06-2010
3	Dr. Harish Chandra, Librarian	Invited lecture on Digital Library Initiatives: Issues & Solutions (Focussing the Central Library of IIT Madras)	UGC Symposium on Digital Library Initiatives in India conducted by DLIS University of Madras on 25.01.2011
4	Dr. Harish Chandra, Librarian	Digital Initiatives: Issues and Solutions	INDEST-AICTE Workshop & 8 <sup>th</sup> Annual Meet on 20 <sup>th</sup> Feb, 2011 at IIT Madras
5.	Mahendra N. Jadhav, Dy. Librarian	"Web Technology" HTML, DHTML, XML & Joomla	Dept. of Library & Information Science, University of Madras on 25.09.2010

### 8.11 Honors and Awards:

SI	Name of Faculty	Name of Award	Awarded by	Awarded for	Date of Award
1.	Dr. Harish Chandra, Librarian	The 2010 SLA Asian Professional Award	Special Library Association- Asia Chapter, New Orleans, USA	Professional Contribution in LIS	14-06-2010
2.	M. Muthu, Sr. Lib. Infor. Asst.	Pragya	Hindi Bhasha Vibhag Govt. of India	Passed Hindi Examination	2010-2011
3.	S. Muthumari	Praveen	Hindi Bhasha Vibhag Govt. of India	Passed Hindi Examination	2010-2011
4.	K. Saravanan	Pragya	Hindi Bhasha Vibhag Govt. of India	Passed Hindi Examination	2010-2011

### 8.12 Journal Editorial Board

SI	Name of Faculty	Level	Journal
1.	Dr. Harish Chandra, Librarian	Member of Editorial Board	ISST Journal of Library & Information Sciences published by Intellectual Society for Socio-Techno Welfare

### 8.13 Paper Published in International Conference

Henry Joseph, Dr. Harish Chandra, C.R. Sekar and Dr. K.L. Mahawar on Evidence Based Library Services for Building User Confident in Special Libraries: A Case Study in St.Peter's University –published in 2<sup>nd</sup> International Conference of Asian Special Libraries at UNU Tokyo, Feb 10-12, 2011, pp. 335-341

### 8.14 Fellowships of Academies and Professional Societies

Sl. No	Name of Faculty	Name of Academy / Professional Society	Level
1.	Dr. Harish Chandra	Member: Standing Committee of <u>International Federation of Library Associations and Institutions</u>	2009-2013

2.	Dr. Harish Chandra	Governing Board, DELNET, New Delhi	Two Years, 2010
3.	Dr. Harish Chandra	ISKO (India Chapter) Bangalore	Ordinary
4.	Dr. Harish Chandra	Association of Government of India Libraries	Life
5.	Dr. Harish Chandra	Medical Librarians Association of India	Life
6.	Dr. Harish Chandra	Madras Library Association, Chennai	Life
7.	Dr. Harish Chandra	IATLIS, Patiala	Life
8.	Dr. Harish Chandra	Society of Information Science, New Delhi	Life
9.	Dr. Harish Chandra	Indian Society for Training & Development, Delhi	Life
10.	Dr. Harish Chandra	Tamilnadu Library Association, Chennai.	Life
11.	Dr. Harish Chandra	SALIS, Chennai	Life
12.	Dr. Harish Chandra	IASLIC, Kolkata	Life
13.	Dr. Harish Chandra	Association of Mathematics Teachers of India,	Life
14.	Dr. Harish Chandra	Special Libraries Association	Annual
15.	Dr. Harish Chandra	ILA- Indian Library Association	Life
16.	Mahendra N. Jadhav	ILA- Indian Library Association	Ordinary
17.	Mahendra N. Jadhav	IASLIC	Ordinary
18.	Mahendra N. Jadhav	Society of Information Science	Life
19.	Mahendra N. Jadhav	BOSLA- Bombay Science Librarian's Association	Life
20.	C.R.Sekar	SALIS, Chennai	Life
21.	P. Natarajan	SALIS, Chennai	Life
22.	K. Sethu	SALIS, Chennai	Life
23.	N. Gnansekaran	Association of Government of India Libraries	Life
24.	Dr. Harish Chandra	Maulana Azad Library, Aligarh Muslim University, Aligarh (Member, Library Sub-Committee)	Ordinary

#### 8.15 Distinguished Visitors/Groups to the Central Library

Sl. No.	Name of the Visitor & Designation	Date of visit	Purpose of visit
1.	Dr. Ramachandran, PLIO and Mr. G. Kumarappa, National Library, Kolkata	19-08-2010	To see the facilities and functioning of the Central Library
2.	Prof. B. Hammaiah, Vice Chancellor of BBAU, Lucknow alongwith 2 colleagues Mr. S.K.Goel, Executive Engineer and Ashok Kumar, Architect	28-05-2010	To see the facilities and functioning of the Central Library
3.	Prof. R.K. Barman, Head and Dr.Sanjay Kumar Singh, Reader, Dept. of Library and Information Science, Guahati University, Guwahati with 24 students	14-10-2010	To see the facilities and functioning of the Central Library
4.	Mr. V. Vishwas Rao, Head, SENDOC, National Institute for Micro, Small and Medium Enterprises, Hyderabad with 22 delegates from 11 countries	15-10-2010	To see the facilities and functioning of the Central Library
5.	Dr. Shailendra Kumar, Associate Professor, Department of Library & Information Science, University of Delhi visited along with 32 students	22-02-2011	To see the facilities and functioning of the Central Library

#### 8.16 Future Plan

1. To initiate the creation of database of conference proceedings received from the faculty of IITM
2. To capture more ISBNs for updating the syndetic database
3. To repair minimum 8000 books which will be identified from the stacks
4. To organize Professional Development Lectures and other professional events
5. To issue newly designed smart cards to faculty and staff
6. To initiate the abstracting of minimum 500 books not covered by the syndetic database





## 9. Student Amenities and Activities

### 9.1 Hostels:

All students admitted to IIT Madras are required to reside in the hostels inside the campus. There are 15 boys hostels and 2 girls hostels with a total 5056 single rooms, 248 double rooms and 16 triple rooms. During the period under report, there are 4741 boys and 840 girls students residing in the hostels.

A Warden and an Assistant Warden administer each hostel. Hostel Council consisting of student secretaries and Assistant Warden assist the Warden in the day-to-day functioning of each hostel. The Hostel Management is a centrally administered body and is in overall charge of the functioning of the hostels and the Central Supplies Unit. There are 127 hostel employees who are responsible to the Hostel Management through their respective Warden of the hostel. The Chairman, Council of Wardens (CCW) is the Chairman of the Hostel Management. CCW is assisted by the supporting staffs. During the period under report, the following wardens are in position:

Chairman, Council of Wardens and  
Hostel Management

Dr. M. Prakash Maiya  
Professor, Department of Mechanical Engineering

Name of the Hostel / Unit	Warden
Alakananda	Dr. K. Srinivasa Reddy Associate Professor, Department of Mechanical Engineering
Brahmaputra	Dr. Shaligram Tiwari, Associate Professor, Department of Mechanical Engg.
Cauvery	Dr. Srinivasan Chandrasekaran, Associate Professor, Department of Ocean Engineering
Central Supplies Unit	Dr. M. Prakash Maiya Professor, Department of Mechanical Engineering
Ganga	Dr. A. Gopalakrishna Associate Professor, Department of Bio-Technology
Godavari	Dr. Nandan Kumar Sinha Associate Professor Department of Aerospace Engineering
Jamuna	Dr. Sathyanarayana N Gummadi Associate Professor Department of Bio-Technology
Krishna	Dr. K.P. Sudheer Associate Professor, Department of Civil Engineering
Mahanadhi	Dr.G. Phanikumar Associate Professor, Department of Met and Mat Engineering
Mandakini	Dr. S. Ganesh Sundar Raman Professor, Department of Metallurgical&Materials Engineering
Narmada	Dr. Nilesh J Vasa Professor, Department of Engineering Design
Pamba	Dr. T.J. Kamalanabhan Professor, Department of Management Studies
Saraswathi	Dr. P. Murugavel Assistant Professor, Department of Physics
Sarayu	Dr. Indumathi Nambi Assistant Professor, Department of Civil Engineering
Sharavathi	Dr. N. Sujatha Assistant Professor, Department of Applied Mechanics
Sindhu	Dr. PN Santhosh Associate Professor, Department of Physics
Tamiraparani	Dr. V. Sampath Professor, Department of Metallurgical & Material Engineering
Tapti	Dr. N S Narayanaswamy Associate Professor, Department of Computer Science

## 9.2 Medical Facilities:

Medical facilities are provided to the students in the well equipped Institute Hospital. Advice is given to the students on a wide range of health problems. The details of medical facilities are available in Chapter 13 – Campus Amenities.

## 9.3 National Cadet Corps:

**Enrolment:** A Total of 200 SD/SW Air Wing NCC Cadets were enrolled against the authorization of 200 cadets during year 2010-11.

**Kitting:** All cadets were fitted with full set of uniform to meet the expected standard of turnout of NCC Wing.

### Training:

- Training was conducted as per the NCC syllabus vide Director General NCC, Delhi No.614/Trg/111 (revised) dated 31 December 2007.
- Technical and common syllabuses were covered by specialist technical staff of this unit.
- Foot drill and drill with arms and weapon training were imparted by permanent instructional staff.
- Annual Training camp was conducted in the month of 02- 11 December 2010. During the camp training conducted on Aeromodelling, Range firing, visit to Air Force Station Tambaram, Sports and Cultural activities etc.
- 'B' Certificate exam ws conducted and 168 cadets participated in the examination, among them 61 cadets scored 'A' grade, 107 cadets scored 'B' grade.
- Wing Commander A Ravindran handed over the command of this Air NCC unit to Wg Cdr AV Rao on 25 Apr 2011. The Commanding Officer, Faculty and Staff were able to inspire IIT Students and motivated them to perform well in all activities of NCC.

## 9.4 Gymkhana:

The Institute Gymkhana takes care of general welfare, Sports, Co-curricular and Cultural activities of students. Sports activities form an integral part for the overall development of personality, which prepares the students to overcome challenges in their various walks of life after their graduation. Hence the students are encouraged towards participation and organization of a number of sports activities.

The following tournaments were conducted during the year 2010-2011 by the Institute Gymkhana of IIT Madras.

- The Inter-Collegiate Invitation Tournament "SPORTFEST – 2010".
- All India Inter-Collegiate Basketball Tournament for Men (Gerhard Fischer Cup) and for Women (Mrs. Koikila Rajaiah Trophy). - 2011
- IIT Sanmar Inter-Collegiate Invitation Cricket Tournament - 2011
- Inter-Hostel Tournament – "SCHROETER TROPHY"
- Non-Media Tournament- "Dean (Students) Trophy"
- Institute Annual Open Road Race
- Institute Annual Cycle Race
- Institute Triathlon Race
- Institute Open Bridge Tournament.
- Institute Premier League.

### Sportfest – 2010:

The Inter Collegiate Tournament was conducted for city colleges both for men and women during 17<sup>th</sup> to 21<sup>st</sup> September 2010 in few games. This tournament helps to finalize the Inter IIT team probables. Our students took part enthusiastically in all the games and won few events.

