

Annual Report 2013–2014



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

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1. DIRECTOR'S REPORT

The Indian Institute of Technology Madras (IIT Madras) was established in 1959 and declared an institute of national importance by an Act of Parliament in 1961. From modest but firm beginnings in 1964, when 91 B.Tech. and 15 M.Sc. degrees were awarded, the historic 50th convocation of the Institute will see a total of 1536 graduands—156 Ph.D., 119 M.S., 448 M.Tech., 51 M.B.A., 24 M.A., 125 M.Sc., 249 Dual Degree (B.Tech. and M.Tech.) and 318 B.Tech. degrees and 46 PG Diplomas. These degrees cover a wide range of disciplines and specializations, offered by the 11 engineering departments, three science departments, the Department of Management Studies and the Department of Humanities and Social Sciences. The Institute currently has 8234 students on its rolls, with more than 50% of them being post-graduate students.

Our faculty members are our backbone, and we continue to recruit each year world-class faculty members working in frontier areas of research. In 2013–2014, the Institute added 30 new faculty members, of whom four are women. We bade farewell to 10 faculty members and 47 staff members, who retired after a lifetime of dedicated service to the Institute.

I will now give you some snapshots of the achievements during the academic year 2013–2014.

1.1. Degree Programmes

The first batch of Honours students, numbering 58, graduates this year in our B.Tech. programme. The Honours programme is akin to a decathlon—students have to maintain consistently high performance right through their four years here to remain in the programme and take additional advanced courses as well. We are proud of the students who have challenged themselves and emerged as champions.

Today, we also award B.S. and M.S. degrees to the first Dual Degree batch of physics students. A similar Dual Degree in Biological Sciences has been launched recently.

The specialized programmes of our Institute—the Clinical Engineering programme (offered jointly with the Christian Medical College, Vellore and Sree Chitra Tirunal Institute for Medical Science and Technology, Tiruvananthapuram), the Visionary Leaders in Manufacturing PG Diploma programme (offered jointly with IIT Kanpur and IIM Kolkata), the PG Diploma programme in Metro Rail Technology and Management and the inter-disciplinary PG programmes in Catalysis Technology, Petroleum Engineering and Nuclear Engineering—continue to address critical needs of the nation. An M.Tech. programme in surface and undersea vehicle systems is being introduced from 2014 jointly with the Defence Institute of Advanced Technology to plug a gap in yet another critical area.

A key change in our UG curriculum has been the introduction of a 2-credit 'Life Skills' course. Apart from classroom sessions, it also includes Outbound Training to enable our students to deal with situations that they might encounter not only as students but also later in life. We propose to expand these efforts to give our students a more holistic educational experience in the coming years. There is surging demand from engineers and executives in industry for courses in emerging areas that will enable them to remain at the cutting edge of technology. IIT Madras will soon launch live online classroom-based courses in the evenings to cater to this important constituency - the first such initiative from the IITs.

The Department of Engineering Design has launched an integrated M.Tech. and Ph.D. Dual Degree programme. Attracted by the charms of a career in research, a total of 63 M.S. and M.Tech. students upgraded to the Ph.D. programme in 2013–2014. The China Studies Centre, in collaboration with the National Tsing-Hua University, Taiwan, now offers courses in Mandarin.

Our intense transnational collaborations have resulted in the signing of three new joint doctoral programme (JDP) agreements, with the Universities of Swinburne (Australia), National Tsing-Hua University (Taiwan) and University of Passau (Germany), bringing the total number of JDPs to four. Two new joint Ph.D. supervision agreements were signed, with the University of Melbourne and Deakin University, both in Australia.

A programme on sustainable power engineering that includes a strong research component has been launched under the aegis of the Indo-German Centre for Sustainability (IGCS), with Maschinenfabrik Reinhausen GmbH, Germany,

as an industrial partner. This programme will give impetus to projects in the field of electrical engineering to develop solutions especially addressing sustainability and environmental concerns with respect to power transmission and distribution, in cooperation with leading research institutions and universities in Germany and India.

1.2. Academic Research

Research at IIT Madras continued to flourish and attain new heights during the year under review. A total of 491 new Ph.D. students were admitted in 2013–2014, in keeping with the national goal of increasing the availability of high-quality researchers and teachers for industry and academia. About 20% of these are top-ranking students who were admitted directly after their B.E./B.Tech degree or upgraded from our Master's programme. A further 8% are industry personnel who will conduct their research at their own labs. The increasing pursuit of research by industry collaboratively with IIT Madras is a welcome trend.

In 2013–2014, our faculty and research scholars published 837 papers in refereed international journals and 112 in refereed national journals. They also presented 336 research papers at international conferences and 131 at national conferences.

1.2.1. Snapshots of Research

Around 330 research scholars, assisted by their faculty supervisors, have submitted theses and papers that have been published this year. The following examples of the high-quality work done by our scholars will serve as a beacon for the best and brightest in our country to take to the path of research and innovation.

- Vineeth Nair V., of the Department of Aerospace Engineering, studied the effect of intermittency on combustion instability and its impact on combustion noise.
- Ranjith Kumar, of the Department of Applied Mechanics, studied the hydrodynamics of flows in hydrophobic micro-channels using a new technique known as dissipative particle dynamics.
- Babu K. Sasi, of the Department of Biotechnology, studied the role of the *Hsp70* gene in hypertension, while T. Saravanan, of the same department, studied the stereo-chemistry of deracemization and asymmetric reduction reactions aided by biocatalyst.
- Chandrasekaran S., of the Department of Chemical Engineering, studied the characteristics of melting of metals and graphite powder using microwave heating.
- Bootha Raju M.S., of the Department of Chemistry, investigated the possibility of removal of contaminants in water using noble metals, and Anadi Singha Mahapatra, of the same department, explored novel ways of synthesizing glycoids and glycolpeptoids and carried out structural studies on them.
- Elson John, of the Department of Civil Engineering, studied the effect of temperature and cement characteristics on the cement–superplasticizer interaction.
- Gadhamsetty Ramakrishna, of the Department of Computer Science and Engineering, developed an efficient algorithm for tree spanners and cycle bases in subclasses of planar graphs.
- Anoop C.S., of the Department of Electrical Engineering, proposed a simple and efficient signal conditioning circuit suitable for magnetoresistive angle transducers.
- Ram Prabhu T., of the Department of Engineering Design, studied the tribological behaviour of metal matrix hybrid composites at high loads and sliding speeds.
- Josephine A., of the Department of Humanities and Social Sciences, explored how existing social, economic and political inequalities could be countered by reducing the digital divide.
- Elango J., of the Department of Management Studies developed a framework through which the efficacy of community based health insurance schemes can be evaluated from the viewpoint of stakeholders.
- Shani Jose, of the Department of Mathematics, extended the Sherman–Morrison–Woodbury formula and utilized it to obtain perturbation bounds for non-negative Moore–Penrose inverses for various operators.
- Rayapati Subba Rao, of the Department of Mechanical Engineering, carried out computational studies on counter-rotating turbines to identify the domain of optimum operation. P.K. Jithesh, also of Mechanical Engineering, studied the water management problem in PEM fuel cells and the strategy of addressing it through self-humidification.
- N. Kavitha, of the Department of Metallurgical and Materials Engineering, studied the preparation of SiC nanoparticles from rice husk and developed polymer–SiC nanocomposites.
- R. Manjula, of the Department of Ocean Engineering, studied the impact of breaking waves on slender vertical cylinders.
- Bhosale Udaysinh Tanajirao, of the Department of Physics, carried out studies on entanglement in random states and its consequences.

1.2.2. Research Centres

IIT Madras distinguishes itself from its peers by the quantity and quality of transformational technologies developed by its faculty, students and project staff, which impact the lives of our people. There is not a critical developmental challenge that is not being addressed by our work, be it in housing, energy, water, medical technology or education. Most of these game-changing solutions are developed at our research centres. We continued to set up new centres in 2013–2014 that leverage our inter-disciplinary strengths.

The Centre for Decentralised Power Systems in Electrical Engineering has developed an uninterrupted DC (UDC) power supply system, a first-of-its-kind system that guarantees uninterrupted power supply from the grid even during blackout situations. UDC ensures a limited but guaranteed supply of electricity from the grid for essential services such as lights, fans and electronic appliances. The system has been tested on campus at IIT Madras and trials are now under way in Tamil Nadu, Kerala, Karnataka and Telengana. Advantages of the UDC system include freedom from blackouts, higher energy efficiency and the creation of a demand-pull for installation of solar PV panels.

A Centre for Environmental Technology Development, Demonstration & Dissemination (CETeDDD) sponsored by Tamil Nadu Pollution Control Board (TNPCB) has been established in the Department of Civil Engineering. This centre will play a pivotal role in enhancing the know-how for managing the quality of water, waste and air by micro, small, and medium scale industries through appropriate research, technology development, demonstration, capacity building and extension services.

The Civil Engineering Department has also developed the Advanced Traveller Information System (ATIS). To demonstrate its capabilities, about 100 GPS devices have been fixed in MTC buses, and 30 cameras and 15 wireless nodes have been installed on several arterial roads. The traffic flow is being monitored using GPS from buses and a live traffic feed from the cameras. A system for sending SMS messages about bus routes, bus timings and locations of buses to passengers is also being tested.

The National Centre for Safety of Heritage Structures, established last year by the Civil Engineering Department, is one of its kind in the country. It is currently working with the Archaeological Survey of India (ASI) on restoration of the Kedarnath temple, affected by last year's floods, and the Brihadeeswara Temple in Thanjavur. A Master's programme for engineers from ASI, other state/central agencies and the conservation industry is on the anvil.

The Healthcare Technology Innovation Centre (HTIC) has developed ARTSENS, an affordable vascular screening technology that measures the stiffness of blood vessel walls. It addresses the unmet need of performing large-scale vascular health screening to prevent premature vascular events in younger people.

A nanomaterials-based drinking water purification technology, AMRIT, developed by the Thematic Unit of Excellence on Water, in association with InnoNano Research, an IIT Madras incubated company, has been deployed widely in the country. Over 150 small-scale community purifiers were installed last year in the arsenic-affected areas of the country, serving over 1,00,000 people in rural India. It is expected to serve 6,00,000 people by the end of next year. Technological solutions for other contaminants are being deployed. These developments will contribute significantly to our dream of providing clean drinking water to all through completely home-grown, sustainable and affordable technologies.

As part of a network involving Indian and Japanese researchers from several Indian research institutes, and Tokyo and Keio Universities in Japan, the Electrical Engineering Department recently demonstrated a rapidly deployable stand-alone, low-cost, multiway communication system. It has been built using GSM, WiFi and 4G LTE components, and a helium balloon, to provide both coverage and bandwidth to relief workers via voice, images and video communication. It enables relief authorities to stay in continuous broadcast communication with citizens, and allows citizens to seek help and communicate with their friends and relatives using their mobile phones even when the mobile networks in the disaster area are not operational.

A multi-disciplinary Centre for Technology and Policy (CTaP) has been established to unravel the interactions between technology evolution and public policy. Technology-driven interventions to solve complex challenges need to be informed by the social sciences with regard to the economic, cultural and political aspects, and public policy needs to be evolved keeping technology evolution in mind if such interventions are to make a dent. CTaP will collaborate with the research centres at IIT Madras that seek to develop high-impact disruptive and transformational technologies to provide the scaffolding for their efforts.

1.2.3. New Research and Fabrication Facilities

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

A Micro Gas Turbine has been installed in the Department of Aerospace Engineering for use in propulsion experiments. A cell sorter and super-resolution microscope, a cancer tissue storage facility, a live cell imaging system, a computing cluster, and an ultra centrifuge have been added in the Bhupat and Jyoti Mehta School of Biosciences.

A pyrolyzer in the Department of Chemical Engineering, an Industrial Robot with Robot Controller in the Department of Engineering Design; a CNC cylindrical grinding machine and a grinding machine in the Department of Mechanical Engineering, and a cryogenic liquid Helium and liquid Nitrogen facility in the Department of Physics, are some of the major additions. The ultra-sophisticated Thermo-mechanical Simulator facility and Transmission Electron Microscope were inaugurated this year in the Department of Metallurgical and Materials Engineering. An Experimental High Energy Physics (EHEP) Detector Development Laboratory has been set up as a part of the Indian Neutrino Observatory Project.

1.3. Academic Distinctions Secured by Our Faculty Members and Students

Several academic distinctions, honours and awards, fellowships of professional societies and memberships of editorial boards of journals have been bestowed on our faculty, staff and students in recognition of their academic achievements during the current year. Notable among these are the award of a Padma Bhushan posthumously to Dr. A. Ramakrishna and a Padma Shri to Dr. G. Sundararajan, the INAE Young Engineer Award to Dr. Ashis Kumar Sen, an IEEE Fellowship to Prof. Krishna Sivalingam and a INAE Fellowship to Prof. T Pradeep. Prof. Y. Shanti Pavan became the Editor-in-Chief of *IEEE Transactions on Circuits and Systems*, while Dr. Radhakrishna Ganti got both the IEEE Stephen O. Rice Prize in the field of communications theory and the Leonard G. Abraham Prize in the field of communications systems for two of his papers.

Four of our young faculty members, Drs. A. Arockiarajan, Madhulika Dixit, Bobby George and K. Kalpana, have won the Young Faculty Recognition Award of the Institute for the year 2013. Prof. Devadas Menon has won the award for excellence in teaching for the year 2013–2014.

In order to encourage excellence in research, a scheme of research and development awards for faculty members was introduced last year. Prof. Ashok Jhunjhunwala was awarded the Lifetime Achievement R&D Award of IIT Madras; Prof. A.N. Rajagopalan, Prof. R.I. Sujith and Dr. Sundargopal Ghosh were awarded the Mid-Career R&D Award; and Drs. A. Arockiarajan, Arun Tangirala and Madhulika Dixit were awarded the Junior-Level R&D Award.

Our faculty members were also prolific the past year in writing books and monographs and filing patents for their inventions. An exhaustive list of laurels won by our faculty and students is provided as an annexure to this report.

1.4. Industrial Consultancy and Sponsored Research

IIT Madras is pro-active in seeking out industry collaborations with a view to raising the technology bar in industry and making Indian globally competitive. Our faculty and students gain tremendously from the interactions as well. In 2013–2014, the Institute received a sanction of ₹54 crores for new projects from industry.

Public funding for research in the form of sponsored projects from science ministries and government departments is critical for the high research intensity of IIT Madras. The faculty secured sanctions for projects worth ₹151 crores in 2013–2014. The total value of ongoing sponsored projects in the Institute is ₹584 crores, which constitutes a sizeable part of the Institute's total budget.

The Institute earned ₹97 lakhs from technology transfer fees and royalties during the year 2013–2014. The Intellectual Property Management Cell enabled the filing of over 100 patents during the year. The details are provided in the annexure at the end of the report.

In order to enable students and new faculty to initiate and establish their research activities, the Institute supported 12 new Innovative Student Projects to the tune of ₹18.10 lakhs and 33 new faculty proposals to the tune of ₹607 lakhs.

The strength of our industry collaborations is evident from the increase in the number of MoUs signed to 60 this year, from 22 last year. MoUs have been signed with industries such as Tamil Nadu Pollution Control Board, Hindustan Aeronautics Ltd., Integral Coach Factory, Trivitron Healthcare Pvt. Ltd., Biocon Ltd., BHEL Corporate R&D Bangalore, Toshiba Corporation, Samsung Electronics Co. Ltd., Saint-Gobain Research India Limited and Titan Co. Ltd.

In order to provide an impetus for the initiation of new research along risky pathways, a research fund of ₹50 crores has been created. The interest income is used to fund the Research Award winners, Research Scholar Innovation Projects, Exploratory Research Projects from faculty members with “break-through” ideas, who can initiate work without waiting for external funding, New Faculty Initiation Grants and one large Team Project of significance that can demonstrate proof of concept of a new line of research. The fund also supports patenting and commercialization activities by the IP Cell and maintenance of capital equipment and operation of these facilities.

1.5. Research Park and Incubation

Our industry interaction is buttressed manifold by the IIT Madras Research Park (IITM-RP), which is India's first such university-driven park. Having reached maximum occupancy levels, with around 60 companies and research centres

since operations commenced in 2010, IITM-RP (respark.iitm.ac.in) has brought together in a common ecosystem, expertise from the industry, our faculty and students, creating an ambience where research and innovation are blended organically. IITM-RP currently houses R&D and innovation wings of corporate and public sector majors, engaged in collaborative research and technology transfer, adding to career opportunities for IIT Madras graduates. The RP is also an ideal hub for spin-out companies emerging from research and innovations at IIT Madras.

The construction work for Phase II of IITM-RP has commenced and is progressing as planned. Phase II, with a built up area of 8.2 lakh square feet, will have five blocks to cater to varied specifications meant to suit IT and mechanical and bio sciences.

The incubation activities at our Institute have been growing rapidly in recent years. In order to put them on a sound footing that will foster unhindered growth, IIT Madras Incubation Cell (IITM-IC) was created in March 2013 as a Section-25 company to serve as the nodal agency for all entrepreneurial activities arising out of IIT Madras. It operates from the Research Park, where about 35,000 square feet is marked as incubation space. Prof. Ashok Jhunjunwala is Professor-in-Charge of the IC, and a steering committee consisting of IIT Madras faculty members, alumni and facilitators of other sector-specific IIT Madras incubators and IITM-RP are actively involved in its operation.

Currently about 60 companies are incubated at IIT Madras, with a majority of them situated at IITM-RP. These ventures have been founded by students, the faculty, the staff and alumni of IIT Madras and external members (R&D partners) in different domains such as e-mobility, energy, water, education, healthcare, transport, consulting, green technologies, data analytics, web/mobile applications, software development, construction, social media, NDT, computer vision, photonics, haptics and network management. A summary is provided in the annexure.

The impact of the minor courses in innovation and social entrepreneurship being offered by the Centre for Social Innovation and Entrepreneurship (CSIE) has resulted in the development of proto-types such as an economical tent for homeless people in the winter, an assistive device for blind people and finger gloves for tea plantation workers and the preparation of business plans for these and other socially relevant innovations through interactions with various stakeholders. The course “Product Design and Business Models” resulted in proofs of concept (PoC) and business plans for 12 projects, some of which might mature to incubation.

1.6. Continuing Education

IIT Madras has an extensive outreach programme catering to teachers, practising engineers and researchers. The Centre for Continuing Education (CCE) organized 15 short term training programmes for engineering college faculty members, 81 continuing education programmes for Industrial personnel and about 10 programmes under the Curriculum Development Cell. These programmes benefitted about 10,000 participants in 2013–2014 and resulted in a revenue of around ₹2.7 crores.

Under the Book Writing Scheme, designed to encourage textbook writing by our faculty members, 78 books have been published so far, and three books have been published in the current year.

1.7. Our Contributions to the National S&T Educational System

IIT Madras plays an important role in assisting other engineering institutions in the country with their curriculum, laboratory upgrading and faculty career development. Under the Quality Improvement Programme (QIP), about 620 faculty members from other institutions have obtained their Ph.D. degrees and 590 faculty members from other institutions have obtained their M.Tech. degrees from IIT Madras since its inception. Currently we have a total of about 100 QIP Scholars—66 pursuing Ph.D. degrees and 37 M.Tech. degrees, which includes 23 and 13 women, respectively. The Institute is also assisting engineering colleges in Tamil Nadu and the neighbouring states with the implementation of their TEQIP-II programmes.

The National Programme on Technology Enhanced Learning (NPTEL) is India’s largest ICT-based technical course dissemination programme in the higher education sector. 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. About 750 (web/video) courses in engineering, science and technology developed under NPTEL are freely available on our NPTEL web site (<http://nptel.iitm.ac.in>), and the video courses are also available through YouTube at <http://www.youtube.com/iit>. The NPTEL Channel in Youtube has received more than 109 million upload views, and the NPTEL site has recorded more than 178 million visits since inception.

A MOOC, “Programming, Algorithms and Data Structures”, was offered by NPTEL in collaboration with NASSCOM as a 10-week course beginning March 2014, culminating in an in-person supervised exam in the first week of July. About 15,000 students have actively participated in the course. The online course will target between 1 and 5 lakh college students and graduates in all areas of science and technology over the next few years.

The QEEE (Quality Enhancement for Engineering Education) is an MHRD funded programme to lift the quality level of 500 engineering colleges across disciplines. The programme started with a pilot covering 70 colleges in the January–April 2014 semester and is now being expanded to cover over 150 colleges in the coming August–November semester. The primary mechanism being used for this is a mixture of interactive synchronous (live classes) and asynchronous (MOOC-type) content, delivered from five IITs (Madras, Bombay, Delhi, Kanpur and Kharagpur) using a large server at IIT Madras and local servers at each of the colleges—all connected via broadband links over NKN. A few courses running in the colleges are carefully picked (16 courses in the coming semester), and IIT faculty members teach one-third of the syllabus, with the focus being on motivating the subject and building up the foundational skills. The remaining two-thirds of the courses are offered by the local faculty members at the colleges.

IIT Madras' Summer Fellowship Scheme, initiated a few years ago, provides opportunities for summer research internship to top-ranking engineering and science students all over the country. A total of 158 students participated in the programme this year.

1.8. International Collaborations

IIT Madras has been interacting with several globally reputed universities and organizations for collaborative research, exchange of faculty and students, etc. The Office of I&AR promotes research collaborations and student exchanges with leading academic institutions and organizations around the world. More than 150 MoUs are in effect, and 3 joint doctorate programmes were launched in partnership with foreign universities in the year under review.

The number of new MoUs signed with foreign universities during 2013 was 45, doubling the number signed in 2012. Nearly 35 institutions around the world have been identified as strong collaborators in research, and these relationships are being strengthened through various means. Visitors from more than 50 global institutions during the year helped cement the build-up of strong academic ties, fueled by “research-interest mapping” of the faculty involved. Industry is increasingly being recruited as a key partner in these collaborations, enabling three-way partnerships for funding and research area definition. During the summer, about 240 faculty members from the Institute visited universities and research laboratories abroad for collaborative research, participation in conferences, visiting assignments, etc.

Over the past few years, the Institute has created several opportunities for international student exchange. Under the Indo-German Agreement between the seven IITs and seven technical universities in Germany, we deputed 6 M.Tech. students to undertake their project/thesis work in Germany last year. We also received 42 students from Germany to undertake their projects in our research laboratories. Under the DAAD sponsored IIT Madras–Bremen Student Exchange Programme, 4 M.A. students will visit the University of Bremen for a semester. Six students from EPFL, in Switzerland, visited IIT Madras last year, and 4 B.Tech./DD students from IIT Madras visited NTU, in Singapore.

IIT Madras continues to attract foreign students in sizeable numbers, particularly from Europe. The number of students coming into course-based programmes increased by 30%, from 96 in 2012 to 122 in 2013. Over the past few years, the Institute has encouraged students to pursue study/research-internship opportunities abroad via the collaborating faculty. The number of outgoing students increased by more than three times, from 18 in 2012 to 59 in 2013. Several steps have been taken to make the campus more hospitable to foreign students, including the formation of a peer student group that act as “buddies”, an annual “International Day” to celebrate diversity, picnics and an “International Education Fair” to familiarize IIT Madras students with exchange opportunities abroad.

1.9. Human Resources

The non-academic staff of IIT Madras have an integral role in achieving the Institute's goals in academics and research. In order to encourage consistently high performance and motivate employees, new recruitment and promotion norms have been framed that ensure merit-based and timely career advancement to employees. Systematic programmes are conducted throughout the year to train our technical and administrative staff and help them upgrade and acquire new knowledge, skills and professional orientation through a variety of learning experiences. In the year under review about 140 staff members benefitted from eight in-service and 17 offsite training programmes. Apart from this, as many as 35 officers/staff members have been provided Hindi training.

The Non-Academic Staff Recognition Awards were instituted this year to recognize the efforts of administrative/technical staff members who have been making significant contributions to the Institute through their outstanding and consistently excellent service. The awardees for 2013–2014 are Shri S.Gopalan, Smt. M.R. Nirmala, Shri T.Veldhas under the Administrative category; Dr. C. Baby, Shri C. Rajendran and Shri R. Murali under the Technical category; and Shri G. Balaganesan under the Supervisory/Managerial category.

The Teaching Learning Centre (TLC) has organized many faculty development programmes, workshops and lectures in the last year, and several faculty members both from within the Institute and from other colleges have benefitted from it.

1.10. Quality and Process Improvement Initiatives

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

The Institute has moved a significant part of its functions to WORKFLOW, the Institute-wide ERP solution that has mapped and optimized all the administrative and academic processes. The platform is flexible and can connect to third-party modules for specialized functions such as library, hospital and accounting services. The process is being enhanced to cover all the administrative and academic processes.

1.11. Performance Review and Strategic Planning

The Council of IITs has adopted a process of a five-yearly review of the IITs by a peer review committee. This Institutional review is to be preceded by a review of the academic departments. The institutional review includes an assessment of the academic programmes, research, vibrancy of student life, industry linkages, infrastructure, services, quality of management, vision for the next 5–10 years, etc. The departmental reviews naturally must feed into the institutional review, particularly with regard to the academic aspects. In IIT Madras the departmental reviews were undertaken during October–November 2013. The review reports resulted in action plans for implementing the changes recommended, which were vetted by the BoG. These, and the other Institute-level aspects described in the foregoing, were reviewed by a five-member Institutional Review Committee comprising Mr. Bhaskar Bhat, of Titan Industries, Mr. Ananth Krishnan, of TCS, Dr. P.R. Vasudeva Rao, of IGCAR, Prof. D. Thomas Thundat, of the University of Alberta, and Prof. K.R. Rajagopal, of University of Texas A&M, during 12–14 May 2014. The report of the committee is awaited.

A strategic plan developed through consensus plays a vital role in enabling all our stakeholders to align their efforts towards achieving our goals. “Strategic Plan 2020” has been finalized, and it articulates a vision to :

- become a leading global technological university, with substantial improvements in rankings and be in the global top 50 in all disciplines;
- become as renowned for postgraduate education as for the undergraduate courses;
- earn a reputation among students that IIT Madras is a “happening” campus;
- establish a track record as a creator of new and innovative technologies for industry and national needs;
- become known globally for transformational technologies that impact lives of people;
- incubate successful start-ups producing products using technology developed by the Institute; and
- improve the sustainability of the campus in terms of energy and water usage, waste management and recycling of materials.

1.12. Infrastructure Development

Sabarmati, the new women’s hostel, is the major infrastructure project completed during the year. Provision of a DC power supply for lights and fans is being implemented in the new hostel on an experimental basis. Major projects that are in progress are two new men’s hostels, with 792 additional rooms, a new academic complex and canteen building, a new block for the Chemistry Department and buildings for the Thematic Unit of Excellence on Water and the National Centre for Combustion R&D.

Ground-breaking for the new “Biosciences II” building, funded by the Mehta Family Foundation (Houston, TX), took place in September 2013.

The Institute ensures that all new buildings meet the green building norms and are provided with energy-efficient light fittings and are disabled-friendly. The access ramp provided in the renovated swimming pool merits special mention.

One of the major initiatives taken up by the Institute for generation of solar power is the installation of a 1 MW rooftop solar power plant. It is also proposed to upgrade the water supply system in the campus and augment the sewage treatment plant with a capacity of 4 MLD and increase the use of recycled water for gardening, flushing and air-conditioning cooling systems, thereby reducing the fresh water demand in the campus by about 50% in the years to come.

In keeping with the recommendations of the Council of IITs, a “Green Office” has been created that will, through the agency of the Campus Environment Management Committee, undertake creative measures to enhance the awareness and adoption of environment-friendly initiatives. The charter of the Green Office is to carry out regular green audits of the Institute’s infrastructure construction and usage, waste-water disposal policy, energy and water usage and renewable resource (solar energy and water recycling) management.

The P.G. Senapathy Centre for Computing Resources has ushered in consolidation and virtualization of servers in a significant way during this academic year. A cluster with 80 cores, 640 GB memory and over 100 TB of centralized storage and backup now hosts more than 60 virtual machines and has led to a reduction in the physical footprint, power consumption and air-conditioning. Virtual machines are now being provided to users “on demand”, leading to a reduction in the administration overhead and cycle time to deploy. The e-services are being expanded in scope and reach to address the need for increasing IT penetration in the campus. The storage capacity is continually being enhanced to support the expanding e-services. It is expected that the system can support up to 200 virtual machines.

The Zero Waste Zone (OWZone) project continues to do commendable service in keeping the campus clean. Five self-help groups collect the solid waste on campus on a daily basis for segregation, recycling and composting.

1.13. Student Co-curricular and Extra-curricular Activities

2013–2014 was another remarkable academic year for the students. Participation in the co- and extra-curricular activities saw an upward trend. All the competitions have seen concerted efforts and preparation from the IIT Madras teams, leading to laudable performances.

The IIT Madras sports contingent came a close second in the overall Men’s General Championship in the 49th Inter-IIT Sports Meet, held at IIT Guwahati, in which 16 IITs participated. There was a nail-biting finish.

The IIT Madras Aquatic Team (Men) won gold medals in both swimming and water polo events at the Inter-IIT Aquatic Meet, held at IIT Guwahati. Mr. Akshay Krishna, from the Engineering Physics programme, set five meet records (individual events) in the competition, and our relay team set meet records in both the 4×100 m free style and medley relays.

The revived Gerhard Fischer and Kokila Rajaiah Chennai basketball tournaments for men and women, respectively, Sports Fest, the second version of the Great Indian Sports Mela, and the newly reintroduced Jimmy George All India Invitational Volleyball Tournament kept the campus alive and vibrant through the year.

Our students have excelled in co-curricular activities this year, with the Centre for Innovation (CFI) being a hub of the activities. A team working in CFI filed the first students-only patent from IIT Madras to solve a complex problem faced by our railways. The students were subsequently successful in starting a company called HyperVerge to market the product.

Team Amogh won the National Student Autonomous Underwater Vehicle Competition 2014 and will be representing India and IIT Madras at the Internationals, to be held at San Diego. Team Sahaay, which works towards providing technical solutions for persons with disabilities, has been initiated and is developing technologies that directly impact this vulnerable section of our society. The IIT Madras formula-racing car RFR13, developed by Team Raftar, was entered in the Formula Student Competition, FSG 2013, held at Germany. The IIT Madras team has been crowned champions of Nihilanth 2013 (the Annual Inter IIT-IIM Quizzing Championship), which took place at IIM Ahmedabad in December 2013.

The student satellite project has now evolved into a large multidisciplinary project involving 50 students and several mentor-professors, as well as expert guidance from the engineers at the Indian Space Research Organization (ISRO). Funded generously by IIT Madras alumni, the student team is currently working on the integration model of IITMSAT. The 12.5-kg satellite, to be completed in 2015, will carry as its payload a high-energy particle detector to measure protons and electrons precipitated from the Van Allen radiation belts.

The annual techfest, Shastra, with the theme “Breaking Boundaries”, had a footfall of over 20,000 people from over 1000 colleges across the nation. Shastra 2014 saw 52 events, 13 student-conducted workshops and 24 lectures by renowned experts. Its outreach activities impacted over 5000 colleges and 2000 school students. Lunar Rover challenge, Pan-IIT Research Expo and Research Confluence were the other events that gave the festival a sheen.

The latest edition of Saarang, the annual cultural festival of IIT Madras, was held in the second week of January this year with the usual verve. Two plays by the dramatics club, Stagecoach, and the Fine Arts Workshop for the public at large, were highlights of this year’s cultural scene.

SPICMACAY, the cultural organization founded with the noble objective of promoting Indian arts, also gave the Institute some splendid performances from luminaries such as Hari Prasad Chaurasia. Their second week-long international festival was hosted on campus this year in June, with 1500 participants from colleges across the country and the who’s who of music, dance and the fine arts performing for and interacting with the campus community.

The International and Alumni Relations Student Council, consisting of the seven Team Heads and the Secretary (International and Alumni Relations) was established this year. The council collaborated with the Office of International and Alumni Relations and IIT Madras Alumni Association to strengthen the relationship between the Institute, alumni, faculty and students. Some of the notable initiatives include the creation of Chennai 36, the official alumni blog of IIT Madras, to help alumni reach out to students and to provide an interesting platform for alumni to share their experiences and stories from the campus. The “I Love Insti” video campaign was carried out to bridge the gap between the alumni

and the campus community. Apart from this, Career Connect (series of panel discussions and interviews for students to make informed choices), International Fair (fair to brand the opportunities abroad and clarify queries) and projects of the batches of 2013 and 2014 were initiated to get the best out of collaboration with our alumni and from the international attention that the Institute has received in recent years.

Aimed at engaging with the social issues outside of the campus, the student volunteers of Campus Palliative Care have visited many terminally ill patients and their families in supporting them to deal with adversities. They have also held skill development workshops for volunteers from outside the campus and have engaged in spreading awareness about stem cell donation. IIT for Society, in association with the Colloquium team, enthusiastically took up the issues relating to gender and caste that are often the given least importance in the discussions pertaining to society. The Sustainability Network conducted an energy audit of the hostels and organized a day-long summit on the emerging technological innovations and thinking prevalent in this sector. IIT for Villages conducted a symposium for the school students at Naththam village. Another constituent team, Disaster Management Committee, conducted workshops on emergency medical care sessions for student volunteers of various organizations in the campus.

An Honour Code Committee has been setup by the Student Affairs Council with a mandate of preparing an honour code for students of our Institute. The committee has drafted an inspiring and comprehensive code, which is in the final stages of the approval process.

1.14. Student Welfare

IIT Madras' counseling and guidance service, Mitra, organized many activities in the past academic year with the objective of nurturing a physically, socially, emotionally and intellectually balanced life among our students. Its structure and organization comply with the guidelines set out by the Dr. Anandkrishnan committee. We have already highlighted the Life Skills course launched by Mitra this year.

Mitra clears the doubts and concerns of prospective students, publishes the freshman booklet and guidebook, helps freshmen with initial settling, organizes parent interaction sessions/orientation sessions at the hostels/departments, etc.

Mitra has a web site that hosts information including the contact details of about 300 volunteers who assist the professional counsellors. Mitra volunteers go through first-level training as well as intense training under the counsellors. Counselling is provided by the professional counsellors, who are also available 24×7 on the telephone call.