### Inter-IIT Aquatic Meet 2009:

The Inter-IIT Aquatic Meet was held from 1<sup>st</sup> – 4<sup>th</sup> October 2010 at IIT ROORKEE. IIT Madras contingent won the Bronze medal in Water Polo.

### **Inter-IIT Sports Meet 2010:**

The 46<sup>th</sup> Inter-IIT Sports Meet was held between 14<sup>th</sup> and 21<sup>st</sup> December 2010 at IIT Delhi. The intense practice during mini camp in the month of November improved our preparations quite a bit. IIT Madras won first position in Mens section. IIT Madras won the Gold in Hockey, Table Tennis and Volleyball, and Weight Lifting Silver in Athletics and bronze in Tennis, Water Polo and Badminton. IITM women section came second place with a total of 33.83 points. The Women's Basketball team performed well to receive the top honors. In lawn tennis Girls won the Gold Medal. In Swimming IITM Girls won the Bronze medal. IITM Girls shared third place in Athletics with Guwahati. No doubt most of our teams performed at their best. IIT Madras - Men won the overall General Championship and IITM Women missed the G.C. by a point.

### **All-India Inter-Collegiate Invitation Basketball Tournament 2011:**

This tournament was conducted from 18<sup>th</sup> January to 22<sup>nd</sup> January 2011 and attracted teams from South India. The venue of the tournament is the new flood-lit basketball courts. A large number of spectators attended this tournament, witnessed many exciting matches wherein excellent performance was displayed by many teams. Sathyabama University, Chennai retained the Gerhard Fischer Trophy for Men for the sixth year in succession and IIT Madras Girls team entered into the league stage and came fourth. MOP Vaishnav College won the coveted Kokila Rajaiah Trophy for women. M/s. MEDALL Healthcare Pvt Ltd Sponsored Prize money for the GF Basket Ball Tournament.

### **IITM-Sanmar Inter- Collegiate Cricket Tournament:**

The prestigious IIT-Sanmar Inter-Collegiate Cricket Tournament for city Colleges sponsored by 'Sanmar Group' was conducted from 23<sup>rd</sup> February to 10<sup>th</sup> March 2011. There was a record entry from **18** city colleges competing for top Honours. A high level of competition was witnessed throughout the tournament. Gurunanak College won the coveted Trophy and Loyola entered in the finals and was placed runner-up.

### **Inter-Hostel Tournaments:**

The Inter-Hostel Tournament was conducted in all the Games/events spread over the academic year and were contested for the Schroeter Trophy for General Championship, adhering to the Inter-IIT pattern of sports events. Also the Dean's Trophy events were conducted on non-media and non-Inter IIT Sports events. Ganga Hostel won the Schroeter Trophy and the Dean's Trophy won by Jamuna Hostel.

The following non-media tournaments were conducted for the students: (i) 9-a-side Tennis ball Cricket, (ii) 9-a-side Tennis ball Cricket for Freshers, (iii) 6-a-side Football, (iv) 6-a-side Hockey, (v) 3-a-side Basketball and (vi) 3-a-side Volleyball and institute open events namely, Road Race, Cycle Race, Triathlon, Cycle Race for freshers were conducted. All these events encourage larger participation of the students / campus community. These events were a grand success, attracting a large number of participants both from staff and students and student spectators, who witnessed and encouraged their hostel teams.

All the Gymkhana clubs like Fitness Club, with newly added facilities, Badminton club, Tennis club and Swimming Pool club functioned very well during the period. More than a few thousand students, staff, faculty and Campus children benefited from these excellent facilities and coaching offered by the Institute Gymkhana.

The Swimming pool club had a registered membership of 1554, the Fitness club had a registered membership of 852, the Tennis club membership of 204, the Badminton club a membership of 104. Excellent training and able guidance were provided for the students and the Campus residents at the fitness club and Yoga, bringing out the importance of maintaining good physique and health.

The advance planning of the calendar of sports events including the fixtures for both Schroeter and Dean's Trophy events helped the smooth satisfactory conduct of the various sports events in time. Also, the new flood-lit facilities attracted many students to the Basketball, the Volleyball and the Tennis courts. The new international "Synthetic Tennis Courts" added the sports and games facility at the campus.

The New Indoor Sports Complex was inaugurated. Last year to house few facilities like Table Tennis, Weight Lifting, fitness centre with new equipments and two Squash courts. New Squash Courts are coming up and it is an added facility in Sports and Games at the campus.

### **National Sports Organisation:**

National Sports Organisation (NSO) is functioning as per the Government of India's decision for improving sports with special reference to upkeep the fitness of students. Our Institute has been taking necessary steps in encouraging students to participate in various games and sports events and in physical fitness activity as well.

In the academic year 2010-11 nearly 398 first year undergraduate students were registered under this scheme. Coaches/experts from various Sports Federation and sports Development Authority of Tamil Nadu were engaged for coaching our NSO students.

The noteworthy performance of sizable first year students at the various tournaments viz. Inter-IIT Sports Meet, Sportfest and All India Invitation Inter-Collegiate Basketball Tournament is partly due to the quality training given to the students and the hard efforts put forth by the students during the NSO programme.

#### **Institute Premier League:**

Newly events started in few Games Viz Hockey, Football, and Basket Ball & Volley Ball.

Overall, it has been an eventful year for the Gymkhana activities, and regain the Glory of General Championship cup back this year.

#### **9.5 Advisor, Foreign Students and Weaker Section:**

This institute has nominated one Advisor to take care of the welfare of the foreign national and weaker sections students. He periodically meets these students and counsels them for various academic and non-academic requirements. During the period under report, a few students could not do well and they were counseled. Due to this counseling, 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 student of B.Tech Programme as they expressed difficulty in understanding during normal teaching hours. Also drawing instruments have been issued to needy first year students belonging to the weaker section.

The mentor programme introduced in the previous year was continued. In this programme each first year student belonging to weaker section is attached with a mentor (from senior students) for discussion and guidance on the academic matters. The reports are periodically reviewed and discussed with the Advisor

#### **9.6 Guidance and Counselling Unit:**

A Campus information booklet – “IIT Life – A Glance” was prepared for all the fresh students and were made available to all of them.

The first year students with their parents or guardians were received by the student counselors at the railway station and helped to settle down in their stay quickly. The counselors solved student problems by applying individual attention.

The first year B.Tech students were distributed to various student counselors and faculty counselors for individual attention. The Unit attended few emotional counseling since such problems are more during the first year.

The unit arranged, whenever possible, instruction classes by senior students to the needy first year students who wanted guidance in subjects like Mathematics, Physics and Chemistry.

#### **9.7 Alumni Affairs:**

##### **9.7.1. Activities of Office of Alumni Affairs:**

##### **Serve as outward-facing window from the Institute to the Alumni:**

- act as primary interface from Institute to alumni-at-large
- authorize alumni access to campus facilities
- administer Distinguished Alumnus Award program
- administer Travel Grant program, etc.

##### **Drive Institute-related fund-raising activities among alumni:**

- devise fund-raising strategy
- coordinate fund-raising activities

- ensure timely deployment of funds
- report to Institute and back to donor regarding status of funded projects

**Register graduating students into the alumni database:**

- enroll students into the database
- provide permanent alumni e-mail ID
- maintain and grow database
- provide database access on as-needed basis

**Serve the student community:**

- administer scholarships and awards
- solicit alumni funds towards student travel, facilities, projects, etc.
- facilitate student mentoring by alumni

**Serve the faculty community:**

- promote interactions between visiting faculty and local alumni
- promote campus and department visits by alumni
- promote research & consultancy relationships between faculty & alumni

**Serve the alumni community:**

- support networking activities and events, such as reunions
- support alumni communications, such as monthly newsletter
- support alumni registration in database
- work closely with IIT Madras Alumni Associations (IITMAA, IITMAANA, etc.) on alumni-related matters
- support PanIIT activities (e.g., Club) and events (e.g. Annual Meets)




**9.7.2 Staff at the Office of Alumni Affairs:** (from Left to Right) K. Suresh, Princy, Kamala Narayani, Ilavarasi, Prof. R. Nagarajan, Advisor, P. Saravanan, M. Imagaran, Mani and Balasundaram



### 9.7.3 Distinguished Alumni Awards 2011:

The quality of education and training that our alumni had received as students of our Institute enabled them to graduate into professionally satisfying and successful careers, and nearly all have distinguished themselves professionally. Many of them occupy top positions in India and abroad in Industries, Government Organizations and Educational Institutions. Till 2010, 35518 students have been awarded degrees. Since 1997, we are honouring selected alumni for their distinguished contribution to society, through Distinguished Alumnus Awards every year. The names of the awardees for this year (2011) were announced during the Republic Day Function. They are:

S.No	Name	Postal Address	Year/Branch/Dept	Dept	Current Position	Photos
1	Dr. Hota V.S. Ganga Rao	Director, Constructed Facilities Center, College of Engg., Mineral Resources, West Virginia University, Morgantown, WV 26506, USA	1965/BT/CE	Civil	Professor, Dept of Civil Engineering, West Virginia University	
2	Dr. Jayant B. Udgaonkar	Sr. Professor, National Centre for Biological Sciences, Tata Institute of Fundamental Research, GKUK Campus, Bangalore 560065	1981/MSc /CY	Chemistry	Professor, National Center for Biological Sciences, TIFR, Bangalore	
3	Dr. V. S. Sunder	Professor, Institute of Mathematical Sciences, Taramani, Chennai 600 113	1973/M.S c/MA	Maths	Professor, Institute of Mathematical Sciences, Chennai	
	Dr.M.S. Vijay Kumar	Massachusetts Institute of Technology NE-48, Room 3-007, Tech Sq. Cambridge, MA 02139	1975/BT/CH 1978/MS/IM	Chemical & Industrial Mgmt	Senior Associate Dean & Director, Office of Educational Innovation & Technology, MIT	
5	Mr. G K Pillai	Home Secretary, Ministry of Home Affairs, North Block, Central Secretariat, New Delhi 110 001	1970/MSc /CY	Chemistry	Home Secretary, Government of India	

6	Mr. M.G. Venkatesh Mannar	32 Swans Way, Gloucester, Ontario K1J 6H9, Canada	1970/BT/CH	Chemical	President, Micronutrient Initiative, Ottawa	
7	Ms. S Sowmya	12/10 Balaji Apartment, Gandhi Nagar III Main Road, Chennai 600 020	1992/M.S c/CY	Chemistry	Carnatic Vocalist	
8	Mr. Krishnamurthy Sridharan	3195, Lenark Drive, San Jose, CA 95132, USA	1980/BT/CE	Civil	Founder & President, Sankara Eye Foundation, USA	

#### 9.7.4. Media Outreach – Press Conferences and News Releases

The Office of Alumni Affairs arranges press conferences and news releases frequently. In 2010, the following events were among those given wide publicity:

1. Distinguished Alumnus awards announcement
2. DA Day, Alumni Day
3. SRP (Socially Relevant Projects) update

#### Socially Relevant Projects – Media Interaction

On September 17, 2010, the Office of Alumni Affairs arranged a press conference on “Socially Relevant Projects” sponsored by alumni batches of 1981 and . Representatives from The Hindu, Frontline, Times of India, Deccan Chronicle and Indian Express attended the press conference. Prof. Nagarajan, Advisor of OAA, Prof B.S.Murthy (Co-ordinator, SRP) and other Professors in attendance spoke about the projects.