The event "IDEA for Life", which connects freshmen with the alumni, who play a strong role in society, was a hit. Emoticon 2013, an event that was based on sharing emotions through various activities, attracted good participation from students.

1.15. Placement

As a result of reaching out to a total of 749 core and non-core companies this year, 267 companies visited IIT Madras for placement, of which 84 were core engineering companies. The focus was on contacting various Fortune 500 and other leading companies.

A total of 914 students were placed through the Placement Office, and a large fraction (57%) joined core engineering companies.

To enhance student interaction with the companies, the Research Park co-ordinated the summer internship 2014 drive, placing about 56 third-year students in internships in 26 companies.

1.16. Alumni Matters

A key focus of the Office of International & Alumni Relations has been to maximize two-way connectivity between the Institute and her alumni. Out of about 40,000 alumni who have graduated from IIT Madras, more than 21,000 are registered on the database, with the percentage exceeding 80% among recent batches.

It is a matter of immense honour and pride that our alumni have gone on to excel in their chosen careers and have made significant contributions to India and the world. IIT Madras has been honouring selected alumni with Distinguished Alumnus Awards since 1997 in recognition of outstanding achievements in the areas of entrepreneurship, leadership and management, academia and research, social and technological innovation, and service to humanity at large. This year, 10 alumni were honoured with the Distinguished Alumnus Award, the largest number yet in any given year. They are:

- Dr. Lalgudi V Ramanathan, Head, Energy and Nuclear Research Institute (ENRI), Brazil [1969/BT/MT]
- Dr. Krishna Raghavachari, Professor of Theoretical Chemistry, Indiana University, USA [1975/MSc/CY]
- Dr. Thirumalai S. Sudarshan, President and CEO, Materials Modification Inc., USA [1976/BT/MT]

- Dr. Venkatraman Sadanand, Associate Professor of Neurosurgery, Loma Linda University Medical Center, USA [1978/BT/EE]
- Mr. Raju Venkatraman, Founder, MD & CEO, Medall Healthcare Pvt. Ltd., Chennai, India [1981/BT/CH]
- Dr. Ananth Agarwal, Professor of Electrical Engineering and Computer Science, MIT, and President, edX, USA [1982/ BT/EE]
- Mr. Anil Ananthaswamy, Science Writer, Consultant, *New Scientist* magazine, author of *The Edge of Physics*, Bangalore, India [1985/BT/EE]
- Dr. Ramesh Govindan, Professor in the Department of Computer Science, University of Southern California, USA [1987/BT/CS]
- Mr. Kannan Lakshminarayan, Founder & CTO, Vortex Engineering Pvt. Ltd, Chennai, India [1988/BT/ME]
- Dr. Sridhar Ramaswamy, Senior Vice President, Search Advertising, Google Inc., USA [1989/BT/CS]

Other events that were held on campus in addition to Alumni Day and the silver reunion of the 1988 batch include “Distinguished Alumni Day”, held in April 2013 to celebrate the giving away of the 100th Distinguished Alumnus Award; the Leadership Lecture Series, an avenue for alumni to interact and share their experiences with students and faculty members, which saw 28 lectures being held between April 2013 and May 2014; the Nobel Laureate Lecture Series, funded by L&T Construction—Prof. Kurt Wuthrich presented the first lecture in January 2014; the Institute Lecture Series, sponsored by the 1985 batch—Bharat Ratna Prof.C.N.R. Rao delivered the inaugural lecture in January 2014; and the alumni-funded B.. Sengupto Lecture Series—the first lecture was delivered by Dr. E.G. Ramachandran in December 2013.

Alumni continue to contribute substantially to their alma mater. In 2013, alumni donations touched ₹12 crores. These funds supported several activities, including improvement of research infrastructure, socially-relevant projects and Chair Professorships, student and faculty awards, students’ fee waivers and travel grants for both students and faculty members. The focus in fund-raising has shifted from being project-based to being institutional and societal-impact based.

1.17. Acknowledgements

An endeavour on the scale of this Institute and its entire gamut of activities takes place with the whole-hearted participation and support of all stakeholders—our faculty, students and staff; agencies and industries sponsoring R&D and consultancy projects; professionals from other organizations who assist us in various capacities; and our alumni. In particular, I would like to thank office-bearers such as Heads of Department, Deans, Chairpersons, Wardens, Advisors and Professors-in-charge of various cells and centres for the selfless work they put in to keep the Institute ticking. The Institute is grateful to the Ministry of Human Resources Development, Government of India, for its continued and sustained encouragement and support. I wish to welcome Dr. Pawan Goenka, who has taken over very recently as the Chairman, Board of Governors (BoG) of IIT Madras. An alumnus of IIT Kanpur and Cornell University, he is a trail-blazer in the Indian automotive industry and counts among those directly responsible for its strong indigenous base. We look forward to his support and guidance to enable us to scale new heights. I would also like to thank Padma Vibhushan Prof. M.M. Sharma, our outgoing Chairman, BoG for his wise counsel and unswerving commitment to academic excellence and the growth of research and industrial consultancy at IIT Madras. I take this opportunity to thank outgoing BoG member Shri N. Vasantha Kumar and welcome Shri J. Ashok Kumar to the BoG. I would like to thank our chief guest, Dr. Devi Prasad Shetty for gracing this convocation. He too is a trail-blazer, in his field of medicine, and we eagerly await his address. Before I end, I would like to congratulate the prizewinners today and wish all our graduands happiness, professional success and fulfilment from a life of service to family and country. God bless you all.

Annexure

Faculty Awards/Honours

- | | |
|----------------------------------|---|
| Dr. Sujith R.I. (AE) | – Mid-Career Research and Development Award, IIT Madras |
| Dr. Arockiarajan A. (AM) | – Junior-Level Research and Development Award, IIT Madras |
| Dr. Arul Prakash K. (AM) | – Distinguished Amrita Alumnus Award, Amrita School of Engineering |
| Computational Biology Group (BT) | – Recognized as one of the best performing groups among the 170 top institutions in the country, DBT Biotechnology Information System Network |
| Dr. Madhulika Dixit (BT) | – Junior-Level Research and Development Award, IIT Madras |
| | – Young Faculty Recognition Award, IIT Madras |

- Dr. Satyanarayana N. Gummadi (BT) – Talented Industrial Biotechnologist Award, Association of Biotechnology and Pharmacy
- Dr. Arun K. Tangirala (CH) – Junior-Level Research and Development Award, IIT Madras
- Dr. Archita Patnaik (CY) – Listed by American Chemical Society as one among 30 high-quality publishers from India
- Dr. Graham Cooks R. (CY)* – Dreyfus Prize in the Chemical Sciences
- Dr. Mishra A.K. (CY) – Prof. Wahid Uddin Malik Memorial Award, Indian Council of Chemists
– Acharya P.C. Ray Memorial Award, Indian Chemical Society
- Dr. Pradeep T. (CY) – Eminent Mass Spectrometrists Award, Indian Society for Mass Spectrometry
- Dr. Ramesh L. Gardas (CY) – Prof. Oswal Young Scientist Award, The Indian Thermodynamics Society
- Dr. Sundargopal Ghosh (CY) – Mid-Career Research and Development Award, IIT Madras
- Dr. Devdas Menon (CE) – Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching, IIT Madras
- Late Dr. Ramakrishna A. (CE)** – Padma Bhushan, Government of India
- Dr. Ravindra Gettu (CE) – Honoured at the Third International Conference on Sustainable Construction Materials and Technologies at Japan
- Dr. Shankar Balachandran (CS) – IBM Faculty Award
- Dr. Ashok Jhunjhunwala (EE) – Lifetime Achievement Research and Development Award, IIT Madras
- Dr. Bobby George (EE) – Young Faculty Recognition Award, IIT Madras
- Dr. Nandita Dasgupta (EE) – MRSI Medal
- Dr. Nitin Chandrachoodan (EE) – IBM Faculty Award
- Dr. Rajagopalan A.N. (EE) – Vividhlaxi Audyogik Sanshodhan Vikas Kendra (VASVIK) Award
– Mid-Career Research and Development Award, IIT Madras
- Dr. John Bosco Lourdasamy (HS) – International Scholar, The Society for the History of Technology
- Dr. Kalpana K. (HS) – Young Faculty Recognition Award, IIT Madras
- Dr. Ashis Kumar Sen (ME) – IEI Young Engineers Award, IEI
– INAE Young Engineer Award
- Dr. Krishnan Balasubramanian (ME) – Distinguished Alumni Award, National Institute of Technology Tiruchirappalli
- Dr. Srinivasa Rao Bakshi (MM) – The Young Professional Award, ASM International Chennai Chapter
– TMS MPMD Young Leader Professional Development Award, The Minerals, Metals and Materials Society, USA
- Dr. Sundararajan G. (MM)*** – Padma Shri, Government of India
– National Metallurgist Award, Indian Institute of Metals
- Dr. Abdus Samad (OE) – Er M.P. Baya National Award, Institute of Mechanical Engineers-India.
- Dr. Idichandy V.G. (OE) – Silver Medal, 25th International Invention, Innovation and Technology Exhibition
- Dr. Jitendra Sangwai (OE) – Young Faculty Recognition Award, IIT Madras
– Inventional Award, Intellectual Ventures
- Dr. Rajesh R. Nair (OE) – SPE Student Chapter Faculty Advisor Award, Society of Petroleum Engineering International

*Distinguished Professor; **Adjunct Faculty; *** Joint Professor.

Fellowships

- Dr. Satyanarayana N. Gummadi (BT) – Elected Fellow, Association for the Advancement of Biodiversity Science
- Dr. Michael Gromiha (BT) – ICMR International Fellowship, ICMR

- Dr. Balakrishnan A.R. (CH) – Fellow, Institution of Engineers (India)
- Dr. Pradeep T. (CY) – Fellow, Indian National Academy of Engineering
- Dr. Krishna M. Sivalingam (CS) – Fellow, Institute of Electrical and Electronics Engineers
- Dr. Joe Thomas Karackattu (HS) – First Centenary Visiting Fellow, SOAS, University Of London
- Dr. Manivannan P.V. (ME) – Teaching Fellowship, University of Kaiserslautern, Germany

Books/Monographs

- Dr. Nandan Kumar Sinha (AE) – *Elementary Flight Dynamics with an Introduction to Bifurcation and Continuation Methods*, CRC Press, Florida, USA
- Dr. Suraish Kumar G.K. (BT) – *Continuum Analysis of Biological Systems: Conserved Quantities, Forces and Fluxes*, Springer
- Dr. Chidambaram M. (CH) – *Relay Auto Tuning for Identification and Control*, Cambridge University Press, 2014
- Dr. Raphael B. (CE) – *Engineering Informatics: Fundamentals of Computer Aided Engineering*, John Wiley
- Dr. Veeraraghavan A. (CE) – *Highway Engineering*, Nem Chand & Bros
- Dr. Deepak Khemani (CS) – *A First Course in Artificial Intelligence*, Tata McGraw-Hill
- Dr. Janakiram D. (CS) – *Building Large Scale Software Systems*, McGraw-Hill Education
- Dr. Kamakoti V. (CS) – Academy Excellence Award, Defence Research & Development Organisation
- Dr. Prabhu K.M.M. (EE) – *Window Functions and Their Applications in Signal Processing*, CRC Press, Taylor and Francis Group
- Dr. Rajagopalan A.N. (EE) – *Motion Deblurring: Algorithms and Systems*, Cambridge University Press
- Dr. Aysha Iqbal Viswamohan (HS) – *English for the Hotel Industry*, Pearson, New Delhi
- Dr. Joe Thomas Karackattu (HS) – *The Economic Partnership between India and Taiwan in a Post-ECFA Ecosystem*, Springer
- Dr. Srilata K. (HS) – *Writing Octopus* (a collection of poems), Authorpress, New Delhi
- Dr. Swarnalatha Rangarajan (HS) – *Ecoambiguity, Community, and Development: Toward a Politicized Ecocriticism*, Lexington Books, an imprint of Rowman and Littlefield Publishing Group, USA
- Dr. Vidya Sarveswaran (HS)
- Dr. Thillai Rajan A. (MS) – Guidance book for first generation entrepreneurs in Tamil entitled சிகரம் தேடி (முதல் தலைமுறை தொழில் முனைவொருக்கான ஒரு வழிகாட்டி)
- Dr. Arunn Narasimhan (ME) – நேனோ: ஓர் அறிமுகம் (*Nano: An Introduction*), Tamizhini Publications, Chennai
- ஏலியன்கள் இருக்கிறார்களா? (*Do Aliens Exist?*), Tamizhini Publications, Chennai
- Dr. Balaji C. (ME) – *Essentials of Radiation Heat Transfer*, Ane Books
- Dr. Venkateshan S.P. (ME) – *Computational Methods in Engineering*, Ane Books
- Dr. Prasanna Swaminathan (ME)
- Dr. Balasubramanian M. (MM) – *Composite Materials and Processing*, CRC Press
- Dr. Srinivasan Chandrasekaran (OE) – *Dynamic Analysis and Design of Offshore Structures*, Centre for Continuing Education, IIT Madras
- *Advanced Theory on Offshore Plant FEED Engineering*, Changwon National University, Republic of South Korea
- Dr. Ramachandra Rao M.S. (PH) – *Nanoscience and Nanotechnology: Fundamentals to Frontiers*, Wiley

Membership of Editorial Boards

- Dr. Michael Gromiha M. (BT) – Member, Editorial Board, Bioinformatics and Structural & Molecular Biology sections, *Biology Direct*, BioMed Central, UK
- Dr. Nitish R. Mahapatra (BT) – Guest Editor, *International Journal of Hypertension*
- Dr. Smita Srivastava (BT) – Member, Editorial Board, *Bioinformatics and Biotechnology*
- Member, Editorial Board, *Research Journal of Biotechnology by ISBT*
- Dr. Nageswara Rao B. (CE) – Member, Editorial Board, *Structural Monitoring & Maintenance*, Techno-Press
- Dr. Saravanan U. (CE) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Sudheer K.P. (CE) – Associate Editor, Catchment Hydrology Section, *Journal of Hydrology and Hydromechanics (JHH)*, Institute of Hydrology of the Slovak Academy of Sciences and the Institute of Hydrodynamics of the Academy of Sciences of the Czech Republic
- Dr. Pradeep T. (CY) – Member, Editorial Board, *Chemistry: An Asian Journal*, Asian Chemical Editorial Society
- Associate Editor, *ACS Sustainable Chemistry & Engineering*, American Chemical Society
- Dr. Anurag Mittal (CS) – Area Editor *Journal on Computer Vision and Image Understanding*, Elsevier
- Dr. Krishna V. Nandivada (CS) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Ravindran Balaraman (CS) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Krishna S. (EE) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Nitin Chandrachoodan (EE) – Associate Editor, *Signal Processing Systems*
- Dr. Shanthi Pavan (EE) – Editor-in-Chief, *IEEE Transactions on Circuits and Systems*, Regular Papers
- Dr. Srilata K. (HS) – Guest Editor, special feature on poetry, *Muse India* (on-line journal)
- Dr. Ponnusamy S. (MA) – Vice-President and Editorial Member, Indian Academy of Mathematics
- Member, Editorial Board, *Mathematical Analysis, The Scientific World Journal*, Hindawi
- Member, Editorial Board, *Issues of Analysis* (Russian)
- Member, Editorial Board, *Ilorin Journal of Science* (Nigeria)
- Dr. Kamalanabhan T.J. (MS) – Member, Editorial Board, *Human Resource Development Review*, Sage Publications
- Dr. Usha Mohan (MS) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Ramesh Babu N. (ME) – Associate Editor, *Sadhana*, Indian Academy of Sciences
- Dr. Shunmugam M.S. (ME) – Regional Editor (India), *International Journal of Advanced Manufacturing Technology*, Springer
- Dr. Subramanya Sarma V. (MM) – Key Reader, *Metallurgical and Materials Transactions A*, Springer US
- Dr. Bhattacharyya S.K. (OE) – Guest Editor, special issue of *Journal of Engineering for the Maritime Environment*
- Dr. Rajiv Sharma (OE) – Guest Editor, special issue of *Journal of Engineering for the Maritime Environment*
- Dr. Sundar V. (OE) – Member, Editorial Board, *Journal of Applied and Engineering Sciences*
- Dr. Ganesan A.R. (PH) – Associate Editor, Interferometry and Holography sections, *Journal of Optical Engineering*, SPIE
- Dr. Ramaprabhu S. (PH) – Associate Editor, *Journal of Nanoscience and Nanotechnology (JNN)*, American Scientific Publishers

Best Thesis Awards

- Dr. Bhaskar Sangoju (CE) – UltraTech Award 2013, Outstanding Thesis in the field of Concrete in Tamil Nadu, by the Indian Concrete Institute (Tamil Nadu Chennai Centre)
- Dr. Narayan P.C. (MS) – 2013 Emerald/EFMD Outstanding Doctoral Research Award