#### Meetings with alumni in other cities & Campus Reunions:

The OAA, in partnership with IITMAA and IITMAANA organized meetings in different cities to interact with local alumni and other community leaders.

- Bangalore: Jan 2010
- Hyderabad: February 2010
- Mumbai: March 2010
- San Francisco Bay Area: May 2010



OAA

IITMAANA SF BAY AREA GC MEETING - held on 21.5.2010 - LISTENING TO DIRECTOR'S message - Front : Srikanth, Nagarajan, Seetha Back: Jawahar, Naresh, Indira & Sridhar



- New Delhi: July 2010
- London, LA, Bay Area, Houston, Boston, Toronto: September 2010
- New Delhi, PanIIT 2010: October 2010
- Chennai Banquet Reception with Director: December 2010

**9.7.5. The following re-unions were held on campus in 2010:**

- Silver re-union (1985 batch) : 26th Dec 2010
- Coral re-union (1975 batch) : 25th Nov. 2010



Coral re-union (1975 batch) :25<sup>th</sup> Nov. 2010



Silver re-union (1985 batch) :26<sup>th</sup> Dec 2010

**9.7.6. Campus Events:**

**Parents Day**

For the first time, OAA conducted a “Parents Day” event in 2010. It was a day to let the proud parents of the graduating students get a glimpse of this great institution and the campus where their wards have been for the last few years. It was an opportunity to engage with the parents. The parent day events were spread over two days, the day prior to and on Convocation Day (29<sup>th</sup> & 30<sup>th</sup> Jul, 2010). It was held at the Fitness Center near SAC (location of Convocation).

Invitations were sent to the parents, and emails were sent to students to invite their parents for the event. On the day of the event, the parents’ contact details were collected. Parents were presented with a Welcome Kit and a Gift bag with mementos and souvenirs from IITM and OAA. Parents also signed up for Campus Tours that were offered with student guides. Parents took photographs with the graduating student, and these were later sent to their contact address.





### Shaastra Confluence Day:

Also in 2010, we declared the last day of Shaastra as “Shaastra Confluence Day” to give one more opportunity for alumni to visit the campus. 150 alumni were invited for lunch at Research Park with the Director on Confluence Day.

### Reunion Day:

“Reunion Day” is celebrated along with the Silver Reunion Batch of the year on the 26<sup>th</sup>, the day after Christmas. The morning program was held at the IC & SR auditorium and was common to all alumni. The day started with the screening of the “Alumni Matter!” and “Alumni Care!” videos. Prof. Bhaskar gave the Welcome Address. N Raghavan addressed the crowd on behalf of IITMAA and Prof. Nagarajan addressed the crowd on behalf of the OAA. This was followed by remarks and announcements by Reunion batch representatives; Prof. PV Indiresan was a special guest. The Director, Prof. MS Ananth, gave a “Vision 2020” address which was followed by a moderated Q & A with Prof. LS Ganesh as the moderator. The institute hosted lunch was at the IC & SR dining hall.

### 9.7.7 Other Outreach Activities:

#### Banquet Dinner:

The OAA arranged a Banquet Reception followed by dinner on 21<sup>st</sup> December at Taj Coromandel, Chennai. to launch the strategic management project, “Vision 2020” for IIT Madras, as well as share thoughts on the “Master Plan” for campus development. This was to facilitate an interaction between our Director, Prof. Ananth, and local alumni, industrialists, business leaders and luminaries from other walks of life.

#### Gajendra Circle:

In 2010, OAA started “Gajendra Circles” as a forum for ongoing direct dialogue between alumni that have shown a deep commitment and interest in IITM and the leadership of the institute. The Gajendra Circles were initially constituted with a small group of 10-12 alumni, with the expectation that they will form the nucleus for a deeper relationship between alumni-at-large and the institute. This initiative was launched first in Chennai. IITMAANA also initiated similar efforts in the United States. The Gajendra Circles meet periodically and engage in dialogue with IITM leadership on the state of the institute and its future directions. They are also interlinked with one another to facilitate flow of information and ideas.

#### 2010 GC Meetings:

City	Dates
GC Chennai	Nov. 21, 2009, Jan. 30, 2010, Mar. 20, 2010, Nov. 21, 2010
GC Bangalore	Jan. 9, 2010
GC Hyderabad	Feb. 12, 2010
GC Mumbai	Apr. 03, 2010

### 9.7.8 IITMAANA Travel Grant Program:

In 2010 a sum of Rs.11.84 lakhs has been granted as Travel Grant to nearly 56 M.S/Ph.D scholars and several M.Tech/B.Tech students from donations received from IITMAANA.

#### Additionally:

1. OAA mobilized a donation for a sum of Rs.1.8 lakhs towards travel expenses of 4 B.Tech students attending Kairos Global Leadership Summit 2010, USA.
2. OAA has funded a sum of Rs. 1.7 lakhs for five B. Tech. students to attend International Aerial Robotics Competition at University of Puerto Rico, USA.

### 9.7.9 Golden Jubilee Alumni Fund:

The “Golden Jubilee Alumni Fund” was launched in April 2009 by “Kris” Gopalakrishnan with a target of Rs.100 crores. Following is the status of funds received and deployed (from April 2010 to Mar. 2011) towards Golden Jubilee Alumni Fund:

Month/year	Funds Received	Funds deployed
April 2010	432900	1421858
May 2010	973225	nil

June 2010	2287400	725000
July 2010	1029252	742252
Aug 2010	9987786	2937920
Sept. 2010	134000	2457087
Oct. 2010	1142657	700000
Nov. 2010	6806086	679907
Dec. 2010	3991002	200000
Jan. 2011	213364	9766322
Feb. 2011	2638911	1682410
<b>Total</b>	<b>29636583</b>	<b>21312756</b>

**TAM Club Donation Details - Jun 2010 to Mar 2011**

Sl. No.	Date	Name	IITMACT	Batch
1	26.06.2010	Ajay Gupta	500	1998
2	26.06.2010	Vivek Dhar	1500	2005
3	26.06.2010	Vikas Dutta	2000	2000
4	28.06.2010	Karthik Babu Palaniswamy	1000	1976
<b>June 2010</b>			<b>5000</b>	
5	03.07.2010	Krishnan Mani	500	1970
6	10.07.2010	Koorella Krishna	1000	2003
7	26.07.2010	David Arputharaj	500	1975
8	26.07.2010	R.Nagarajan	500	1981
9	27.07.2010	B.Gautham	30000	1978
10	31.07.2010	Vikas Gurugunti	500	1987
11	28.07.2010	Raghuraman	1000	1980
12	28.07.2010	Ramaswamy Balasubramanian	1000	1975
13	31.07.2010	Susheela Kapaleeswaran	2000	1983
14	31.07.2010	T.N.Kapaleeswaran	2000	1983
15	31.07.2010	Amaran Jambulingam	500	1978
16	31.07.2010	S B Iyer	6000	1970
17	31.07.2010	R Jayashankar	2000	1970
18	31.07.2010	Sri Vallabha Deevi	500	2007
19	31.07.2010	Raj Nair	2000	1983
20	31.07.2010	S A Subharajah	500	1984
21	31.07.2010	R Muralidharan	1000	1968
22	31.07.2010	Mohan Srinivasan	500	1988
23	31.07.2010	A S Jayanth	500	1970
24	31.07.2010	Ramesh Kumar	1000	1974
25	31.07.2010	Leo Prakash	4600	1970
<b>July 2010</b>			<b>58100</b>	
26	05.08.2010	Harish Seth	2000	1967
27	05.08.2010	Raj Varadarajan	25000	1966
28	07.08.2010	Kalyan Muthukumar	12000	1981
29	06.08.2010	Raghuraman	1000	1980
30	06.08.2010	Prof.R.Nagarajan	500	1981
31	04.08.2010	Sandeep Srikanti	500	2007
32	10.08.2010	Gopalakrishna Kamnath	1000	1992
33	10.08.2010	Phanindra Gunturu	1000	2007
34	11.08.2010	Ashok Kanna	500	1967
35	11.08.2010	S.Srinivasan	500	1964
36	18.08.2010	Harish Seth	8000	1967
37	20.08.2010	Vikas Datta	1000	2000
38	26.08.2010	Venkat Viswanathan	1000	1992
<b>August 2010</b>			<b>54000</b>	
39	02.09.2010	Sri Vallabha Deevi	500	2007
40	13.09.2010	Sarvani Piratla	500	2007
41	14.09.2010	R.Muralidharan	500	1968

Sl. No.	Date	Name	IITMACT	Batch
42	17.09.2010	Phanindra Gunturu	500	2007
43	17.09.2010	S.Srinivasan	500	1964
44	27.09.2010	Srikumar Subramanian	3000	1996
45	27.09.2010	Shivaprasad	2000	2007
46	27.09.2010	David Arputharaj	500	1975
47	27.09.2010	Krishnan Mani	1000	1970
48	27.09.2010	Srihari Nair	1000	1975
49	28.09.2010	A.V.Venkatraman	2000	1992
50	29.09.2010	Srikumar Subramanian	1500	1996
51	29.09.2010	Krishnan Mani	500	1996
<b>September 2010</b>			<b>14000</b>	
52	01.10.2010	Ramakrishna Simhadri	500	2010
53	01.10.2010	Vivek Dhar	750	2005
54	01.10.2010	David Arputharaj	500	1975
55	04.10.2010	Sri Vallabha Deevi	1000	2007
56	04.10.2010	Mohan Srinivasa	1000	1988
57	05.10.2010	R.Nagarajan	500	1981
58	05.10.2010	Vikas Gurugunti	1000	1987
59	05.10.2010	Shivaprasad	1000	2007
60	06.10.2010	A.V.Venkatraman	500	1992
61	06.10.2010	Ashok Kanna	500	1967
62	08.10.2010	R.Muralidharan	500	1968
63	08.10.2010	Krishnan Mani	500	1970
64	09.10.2010	Birenvora	2000	1988
65	09.10.2010	R.Nagarajan	500	1981
66	09.10.2010	A.V.Venkatraman	500	1992
67	11.10.2010	Koorella Krishna	1000	2003
68	15.10.2010	Nandakumar Dave	6000	1965
69	20.10.2010	S.Srinivasan	500	1964
70	20.10.2010	T.V.Chandrasekhar	1000	1999
71	21.10.2010	Srikumar Subramaniam	1500	1996
72	21.10.2010	Venkatesh Pagidimarri	500	2008
73	26.10.2010	Ashok Khanna	1500	1967
74	29.10.2010	Srihari Nair	1000	1975
75	29.10.2010	Sathyanarayana R Kumar	1000	1986
<b>October 2010</b>			<b>25250</b>	
76	01.11.2010	D.Shivaprasad	1000	2007
77	03.11.2010	Sri Vallabha Deevi	500	2007
78	03.11.2010	Krishnan Mani	500	1970
79	04.11.2010	B R Srikanth	6000	1975
80	06.11.2010	A V Venkatraman	1000	1992
81	08.11.2010	V.Mohan Srinivasa	500	1988
82	09.11.2010	R.Nagarajan	500	1981
83	09.11.2010	N.Jaganathan	1000	2006
84	12.11.2010	David Arputharaj	500	1975
85	12.11.2010	K.Raghuraman	10000	1980
86	12.11.2010	Phanindra Gunturu	500	2007
87	12.11.2010	Sarvani Piratla	5000	2007
88	13.11.2010	Ajit Balasubramanian	1000	2003
89	13.11.2010	Sathyanarayana R Kumar	500	1986
90	15.11.2010	Vikas Datta	2000	2000
91	15.11.2010	Anirudha Govindarajan	500	2009
92	15.11.2010	Vaibhav Rawat	500	2004
93	15.11.2010	Sathyanarayana R Kumar	500	1986
94	16.11.2010	Krishnamurthi Subramanian	5000	1975
95	18.11.2010	R.Muralidharan	2500	1968
96	19.11.2010	Biren Vora	500	1988
97	20.11.2010	S.Srinivasan	500	1964
98	20.11.2010	Venkatesh Pagidimarri	500	2008
99	20.11.2010	Madhusudan Chakravarthy	1000	1989
100	22.11.2010	Srikumar Subramaniam	1000	1996