Best Paper/Poster Awards

- Ranjan Piyush (AM) – Contest Chairman’s Award, 51st Annual Rocky Mountain Bioengineering Symposium (RMBS-2014)
- Dr. Ramakrishnan S. (AM) – Best Paper Award, 51st Annual Rocky Mountain Bioengineering Symposium (RMBS-2014)
- Venugopal G. (AM) – Best Paper Award, 51st Annual Rocky Mountain Bioengineering Symposium (RMBS-2014)
- Dr. Ramakrishnan S. (AM) – First Prize for Poster Presentation, International Conference on Emerging Trends in Chemical Sciences
- Jayakumar S. (BT) – Best Poster Award, Second Asian Congress on Biotechnology
- Guide:* Dr. Kesavan V. (BT)
- Jyotsna Jolly (BT) – Young Investigator Award in Clinical Research for Best Oral Presentation, 11th Annual Conference of International Society for Heart Research
- Dr. Ramachandran K.B. (BT) – Best Poster Award, Second Asian Congress on Biotechnology
- Kiranmayi Malapaka (BT) – Best Poster Award, Second Asian Congress on Biotechnology
- Guide:* Dr. Nitish R. Mahapatra (BT)
- Rothangmawi Victoria Hmar (BT) – Third Prize for Poster Presentation, International Conference on Emerging Trends in Chemical Sciences
- Dr. Guhan Jayaraman (BT) – Best Poster Award, Second Asian Congress on Biotechnology
- Dr. Ramachandran K.B. (BT)
- Saravanan T. (BT) – Best Presentation Award, IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS)
- Guide:* Dr. Anju Chadha (BT)
- Veerabhadra MV (BT) – Chemical Weekly Award, Indian Institute of Chemical Engineers
- Dr. Rayala S.K. (BT) – IICChE NRC Award, Indian Institute of Chemical Engineers
- Dr. Ramachandran K.B. (BT) – Kuloor Memorial Award, Indian Institute of Chemical Engineers
- Abhishankar Kumar (CH) – Best Presentation Award, 10th International Symposium on Dynamics and Control of Process Systems
- Guide:* Dr. Sridharakumar Narasimhan(CH)
- Dr. Sai P.S.T. (CH) – Best Paper Award, International Conference on Civil and Building Engineering Informatics in Tokyo, Japan
- Tanmay Voore (CH) – Best Paper Award, 19th IEEE International Conference on Networks (ICON)
- Sangram Roy (CH)
- Satheesh Kumar Perepu (CH)
- Dr. Arun K. Tangirala (CH)
- Dr. Benny Raphael (CE) – Second Prize in the Student Poster Competition, International Underwater Technology Workshop
- Anik Sengupta (CS) – Outstanding Presentation Prize, 12th International Conference on Laser Ablation (COLA 2013)
- Rahul Thakur (CS)
- Dr. Siva Ram Murthy C. (CS)
- Umesh (ED) – Best Paper Award, IECON 2013
- Vajravelu Sathiesh Kumar (ED) – Stephen O. Rice Prize for Communications Theory, IEEE Communications Society
- Sandeep Kolluri (EE) – Leonard G. Abraham Prize for Communication Systems, IEEE Communications Society
- Dr. Radha Krishna Ganti (EE) – Best Poster Award, International Workshop on Physics of Semiconductor Devices (IWPSD-2013)
- Vikrama Vamshi Pasula (EE)
- Dr. Amitava Das Gupta (EE)
- Dr. Deleep R. Nair (EE)

- Dr. Aysha Iqbal Viswamohan (HS) – Best Paper Award, Higher Education and Research Society, New Mumbai
- Dr. Ganesan V. (ME)
Dr. Mallikarjuna J.M. (ME)
Vikas Rajan (ME)
Dr. Ganesan V. (ME) – Best Paper Award, Eighth SAE India International Mobility Conference and Exposition and Commercial Vehicle Engineering Congress 2013 (SIMCOMVEC)
- Best Paper Award, International Conference on Recent Advances in Mechanical Engineering and Interdisciplinary Developments (ICRAMID 2014)
- Dr. Prabhu Rajagopal (ME)
Roson Kumar Pattnayak (ME)
Dr. Krishnan Balasubramanian (ME)
Ramakrishnan R. (ME)
Guides: Dr. Somashekar S. Hiremath (ME) and Dr. Singaperumal M. (ME) – Second Best Oral Paper, 14th Asia-Pacific Conference on Nondestructive Testing (APCNDT-2013)
- Excellent Paper Award, International Conference on Control, Mechatronics and Automation (ICCMA 2013)
- Vivek Sarda (ME)
Dr. Sujatha Srinivasan (ME)
Dr. Anil Prabhakar (EE) – Best Paper Award, Third International Conference in Biomedical Engineering and Assistive Technologies (BEATS-2014)
- Dr. Sudagar Jothi (MM)
Sujith Ravindran (MM)
Dr. Ravikumar NV (MM) – Best Poster Award, International Union of Materials Research Society International Conference in Asia—2013 (IUMRS-ICA 2013)
- Subash R. (MM)
Guides: Dr. Lakshman Neelakantan (MM) and Dr. Raghuram Chetty (CH) – Best Paper Award, International Corrosion Prevention Symposium (CORSYM-14)
- Gajanand M.S. (MS)
Dr. Narendran T.T. (MS) – Best Paper Award, Second International Conference on Advances in Industrial Engineering Applications (ICAIEA 2014)
- Shameem S. (MS)
Guide: Dr. Ganesh M.P. (MS) – Best Paper Award, 23rd International Business Research Conference
- Dr. Rajiv Sharma (OE) – Publication listed in The Scencedirect Top 25 List of Most Downloaded Articles and fifth in the top 25 list in *Computer-Aided Design*
- Dr. Vendhan C.P. (OE) – Highly Commended Paper Award by Sage
- Prashant Dabas (PH)
Dr. Hariharan K. (PH) – Young Scientist Award for best oral presentation at the 10th National Conference on Solid State Ionics (NCSSI-10)

Student Prizes/Awards

- Guruprasad Raghavan (BT) – Young Engineer and Scientist Award, Honda
- S. Kavin Kumar (CS) – Aditya Birla Scholar
- Vaibhav Pratap Singh (EE) – Winner, Bayer Young Environmental Envoy 2013 (BYEE 2013) Competition
- Prateek Vijayavargia (HS)
Kavin Aadithiyam C. (HS) – Winner, Regional Finals, Cerebration—Business Line Corporate Quiz 2014
- Neha Ashok (ME) – Young Engineer and Scientist Award, Honda
- Sashank Vandurangi (ME) – Young Engineer and Scientist Award, Honda
- Team from IIT*
Ayush Bhargava (CS),
Pratik Kothari (MM),
Urvi N. Shah (HS) – Third Prize, Manila Symposium Competition “A Voice in Social Change”

- Team from Biotech*
- Aman Kumar, Mitan
Sutradhar, Tolkappiyar Premkumar,
Mayank N.K. Choudhary, Mitan
Sutradhar, Nandita Damaraju, Namit
Sunil Holay, Nishita Mohan P.V.,
Rohan Pradeep Bendre, Kanishka
Waghmare Purushottam
- Team Amogh*
- Vineet Upadhyay, Ravikiran Bobba,
Rakesh Sirikonda, Kishore Natrajan,
Sanchit Gupta, Prashant Duvey,
Vignesh Krishnakumar, Ravitej
Bhagavathi, B. Vighnesh, Ramnaresh
Chouhan, Abhinav Garlapati, Varun
Gupta, K. Harish, Awanish, Anuraag,
K. Pavana Siddhartha, Rathees P.,
Vinay Mittal, J. Mahesh, Sriram
V., Aayush Maloo, S. Sreenath, Sri
Mukesh S., Anirvan Bordoloi, Snehil
Rayal, Sibi George, Aditi R., Pooja R.,
Shanmukh D., Dillip Kumar Sahoo
- Life Catalyst Technologies—
incubatee of IIT Madras
- Gold Medal and Special Prize for the Best Human Practices Advance, iGEM Regional Jamboree (Hong Kong) competition
 - Winner, National Student Autonomous Underwater Vehicle Competition 2014 (SAVe-2014)
 - First Prize, INDIAFRICA Business Venture
 - First Prize, ABLE BEST

Patents Filed

- Dr. Manivannan Muniyandi (AM)
Raghu Prasad
- Dr. Sujith R.I. (AE)
Vishnu R. Unni; Vineeth Nair V.
- Dr. Ramakrishna P.A. (AE)
Ishith K.
- Dr. Ramakrishna P.A. (AE)
Rajiv Kumar
- Dr. Sujith R.I. (AE)
- Dr. Murthy H.S.N. (AE)
Paresh Ghangrekar (AE)
Dr. Balkrishna C. Rao (ED)
- Dr. Smita Srivastava (BT)
Aarthi V.
- Dr. Mukesh Doble (BT)
Veluchamy Prabhawathi
- Dr. Mukesh Doble (BT)
Geetha V.; Nandakumar V.
- Dr. Madhulika Dixit (BT)
Dr. Manivannan P.V. (ME)
Rathna Kumar K. (BT)
Abhiram C. Tej (BT)
- A five degree-of-freedom haptic interface device for laparoscopic simulation
 - System and methods for predetermining the onset of an impending blowout in practical combustion
 - Method of doping potassium into ammonium perchlorate
 - Enhancement of hybrid fuel regression rate using a bluff body
 - System and method for predicting the onset of an impending instability in a practical system
 - Preparation of a dog-bone shaped micro-specimen for testing of mechanical properties
 - An improved bioprocess for producing camptothecin from endophytes
 - Antibiofilm and antimicrobial food packaging using enzyme modified polymer films and the process for the production thereof
 - Cyclic glucan blended with synthetic or natural polymer, metal or ceramics as carrier for drugs, food, flavouring agents, growth factors, natural products
 - A cone plate instrument to apply laminar shear to cultured mammalian cells

- Dr. Chandra T.S. (BT)
Dr. Natarajan T.S. (PH)
Anshika Agarwal (BT)
Dr. Anju Chadha (BT)
Rony K. Roy (Univ. of Singapore)
Kabilan C. (BT)
Dr. Sreenivas Jayanti (CH)
Srinivasan K.
- Dr. Sreenivas Jayanti (CH)
A.Ramesh (AM)
Dr. Shankar Narasimhan (CH)
Dr. Raghunathan R. (CH)
Nirav Bhat; Ganesh Sankaran;
Abhijit Sinha
Dr. Ramanathan S. (CH)
Praveen B.V.S. (CH)
Manivannan R. (MM)
Umashankar T.D. (CH)
Dr. Pradeep T. (CY)
- Dr. Ramanujam K. (CY)
Dr. Varadaraju U.V. (CY)
Dr. Ramanujam K. (CY)
Karthikayini M.P.
Dr. Mishra A.K. (CY)
Surya Prakash Rao H.
Kamalraj M.; Jitendriya Swain
Dr. Dillipkumar Chand (CY)
- Dr. Indrapal Singh Aidhen (CY)
Mukkakala Ramesh
Dr. Pradeep T. (CY)
Soujit Sengupta; Maliyekkal;
Indranath Chakraborty;
Shihabudheen Mundampra
Dr. Kannothe Manheri
Muraleedharan(CY)
John Victor N.
Dr.Viswanathan B. (CY)
- Dr. Pradeep T. (CY)
Dr. Graham Cooks
Depanjan Sarkar; Rahul Narayanan
Dr. Janaki Ram D. (CS)
Balaji Setty; Hemang Mehta
Dr. Krishnamoorthy S. (CS)
- Electrospun nanofibrous membrane for sensing food spoilage
 - High yielding preparation and processing of omega-3 highly unsaturated fatty acid by locally isolated microbe
 - Efficient methodology for optimal linkage of arbitrarily oriented fluid flow ducts using single parameter Bezier curves
 - A method for placement to variable length guide vanes for flow control in manifolds
 - Flow regulator for multi-feed fluid manifolds
 - Intelligent fare metering system for metropolitan transport services
 - Lanthanum doping of ceria abrasive to obtain robust CMP polish rates
 - A composition for biocidal property and a water purification device based on the same
 - A new multilayer sandwich design of a redox flow battery cell
 - Effect of semi-labile multidentate ligands on oxygen reduction reaction performance of non-precious metal catalysts
 - Sugar–triazole–cardanol conjugates as efficient low molecular weight gela-tors capable of forming gels in mixed-aqueous and non-aqueous solvents
 - Recyclable metallo-micellar molybdenum catalyst for sulfoxidation reac-tion in water at ambient conditions using aqueous hydrogen peroxide as oxidant
 - Synthesis of amorfrutin and cajaninstibenes and their analogues from a common building block
 - Unusual dehalogenation on graphene nano-composites: Degradation of the pesticide, lindane to trichlorobenzenes and removal of the products from water
 - N-Methylpyrrolidinone hydroperoxide as an efficient epoxidation reagent
 - Layered oxide catalyst composites for photo-catalytic reduction of carbon dioxide
 - Molecular ionization from carbon nanotube paper
 - GPU assisted scheduling technique (GAS) for multicore operating system
 - Application of entropy of centrality measures of routing in tactical wireless networks

- Dr. Anurag Mittal (CS) – A smart multi-output adaptive camera and video recording system
Dr. Kamakoti V. (CS)
- Dr. Anurag Mittal (CS) – Large scale sketch-based image retrieval invariant to similarity
Sarathak Parul transformations
- Dr. Janaki Ram D. (CS) – A filtering means for tracking information flow in Android operated
devices
– A filtering mechanism for securing Linux kernel
- Vignesh Krishnakumar (CS) – Overhead line and equipment inspection device
Kishore Natarajan (OE)
- Dr. Mahesh V. Panchagnula (AM)
- Dr. Krishnamoorthy S. (CS) – A method for setting link weights in OSPF networks based on entropy
Vanniarajan Chellappan between centrality measures
- Dr. Venkatesh Balasubramanian(ED) – Intelligent universal seat and backrest cover for haptic and other feed-
back to monitor and provide intervention based on driver fatigue and/or
behaviour
– Intelligent universal steering cover for haptic and other feedback to
monitor and provide intervention based on driver fatigue and/or behavior
- Dr. Venkatesh Balasubramanian(ED) – Novel resin matrix for dental composites with enhanced physical proper-
ties and biological response
Dr. Susila Anand
- Dr. Venkatesh Balasubramanian (ED) – A versatile tissue engineering bioreactor
Dr. Soma Guhathakurta (ED)
- Dr. Balkrishna C. Rao (ED) – Development of a pedal powered water filtration system
Raunak Bhinge
- Dr. Krishna Kumar R. (ED) – A method for retinal pathology detection
Hem Rampal; Nikhilrajan
- Dr. Sankara J. Subramanian (ED) – A method of computing strains from full-field data
- Dr. Soma Guhathakurta (ED) – Engineered pericardium and derivatives for uses in medicine, pharmaceuti-
cals, food and cosmetics
Dr. Venkatesh Balasubramanian(ED)
- Dr. Venkatesh Balasubramanian(ED) – Electrophysiological monitoring of the heat dry electrodes on non-tradi-
tional, non-boney regions of the chest
Dr. Soma Guhathakurta (ED)
Robert Rajkumar S.
- Dr. Kavitha Arunachalam (ED) – Microwave hyperthermia device with compact heating applicator and low
cost inline degassing for bolus circulation
C. Geetha
- Dr. Nilesh J. Vasa (ED) – Device and methods for determining the elemental identity and analysis on
moving target from a variable stand-off distance
Dr. Sarathi R. (EE)
Sathiesh Kumar V. (ED)
- Dr. Ashok Jhunjhunwala (EE) – Providing uninterrupted DC supply to consumers
- Dr. Pradeep Kiran Sarvepalli (EE) – A wireless system to monitor and to predict the consumption and
remaining gas in a cylinder
Dr. Anjan Chakravorty (EE)
- Dr. Bobby George (EE) – A combined reluctance-Hall effect based angle sensor
Anoop C.S.
- Dr. Bobby George (EE) – Measuring the rate of injection in a syringe
Dr. Mohanasankar Sivaprakasam (EE)
- Biswarup Mukherjee (EE) – System and method for ophthalmic anaesthesia training
- Dr. Bobby George (EE)
- Dr. Mohanasankar Sivaprakasam (EE)
- Preejith S.P. (EE) – System and method for ocular compression
- Dr. Mohanasankar Sivaprakasam (EE)
- Niranjan Joshi Keerthi Ram (EE) – A platform for screening for ophthalmic problem
Dr. Mohanasankar Sivaprakasam (EE)
Preethi Gopal

- Dr. Nagendra Krishnapura (EE)
Rakshidatta
- Dr. Aniruddhan (EE)
- Dr. Radhakrishna Ganti (EE)
Gaurav Agarval
- Dr. Anil Prabhakar (EE)
- Dr. Sujatha Srinivasan (ME)
Vivek Sarda
- Dr. Ashok Jhunjhunwala (EE)
- Dr. Bhaskar Ramamurthi (EE)
- Dr. Krishna Vasudevan (EE)
- Dr. Aniruddhan (EE)
Sujan Kumar
- Dr. Jagadeesh Kumar V. (EE)
Lourdes Albina Nirupa L.
- Dr. Ashok Jhunjhunwala (EE)
Dr. Lakshminarasamma N. (EE)
- Dr. Srirama Srinivas (EE)
Mariappan V.
- Dr. Anjan Chakravorty (EE)
- Dr. Pradeep Kiran Sarvepalli (EE)
- Dr. Aniruddhan (EE)
Abhishek Kumar
- Dr. Radhakrishna Ganti (EE)
- Dr. Bobby George (EE)
Anish Babu
- Dr. Enakshi Bhattacharya (EE)
- Dr. Anju Chadha (BT)
- Dr. Shanthi Pavan (EE)
- Dr. Mohanasundaram S.V. (EE)
- Dr. Balaji Srinivasan (EE)
- Dr. Anil Prabhakar (EE)
- Dr. Arunn Narasimhan (ME)
- Dr. Sheetal Kalyani (EE)
CeWIT
- Narendran K.; Saishankar K.P.
- Dr. Bhaskar Ramamurthi (EE)
- Dr. Giridhar K. (EE)
CeWIT
- Kiran Kumar Kuchi; Naga Sekhar
Sivakishore Reddy Y.;
Sunil Kaimalettu S.
Deviraj Klutto Milleth Jeniston
Baskaran Dhivagar
- Dr. Sheetal Kalyani (EE)
CeWIT
- Lakshminarayanan Raghavendran
- Dr. Bhaskar Ramamurthi (EE)
CeWIT
- Anver Hisham U.S.
Sivakishore Reddy Y.
Sunil Kaimalettu Yerrapareddy
Jeniston Deviraj Klutto Milleth
- Method for determining distortion contributions from individual circuit elements and blocks in an electronic circuit
 - Compact RF phase-shifters based on frequency translation
 - Tilt-controlled training and mobility device
 - Providing uninterrupted power supply to consumers
 - Biopotential signal acquisition system using multi-frequency chopping
 - Non-invasive measurement of haemoglobin in blood
 - A single remote control unit for controlling various devices
 - A brake energy recovery system in conventional vehicle with super-capacitor and battery energy storage devices
 - Leakage detection using the novel wireless sensor system
 - Single-antenna full-duplex communication system employing transformer-based cancellation
 - Apparatus and method for wireless detection of wristwatch with conductive back plate and wireless charging of its battery
 - Miniaturised blood serum triglyceride monitoring system
 - Energy-based auto correction and repetition-rate optimization of laser pulses: System, apparatus and methods therefor
 - Adaptive link adaptation methods
 - Interference management for a distributed spatial network
 - Robust channel estimation and interpolation in OFDMA systems
 - Method for efficient resource allocation for HARQ retransmission

- Dr. Anand T.N.C. (ME) – Piezo-electric, ultrasonic annular surface injection for emission reduction and better control in engines
- Dr. Sujatha Srinivasan (ME)
Swostik Sourav Dash – Swimming pool lift for physically challenged
- Dr. Sujatha Srinivasan (ME)
M. Rohith; Sushant Veer – A semi-flexion orthotic knee
- Dr. Krishnan Balasubramaniam(ME)
Suresh Periyannan – A novel waveguide technique for the simultaneous measurement of temperature dependent properties of materials
- Gyan Vardhan Gupta (ME)
Varshith Dondapati
Ruchir Jolly; Vivek Sarda – Portable multi-utility multi-position holding device cum bag
- Dr. Kumaraswamy S. (ME) – A deep ocean remotely operated submersible dredge head with distributed propulsion units for collecting nodular minerals from soft ocean floor (DOROSMIN)
– The integrated hydro-mechanical system for deep ocean manganese nodule mining (HYMECHDOMS)
- Dr. Ramesh Babu N. (ME)
Tushar Tukaram Gurav
Srikanth R. – Formation of uniformly distributed abrasive slurry for micro abrasive water jet machining applications
- Dr. Ashis Kumar Sen (ME)
Derosh George; Satnam Singh – Multiple inlets–outlets valveless micropump and micromixer
- Dr. Srinivasan K. (ME) – Electrolysis assisted atomization
- Dr. Krishnan Balasubramaniam (ME)
Dr. Prabhu Rajagopal
K.K. Mithunraj; Johnson B. Lakra – Condensed sparse single transmitter multiple receivers (STMR) array based structural health monitoring for large plate-like structures using ultrasonic guided waves
- Dr. Ramesh A. (ME)
Arun Vinayak – Mechanical system to achieve variable valve event operation by continuously varying valve lift height and duration to attain optimum volumetric efficiency at all speed and load conditions
- Dr. Krishnan Balasubramaniam(ME)
Sreedhar Puliyakote – r-Wavelet method: A novel wavelet based signal processing technique for signal enhancement
- Dr. Srinivasan K. (ME) – Pipe solar concentrator
- Dr. Babu Viswanathan (ME)
Mitsuru Satou, Kazuya Asao, Hirotaka Tomita – Deflector for sunroof apparatus
- Dr.Srinivasa Reddy K. (ME) – Passive cooling based secondary concentrator for solar concentrating photovoltaic system for uniform flux distribution and effective cooling
– Solar parabolic trough collector with integrated torque tube - box support structure
- Dr. Ramesh A. (ME)
Arun Prasath K. – A device to pressurize and time the injection of gaseous fuel for direct injection in an IC engine
- Dr. Krishnan Balasubramaniam(ME)
Tarun Kumar Mishra (MM) – Novel segmented strip design for a magnetostriction sensor (MsS) using amorphous material for long range inspection and structural health monitoring at high temperatures
- B. Viswanathan (MS) – User controlled configurable authorization layer (UCCAL)
- Dr. Sankaran S. (MM)
Dr. Subramaniya Sarma V. (MM)
Papa Rao Mondi – Processing of the bimodal ultrafine grained micro-alloyed dual phase steel sheets
- Dr. Sampath Kumar T.S. (MM)
Vundru Bindu; Madhumathi K. – A composition for dental remineralization
- Dr. Sampath Kumar T.S. (MM)
Madhumathi K. – Bioceramic nanocarrier formulations for simultaneous drug delivery treatments

- Dr. Jitendra S. Sangwai (OE)
- An apparatus for measuring rheological parameters and methods for its operation
 - Methods and apparatus for measuring rheological properties of multi-phase fluids
 - Gas hydrate slurry formation systems and methods
- Dr. Jitendra S. Sangwai (OE)
Parvesh Chug; Halder
- Dr. Jitendra S. Sangwai (OE)
Dr. Mukesh Doble (BT)
N. Sakthipriya (OE)
- Methods and apparatus to store and transport natural gas (hydrocarbon gas) in porous media
 - Microbial degradation of waxy crude oil deposition at surface and down-hole facilities for flow assurance
- Dr. Jitendra S. Sangwai (OE)
Dr. Ramesh Gardas (CY)
Sivabalan Sakthivel (OE)
Sugirtha Velusamy (OE)
- Formulations for dissolution of petroleum sludge or waxes and method for evaluation thereof
 - A novel method for investigation of solubility of tank bottom sludge with solvents
- Dr. Ramachandra Rao M.S. (PH)
Muvvala Krishna Surendra
- Dilute magnetic nanoparticles for fast removal of arsenic from water
- Dr. Ramachandra Rao M.S. (PH)
Maneesh Chandran
- Methods for synthesis of diamond thin films/coatings on sapphire
- Dr. Ramaprabhu S. (PH)
- Metal nanoparticle decorated carbon nanotube and method of preparation and use
 - Graphene quantum dots, their composites and preparation of the same
 - Zeolites–Mg based novel hydrogen storage nanomaterials
 - High performance electrocatalyst for proton exchange membrane fuel cell application
 - Chemically modified and functionalized Carbon nanocomposites for simultaneous CO₂ reduction to hydrocarbons and electricity production
- Dr. Ramachandra Rao M.S. (PH)
Shubra Singh; Kapil Gupta
- New oxygen-deficient perovskite nanomaterial for reversible CO₂ capture at room temperature
- Dr. Ramachandra Rao M.S. (PH)
Dr. Ramamoorthy B. (ME)
Ravikumar Dumpala (ME)
- Graded nano- and micro-crystalline composite diamond coatings for load-bearing tribological applications

Patents Granted

- Dr. Pradeep T. (CY)
- Water purifier design and line drawings
- Dr. Sreenivas Jayanti (CH)
Sivaji Seepana
- A method of, and an apparatus for, combusting hydrocarbon fuels for providing a clean heat/energy source

Technology Transfer

- Dr. Mangala Sunder K. (CY)
- Distribution and marketing of NPTEL educational material, Bodhbridge Educational Services Private Limited
- Dr. Pradeep T. (CY)
- Pesticide removal attachment based on nano technology, Aquamall Water Solutions Limited, Hyderabad
- Dr. Gonsalves T.A. (CS)
- Development of LAN Trainer Kit, Benchmark Electronic Systems (Private) Limited
- Dr. Ashok Jhunjhunwala (EE)
- Royalty on OFT Form Benchmark, Benchmark Electronic Systems (Private) Limited
 - Voice Banking Technology, Uniphore Software Systems Private Limited
- Dr. Giridhar K. (EE)
- WICOMM-T KIT, Benchmark Electronic Systems (Private) Limited
- Dr. Natarajan T.S. (PH)
- Electro Spinning Apparatus, Physics Instruments Co., Chennai

Incubatees

- Ather Energy Pvt Ltd.
www.atherenergy.com
- Designing electric scooters for the Indian market: built own chassis, suspensions, swappable lithium ion battery packs (patent filed), battery management systems and body works. Aim to build an intuitive and smart vehicle with improved ride quality and battery performance
Founders: Tarun Mehta and Swapnil Jain, both Dual Degree 2012 (ED)
- Airwood Aerostructures Pvt. Ltd.
http://airwood.in
- Specialises in super-light composites, airframes and unmanned vehicles. High performance designs in defense and aerial photography applications. Also catering to radio-controlled hobby and toy airplane customers.
Founder: Vivek Rajkumar, Dual Degree 2011 (ED)
- Lema Labs Technologies Pvt. Ltd.
www.lemalabs.com
- Robotics education for colleges.
Founder: Kedar Kulkarni, B.Tech., 2012 (MM)
- Phasorz Technologies Pvt. Ltd.
http://phasorz.com
- Developing mobile phone based 12-lead ECG machine and ‘Dhilcare’ mobile app ([http:// dhilcare.com/](http://dhilcare.com/)) to connect GPs to cardiologists—enable remote health monitoring services.
Founders: Satish Kannan and Enbasekar D., both Dual Degree 2012 (EE)
- Hyperverge Technologies Pvt. Ltd.
http://computervisiongroup.weebly.com
- Spin-out from Computer Vision Group at IIT Madras that develops innovative low cost automation solutions deployed through cloud-based platforms.
Founders: Kedar Kulkarni (B.Tech. 2012), Vignesh Krishnakumar (current Dual Degree, CSE) and Kishore Natarajan (B.Tech. 2014, OE)
- Greenenvironment Innovation and Marketing India Pvt. Ltd.
www.greenenvironmentindia.com
- Cost effective green technologies for water and wastewater treatment and solid waste management.
Founders: Varun Sridharan (external) and Dr. Ligy Philip (CE)
- Unilumen Photonics Pvt. Ltd.
http://unilumen.in
- Specializes in fibre laser technology solutions to industries such as material marking and cutting, and bioengineering.
Founders: Dr. Anil Prabhakar (EE) and Dr. Balaji Srinivasan (EE)
- Pi Beam Labs Pvt. Ltd.
www.pibeamlabs.com
- Develop a convertible three-wheeled hybrid vehicle with three drive modes: pedal, electric and solar.
Founder: Visakh Sasikumar (external)
- Gradlabs Solutions Pvt. Ltd.
- Provide consultancy services to aerospace and automotive industries: customise open source based modules for engineering simulations and experimental data analysis (computational fluid dynamics).
Founders: Trinath Gaduparthi and Rajesh Reddy (current Ph.D. students (AE))
- RelAgent Technologies Pvt. Ltd.
http://relagent.com
- Semantic text mining engine for biomedical research—enabling discovery of connections between objects spanning multiple journal articles, clinical records involving natural language and unstructured text with graph search to connect drugs to genes to diseases, and genotypes to phenotypes.
Founder: P. Senthil Nathan and Dr. S.V. Ramanan (both B.Tech. 1980 (EE))
- Vdime Innovative Works Pvt. Ltd.
http://1000lookz.com
- 1000Lookz - virtual beauty makeover application based on facial image processing and contour recognition technology. Supports online/offline beauty, jewellery and accessory products/services.
Founder: Vasam Sowriraj, MS 2006 (CSE)
- Wii Tronics Pvt. Ltd.
- Provide parking guidance solution for on-street and indoor parking garages. Manufacture sensors, which can be integrated with mobile apps, and vehicle presence information is brought out wirelessly.
Founders: Arjun Natarajan (external) and Dr. T.S. Natarajan (Physics)
- Okapi Advisory Services Pvt. Ltd.
http://okapia.com
- Institutional design consultancy focused on building social systems for sustainable development.
Founders: Dr. Ashwin Mahalingam (faculty, CE) and Jessica Seddon (external)

- Tharakan Web Innovations Pvt. Ltd. – Myeasydocs.com—online storage, verification and sharing of paper based documents.
www.myeasydocs.com
Founders: Avira Tharakan and Thomas Tharakan (external)
Faculty: Dr. L.S. Ganesh (MS) and Dr. Shankar Balachandran (CS)
- Thin Film Solutions Consultants Pvt. Ltd. – Training of personnel and consultancy services to thin film manufacturers. Develop application of thin films in Healthcare, Defence and Space departments.
http://www.thinfilmsolutions.org
Founder: Dr. A. Subramanyam (Physics)
- Dasrad Technologies Pvt. Ltd. – Desto—web applications and design.
www.desto.co.in
Founder: Rohit Reddy (B.Tech. 2011)
- Zyena Technologies Pvt. Ltd. – Machine-to-machine technology: GPS-tracking phone watch, smart boards for use in education, GPS vehicle tracking software.
http://zyenatech.com
Founder: Satish Kumar (current M.S. (Entrepreneurship) student, DoMS)
- RF Wave Technologies Pvt. Ltd. – Product/services in the RF space—RF bread board, RF filters, etc. Custom projects on antenna design for organizations such as DRDO.
www.rfwavetek.com
Founders: K. Sakthivel (current M.S. (Entrepreneurship) and Anuj Rajpoot (current Ph.D. student, EE)
- Dhvani Research and Development Solution Pvt. Ltd. – Innovation in technologies related to non-destructive testing, manufacturing diagnostics, materials characterization, structural health monitoring, simulation and visualization tools and training.
http://dhvani-research.com
Founders: Dr. Krishnan Balasubramanian (ME) and external
- Yrs Intuitions Consulting Pvt. Ltd. – Design, develop and manage social media pages of brands and businesses—branding, social media consulting, develop networking dashboard, e-learning platforms, mobile applications.
http://yrsintuitions.com
Founder: Vivek Dhandapani (M.B.A., 2011) and Dr. M. Thenmozhi (DoMS)
- ICOMAT Pvt. Ltd. – Concrete material and product testing, concrete mix development and validation, consultancy/training on concrete manufacturing and utilization.
http://www.icomat.in
Founder: Dr. Ravindra Gettu (CE), Dr. Koshy Varghese (CE) and G. Sivakumar (external)
- HP Games – Create simple games (mobile apps) for iOS devices—16 apps currently available on Apple store.
Founder: Hitendra Pratap, Dual Degree 2011 (CE)
- Engineering Project Management Consultancy and Research Pvt.Ltd. – Civil engineering solutions from architecture to delivery of the infrastructure facilities to the client.
http://epmcr.co.in
Founder: Kavinkumar (MS alumnus)
Faculty: Dr. Koshy Varghese (CE) and Dr. K.N. Satyanarayana (CE)
- Nadhi Information Technologies Pvt. Ltd. – Enterprise software and solutions company developing construction supply chain solutions.
www.nadhi.in
Founder: Kalyan Vaidyanathan (B.Tech. 1992)
Faculty: Dr. Ashwin Mahalingam, Dr. Koshy Varghese and Dr. K.N. Satyanarayana (CE)
- Gyan Data Pvt. Ltd. – Delivers data modeling and process control solutions to industries with state-of-art techniques and algorithms.
www.gyandata.com
Founder: Dr. Shankar Narsimhan (CHE) and Dr. Raghunathan Rengaswamy (CHE)
- Concrete Quality Concept Pvt. Ltd. – On-site non-destructive testing of concrete condition repair and rehabilitation methodologies and consultancy.
www.cqncdt.com
Founders: Dr. Manu Santhanam (CE) and Shyam Bhaskaran (alumnus)
- Merkel Haptic Systems Pvt. Ltd. – A spin-off company from IIT Madras' Touchlab. MHS is developing new haptic devices that add high fidelity virtual reality based training systems
http://merkelhaptics.com
Founder: Dr. M. Manivannan (AM)