Sl. No.	Date	Name	IITMACT	Batch
101	26.11.2010	R.Nagarajan	500	1981
102	26.11.2010	A V Venkatraman	1000	1992
103	26.11.2010	Shivaprasad	1000	2007
<b>November 2010</b>			<b>45500</b>	
104	04.12.2010	Venkatesh Pagidimarri	1000	2008
105	04.12.2010	Ramakrishna Simhadri	1000	2010
106	04.12.2010	Ramakrishna Simhadri	1000	2010
107	04.12.2010	Sarvani Piratla	500	2007
108	04.12.2010	Vivek Dhar	3000	2005
109	04.12.2010	Sri Vallabha Deevi	500	2007
110	06.12.2010	A V Venkatraman	1000	1992
111	06.12.2010	Venkatesh Pagidimarri	500	2008
112	08.12.2010	Rishi Pinnamaneni	500	2006
113	09.12.2010	N Jagannathan	1000	2006
114	10.12.2010	Shivaprasad	1000	2007
115	14.12.2010	Krishnan Mani	500	1970
116	15.12.2010	Sathynarayan R Kumar	500	1986
117	21.12.2010	Srikumar Subramaniam	2000	1996
118	29.12.2010	David Arputharaj	500	1975
119	31.12.2010	Krishnan Narayanan	10000	1996
<b>December 2010</b>			<b>24500</b>	
120	03.01.2011	Sri Vallabha Deevi	500	2007
121	04.01.2011	Shivaprasad	1000	2007
122	04.01.2011	Amaran Jambulingam	2000	1978
123	04.01.2011	Subraman Vaidyanathan	500	1985
124	04.01.2011	C Subramanian	500	1965
125	04.01.2011	R Sridhar	500	1976
126	04.01.2011	Mustafa Vadnarawala	500	1985
127	04.01.2011	Aditya Gurujada	500	1985
128	04.01.2011	P.Sivakumar	500	1985
129	04.01.2011	Alaganandan Balaraman	1000	1985
130	04.01.2011	Pradip Shah	500	1987
131	04.01.2011	Mohan Gopalakrishnan	500	1985
132	04.01.2011	Surya Anantapantula	3000	1985
133	06.01.2011	M R Sridharan	500	1980
134	08.01.2011	Krishnan Mani	500	1970
135	08.01.2011	Rishi Pinnamaneni	500	2006
136	08.01.2011	V.Mohan Srinivasan	1000	1988
137	08.01.2011	A V Venkatraman	1000	1992
138	10.01.2011	N.Jagannathan	1000	2006
139	11.01.2011	Susheela Kapaleaswaran	4000	2003
140	11.01.2011	T N Kapaleaswaran	2000	2003
141	17.01.2011	Satyanarayan R Kumar	500	1986
142	21.01.2011	Sri Kumar Subramaniam	1500	1996
<b>January 2011</b>			<b>24000</b>	
143	02.02.2011	Raj. V. Varadarajan	3000	1966
144	02.02.2011	Sri Vallabha Deevi	500	2007
145	03.02.2011	D.Shivaprasad	1000	2007
146	03.02.2011	David Arputharaj	1000	1975
147	05.02.2011	S.Srinivasan	500	1964
148	05.02.2011	R.Nagarajan	500	1981
149	07.02.2011	P.Sivakumar	500	1985
150	07.02.2011	A V Venkatraman	1000	1992
151	08.02.2011	Rishi Pinnamaneni	500	2006
152	09.02.2011	N.Jagannathan	1000	2006
153	14.02.2011	Krishnan Mani	500	1970
154	15.02.2011	Sathyanarayana R Kumar	500	1986
155	17.02.2011	Venkatesh Padigimarri	500	2008
156	17.02.2011	R Nagarajan	500	1981
157	17.02.2011	Narendra Kumar Thapar	6000	1971
158	19.02.2011	Sri Kumar Subramaniam	1500	1996

Sl. No.	Date	Name	IITMACT	Batch
159	23.02.2011	R Nagarajan	500	1981
160	25.02.2011	Alaganandan Balaraman	12000	1985
161	25.02.2011	C.Subramanian	500	1965
<b>Feburay 2011</b>			<b>32000</b>	
162	01.03.2011	D.Shivaprasad	1000	2007
163	02.03.2011	S.Srinivasan	500	1964
164	02.03.2011	Ashok Khanna	1500	1967
165	02.03.2011	Krishnan Ramasubramani	500	1970
166	02.03.2011	T.V.Chandrasekhar	1000	1999
167	03.03.2011	Mohan Srinivasan	1000	1988
168	03.03.2011	Sri Vallabha Deevi	500	2007
169	03.03.2011	P.Sivakumar	500	1985
170	07.03.2011	A.V.Venkatraman	1000	1992
171	07.03.2011	Kamala Ramakrishnan W/o Krishnan Sathivageswar	2000	1985
172	08.03.2011	Mustafa Vadnagarawala	3000	1985
173	08.03.2011	Rishi Pinnamaneni	500	2006
174	08.03.2011	A.S.Jayanth	6000	1970
175	09.03.2011	N.Jagannathan	1000	2006
176	15.03.2011	Sathyanarayana R Kumar	500	1986
177	17.03.2011	Kamala Ramakrishnan W/o Krishnan Sathivageswar	1000	1985
178	17.03.2011	R.Nagarajan	500	1981
179	17.03.2011	M R Sridharan	3000	1980
180	21.03.2011	Srikumar Subramaniam	1500	1966
181	21.03.2011	T.V.Chandrasekhar	1000	1999
182	22.03.2011	B.Ramaswamy	7000	1975
183	28.03.2011	Hormis Vadakkumcherry	500	2010
184	31.03.2011	T N Kapaleaswaran	2000	1983
<b>March 2011</b>			<b>37000</b>	
<b>Total Amount from Jun 2010 - Mar 2011</b>			<b>319350</b>	

**Major Donor List for Apr 2010 - Mar 2011**

S.No	Name	Amount in Rs.	Batch
1	Phanesh Murthy (Navodaya Foundation)	10000000	1985
2	Chevron USA (Ashok Krishna)	5610000	1974
3	V Shankar (CAMS )	2500000	1981
4	Shrikumar Suryanarayanan	1550000	1982
5	Suresh Kamath C/o Laser Soft	1000000	1980
6	Mr. Manalur S. Sandilya	666625	1972
7	Mr. Sundarshekar	625000	1985
8	Prof.R.Nagarajan & Usha Nagarajan	600000	1981
9	Dr.P.Balasubramanian	500000	1971
10	Mr. Alagu Balaraman	500000	1985
11	Sivaraman Thyagarajan C/o Shriram EPC Limited	500000	1987
12	Kris.S.Gopalakrishnan	500000	1979
13	Pushpavanam	272910	1984
14	Sujatha Dube	250000	1983
15	Nandakumar Ethirajulu	250000	1984
16	H. Srinath ( Quality Software)	220000	1977
17	Mr.Krishnamurti Natarajan	200000	1984
18	R.Raghuttama Rao	200000	1984
19	Chirla Ramareddy	150000	1983
20	Somasundaram Sivakumaran	120000	1983
21	N.Shankar	100001	1984
22	Srinivasan Viswanathan	100000	1972
23	M.G.Pameswaran	100000	1977
24	Mr.Prakash R Bhat	100000	1983
25	Shiv Baloo	100000	1983
26	Mr. Sudheer	100000	1983
27	V.Subramaniam	100000	1983
28	Bhaskar Rao	100000	1983

29	Kiren Sunderraj	100000	1983
30	Boddapaty Anand	100000	1984
31	Mr. V.R. Ganesh	100000	1984
32	Vijaya Kumar	100000	1984
33	Prof.Vijay R.Raghavan	100000	1980
34	Mr. Chetan Tolia	100000	1985
35	Mr. Mahesh	100000	1985
36	Krishnamoorthy Anathasivam	100000	1983
37	Sundaram Srinivasan	100000	1985
38	Rajesh Achanta	100000	1987

S.No	Name	Amount in \$	Batch
1	Ravi Krishnamurthy	12500	1984
2	Girish Reddy	10000	1977
3	Deshpande	11000	1973
4	Indira Subramanian	14000	1978
5	Ram Sundaram	50000	1988
6	Swaminathan Gopalswamy	12500	1987
7	Jagadesh Moodera	100000	1978
8	Satish Pai	250000	1985

#### 9.7.10. PANIIT Events and Participation:

The alumni of all IITs have come together and formed PANIIT as an umbrella organization. PANIIT aims to provide networking opportunities for members of the IIT system and proactively contribute to nation building; in addition, it aims to enhance the engagement of alumni with governance.

The following are the venues where PANIIT Meets have been held from inception:



2003 : San Jose



2004 : New Delhi



2005 : Washington DC



2006 : Mumbai



2007 : Santa Clara



2008



Chennai



2009 : Chicago



2010 : New Delhi

List of participants from IITM in PAN IIT 2010 – Oct. 28 – 31.