<p>Techiestreet Technologies Pvt. Ltd. www.alpha.makeystreet.com</p>	<p>– Makeystreet—a vertical search engine for “maker” products. This network simplifies procurement logistics for makers—find and discover parts for projects. <i>Founder:</i> Alex J. Vazhatharayil, Dual Degree 2012 (ED)</p>
<p>Purius Nanosystems Pvt. Ltd.</p>	<p>– To develop a point of care device for molecular diagnostics. Objective is to make a machine that is smaller and can do a series of tests on a bench without the need for expertise or a complex set of procedures. <i>Founder:</i> G. Purushothaman, M.S. 2012 (Biotech)</p>
<p>Geotagg Technologies Pvt. Ltd. www.geotagg.in</p>	<p>– Develop solutions for tracking, predicting, routing and scheduling of vehicles for passengers and transport agencies. <i>Founders:</i> Siddharth Krishnaswamy (B.Tech. 2011, ME), Akhilesh Koppineni and Krishna Chaitanya (both B.Tech. 2011, CE)</p>
<p>Hirefellas</p>	<p>– Develop an online marketplace to connect local business service providers with service seekers and vice versa. Beta site launched for photography services first. <i>Founders:</i> Athul Krishnan (MA, 2013) and Pranav Prabhakaran (Dual Degree 2014, CS)</p>
<p>Chakra Network Solutions Pvt. Ltd.</p>	<p>– Provides network management solutions to both telecom and non-telecom domains (consultancy and implementation) <i>Founder:</i> Sree Hari (MS 2008, EE)</p>
<p>Rope Enterprise Pvt. Ltd. www.ropeinternational.com</p>	<p>– Smart Designs for responsible living <i>Founder:</i> N.N. Sreejith (external)</p>
<p>Santa Fe Research Pvt. Ltd.</p>	<p>– Optimization and development of algorithms involving signal processing and control techniques in finance. <i>Founder:</i> External; <i>Faculty:</i> Dr. Bharath Bhikajji (EE)</p>
<p>Ecologin Tourism and Travels Pvt. Ltd. http://ecologin.org</p>	<p>– An alternate tourism company. <i>Founder:</i> Sridhar Laxmanan (alumnus, MS(Entrepreneurship))</p>
<p>DesiCrew Solutions Pvt. Ltd. www.desicrew.in</p>	<p>– Rural BPO Services <i>Founders:</i> Saloni Malhotra and J.K. Manivannan (external)</p>
<p>Uniphore Software Systems Pvt. Ltd. www.uniphore.com</p>	<p>– Designs and delivers speech based mobile solutions across industries. <i>Founders:</i> Umesh Sachdev and Ravi Saraogi (external)</p>
<p>Intelizon Energy Pvt. Ltd. www.intelizon.com</p>	<p>– Solar energy products <i>Founder:</i> Kushant Uppal (B.Tech. alumnus)</p>
<p>AAUM Research and Analytics Pvt. Ltd. www.aumanalytics.com</p>	<p>– Analytics—actionable insights from data <i>Founder:</i> Rajesh Kumar (B.Tech. 2002)</p>
<p>Invention Labs Engineering Products Pvt. Ltd. www.inventionlabs.in</p>	<p>– Speech and language for children with autism <i>Founder:</i> Ajit Narayanan (B.Tech. 2002)</p>
<p>Custom Attire (India) Pvt. Ltd. http://www.customattire.co.in/</p>	<p>– Distributed garment production <i>Founder:</i> Sajina Rajesh (external)</p>
<p>Augurtron Systems & Solutions Pvt. Ltd. www.augurtron.com</p>	<p>– High end technology product engineering <i>Founder:</i> Padma Shankar (external)</p>
<p>Arogyam Organics Pvt. Ltd. www.arogyamorganics.com</p>	<p>– Organic food processing <i>Founders:</i> Arumugaswamy and Ms Kannmani (external)</p>
<p>ET Interactive Design Services Pvt. Ltd. www.etinteractive.net</p>	<p>– End-to-end design/branding services to rural artisans <i>Founders:</i> Robin Mathew and Ruhi Munjial (external)</p>

- Ayzh Health & Livelihood Solutions Pvt. Ltd. – Birthing kits and women-centric solutions
Founder: Zubaida Bai (external)
www.ayzh.com
- Microspin Machine Works Pvt. Ltd. – Micro-spinning machines for inclusive textile development
Founder: Kannan Lakshminarayanan (alumnus)
www.microspin.co.in
- MobilTrain Knowledge Services Pvt. Ltd. – Mobile learning solutions
Founder: Gayathri Sriram (external)
www.mobiltrain.com
- Stellapps Technologies Pvt. Ltd. – IT and automation for dairy, agriculture and logistics
Founder: Ranjith Mukundan (external)
www.stellapps.com
- Swayambhu Biologics Pvt. Ltd. – Microbial tech-innovations for waste management
Founder: R. Balaji (external)
www.biologics.in
- Edutor Technologies India Pvt. Ltd. – Inspired learning
Founders: Ram Gollamudi, Prasanna Boni and Ramesh Karra (B.Tech. alumni)
www.edutor.in
- MeGo Technologies Pvt. Ltd. – Specialized infra-free communication solutions using ad-hoc networks
Founders: Hrushi Mehendali and Mandar Gosavi (external)
www.megotechnologies.com
- Edsix Brain Labs Pvt. Ltd. – Brain-Skill & Educational Games (Un)Limited
Founder: Saravanan Sundaramoorthy (external)
www.skillangels.com
- Skillveri Training Solutions Pvt. Ltd. – Multi skill virtual training platforms
Founder: Sabarinath C. Nair (external)
www.skillveri.com
- Lex aude Services Pvt. Ltd. – Online contract negotiation platform
Founder: Vivek Durai (external)
www.humblepaper.com
- Svadha Energies – Produce power from water currents
Founder: Ankit Poddar (current M.S. student)
- The Enabler Foundation – Pilot, promote, and advocate policy reforms in livelihood generation in rural India in core essential areas of healthcare and education
Founder: Gayathri M. Oleti (external)
www.tef.net.in
- Qarth Technologies Pvt. Ltd. – Mobile application for instant money transfer between banks across India
Founders: Abhinav Srivastava and Prerit Srivastava (IIT Kharagpur alumni)
http://x-pay.in
- Simple Farm Solutions Pvt. Ltd. – To develop, design and propagate on-farm equipment such as transplanters, harvesters and weeders for small and marginal farm owners
Founder: Devimurthy (external)
www.kamalkisan.com
- Rista (Rural Indian Social Traditional Artifacts) Handicrafts Pvt. Ltd. – Rista ventures aims to aggregate and facilitate trade in ethnic handicrafts/goods of Indian villages, bridging the gap for mainstream marketing access to rural craftsmen through online marketing, retail and e-commerce and direct selling to consumers.
Founder: Jothi Budia (external)
www.rista.co

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

MAJOR ACHIEVEMENTS

ANNUAL REPORT 2013–2014 AND DEVELOPMENT TILL AUGUST 2014

1. Courses

The Institute offered 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 three branches, B.Tech. programmes in nine departments, Dual Degree (B.Tech. and M.Tech.) programmes in 11 departments, Dual Degree (B.S. and M.S.) programmes in Biological Sciences and Physics, an M.B.A. programme, an M.A. Integrated Programme, a preparatory course for SC/ST students and a PG Diploma in Visionary Leadership in Manufacturing during the year.

2. User Oriented Programmes

User oriented M.Tech. programmes are currently offered by the departments of Civil Engineering, Mechanical Engineering and Ocean Engineering.

3. Preparatory Course for SC/ST Students

The preparatory course programme for weaker section students offers intensive coaching to eligible candidates to prepare them for entry into IIT Madras. This is a 1-year programme. Accordingly, four PD candidates were admitted in the B.Tech. and Dual Degree courses in 2013. A total of 17 (10 PD, three SC and four ST) candidates were admitted to Preparatory Course 2014.

4. 51st Convocation

A total of 1691 graduands were awarded degrees at the 51st Convocation—180 Ph.D., 149 M.S., 427 M.Tech., 100 M.B.A., 37 M.A., 137 M.Sc., 282 Dual Degree (B.Tech. and M.Tech.), 58 B.Tech.—Honours and 321 B.Tech.

So far 42,537 degrees have been awarded, of which 1973 degrees were awarded during the 51st Convocation, held on 18 July 2014.



Convocation 2014

5. Admissions and Students on Roll

A total of 2415 students (Inclusive of 491 Ph.D. and 316 M.S. scholars) joined various programmes in 2013–2014. As on 31 August 2014, there were 8637 students on roll [56 foreign nationals, 1648 women students and 80 QIP students (teachers from other engineering colleges)].

6. Research and Development

Research at IIT Madras continued to flourish during the year under review. Around 491 new Ph.D. scholars enrolled in 2013–2014, in keeping with the national goal of increasing the availability of the highest-quality researchers and

teachers to industry and academia. In 2013–2014, our faculty and research scholars published 837 papers in refereed international journals and 112 papers in refereed national journals. They also presented 336 research papers at international conferences and 131 papers at national conferences. IIT Madras is thus a significant contributor to the national research output.

7. Patents

A total of 105 patents were filed in 2013–2014, and two patents were granted.

8. Industrial Consultancy and Sponsored Research

In 2013–2014, the Institute received sanctions for ₹205.48 crores for new projects from industry, of which nearly 25% was for research-based consultancy. The faculty secured sanctions for projects worth ₹89.57 crores in 2013–2014. The total value of the ongoing sponsored projects at the Institute is ₹15147 lakhs, which constitutes a sizeable part of the Institute's total budget. The Institute earned ₹96.67 lakhs from technology transfer fees and royalties during 2013–2014. In order to enable students and new faculty members to initiate and establish their research activities, the Institute supported seven new Innovative Student Projects to the tune of ₹18.10 lakhs and 33 new faculty proposals to the tune of ₹607 lakhs.

9. Centre for Continuing Education

IIT Madras has an extensive outreach programme catering to teachers, practising engineers and researchers. The Centre for Continuing Education (CCE) has been very active, with our faculty members organizing 15 AICTE-funded short term training programmes (QIP) for the benefit of engineering college faculty members, as well as 81 continuing education programmes (CEPs), for the benefit of industrial personnel, and 11 programmes under the Curriculum Development Cell. These programmes benefitted about 12,196 participants in 2013–2014 and resulted in revenue of around ₹3.98 crores.

10. Quality Improvement Programme

IIT Madras plays a lead role in providing guidance and assistance to other engineering intuitions in the country. Currently there are a total of 96 QIP scholars—68 Ph.D. and 28 M.Tech.

11. National Programme on Technology Enhanced Learning (NPTEL)

The National Programme on Technology Enhanced Learning (NPTEL) is India's largest ICT-based technical course dissemination programme in the higher education sector. Its main objective is to increase the reach of high-quality engineering and sciences education across our country. A total of 575 (web/video) courses in engineering, science and technology developed under NPTEL are freely available on our NPTEL web site (<http://nptel.iitm.ac.in>) and through YouTube (at <http://www.youtube.com/iit>). The courses are also telecast through the Eklavya channel, made available by MHRD exclusively for this purpose. The NPTEL Channel in Youtube has received more than 88 million upload views, and the NPTEL site has recorded more than 22 million visits since its inception.

NPTEL has also started conducting online courses. Two live online courses, "Digital System Design" and "Basic Electrical Circuits" were offered in 2014. Several institutions and some individuals participated in these courses. A massive open online course on computer science, with a proctored examination and certification in collaboration with NASSCOM, is planned for engineering college students across the country.

12. Research Park and Incubation

IIT Madras Research Park, 4 years after its inception, continues to attract new companies. Such sustained interest exemplifies the confidence that industry has placed on our ability to provide at the Research Park an environment conducive to foster technological collaboration and nurture innovation.

2. ADMINISTRATION

2.1. General

IIT Madras is an autonomous statutory organisation functioning within the Institutes of Technologies Act 1961, as amended by the Institute of Technology (Amendment) Act, 1963. The Indian Institutes of Technology (others being at Mumbai, Kanpur, Kharagpur, Delhi, Guwahati, Roorkee, Rupnagar, Bhubaneswar, Gandhinagar, Hyderabad, Patna, Rajasthan, Mandi, Indore and Varanasi) are administrated centrally by the Council of IITs, an apex body established by the Government of India to coordinate the activities of these institutes. The Minister for Human Resource Development, Government of India is the Chairperson of the Council. Each IIT 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 the 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. The Finance Committee gives financial advice to the Institute. The Buildings and Works Committee advises the Institute on matters relating to building and works activities.

The compositions of the above committees and boards together and a list of other officers are provided in the Appendix.

2.2. Staff Position

As on 31 March 2014, a total of 1243 faculty/staff members were in position.

Faculty/staff members in position

Faculty Members	Visiting Faculty	Group-A Staff	Scientific Officers	Technical Staff	Administrative Staff
525	19	69	4	247	379

Faculty/staff members appointed during 2013–2014

Professors	Associate Professors	Assistant Professors	Visiting Faculty	Administrative Staff
20	24	30	19	66

- Seven faculty/staff members resigned/were relieved from service.
- Fifty-six faculty/staff members retired from service.
- Three faculty/staff members expired.
- Twenty-seven faculty/staff members were on long leave.

2.2.1. Faculty/staff members appointed between 1 April 2013 and 31 March 2014

I. List of faculty/staff members appointed during the period from April 2013 to March 2014

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
1		G. Venkatesh	Analog Chair Professor (part time)	Electrical Engineering	1 April 2013
2	8585	Shyam Mohan Keralavarma	Assistant Professor	Aerospace	16 April 2013
3	8586	Y.E.L. Sudhakar Rao Pujari	Assistant Registrar	Engineering Unit	27 May 2013
4		Feroz Ali Khader	IPR Chair, Coordinator	Management Studies	11 June 2013

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
5	8587	Solomon J Benjamin	Associate Professor	Humanities	24 June 2013
6	8588	Benny Raphael	Associate Professor	Civil	1 July 2013
7	8589	Debdutta Ray	Assistant Professor	Electrical	3 July 2013
8	8590	Harendra Kumar Behera	Assistant Professor	Humanities	4 July 2013
9	8591	Parasuraman Swaminathan	Assistant Professor	Metallurgy	8 July 2013
10	8592	M. Joel George	Assistant Professor	Aerospace	22 July 2013
11	8593	Sivasambu Mahesh	Associate Professor	Aerospace	12 August 2013
12	8596	T. Tamilselvi	Junior Hindi Translator	Hindi Cell	23 August 2013
13	8594	Beeraiha Baire	Assistant Professor	Chemistry	2 September 2013
14	8595	Merin Simi Raj	Assistant Professor	Humanities	4 September 2013
15	8597	Sateesh Gedupudi	Assistant Professor	Mechanical	10 September 2013
16	8598	K. Anand	Assistant Professor (on contract)	Mechanical	16 September 2013
17	8599	Venkatakrishnan P.	Assistant Professor	Chemistry	16 September 2013
18	8600	Srikrishna Sahu	Assistant Professor (on contract)	Mechanical	17 September 2013
19	8601	P.M. Aasa	Junior Hindi Assistant	Hindi Cell	19 September 2013
20	8602	Joe Thomas Karackattu	Assistant Professor	Humanities	23 September 2013
21	8603	Varisha Rehman	Assistant Professor	Management Studies	23 September 2013
22	8604	Arunachalam N.	Assistant Professor	Mechanical	1 October 2013
23	8605	Anil Kumar Meena	Assistant Professor (on contract)	Mechanical	7 October 2013
24	8606	Rupesh Nasre	Assistant Professor	Computer Science	22 October 2013
25	8607	Meghana Nasre	Assistant Professor	Computer Science	22 October 2013
26	8608	V. Sriram	Assistant Professor	Ocean	7 November 2013
27	8609	Sarith P Sathian	Assistant Professor	Applied Mechanics	2 December 2013
28	8610	D. Mohan Raj	Junior Assistant	Stores & Purchase	6 December 2013 (AN)
29	8611	B. Swaruparani	Junior Assistant	Academic Section	6 December 2013
30	8612	R. Bharathi	Junior Assistant	Administration	6 December 2013 (AN)
31	8013	T. Tamilselvi	Junior Assistant	Academic Section	6 December 2013
32	8614	P.T. Karthika	Junior Assistant	Academic Section	9 December 2013
33	8615	P. Sumithra	Junior Assistant	Stores & Purchase	9 December 2013
34	8616	M. Sampath	Junior Assistant	Stores & Purchase	9 December 2013
35	8617	M. Kirthika	Junior Assistant	Engineering Unit	9 December 2013
36	8618	G. Shakila	Junior Assistant	Administration	9 December 2013
37	8619	J. Benny	Junior Assistant	Administration	9 December 2013
38	8620	P. Venkatesh	Junior Assistant	Finance & Accounts	9 December 2013 (AN)
39	8621	D. Anitha	Junior Assistant	Stores & Purchase	9 December 2013 (AN)
40	8622	G.Prasana Kumar	Junior Assistant	Recruitment Section	9 December 2013
41	8623	D.P.Kumudha Devi	Junior Assistant	Finance & Accounts	11 December 2013
42	8624	S. Varun Kumar	Assistant Professor	Mechanical	11 December 2013
43	8625	C.Premanand	Junior Assistant	Finance & Accounts	12 December 2013
44	8626	T.G. Deepa	Junior Assistant	Academic Section	12 December 2013
45	8627	B. Venkanna	Junior Assistant	Academic Section	12 December 2013
46	8628	C. Vijayakumar	Junior Assistant	Academic Section	13 December 2013
47	8629	B. Kavitha	Junior Assistant	Engineering Unit	13 December 2013
48	8630	B. Pajanivel	Junior Assistant	Academic Section	16 December 2013
49	8631	J. Baskar	Junior Assistant	Administration	16 December 2013