- 1 Prof. M.S. Ananth, Director
- 2 Prof. Bhaskar Ramamurthi, Dean Planning
- 3 Prof. R. Nagarajan, Advisor OAA
- 4 Prof. V. Kamakoti, Dept. of CSE
- 5 Prof K.N. Sathyanarayana, Dept. of Civil Engg.
- 6 Prof. P. Sriram, HoD, Dept. of Aerospace Engg.,
- 7 Dr. Ashwin Mahalingam, Dept. of Civil Engg.,
- 8 Mr. Raj Varadarajan, President IITMAA

## 10. STUDENTS PLACEMENT

The number of students placed during 2010-2011 is summarized below:

Branch	B.Tech	Dual Degree	M.Tech	M.B.A	M.A	M.Sc	M.S	Ph.D	Total
Aerospace	13	10	11	-	-	-	7	-	41
Applied Mechanics	-	-	9	-	-	-	7		16
Bio Technology	19	8	3	-	-	-	-	3	33
Civil	26	17	21	-	-	-	4	-	68
Chemical	45	10	15	-	-	-	4	1	75
Chemistry	-	-	-	-	-	1	-	4	5
Com. Science	19	13	44	-	-	-	10	1	87
Electrical	36	49	38	-	-	-	11	-	134
Engineering Design	-	21	-	-	-	-	3	-	24
Engineering Physics	9	-	-	-	-	-	-	-	9
Humanities & Soc Sciences	-	-	-	-	8	-	-	-	8
Management Studies	-	-	-	63	-	-	-	-	63
Mathematics/IMSC	-	-	6	-	-	7	-	-	13
Mechanical	53	47	58	-	-	-	13	3	174
Metallurgical	17	7	11	-	-	-	2	-	37
Ocean	12	4	6	-	-	-	-	1	23
Physics	-	-	2	-	-	1	-	1	4
<b>Total</b>	<b>249</b>	<b>186</b>	<b>224</b>	<b>63</b>	<b>8</b>	<b>9</b>	<b>61</b>	<b>14</b>	<b>814</b>

During the year 814 students / scholars were placed in various organisations.



## 11. FINANCIAL ASSISTANCE TO STUDENTS

Financial assistance in the form of scholarships and fellowships are given to meritorious students who are pursuing engineering, technology and science education at this Institute. The details of Scholarships and Fellowships sanctioned to the students of different programmes during 2010-11 are as follows:

### 11.1 Assistance to B.Tech /Dual Degree students:

Merit-cum-means scholarship: 25% of students admitted to B.Tech/Dual Degree programmes and whose parental income is less than Rs. 4.5 lakhs were sanctioned MCM Scholarship ( i.e exempted from payment of tuition fee of Rs. 25000/- semester plus pocket allowance of Rs. 1000/- per month). During the period under report 659 students benefited. The year-wise details of number of students were benefited are given in Table 11.1(b).

SC/ST students admitted to B.Tech/Dual Degree programmes and whose parental income is less than 4.5 lakhs were sanctioned the concession of free messing plus pocket allowance of Rs.250/-p.m. and exemption from payment of tuition fees and hostel seat rent as per Government of India post-matric scholarship rules. As on 31.3.2011, 346 students were benefited.

Institute free studentship scholarship for B.Tech/Dual Degree programmes were sanctioned to the students, which comprises of exemption from payment of tuition fees.

The batch-wise details of number of students benefited also are given below:

**Table 11.1 (a)**

SI.No	Name of the Scholarships	No. of students
1.	Govt of India Ministry of Tribal Affairs ST Scholarships	5
2.	Ministry of Social Empowerment	10

**Table 11.1 (b) - No of MCM and SC/ST scholarships**

Batch	MCM Scholarship	SC/ST Scholarship	Student Freeship
2010	209	129	84
2009	171	90	56
2008	149	66	60
2007	130	61	2
<b>Total</b>	<b>659</b>	<b>346</b>	<b>202</b>

In addition to the above, the Institute sanctioned notional prize of Rs. 1000/- to 25 first B.Tech top ranking (in the JEE 2009) students whose parental income is more than Rupees two lakhs.

### 11.2 Other Scholarships:

Scholarships were sanctioned by NCERT, GOI and State Governments to meritorious students pursuing B.Tech programme in this Institute. The batch – wise details of number of students benefited by these scholarships are given below:

**No of NCERT Scholarship obtained by B.Tech /DDstudents**

Batch	Total no. of students
2010	3
2009	28
2008	35
2007	30
<b>Total</b>	<b>96</b>

**No. of State Government Scholarship obtained by B.Tech/DD students**

State	Batch / Total no. of students				Total
	2010	2009	2008	2007	
Andhra Pradesh	-	10	-	-	10
Delhi	10	7	11	15	43
Karnataka	-	2	3	3	8
Kerala	3	2	3	-	8
<b>Total</b>	<b>13</b>	<b>21</b>	<b>17</b>	<b>18</b>	<b>69</b>

**11.3 M.Tech:**

Students who joined M.Tech programme through GATE were awarded Half-time Teaching Assistantship (HTTA) at Rs.8000/- per month. During the period under report 344 fresh assistantships and 287 renewed assistantships were given. The discipline-wise details are given below:

**No. of HTTA awarded**

Sl. No.	Discipline	Fresh – 2010 batch		Renewal - 2009 batch
		I Sem.	Non-HTTA got HTTA	
1	Aerospace Engineering	11	4	11
2	Applied Mechanics	11	1	9
3	Chemical Engineering	31	4	26
4	Civil Engineering	43	5	38
5	Computer Science & Engg.	54	-	45
6	Electrical Engineering	51	-	46
8	Indl. Maths & Sc.Computing	5	3	9
9	Mechanical Engineering	65	7	61
10	Metallurgical & Mat. Engg.	16	2	13
11	Ocean Engineering	21	1	22
12	Solid State Technology	9	-	7
<b>Total</b>		<b>317</b>	<b>27</b>	<b>287</b>

**11.3.1 M.Tech Dual Degree**

Students who joined M.Tech programme under Dual Degree of 2006 batch were awarded Half-time Teaching Assistantship (HTTA) at Rs.8000/- per month based on their obtaining valid GATE score or on seaming CGPA of 8.0 or above (CGPA of 7.5 & above for SC / ST). During the period under review 181 students were awarded fresh assistantships of Rs.8000/- per month from June 2010 and 181 renewed assistantships in Jan. 2011 out of which 164 students were renewed HTTA at the rate of Rs. 8000/- p.m and 17 students at the rate of Rs. 4500/-p.m. since they obtained CGPA of less than 6.5 in July-Nov. 2010 semester. The department-wise details are given below:

Sl. No.	Discipline	2006 batch	
		Fresh (9 <sup>th</sup> Sem.)	Renewal (10 <sup>th</sup> Sem.)
1	Aerospace Engineering	11	11
2	Biotechnology	10	10
3	Chemical Engineering	13	13
4	Infrastructural Civil Engg.	16	16
5	Computer Science & Engg.	13	13
6	Electrical Engineering	43	43
7	Engineering Design	18	18
8	Mechanical Engineering	43	43
9	Met. & Mat. Engineering	8	8
10	Naval Arch. & Ocean Engg.	6	6
<b>Total</b>		<b>181</b>	<b>181</b>

#### 11.4 M.Sc.:

Students admitted to M.Sc programme were sanctioned Rs 1000/- p.m. merit scholarship as per rule. Exemption from payment of tuition fee was also given to certain students. During the period under report 133 students benefited. The department-wise details are given below:

##### No. of Merit Scholarship and freship awarded

Sl. No.	Course	Merit scholarship		Freeship (tuition fee waiver)		50% Freship (50% tuition fee waiver)	
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	1 <sup>st</sup> Year	2 <sup>nd</sup> Year
1.	Chemistry	12	10	6	4	9	10
2.	Mathematics	12	10	5	4	8	4
3.	Physics	11	10	5	4	2	7
<b>Total</b>		<b>35</b>	<b>30</b>	<b>16</b>	<b>12</b>	<b>19</b>	<b>21</b>

#### 11.5 M.A.:

Institute Merit Scholarship: 25% of students admitted to M.A programme and whose parental income is less than Rs. 4.5 lakhs were sanctioned Merit Scholarship ( i.e exempted from payment of tuition fee of Rs. 3000/- semester plus pocket allowance of Rs. 1000/- per month).

SC/ST students admitted to M.A programme and whose parental income is less than 4.5 lakhs were sanctioned the concession of free messing plus pocket allowance of Rs.250/-p.m. and exemption from payment of tuition fees and hostel seat rent as per Government of India post-matric scholarship rules.

Institute free studentship scholarship for M.A. programmes were sanctioned to the students, which comprises of exemption from payment of tuition fees.

The batch-wise details of number of students benefited also are given below:

Batch	Merit Scholarship	SC/ST Scholarship
2010	7	2
2009	1	2
2008	-	-
2007	1	1
2006	2	-
<b>Total</b>	<b>11</b>	<b>5</b>

#### 11.6 M.S.:

The scholars admitted to MS programme through GATE are given Half-time Teaching Research Assistantship (HTRA) of Rs 8000/- p.m. for three years. During the period under report 598 scholars received these assistantships of which 155 were fresh scholars. The department-wise details of the assistantships awarded and renewed are given below:

##### No. of HTRA awarded

Sl. No.	Discipline	Fresh	Renewal	Total
1	Aerospace Engineering	7	48	55
2	Applied Mechanics	12	25	37
3	Biotechnology	5	25	30
4	Chemical Engineering	9	24	33
5	Civil Engineering	8	30	38
6	Computer Sc. & Engg.	12	52	64
7	Engineering Design	7	16	23
8	Electrical Engineering	46	84	130
9	Management Studies	13	37	50
10	Mechanical Engineering	21	67	88
11	Metallurgical & Mat. Engg.	1	15	16
12	Ocean Engineering	14	20	34
<b>Total</b>		<b>155</b>	<b>443</b>	<b>598</b>

### 11.7 Ph.D:

The Scholars admitted to Ph.D. full time programme in Engineering are sanctioned Half-time Teaching / Research Assistantship (HTRA) of Rs.18000/- p.m. for first 2 years and Rs.20000/- p.m. for next 2 years. Scholars admitted to the Ph.D fulltime programme in the Science subjects through GATE or other equivalent exams are sanctioned Rs.16000/- p.m. for first 2 years, Rs.18000/- p.m. for next 2 years and Rs.18000/- for fifth years. During the period under report 853 students obtained assistantships of which 172 were fresh scholars. The department-wise details of the assistantships awarded and renewed are given below:

#### No. of HTRA awarded

Sl. No.	Discipline	Fresh	Renewal	Total
1	Aerospace Engineering	7	38	45
2	Applied Mechanics	11	34	45
3	Biotechnology	7	63	70
4	Chemical Engineering	12	40	52
5	Chemistry	20	51	71
6	Civil Engineering	22	65	87
7	Computer Science & Engg.	5	28	33
8	Engineering Design	8	11	19
9	Electrical Engineering	11	90	101
10	Humanities & Soc. Sciences	5	15	20
11	Management Studies	7	19	26
12	Mathematics	2	8	10
13	Mechanical Engineering	21	107	128
14	Metallurgical & Mat. Engg.	9	30	39
15	Ocean Engineering	10	19	29
16	Physics	15	63	78
<b>Total</b>		<b>172</b>	<b>681</b>	<b>853</b>

### 11.8 (a) Financial Assistance to Research Scholars/Students for presentation of papers abroad:

This Institute is encouraging the Research Scholars to present papers in international conferences for which they are given financial assistance. The financial assistance provided to M.S. & Ph.D. scholars are given under:

Adhoc amount including Registration fee: Rs. 1,00,000/-  
(Rs. 70,000/- upto June 2010)

### 11.8 (b) National/International conferences in India:

Research scholars and students of course programmes are given the following financial assistance for presentation of papers in National/International Conferences in India:

#### Registration fee:

National conference : Rs. 2,000/-  
International conference : Rs. 3,000/-  
Travel : Second class rail fare  
Daily allowance : Rs.200/- per diem subject to a maximum of 10 days

## 12. WEAKER SECTION & FOREIGN NATIONAL STUDENTS

### 12.1 B.Tech programme:

As per the GOI orders 27%, 15% and 7.5% of seats are reserved for OBC, SC and ST students respectively in the B.Tech. programme. These students are admitted through the Joint Entrance Examination with a relaxation. These students have to get only 60% of the marks obtained by the last student of the general category to get qualified for admission. During counselling prior to admission, the Adviser explained to each student the requirements of different branches. This helped the students to choose a suitable branch based upon their capability and interest. When a student finds the chosen branch is tough, he is allowed to switch over to lower JEE cut-off branch at the end of his first semester.