Sl. No.	ID No.	Name	Designation	Department/Section	Date of Joining
50	8632	Kumarraja Vaditya	Junior Assistant	Academic Section	19 December 2013
51	8633	R. Vidya	Junior Assistant	Administration	19 December 2013
52	8634	Suhas Jayakumar Pandit	Assistant Professor	Mathematics	19 December 2013
53	8635	S. Sreedha	Junior Assistant	RTI & Legal	20 December 2013
54	8636	V. Vengadeshkumar	Junior Assistant	Administration	20 December 2013 (AN)
55	8637	V. Padmini	Junior Assistant	Stores & Purchase	23 December 2013
56	8638	B.Boopathy	Junior Assistant	Finance & Accounts	23 December 2013
57	8639	R. Maheshwar Rao	Junior Assistant	Security Section	27 December 2013
58	8640	R. Ramachandran	Junior Assistant	RTI	27 December 2013
59	8641	S. Dhanasekar	Junior Assistant	I&AR	30 December 2013
60	8642	G. Kumar	Junior Assistant	Office of Dean (Students)	30 December 2013
61	8643	Manjula E.	Junior Assistant	Hospital	1 January2014
62	8644	K. Subramaniam	Professor	Biotechnology	1 January2014
63	8645	M. Prabhakaran	Junior Assistant	Engineering Unit	6 January2014
64	8646	Sayan Ranu	Assistant Professor	Computer Science	15 January2014
65	8647	J. Vani	Assistant Professor	Biotechnology	20 January2014
66	8648	Saumendra Kumar Bajpai	Assistant Professor (on contract for 2 years)	Applied Mechanics	29 January2014
67	8649	Sreemathi E.	Junior Assistant	Engineering Unit	3 February 2014
68	8650	Md. Mahinddin Baidya	Assistant Professor	Chemistry	3 February 2014
69	8651	Bhagavan Gayathri	Junior Assistant	Finance & Accounts	13 February 2014
70	8652	B. Sathiya	Junior Assistant	Recruitment Section	17 February 2014

Sl. No.	ID No.	Name	Designation	Department	Date of Joining
1	INSP-001	Dr. V. Pramitha	INSPIRE-Hosted Faculty	Electrical	25 April 2013
2	INSP-002	Dr. Nirav Pravinbhai Bhat	INSPIRE-Hosted Faculty	Chemistry	1 May 2013
3	VF-107	Dr. Bikash Kumar Dey	Visiting Assistant Professor	Electrical	5 June 2013
4	VF -110	Dr. Balaji Narasimhan	Visiting Professor	Chemistry	24 June 2013
5	VF-111	Dr. Surya K. Mallapragada	Visiting Professor	Chemistry	24 June 2013
6	VF-109	Dr. Atul Narayanan	Visiting Assistant Professor	Civil	29 July 2013
7	VF-112	Dr. P. Ananthkrishnan	Visiting Professor	Ocean	5 August 2013
8	VF-113	Dr. A. Venkataraman	Visiting Assistant Professor	Applied Mechanics	8 August 2013
9	VF-114	Dr.Nandan Sudarsanam	Visiting Assistant Professor	Mathematics	1 October 2013
10	VF-115	MsLin Ru Yu	Visiting Faculty	Humanities	4 November 2013
11	VF-116	Dr. Pulickel M. Ajayan	Visiting Professor	Metallurgy	20 December 2013
12	VF-118	Dr. Christoph Woiwode	Associate Professor	Humanities	1 January2014
13	VF-121	Dr.T.N. Srinivasan	Honorary Visiting Professor	Humanities	1 January2014
14	VF-117	Dr. Rajeswari Sundararajan	Visiting Professor	Electrical	2 January2014
15	VF-119	Dr. Mark Alexander	Visiting Professor	Civil	13 January2014
16	VF-120	Dr. Seshadri Seetharaman	Visiting Professor	Metallurgy	15 January2014
17	VF-122	Prof. Surendra P. Shah	Honorary Visiting Professor	Civil	15 March 2014
18	VF-123	Prof. K. Prabhakaran	Visiting Professor	Biotechnology	18 March 2014
19	VF-123	Prof. K. Prabhakaran	Visiting Professor	Biotechnology	18 March 2014

II. List of internal faculty/staff members who joined during the period from April 2013 to March 2014

Sl. No.	Name	Designation	Department/Section	Date of Joining
1	K. Vijayalakshmi	Assistant Registrar	Finance & Accounts	19 April 2013
2	K. Raman	Superintendent	Administration III	6 May 2013
3	P.A. Vijayakumari	Superintendent	Academic Section	6 May 2013
4	B. Sundari	Superintendent	Stores & Purchase	6 May 2013
5	V. Sitalakshmi	Superintendent	Office of Dean (Administration)	6 May 2013
6	G. Prabakar	Superintendent	JEE Office	6 May 2013
7	K. Rajendran	Superintendent	IC&SR	6 May 2013
8	R. Balakumar	Superintendent	Taramani Guest House	6 May 2013
9	S. Revathy	Superintendent	Director's Office	6 May 2013
10	B. Dhamodaran	Assistant Registrar	Finance & Accounts	1 May 2013
11	A. Sameen	Associate Professor	Aerospace	19 July 2013 (AN)
12	Shankar Ghosh	Assistant Professor	Aerospace	19 July 2013 (AN)
13	S. Vengadesan	Professor	Applied Mechanics	19 July 2013 (AN)
14	N. Sujatha	Associate Professor	Applied Mechanics	19 July 2013 (AN)
15	Sayan Gupta	Associate Professor	Applied Mechanics	19 July 2013 (AN)
16	Sathyannarayana N. Gummadi	Professor	Biotechnology	19 July 2013 (AN)
17	Kesavan Venkitasamy	Associate Professor	Biotechnology	19 July 2013 (AN)
18	Manu Santhanam	Professor	Civil Engineering	19 July 2013 (AN)
19	Bhairavavajjula Nageswara Rao	Professor	Civil Engineering	19 July 2013 (AN)
20	K.P. Sudheer	Professor	Civil Engineering	19 July 2013 (AN)
21	R.G. Robinson	Professor	Civil Engineering	19 July 2013 (AN)
22	Lelitha Devi Vanajakshi	Associate Professor	Civil Engineering	19 July 2013 (AN)
23	Saravanan Umakanthan	Associate Professor	Civil Engineering	19 July 2013 (AN)
24	S.T.G. Raghukanth	Associate Professor	Civil Engineering	19 July 2013 (AN)
25	Soumendra Nath Kuiry	Assistant Professor	Civil Engineering	19 July 2013 (AN)
26	Soumya Dutta	Assistant Professor	Electrical Engineering	19 July 2013 (AN)
27	S. Devaki Reddy	Professor	Humanities	19 July 2013 (AN)
28	Srilata Krishnan	Professor	Humanities	19 July 2013 (AN)
29	Mathangi Krishnamurthy	Assistant Professor	Humanities	19 July 2013 (AN)
30	G. Arun Kumar	Professor	Management Studies	19 July 2013 (AN)
31	Usha Mohan	Associate Professor	Management Studies	19 July 2013 (AN)
32	Rahul Ratnakar Marathe	Associate Professor	Management Studies	19 July 2013 (AN)
33	Saji K. Mathew	Associate Professor	Management Studies	19 July 2013 (AN)
34	K.C. Sivakumar	Professor	Mathematics	19 July 2013 (AN)
35	R. Radha	Professor	Mathematics	19 July 2013 (AN)
36	Shankar Krishnapillai	Professor	Mechanical	19 July 2013 (AN)
37	K. Srinivas Reddy	Professor	Mechanical	19 July 2013 (AN)
38	K.C. Hari Kumar	Professor	Metallurgy	19 July 2013 (AN)
39	Prathap Haridoss	Professor	Metallurgy	19 July 2013 (AN)
40	Gabbita Durga Janaki Ram	Associate Professor	Metallurgy	19 July 2013 (AN)
41	Anand Krishna Kanjarla	Assistant Professor	Metallurgy	19 July 2013 (AN)
42	Upendra Natarajan	Professor	Chemical	19 July 2013 (AN)
43	Susy Varughese	Professor	Chemical	19 July 2013 (AN)
44	Raghunathan Ravikrishna	Associate Professor	Chemical	19 July 2013 (AN)
45	Raghuram Chetty	Associate Professor	Chemical	19 July 2013 (AN)

Sl. No.	Name	Designation	Department/Section	Date of Joining
46	P. Krishna Prasanna	Associate Professor	Management Studies	22 July 2013
47	G. Saravanan Kumar	Associate Professor	Engineering Design	22 July 2013
48	Sridharakumar Narasimhan	Associate Professor	Chemical	22 July 2013
49	Arti Dua	Associate Professor	Chemistry	22 July 2013 (AN)
50	R. Baskar	Associate Professor	Biotechnology	23 July 2013 (AN)
51	Aruradha Banerjee	Associate Professor	Applied Mechanics	24 July 2013
52	C.S. Shankar Ram	Associate Professor	Engineering Design	24 July 2013
53	T.M. Muruganandam	Associate Professor	Biotechnology	8 August 2013
54	B. Yashodha	Junior Assistant	Administration	22 August 2013
55	S. Vivekanandan	Junior Assistant	Mechanical	22 August 2013
56	P.S. Lakshmi Narasimhulu	Junior Assistant	Biotechnology	22 August 2013
57	R. Manikandan	Junior Assistant	Aerospace	22 August 2013
58	S. Sarala	Junior Assistant	Administration	22 August 2013
59	K. Shashikala	Junior Assistant	Stores & Purchase	22 August 2013
60	D. Ravee	Deputy Registrar	Academic Section	2 September 2013
61	A.M. Senthilkumar	Junior Assistant	Engineering Design	29 January 2014 (FN)
62	M.M. Sidhiq	Junior Assistant	Institute Hospital	29 January 2014 (FN)
63	A. Venkatachalam	Junior Assistant	SAIF	29 January 2014 (FN)
64	K. Tamil Selvan	Junior Assistant	Office of the Registrar	30 January 2014
65	Elangovan S.	Junior Assistant	Central Workshop	3 February 2014 (FN)
66	N.K. Jayasri	Superintendent	Administration	24 February 2014 (FN)
67	P.K. Sheba Sabari	Superintendent	Academic Section	24 February 2014 (FN)
68	R. Padmini	Superintendent	Stores & Purchase	24 February 2014 (FN)
69	S. Subramanian	Superintendent	Academic Section	24 February 2014 (FN)
70	V.S. Balasundaram	Junior Assistant	Biotechnology	3 March 2014

III. Faculty/staff members who resigned/were relieved

Sl. No.	ID No.	Name	Designation	Department	Date of Relief
1	1300	Shunmugarajan S.	Junior Superintendent	Ocean	1 May 2013 (FN) (VR)
2	0086	Karunakaran R.	Senior Attendant	Administration II	20 February 2013 (FN) (VR)
3	1086	Ramasamy C.	Senior Security Inspector	Security Section	1 October 2013 (VR)
4	2451	Prasad Rao K.	Professor	Metallurgy	8 November 2013 FN (VR)
5	1253	Thamara K.T.	Junior Attendant	Mechanical	29 November 2013 (VR)
6	8578	Achintya Mukhopadyay	Professor	Mechanical	10 December 2013
7	2564	B. Ramamoorthy	Professor	Mechanical	20 December 2013

IV. Faculty/staff members who retired between 1 April 2013 and 31 March 2014

Sl. No.	ID No.	Name	Designation	Department	Date of Birth	Date of Retirement
1	1249	Prema Chakrapani	Deputy Registrar	IC&SR	5 April 1953	30 April 2013
2	0188	Abdul Jaleel A.	Senior Technical Superintendent (Draughtsman)	Electrical	10 April 1953	30 April 2013
3	1674	Dinakaran S.	DSO	Security Section	10 May 1953	31 May 2013
4	193	Thirupura Sundari L.	Junior Superintendent	Mathematics	27 May 1953	31 May 2013
5	0988	Venkataraman S.	Junior Superintendent	JEE Office	30 May 1953	31 May 2013

Sl. No.	ID No.	Name	Designation	Department	Date of Birth	Date of Retirement
6	2715	Hariharan K.	Professor	Physics	1 June 1948	31 May 2013
7	0796	Sankarakumaraswamy E.	Technical Superintendent	Aerospace	15 May 1953	31 May 2013
8	2888	Natarajan N.A.	Junior Technical Superintendent	Chemistry	12 May 1953	31 May 2013
9	2826	Babu Varghese	SSO Grade I	SAIF	1 June 1951	31 May 2013
10	0438	Allimuthu A.	Conductor Grade I (SG)	Transport Cell	10 June 1953	30 June 2013
11	8038	Anjalai C.	Junior Attendant	Finance & Accounts	5 June 1953	30 June 2013
12	2254	Jagadeesan R.	Lineman Grade I	Engineering Unit	14 June 1953	30 June 2013
13	2655	Krishnaiah K.	Professor	CH	1 July 1948	30 June 2013
14	0423	Neethinathan V.	Senior Technical Superintendent (Draughtsman)	Engineering Unit	2 June 1953	30 June 2013
15	2177	Chinnaiah P.	Senior Attendant	Engineering Unit	1 July 1953	30 June 2013
16	2274	Raman K.	Senior Lineman	Engineering Unit	1 July 1953	30 June 2013
17	1014	Sreenivasalu P.	Superintendent	Mechanical	15 July 1953	31 July 2013
18	2681	Kamala Krithivasan	Professor	Computer Science	6 July 1948	31 July 2013
19	1975	Ramalingam C.	Senior Technical Superintendent (Draughtsman)	Engineering Unit	21 July 1953	31 July 2013
20	0874	Imagaran M.	Superintendent	Alumini	26 July 1953	31 July 2013
21	8203	Lazer J.	Deputy Registrar	Audit	16 August 1953	31 August 2013
22	0062	Jeevanandam N.	DM Grade I	Applied Mechanics	22 August 1953	31 August 2013
23	2962	Kalidoss R.S.	Junior Superintendent	CWS	17 August 1953	31 August 2013
24	0641	Mohan K.	Senior Attendant	Engineering Unit	15 August 1953	31 August 2013
25	0730	Kalilullah K.	Senior Attendant	Mechanical	15 August 1953	31 August 2013
26	0243	Rani S.	Attendant	Administration	17 September 1953	30 September 2013
27	2625	Parthasarathy P.R.	Professor	Mathematics	16 September 1948	30 September 2013
28	1879	Natarajan P.	Senior Attendant	SAIF	17 September 1953	30 September 2013
29	2156	Vijayan A.	Senior Technician	Engineering Unit	17 September 1953	30 September 2013
30	0549	Rathinammal R.	Attendant	Engineering Unit	25 October 1953	31 October 2013
31	2710	Job Kurian	Professor	Aerospace	18 October 1948	31 October 2013
32	3049	Ganesh Babu K.	Professor	Ocean	08 October 1948	31 October 2013
33	1747	Prema R.	Senior Technician	Computer Science	15 October 1953	31 October 2013
34	2589	Siva Prasad N.	Professor	Mechanical	1 December 1948	30 November 2013
35	5027	Prasanna Kumar T.S.	Professor	Mechanical	14 November 1948	30 November 2013
36	2885	Thibursius Roche G.	Junior Technical Superintendent	Aerospace	9 November 1953	30 November 2013
37	1034	Narasinga Rao K.S.	Technical Superintendent	Central Glass Blowing Section	6 November 1953	30 November 2013
38	1939	Yesurathinam B.	Senior Attendant	Engineering Unit	14 November 1953	30 November 2013
39	2690	Ramesh S.K.	SSE	Computer Science	1 December 1953	30 November 2013
40	0989	Srinivasarajan L.	Junior Superintendent	Academic	19 December 1953	31 December 2013

Sl. No.	ID No.	Name	Designation	Department	Date of Birth	Date of Retirement
41	1163	Pandian M.	Junior Superintendent	Stores & Purchase	1 January 1954	31 December 2013
42	0821	Natarajan P.	Assistant Librarian	Central Library	9 January 1954	31 January 2014
43	1610	Kothiyal M.P.	Professor	Physics	21 January 1949	31 January 2014
44	0870	Rama Rao T.	Senior Superintendent	IC&SR	15 January 1954	31 January 2014
45	1061	Susai Michael A.	SSI	Security Section	9 January 1954	31 January 2014
46	0147	Sankari C.	Senior LA	Civil Engineering	23 March 1954	31 March 2014
47	0880	Kasiraju M.	Technical Superintendent	Computer Science	16 March 1954	31 March 2014
48	1293	Sampath M.	Senior Attendant	T & P	7 March 1954	31 March 2014

V. Faculty/staff members who expired while in service

Sl. No.	ID No.	Name	Designation	Department	Date of Birth	Date of Expiry
1	1710	Balachinnaiah M.	Attendant	Institute Gymkhana	15 June 1963	22 June 2013
2	1434	Veerasamy M.	Technical Officer Grade I	Mechanical	9 March 1960	26 June 2013
3	2757	Jayachandran S.	Professor	Management Studies	10 November 1950	20 November 2013