The following are the details of number of SC/ST students admitted to B.Tech programme through JEE and Preparatory Course in July 2010:

Total Sanctioned Intake	Sanctioned Intake		No. joined through				
			Program me	JEE		Preparatory Course	
				SC	ST	ST	PD
B.Tech - 474	71	36	B.Tech	71	37	11	1
Dual Degree - 364	55	27	Dual Degree	53	22	12	1

SC/ST students admitted against reservation are given the following benefits:

- Travelling allowance (II Class 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 Rs.250/- p.m. provided their parents' income is Rs.4,50,000/- net per annum or less.
- A Book Bank as part of Central Library is maintained for the benefit of the SC/ST students. The students are issued 12 tickets for taking 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 of one academic year was initiated by the Ministry of Human Resource Development, Government of India, during the year 1983-84 exclusively for SC/ST students. Selection for this course is made from the Joint Entrance Examination list of SC/ST students who did not qualify for admission. Upon successfully completing the preparatory course at the IIT, they would be eligible to join the B.Tech programme and they will not require to write the JEE again. Following are the details of admission in July 2010:

Offer issued for PC		No. joined	
ST	PD	ST	PD
1	6	1	5

25 Preparatory course 2009-10 batch candidates were offered admission to B.Tech/Dual Degree Programme in July 2010 as they have successfully completed the preparatory course.

### 12.3 M.Tech programme:

Seats are reserved for SC and ST candidates as per the Government of India orders. They are admitted through GATE by a separate merit list. Following are the details of admission in July 2010:

Offer issued		No. joined	
SC	ST	SC	ST
60	29	53	19

#### 12.4 M.Sc programme:

Admission was made to the M.Sc. programme through entrance examinations only. 18 SC and 4 ST students were admitted in M.Sc. These students were given tuition fee waiver.

M.Tech and M.Sc students admitted against reservation are given the following benefits:

- Book Bank facility with 12 library tickets. Books are issued for a semester.
- Both Public Sector and Private Sector industries were requested to recruit SC and ST students. Other special steps were also taken to enhance the recruitment of this category of students.
- Scholarship is given to these students as per Govt. of India norms.

#### 12.5 Admission of Foreign National Students and Indian National Residing Abroad:

In July 2010, 4 Ethiopian student joined M.Tech programme.

At the end of March 2011, \_\_\_ foreign nationals were on the rolls of the Institute. The programme and country-wise details are given below:

Country	I Year	II Year	III Year	IV Year	V Year	Total
<b>1. Foreign National Students</b>						
<b>M.Tech</b>						
Ethiopia	4	-	-	-	-	4
<b>M.S.</b>						
France	-	-	1	-	-	1
<b>Ph.D</b>						
	-	-		1	-	1
<b>Total</b>	<b>4</b>			<b>1</b>	-	

Foreign students are also permitted to use the Book Bank. 4 Book Bank Library tickets are issued to each student. Books are issued for a semester.

In addition to the above, IIT Madras Alumni Association provides financial assistance to students under IITMAANA Travel grant program to assist IITM students to visit USA and present their papers at nationally recognized technical conferences. The grant will cover airline ticket charges and visa fees but exclude payment of conference registration fees.

During the period under report, \_\_\_students benefited and Rs \_\_\_\_\_ lakhs released for the above purpose.

### 13. CAMPUS AMENITIES

IIT Madras is a residential Institution. It is housing about 5769 Students and 730 Faculty/Staff members in the Campus. It provides various amenities in the Campus for students and staff.

#### 13.1 Engineering Unit:

The Engineering Unit is entrusted with the responsibility of construction, maintenance of residential and non-residential buildings and various services of this Institute. This unit also award contracts in transparent manner and in the best interest of the Institute and by ensuring maintenance of all round integrity as well as best possible standards, adequate supervision. The Engineering Unit ensures timely, prompt and efficient services to the residents in the campus.

The Engineering Unit completed the following major works during the period April 2010 - March 2011:

Sl. No	Name of work	Rupees in Lakhs
1.	Addition and Alteration works in Academic Zone	285.00
2.	Renovation and Minor works at Kitchen, Bath and Toilet and repairing to floors in residential and Non-residential buildings in Residential zone	109.00
3.	Construction of 96 nos. C2 type quarters for faculty	1745.00
4.	Construction of additional floor (i.e third floor) over Alakananda, Narmada and Saraswathi Hostels (3 * 64 =192 rooms)	348.00
5.	Design, supply and Erection of Pre-Engineered and Prefabricated structural arrangements for the construction of additional rooms for girls hostel in Sharavathi hostel	328.00
6.	Construction of additional floor (4 <sup>th</sup> floor) at Sharavathi girls hostel	
7.	Construction of additional floor (i.e third floor) over Saraswathi, Alakananda and Narmada hostels	248.00
8.	Construction of 60 nos. of G type quarters (G+6) for married research scholars	948.00
9.	Construction of Additional floor over Tapti and Brahmaputra Hostels	345.00
10.	Extension of 3 <sup>rd</sup> floor in Engg. Design Building	106.00
11.	Providing and laying sewer line from new G type and C2 type quarters to sewage treatment plant	38.00
12.	Addition and Alteration works at OAT –Phase I	25.00
13.	Construction of additional class rooms in Ocean Engineering Department	27.00
14.	Creation of new infrastructure facilities (G+1) for Central School by replacing the damaged primary school wing	1014.00
<b>Total</b>		<b>5666.00</b>

#### Major Works Completed (Electrical):

Sl. No	Name of work	Rupees in Lakhs
1.	Provision of 500 kVA 11/0.433 kV substation for the new C2 type quarters and replacement of old OCB's AT sewage substation	58.00
2.	Revamping / Enhancement of existing LT network for Residential Zone building	67.00
3.	Revamping /upgradation of old industrial type MV panels to cubical panels in Academic zone buildings and substations	60.00
4.	Electrification works in the newly constructed sports complex	35.00
5.	Providing and installing lifts for C2 type residential flats	126.00
<b>Total</b>		<b>346.00</b>

#### Work in Progress:

Sl. No	Name of work	Rupees in Lakhs
1.	Construction of 512 nos. students room by replacing the existing mess, dining hall and construction of additional toilet block, common room and staircase at various hostels	1932.00
2.	Renovation and Minor works at Kitchen, Bath and Toilet and repairing to floors in residential and nonresidential buildings in Residential zone for the period 2010-11	125.00

3.	Construction of additional students floor (i.e third floor) over Tapati and Brahamaputra hostels (2x64 =128 rooms) and over double unit room 2x10 =20 rooms)	345.00
4.	Construction of compound wall with RCC precast panels and raising of boundary walls at various places along the boundary of IIT Madras	144.00
5.	Construction of an Academic Complex (G+6) by replacing the dilapidated workshop and stores buildings	12940.00
6.	Extension of AC facility to Central Library from existing central AC plant	70.00
7.	Creation of new infrastructure facilities for Vana Vani School by replacing the damaged primary school wing	1145.00
8.	Creation of a new Boys hostel	5248.00
<b>Total</b>		<b>21949.00</b>

In addition to the above, Engg. unit has engaged an Architectural consultant for preparing Master Plan for the Campus and updating the existing services.

#### **Future Plan:**

Following works are planned to be taken during the next academic year (7216.00 lakhs):

Sl. No	Name of work	Rupees in Lakhs
1.	Construction of centre for sustainability (G+6 floors)	2750.00
2.	Augmentation of Himalaya Mess (G+2 floors)	1130.00
3.	Augmentation of Krishna Hostel Mess (G+2 floors)	495.00
4.	Construction of New Canteen Block (G+1 floor)	1400.00
5.	Construction of New wing of Chemistry Dept. (G+2 floors)	913.00
6.	Community Hall	528.00

#### **13.2 Housing Facilities:**

As on 31.03.2011, 1076 staff and 180 students' quarters are available for accommodation to the staff members. In addition to this 176 servant quarters are also in the campus.

#### **13.3. Horticulture:**

A separate horticulture unit is functioning under Engineering Unit. A Corridor has been formed near proposed sports complex area for movement of blackbuck from hostel zone.

#### **13.4 Telephone Facilities:**

A new Telephone Exchange was commissioned by BSNL, Chennai Telephones Division in the Campus. All direct lines of this institute, which were linked from Raj Bhavan Telephone Exchange, were linked to this Exchange.

#### **13.5 Central Supplies Unit:**

- It functions under the administration of a Warden. The Unit procures milk from Tamil Nadu Co-operative Milk Producers' Federation (TCMPF) and distributes to the student hostels.
- Under the provision supply scheme, the Unit procures the items of major consumption from the wholesale suppliers through Provision Selection Committee and Provision Purchase Committee and distributes them to hostels, thus economizing the mess expenditure in the Hostel.
- Further to the above, the Unit is procuring the branded cosmetics and eatables from the wholesale dealers and distributing the same to the students through Students Amenities Centres under nominal price which is comparatively very less than the maximum retail price (MRP).

#### **13.6 Guest House:**

There are two Guest House in the Campus viz. the Main Guest House and Taramani Guest House which have 7 suites and 84 rooms respectively.

#### **13.7 Hospital:**

The Institute Hospital was started in 1969 with a single medical officer and a helper. From that state it has grown into a primary health care centre with 18 beds and about 40 staff. Round the clock emergency services are available on all days including holidays, besides regular OPD. Specialties are supported by visiting consultants from various reputed hospital of the city. Being located in the centre of the city, our patients have a wide access



to the best referred secondary and tertiary medical facility through a cashless group insurance facility. Additional medical officers, staff nurses and technicians (three each) were recruited this year. Total individuals registered at the hospital are roughly about 12,371 and about 91,080 cases have recorded during the year and availed medical advice this year.

#### **In-house Doctors:**

Dr. Sabitha Selvam	Chief Medical Officer (i/c)
Dr. Mahalakshmi M. Ravi	Sr. Medical Officer
Dr. Rebecca Punithavalli	Sr. Medical Officer
Dr. N. Porchelvi	Medical Officer
Dr. V. Thenral	Medical Officer
Dr. A.J. Tamilmani	Medical Officer
Dr. D. Saraswathi	Medical Officer
Dr.P.Kavitha	Medical Officer
Dr. R.Gowrishanker	Medical Officer
Dr. V. Sangamithra	Medical Officer (on contract)
Dr. Sobhana Devi	Medical Officer (on contract)
Dr. P.R. Shanmuga Priya	Medical Officer (on contract)

#### **Visiting Consultants**

Dr. J.S.N. Murthy	Cardiologist
Dr. S. Manoj	Cardiologist
Dr. N. Mahesh	Neurologist
Dr. Santosh Jayaraj	Diabetologist
Dr. S.Sakthivel	Endocrinologist
Dr. P.V. Jayashankar	Orthopaedic Surgeon
Dr. R.M. Alagappan	Orthopaedic Surgeon
Dr. Parthasarathy	Spinal Surgeon
Dr. A.Mohan Rao	General Surgeon
Dr. D.Parthasarathy	Anaesthetist
Dr. Tamil Selvi	Anaesthetist
Dr. S.Vasantha Jayaram	Psychiatrist
Dr. S.Vijayaraghavan	General Physician
Dr. G.Shobana Priya Sampath	Gynecologist
Dr. K.Sathish Babu	Pediatrician
Dr. A.Chandan	Dermatologist
Dr. D.Shanker	Oral Surgeon
Dr. K.Sharadamani	Dentist
Dr. P.Meenakshi Pandey	Ophthalmologist
Dr. K.Balamurugan	ENT

#### **UPGRADATIONS : 2010-11**

##### **Inpatients and Ward Sector:**

- A team of doctor, sister, brother, and a house keeping staff are available in three shifts.
- Diabetic CBG chart and diet chart added to admission case file.
- 16 hospital cots have been replaced with Foler's cots for easy bed side manuvouring
- New stainless steel bed side food tables in all rooms.
- The fax machine for immediate admission intimation to Insurance companies.
- Snake/rat / mosquito netlons fixed in all ward rooms and corridors.
- Fire extinguishers and Exit door as recommended by the Fire and Safety Board.
- Renewed tailor made Insurance, with cashless admissions and co-payments options.
- Immunotherapy/ Orthopedic closed procedures listed in Insurance this year for IIT.M
- Claim for admission in the Institute Hospital amounts to Rs.**39,70,952/-**
- A claim rate both for students and for employees is well above 100%.
- **GREEN** colour code has been allotted to the ward rooms ( linen /wall paint) for a cool comfortable convalescence

##### **Casualty Emergency Services:**

- Casualty medical officer and paramedical staff available in two shifts
- New sofesticated ICU cots, pulse oxymeter, nebulizer and suction apparatus.
- A push back mechanized wheel /nebu-chair

- Refrigerated stores of the vaccines, Anti-snake venom, and the emergency injections
- Injection/nebulization rooms within emergency zone.
- Revamped Minor OT/ dressing room.
- Stream lined referral system for external admissions/consultations and investigations.
- Additional ambulance on call services besides a primary 24 hours stand by ambulance with para-medical staff.
- Emergency telephone number **8888** with a caller I.D.
- **BLUE** colour code (linen/accessories) for the casualty.

#### **Out Patient Services:**

- Medical officers in OPD till 6.30 p.m as compared to 6.00pm.before for many late comers.
- Latest computers have replaced old ones in the OPD/CASUALTY /WARD rooms.
- New revolving examination stools in steel/spygmomanometers in all consultation rooms.
- OPD.stationary stores/ MRD Archives / General Stores /Insurance rooms
- Dressing /physiotherapy rooms internally revamped.
- About 18,950 patients have benefited from Consultant opinions/endoscopies/treatment procedures.
- Re-organized paediatric clinic with subsidized child and adult immunization clinic on the second Saturdays through GSK vaccines is available to all children of the campus.
- Enquiry/appointments/rescheduling/ registrations /ambulance movement channelized through reception.
- Medical leave certificates for make up exams as per revised ordinance rules.
- Different colour files for UG, PG, IIT-D&M,IC&SR &Foreign Students in MRD easier.
- Completion of Phase I & II of Integrated HIS linked to admin for employees registration and group insurance/ academic and hostel management for students registration / IC &SR for project staff / F&A & S&P for hospital office processes
- Phase –III links to SMF clinical laboratory /Apollo pharmacy in process.
- **MARRON** colour code for OPD.

#### **Diagnostic Services:**

- Radiologist and technicians investigated and reported about 4500 patients.
- Radiation protection rules / dosimeter badges / lead aprons / for staff, patients and attenders
- Digital X-ray facility much ahead TN. Govt implementation, cut budget on X-ray films
- Quality standardization and technical supervision over a period of time improved images.
- Zoomed positive, negative images & indicator arrow at fractures, helps in quick referral.
- Paper images generated for pre-op orthopaedic and medical board x-rays.
- Sonography machine and centre registered & approved for functioning under the expertise of radiologist, Dr. Sabitha Selvam by T.N. Regulatory Board against fetal sex identification.
- Doppler diagnosis of surgical emergency like torsion ovarian cyst/ruptured uterus.
- External sonography referral has been less than 2% this year
- CT/MRI/PET/DEXA/MAMO/TMT etc. at Govt. approved rates exclusively for IIT-Madras. This is inclusive of a pick-up and drop-off facility for students.
- Quality checks and imaging opinions on these by our radiologist.
- Enquiry/appointments/preparation/billing for both internal and external tests.
- Schilder upgraded ECG machine handled by technicians improved both quality and quantity.
- SMF laboratory samples twice a day for various pathology, immunology and microbiology.
- **PINK** colour code for diagnostics. discard

#### **Preventive Community Programs:**

- Exclusive health camp zone in the first floor of the hospital.
- Segregated hospital waste colour coded room with daily clearance
- Training house keepers and para-medicals at T.N Pollution Control Board.
- Students Pre-admission Medical Fitness with cervical cancer vaccine for girls
- Mandatory Pre-employment Medical Fitness & Immunization for all groups of employees.
- Annual Health Screening Camps for School Children, Campus Women, Hostel Employees, House-keeping staff
- Screening for Cardiac, Diabetes, Spirometry, BMD, BMI, Obesity, Thyroid, ENT,

- Eye , Dental, Hepatitis.B/HIV Colour coded
- Free/Subsidized Child and Adult Vaccination Clinics
- Mass Immunization programs including Pulse Polio, Swine-flu, Cervical Cancer, etc
- Free human diploid anti-rabies vaccination for dog /monkey bites
- Mosquito repellent spraying /overturning deer water troughs as per survey of National Malaria /Dengue Prevention Board.
- Viral conjunctivitis epidemic handled with timely announcement of public precautions
- First-aid and CPR demonstration programs for the campus residents/schools
- Quit smoking/alcohol/drugs awareness through TTK de-addiction hospital, Adyar.
- Health and Hygiene programs for Adopted Villages (IVIL) and KV schools
- Blood and Organ Donation awareness programs (SAGA)
- Blood donation camp in the Institute hospital during State blood donation drive.
- Free Medicine Samples donation to New life Charity Home through ATMA Charity
- Hepatitis-B and thyroid screening camp for the OWZONE workers

**Institute Hospital Records for the Year:**

- Certified as one of the best primary health center in facilities and management - by the external audit committee.
- Satisfied the mock test for emergency Ambulance call.
- Swine-flu management in Hospital/hostels and Swine flu vaccination camp were placed on record in the HOD and Hospital users committee meetings.
- The Deputy Chief Commissioner for person with disabilities at Delhi has complemented the Medical Examination for the Physically Challenged candidates seeking B.Tech. admission in IIT-Madras through a duly constituted Medical Board chaired by Dr. Sabitha Selvam, CMO (i/c) at the Campus Hospital and has duly cited the same to all concerned Institutes of Higher Education in other States / UT / Dept. of Education/ Dept. of Health to follow.

**ANNUAL CENSUS FOR THE YEAR 2010-2011**

<b>In Patients &amp; Out Patients - 91,080</b>	
<b>Department</b>	<b>No. of Cases</b>
OPD	79,644
Casualty	2952
Ward	405
Emergency	8079

<b>Diagnostic Sector - 10508</b>	
<b>Department</b>	<b>No. of cases</b>
Lab	7903
X-Ray	2850
ECG	891
USG	562
MRI/CT	302

<b>Specialist Treatments – 18,950</b>	
<b>Department</b>	<b>No. of cases</b>
Ophthalmology	2858
Ent	1452
Dermatology	2706
Physician	778
Endocrinology	1073
Orthopaedic	1750
Dental	1876
Gynaecology	1342
Surgery	461
Cardiology	1182
Neuro	598
Psychiatry	535
Paediatrics	2326

Date	Activities
17/04/2010	"Post Prandial Hyperglycemia and Diabetic Management" Prof. Harold E. Lebovitz, New York – A live Web telecast in Institute Hospital, IIT Madras
23/04/2010	"Mixed, Dyslipidemia Current Updation New Data" Dr. Asha Moorthy, Cardiologist, SRMC Hospital, Porur.
25/04/2010	Medical Examination for Physically challenged and course suitability interview with HOD's in IC & SR Hall by Dr. Sabitha Selvam, cmo i/c.
09/06/2010	Medical Examination for the Physically challenged seeking B.Tech. admission through a duly constituted Medical Board chaired by Dr. Sabitha Selvam, cmo i/c.
25/06/2010	"Helping your Patients Quit Smoking" by Dr.R.Gowri Shanker, IH, IITM.
26/06/2010	"Haemorrhoids & Anal Fissure" by Dr. Mohan Rao, General Surgeon, IH, IITM.
16/07/2010.	" Allergic Rhinitis" by Dr. A.J.Tamilmani, Institute Hospital, IIT Madras
24/07/2010	"Uric Acid and Cardio Vascular Risk" by Dr. Asha Moorthy, Cardiologist, SRMC
28/07/2010	A Live Demo "Urological Treatment Procedures" at RG Stones by Dr. R.Vijayakumar.
25/08/2010	"Subclinical Hypothyroidism & Lipid Management in Diabetis" by Dr. Shriram Mahadevan & Dr. A. Bharath ACEER, Chennai.
28-29/08/2010	VACCINATION CAMP FOR SWINE-FLUE H1N1 at Institute Hospital for all campus
05/09/2010	"Adolescent health & hygiene" for KV 8 -1 2 Std. by Dr. Sabitha Selvam, cmo-i/c
13/09/2010	"Mosquito borne diseases –prevention and protection" for KV Students of Classes 5 & 6 Std. by Dr. Sabitha Selvam, cmo-i/c.
22/09/2010	"Early diagnosis of Renal disease Role of ARB" Dr.Vijaya Sethumadhavan, Mehta Hsp
02/09/2010	"Nebula: A Refresher Course for Nurses in Respiratory Methods" by Cipla Respiratory.
23/09/2010 24/09/2010	International Rotary Club and IIT Madras conducted 2 days BLOOD DONATION CAMP at Institute Hospital as part of whole State drive for blood donation
21.10.2010	Awareness Programme "Bone Health In Women" by Dr. Sriram Mahadevan, Consultant Endocrinologist, SMF & Dr. R. Bharath, Visiting Consultant, IH, IITM.
29/10/2010	"Dyslipidemia Myth & Reality" by Dr. Pradeep Nayyar, Cardiologist, Chettinad Hospital, Chennai.
18/11/2010	"Urolithiasis" by Dr.ThirumalaiGanesan, FRCS, Consultant Urologist from Global Hospitals, Chennai.
18/11/2010	"Current concepts in Resuscitation" by Dr.Prakash, HOD, Emergency Medicine, Global Hospitals, Chennai.
26/11/2010	"Diabetic Hypertension & JNAC VIII Guidelines" by Dr. Sridhar, Endocrinologist, MIOT Hospitals, Chennai.
27/11/2011	CHILDREN'S DAY SPECIAL: Educational Hospital visit- 4th Std KV. Expression of our Hospital through Drawings. Compliments sachets of Complian-Nutrigro distributed.
07/12/2010	"Hypertension & Vascular Protection" Dr. MadhanaMohan, Cardiologist-Fortis Malar
04/01/2011	"Scorpion Sting -The unknown facts" by Dr. R. Gowri Shanker, IH, IIT M.
05/01/2011	"Liver Diseases & Liver Transplant " by Dr. Joy Verghese, Global Hospitals, Chennai.
18-22/01/2011	A comprehensive SCHOOL HEALTH CAMP for 1500 KV school children supported Fortis Dental Care, Vasan Eye Care, Fortis Malar Hospitals, Parasu Dental Care.
15/02/2011	"Pulmonary Eosinophilia and Management of Dry Cough" by Dr.Balamurugan, Chest Physician, Rakshat Hospital.
23/02/2011	"Wound management & Dressing Room Techniques " by Dr.A.Mohan Rao, IH, IITM Skill assessment examination for our para-medicals.

25/02/2011	"Indian Thyroid Guidelines 2011" video programme by M/s. ABBOTT India Ltd.
	"Interpretation of Pulmonary Function Test" by Dr. R. Gowri Shanker, IH, IITM.
8/3/2011 & 9/3/2011	WOMENS DAY SPECIAL: Awareness programme "A choice between Apple & Pear, fast tract on Obesity and Common gastrointestinal problems " Dr. V. Jayanthi,GastroHead, SMC. with Women's Forum in CLT.  CHECK CAMP for bone health, Hepatitis B, cardiac, diabetic and respiratory ,gyanec pap /mamo/dexa. All Hospital staff screened negative for Hepatitis B
23/03/2011	"Interactive Discussions in Cadiology" by Dr. Manohar, Assistant Professor of Cardiology, SRMC, Chennai.

### 13.8 Bank:

State Bank of India IIT branch is functioning on the campus, which has provided 2 ATMs. Canara Bank branch is also functioning on the campus. ICICI Bank has provided an ATM in the Hostel Sector.

### 13.9 Post Office and Telecom centre:

There is a post office on the campus opposite to the State Bank of India to cater to the needs of the staff, students and residents of the campus. A 24 hours telecom centre is functioning to cater to the needs of the staff, students and residents of the campus.

### 13.10 Schools:

Vanavani Matriculation Higher Secondary School (VVMHSS) administered by IIT Madras Educational Trust is functioning on the campus besides a Kendriya Vidyalaya (K.V.) VVMHSS school is offering courses from LKG to XII Standards and the KV is offering courses from I standard to XII standard.

### 13.11 Open Air Theatre:

An Open-Air Theatre is available for screening films by the Film Club during week-ends and for use for other functions of the Institute and the Schools.

### 13.12 Student Activities Centre:

This building is used for indoor games of the students as well as for the conduct of important functions such as Convocation, orientation programme for freshers etc.

### 13.13 Cafeteria:

Two Canteens, viz. IIT Staff Canteen and Tifanys Restaurant are available on the campus to cater to the needs of the staff and students. .

### 13.14 Crèche:

A Crèche is functioning in the campus for the benefit of staff/ working women. There were about 50 children in the Crèche during the period under report.

### 13.15 Transport Services:

The Institute has 8 LYNX buses which provide transport facility to the staff, students and residents of the campus. Transport facilities are also available for the official work.

### 13.16 Campus News:

Campus News is published every Friday highlighting the important events of the Institute.

## 14. FINANCE AND ACCOUNTS

The financial year of the Institute corresponds with that of Government of India i.e., 1<sup>st</sup> April to 31<sup>st</sup> 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 77<sup>th</sup> Finance Committee of the Institute in its meeting held on 23<sup>rd</sup> December 2010 recommended Non-Plan Revised Estimates of Rs.19000 lakh (Gross) for the year 2010-11 and Budget Estimates of Rs. 21400 lakh (Gross) for 2011-12. The Committee also recommended Revised Estimate of Rs.8350 lakh under Normal Plan and Rs. 7685 lakh under Capacity Expansion (OSC Grant) for 2010-11 besides recommending budget estimate of Rs.8500 lakh under Normal Plan Schemes and Rs. 10825 lakh under Capacity Expansion Schemes for 2011-12.

The following are the Summary of Revised Estimates 2010-11 and Budget Estimates for 2011-12 as approved by the Board of Governors of the Institute in their 207<sup>th</sup> Meeting held on 23.12.2010.

Head	(Rs. in Lakhs)		
	BE – 2010-11	RE – 2010-11	BE – 2011-12
<b>I. Non-Plan</b>			
Income	3271.00	3779.85	3690.00
Grant from MHRD(Proj)	14500.00	15220.15	17710.00
<b>Total</b>	<b>17771.00</b>	<b>19000.00</b>	<b>21400.00</b>
<b>Expenditure</b>	<b>17771.00</b>	<b>19000.00</b>	<b>21400.00</b>
<b>II. Plan</b>			
<b>a. Normal Plan:</b>			
Grant from MHRD	6350.00	8350.00	8500.00
<b>Expenditure</b>	<b>6350.00</b>	<b>8350.00</b>	<b>8500.00</b>
<b>Capacity Expansion:</b>			
Grant from MHRD	8075.00	768	10825.00
<b>Expenditure</b>	<b>8075.00</b>	<b>768</b>	<b>10825.00</b>

### Audit:

The Annual Accounts of the Institute for the year 2009-10 was audited by Principal Accountant General (Tamil Nadu & Pondicherry) during July 2010. The certified copy of Accounts and Audit Report were sent to MHRD, New Delhi for placing before Parliament on 27<sup>rd</sup> December 2010 after obtaining approval of Board of Governors of this Institute on 23<sup>rd</sup> December 2010 in its 207<sup>th</sup> Meeting. Summary of Plan/Non-Plan funds utilization for 2009-10 is as below.

### Plan:

(Rupees in Crore)	
Opening Balance	39.88
Normal Plan Grant Sanctioned during 2009-10	37.00
OSC Capacity Expansion Grant	48.47
<b>Total available</b>	<b>125.35</b>
<b>Capital Expenses during 2010-11</b>	
Buildings & Construction	38.13
Furniture & Fixtures	1.61
Equipments	43.68
Books, Journals & Periodicals	7.57
Revenue Expenditure	10.54
<b>Total</b>	<b>101.53</b>

**Non-Plan****(Rupees in Crore)**

Opening Balance	18.27
Grant Sanctioned during 2009-10	147.38
Tuition Fees	7.45
Hostel Fees	0.93
Entrance Examination Fees	15.39
Administrative Income	4.25
Interest Income	8.58
Other fees	1.20
Other Income	1.79
<b>Total available</b>	<b>205.24</b>
<b>Expenditure during 2009-10</b>	
Pay & Allowances	98.95
Service Pension & Family Pension- Retirement Benefits	53.78
Library Services	0.25
Health Services	2.00
Student Scholarship	14.42
Hall Subsidy	0.00
Administrative Expenses	2.58
Departmental/Laboratory/Workshop expenses	7.49
Transport Subsidy	0.56
Student Support Activities	0.60
Computer Facilities	1.16
House Keeping & Estate Maintenance	9.75
Water/Electricity Charges	14.58
Entrance Examination Expenses	8.28
<b>otal utilized *</b>	<b>214.40</b>
<b>Deficit</b>	<b>9.16</b>

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 129. Prof. Rama Shankar Verma  
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 131. Prof. Ramachandra Rao V S  
 132. Prof. Ramachandraiah A  
 133. Prof. Ramachandran K B  
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217. Dr. Harish Chandra
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 220. Dodda Ram Nikhil, SGS
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Dr. G. Saravana Kumar, Engineering Design

Dr. Sonika Gupta, Humanities and Social Sciences

Dr. Krishna Prasanna, Management Studies

Dr. K. C. Sivakumar, Mathematics

Dr. K. Srinivasan, Mechanical Engineering

Dr. A. S. Gandhi, Metallurgical & Materials Engineering

Dr. Nilanjan Saha, Ocean Engineering

Dr. M. Pattabiraman, Physics

### **Student Members Ex-officio:**

Mr. Anuraag N.V.S, Academic Affairs Secretary

Mr. Srinivas Bhaskar Karanki, Research Affairs Secretary

### **Secretary Ex-officio:**

Dr. Harish Chandra, Librarian

## 7. THE FINANCE COMMITTEE

### Chairman

#### **Dr. R Chidambaram**

Principal Scientific Adviser to the GoI  
Vigyan Bhawan Annexe, Maulana Azad Road  
New Delhi – 110 011

### Members

#### **Prof.M.S.Ananth**

Director  
Indian Institute of Technology Madras  
Chennai-600 036

#### **Shri Sunil Kumar**

Joint Secretary, Higher Education  
Ministry of Human Resource Development,  
Department of Secondary & Higher Education  
Government of India, Shastri Bhavan,  
New Delhi-110 001

#### **Shri Navin Soi**

Director (Finance), IFD  
Department of Higher Education  
Ministry of Human Resource Development  
Government of India,  
Shastri Bhavan, New Delhi-110 001

#### **Shri Kumar Jayant, IAS**

Commissioner of Technical Education  
Government of Tamil Nadu  
Chennai - 600 025

#### **Prof. Kuncheria P Issac**

Director  
Directorate of Technical Education  
Government of Kerala  
Padmavilasom, Fort  
Thiruvananthapuram – 695 023.

### Secretary

#### **Shri A Thirunavukkarasu**

Registrar  
Indian Institute of Technology Madras  
Chennai-600 036

## 8. BUILDING & WORKS COMMITTEE

### Chairman

**Prof M.S. Ananth**  
Director  
Indian Institute of Technology Madras  
Chennai – 600 036

### Members

Ms. Pratima Dikshit  
Director (T)  
Technical Section - I  
Department of Higher Education  
Ministry of Human Resource Development, Gol  
New Delhi - 110 115.

Shri N Seenivasagan  
Chief Engineer (Distribution),  
Chennai Region(South)  
Tamil Nadu Electricity Board,  
Electricity Avenue, 5-A, Block, First Floor  
No.802, Anna Salai, Chennai-600 002.

Shri P P Srinivasan  
Superintending Engineer  
Chennai Central Circle –I  
Central Public Works Department  
Shastri Bhavan  
Chennai – 600 006.

Prof. Bhaskar Ramamurthi  
Dean (Planning)  
Indian Institute of Technology Madras,  
Chennai-600 036.

Prof. S R Gandhi  
Chairman, Engineering Unit  
Indian Institute of Technology Madras,  
Chennai-600 036.

### Invitee

Shri R.Arumugam  
Superintending Engineer  
Engineering Unit  
Indian Institute of Technology Madras,  
Chennai-600 036.

### Member-Secretary

**Shri A Thirunavukkarasu**  
Registrar  
Indian Institute of Technology Madras  
Chennai – 600 036