VI. Faculty members/officers/staff members on long leave

a. Faculty/staff members on extraordinary leave

Sl. No.	Name	Designation	Department	From	To	Details	Remarks
1	R. Gnanamoorthy	Professor	Mechanical	27 August 2008	4 May 2015	Director, Indian Institute of Information Technology Design & Manufacturing, Kancheepuram	
2	S. Mohan	Professor	Civil	5 May 2009	4 May 2014	Director, National Institute of Technical Teachers Training and Research, Taramani, Chennai	
3	T.A. Gonsalves	Professor	Computer Science	14 January 2010	13 January 2015	Appointment as Director, Indian Institute of Technology, Mandi, Himachal Pradesh	
4	Gharpure Santhosh Janardan	Assistant Professor	Chemistry	5 July 2012	4 July 2014	Appointment as Associate Professor at IIT Bombay	
5	S. Ponnusamy	Professor	Mathematics	10 October 2012	9 October 2014	Assignment as Head, Indian Statistical Institute, Chennai Centre	
6	S.V. Raghavan	Professor	Computer Science	1 July 2013	30 June 2015	Scientific Secretary in the Office of the Principal Scientific Advisor to the Government of India	
7	Prema Rajagopalan	Associate Professor	Humanities	18 July 2013	17 July 2014	Visiting faculty position at IIT Ropar, Punjab	
8	M.N. Sudheendra Rao	Professor	Chemistry	6 August 2013	5 August 2015	Assignment as Professor, Central University of Karnataka, Gulbarga	
9	S. Devaki Reddy	Professor	Hhumanities	12 August 2013	30 June 2014	Personal affairs	

Sl. No.	Name	Designation	Department	From	To	Details	Remarks
10	C.V.R. Murty	Professor	Civil	11 September 2013	10 September 2018	Directorship of IIT Jodhpur	Teaching
11	Joe Thomas Karackattu	Assistant Professor	Humanities	28 October 2013	2 January 2014	To receive the inaugural Centenary Visiting Fellow Award at SOAS, University of London, UK	Award
12	Arvind Pattamatta	Assistant Professor	Mechanical	16 December 2013	31 May 2014	To take up Raman Fellowship for Post Doctoral Research for Indian Scholars awarded by UGC at Michigan State University, USA (sabbatical leave from 31 May 2013 to 30 November 2013, earned leave from 1 December 2013 to 15 December 2013, extraordinary leave from 16 December 2013 to 31 May 2014)	Alexander Von Humboldt Foundation, Germany
13	M. Murali Prakash	AEE (Electrical)	Engineering Unit	16 December 2013	15 December 2015	EE, NIT Puduchery, Karaikal	Deputation
14	Debashis Chakraborty	Associate Professor	Chemistry	19 December 2013	18 December 2015	Associate Professor, IIT Patna, India	Technical resignation
15	M.P. Ganesh	Assistant Professor	Management Studies	31 December 2013	30 December 2014	Visiting Faculty, IIT Hyderabad	Faculty Exchange programme
16	Arshinder Kaur	Assistant Professor	Management Studies	4 January 2014	3 January 2015	Senior Lecturer, School of Information Systems, Curtin Business School, Curtin University, Australia	
17	P.C. Deshmukh	Professor	Physics	1 February 2014	30 September 2014	Distinguished Professor at Jain University, Bangalore	
18	John Ebenezer Augustine	Assistant Professor	Computer Science	13 February 2014	15 May 2014	Research Fellow, Institute of Computational and Experimental Research in Mathematics, Brown University, USA	

b. Faculty members on sabbatical leave

Sl. No.	Name	Designation	Department	From	To	Details	Remarks
1	S. Surendran	Professor	Ocean	1 June 2013	31 May 2014	Temporary assignment as Brain Pool Researcher in the Department of Naval Architecture and Ocean Engineering, Pusan National University, Pusan, Korea	
2	R. Swarnalatha	Associate Professor	Humanities	15 July 2013	15 January 2014	Charles Wallace Fellowship, Cambridge University	Fellowship
3	C. Lakshmana Rao	Professor	Applied Mechanics	1 August 2013	31 July 2014	Book writing (title of the book is <i>Impact Mechanics</i>)	
4	Krishna Moorthy Sivalingam	Professor	Computer Science	1 August 2013	31 May 2014	Consultant to HCL Technology Engineering and R&D Services	

Sl. No.	Name	Designation	Department	From	To	Details	Remarks
5	P.C. Deshmukh	Professor	Physics	1 September 2013	31 January 2014	Distinguished Professor at Jain University, Bangalore	
6	Raghuram Chetty	Assistant Professor	Chemical	10 September 2013	9 May 2014	To take up Raman Fellowship for Post Doctoral Research awarded for Indian Scholars by UGC at Michigan State University, USA (sabbatical leave from 10 September 2013 to 9 May 2014, extraordinary leave from 1 August 2014 to 5 September 2014, earned leave from 10 May 2014 to 31 July 2014)	
7	Rinku Mukherjee	Assistant Professor	Applied Mechanics	1 January 2014	31 December 2014	Writing book on gas dynamics, Cambridge Press, New Delhi	
8	Venkatesh Ramaian	Assistant Professor	Electrical	1 January 2014	29 June 2014	Consultant, Air Tight Networks, Pune, India	
9	K. Mangala Sundar	Professor	Chemistry	6 January 2014	5 January 2015	Visiting faculty, IISER, Mohali, Punjab (from 6 January 2014 to 15 May 2014), book writing (16 May 2014 to 5 January 2015)	

2.3. Staff Welfare

2.3.1. Human resource development

As part of its human resource development activities, the Institute plans and implements programmes for providing opportunities to the technical and administrative staff to update and upgrade their knowledge and skills so that they may perform their duties effectively. In addition, the programmes are also aimed at enhancing the pride and satisfaction they feel in their work. The overall feeling of happiness engendered by these programmes 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.

HRD programmes conducted

HRD activities were initiated at the Institute in 1997 under the charge of a professor. In the reporting period, eight internal training programmes and 17 external training programmes organized by other institutions/organisations were attended by our staff members. The impact of the various programmes, as seen from the feedback at the end of each programme, appears to be advantageous to the Institute as the employees were able to upgrade their knowledge through these programmes. This is because the programmes were designed on a need basis.

Training calendar for the year 2013

External training

Sl. No.	No. of Persons Who Attended	Course Title	Duration	Section/ Department	Organisation
1	1	Green Campus Summit 2013	4–5 April 2013	Engineering Unit	Association for Promoting Sustainability in Campus and Communities (APSCC), Puducherry
2	2	Roster writing & reservation in services Government policy for SCs, STs & OBCs and Physically Handicapped	25–27 April 2013	Administration & Recruitment	Centre for Training & Social Research, New Delhi

<i>Sl. No.</i>	<i>No. of Persons Who Attended</i>	<i>Course Title</i>	<i>Duration</i>	<i>Section/ Department</i>	<i>Organisation</i>
3	1	Multiproduct Calibrator 5520A	22–27 May 2013	Central Electronics Centre	Electronics Regional Test Laboratory (North) (NSI Laboratory), New Delhi
4	2	Installation of helium liquefier at the low temperature laboratory	1–3 July 2013	Physics	IISc, Bangalore
5	1	Telecommunication Networks with State of Art Hands on Experiments	8–13 July 2013	Electrical Division of Engineering Unit	IIT Kharagpur
6	1	Workshop on Results Frame-work Management System (RFMS)	27 August 2013	IC&SR	Cabinet Secretariat, New Delhi
7	2	Automation Training program	23–27 September 2013	Engineering Design	Siemens India Ltd., Mumbai
8	1	Seminar on Right to Information Act, 2005	11 October 2013	RTI Section	ISTM, New Delhi
9	2	2nd National Technical Workshop	1–19 October 2013	Computer Centre	IISc, Bangalore
10	2	Diabetes Educator Training Programme	21–31 October 2013	Institute Hospital	Christian Medical College, Vellore
11	1	9th International Conference & Exhibition—Fire India 2013	24–26 October 2013	Security Section	Institution of Engineers (India), New Delhi
12	8	Executive development programme on the topic “Legal Aspects of Contract Management”	8–10 November 2013	Engineering Unit	Engineers Development Council, New Delhi
13	4	“Administrative & Esst” “Purchase policy & procedure, E-Procurement”	22–23 November 2013	Stores & Purchase	Society for Economic Research & Training, New Delhi
14	1	Conference of SIRC of ICAI, held at Visakhapatnam	13–14 December 2013	Academic Section	Southern India Regional Council (SIRC) of The Institute of Chartered Accountants of India (ICWA), Chennai
15	1	Workshop, “Cryogenic Facility Management”	7 November 2014 to 11 January 2014	Physics	TIFR, Mumbai
16	2	Management Development Programmes (MDPs)	25–28 March 2014	Administration	Institute of Rural Management Anand (IRMA), Gujarat

Internal training

<i>Sl. No.</i>	<i>No. of Persons Who Attended</i>	<i>Course Title</i>	<i>Duration</i>	<i>Section/ Department</i>	<i>Organisation</i>
1	20	Good to Great—HRD training programme	11 May 2013	Non-faculty Group-A officers	Core Consultants, Mumbai (at Shelter Beach Resorts, Chennai)
2	16	Competency-Based Interviewing Skills	7–8 June 2013	Faculty members—HRD	Core Consultants, Mumbai (at TLC, Central Library, IIT Madras)
3	1	Electro Pneumatic	16–18 July 2013	Engineering Design	SMC Pneumatics (India) Pvt. Ltd., Chennai
4	2	Workshop on Construction and Demolition (C&D) Waste Recycling	5–6 August 2013	Engineering Unit	IC&SR, IIT Madras
5	5	Emerging Trends in Modern Structures Fire & Life Safety—A Real Concern	29 November 2013	Security Section	Indian Institute of Security Management, Madras Chapter, Chennai

Sl. No.	No. of Persons Who Attended	Course Title	Duration	Section/ Department	Organisation
6	33	Induction & Orientation Training for Junior Assistants on Probation	6–31 December 2013	Administration	IIT Madras
7	2	National Conference on Refrigeration and Air Conditioning	12–14 December 2013	Mechanical	IIT Madras
8	33	Outbound Training for Junior Assistants on Probation	4 January 2014	Training & Placement	Sangam Grounds, IIT Madras

2.3.2. Hindi coaching

In accordance with the directions of the Department of the Official Language of the Home Ministry, Government of India, full-time intensive Hindi language programmes, i.e. LILA Prabodh, LILA Praveen and LILA Pragya, were conducted regularly for both technical and administrative staff members to improve their knowledge of Hindi. In 2013–2014, 35 staff members attended online and off-line Hindi examinations, and the results were declared on the same day.

Hindi Day was celebrated on 15 October 2013. The Director presided over the function and distributed certificates, cash awards and personal pay to staff members who had passed the Hindi examination. On the occasion of World Hindi Day 2014, various competitions were conducted in Hindi for the students and staff of IIT Madras. The Director presided over the valedictory function on 30 January 2014 and distributed certificates and cash prizes to the winners of various competitions.

2.3.3. Education assistance for children

In the financial year 2013–2014, the Institute reimbursed a sum of ₹93,38,281 to 472 faculty and staff members against for education assistance for assistance as according to Government of India norms.

2.3.4. Transport facilities for children of staff members

From 10 February 2008, free transport facilities have been provided for the benefit of all users within the campus.

2.3.5. Advances

During the reporting year, a total sum of ₹10.52 lakhs was sanctioned as advances for the following.

Sl. No.	Advance	No. of Beneficiaries	Amount Sanctioned (in ₹)
1	House building advance	0	0
2	Car advance	0	0
3	Two-wheeler advance	3	78,000
4	Personal computer advance	9	2,51,000
5	Festival advance	193	7,23,750
Total			10,52,750

Insurance

Group Mediciam insurance scheme for the period from 1 February 2013 to 31 January 2014

Sl. No.	Category	No. of Persons Covered	Premium Paid (₹)
I	Basic Coverage		2,44,72,445
1	Employee & Dependant	3182	
2	Pensioners & Spouse	688	
3	Family Pensioner	349	
II	Additional Coverage		
4	Employee & Dependant	1344	
5	Pensioners & Spouse	1010	
6	Family Pensioners	94	
III	Fire Insurance		9,06,126

Group term insurance scheme for the period from 10 February 2013 to 9 February 2014

Sl. No.	Group	No. of Employees Covered	Sum Insured Per Employee (₹)	Annual Premium Per Employee (₹)	Total Premium Paid (₹)	Death Claims Made During Period (₹)
1	A	533	30 lakhs	7045	37,54,985	60 lakhs
2	B	260	15 lakhs	3522	9,15,720	—
3	C	339	10 lakhs	2348	7,95,972	20 lakhs

2.3.6. Meetings of the authorities

Board of Governors	Five meetings were held—on 19 July 2013, 18 October 2013, 10 December 2013, 24 February 2014 and 21 March 2014
Finance Committee	One meeting was held on 12 November 2013
Buildings & Works Committee	Two meetings were held—on 27 August 2013 and 17 March 2014
Senate	

2.3.7. ISO 9001:2000 in IIT Madras: April 2013 to March 2014

ISO summary

International Organization for Standardization (ISO) is a world-wide federation that certifies the operation and existence of a quality management system, and ISO 9001:2000 is an international standard for quality systems. IIT Madras was awarded ISO-9001:2000 certification for academic and support processes (QSM-I—Academic Section, Central Library, Central Workshop, Computer Centre and Industrial Consultancy & Sponsored Research, and User-Oriented Programmes) in 1999 and for administrative support processes (QSM-II—Administration, Central Electronic Centre, Engineering Unit, Finance & Accounts, Security Section and Stores & Purchase) in 2001. In 2011, all the academic and support units of IIT Madras were certified as per the new ISO standard ISO 9001:2008. Subsequently the QSM-II certificate was reissued in 2014, and the certificate is valid till January 2017. For QSM-I the certificate is valid up to August 2014, after which recertification will be undergone. In addition to being ISO 9001:2008 certified, the Central Electronic Centre has been NABL-accredited for its testing and calibration laboratories since 2004.

I. ISO Activities for the year 2013–2014

Internal audits

Unit/Section	First Audit	Second Audit
QSM-I	22–29 April 2013	25–29 November 2013
QSM-II	30 April to 3 May 2013	2–6 December 2013

Management review meetings

Unit/Section	Schedule
QSM-I and QSM-II	24 May 2013 (33rd MR meeting)
QSM-I and QSM-II	17 December 2013 (34th MR meeting)

Recertification/surveillance audits (undertaken by TUV India Limited)

Unit/Section	Schedule
QSM-I	20 June 2013 (Surveillance)
QSM-II	19–20 December 2013 (Recertification)

ISO activities

- The ISO 9001:2008 recertification for QSM-II was completed, and the certificate is valid till January 2017.
- G. Arun Kumar (Management Studies) successfully completed ISO Lead Auditor training under TUV India.
- ISO awareness training was conducted for 20 unit heads.

II. NABL activities for the year 2013–2014 (for Central Electronics Centre)

- An audit for renewal of accreditation by NABL was conducted during March 2014.

2.3.8. List of faculty members and officers in academic and general administration

(i) Academic Administration

Director	Bhaskar Ramamurthi
Deans:	
Academic Courses	K. Ramamurthy
Academic Research	Saritikumar Das
Administration	P. Sriram
Industrial Consultancy & Sponsored Research	Krishnan Balasubramaniam
Students	L.S. Ganesh
Planning	Ravinder David Koilpillai
International and Alumni Relations	R. Nagarajan

(ii) Heads of Departments

Aerospace	K. Bhaskar
Applied Mechanics	M. Ramasubba Reddy
Biotechnology	Mukesh Doble
Chemical Engineering	P. Sesha Talpa Sai
Chemistry & MSRC	U.V. Varadaraju
Civil Engineering	S.R. Gandhi (up to 5 February 2014) A. Meher Prasad (from 6 February 2014)
Computer Science & Engineering	P. Sreenivasa Kumar
Electrical Engineering	Enakshi Bhattacharya (up to 30 July 2013) Harishankar Ramachandran (from 31 July 2013)
Engineering Design	Nilesh Jayantilal Vasa
Humanities & Social Sciences	Sudhir Chella Rajan (up to 4 February 2014) Malathy Duraisamy (from 5 February 2014)
Management Studies	G. Srinivasan
Mathematics	S.H. Kulkarni
Mechanical Engineering	T. Sundararajan
Metallurgical and Materials Engineering	M. Kamaraj
Ocean Engineering	J.S. Mani (up to 29 August 2013) V. Anantha Subramanian (from 30 August 2013)
Physics	P.B. Sunil Kumar

(iii) Heads of Research Centres

Sophisticated Analytical & Instrumentation Facility	S.S. Bhattacharyya
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(iv) Heads of Special Facilities for Interaction with Other Institutions

Centre for Industrial Consultancy & Sponsored Research	Krishnan Balasubramaniam
Chairman, CCE & Central Photographic Section	Ajit Kumar Kolar
Central Electronics Centre	V. Jagadeesh Kumar
Computer Centre	Koshy Varghese

Chairmen:

GATE	S. Ganesh Sundara Raman
JEE	L. Prakash Sai

(v) Central Administration

Registrar	V.G. Bhooma
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Deputy Registrars:

Academic Section	G. Ravichandran
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Administration
Finance & Accounts Section
Internal Audit Section
Stores and Purchase Section
Training & Placement
IC&SR

D. Ravee
S. Sundaravinayagam
S. Sambasivam
R. Esakkimuthu
A.V. Sudarsanam
Jayakumar
B. Nagarajan

Assistant Registrars:

Academic
Administration

M. Chakkarapani
P. Jamuna
R. Chandrakasu
J. Edwin
B. Dhamodaran
K. Vijayalakshmi
K. Kumarappan
Y.E.L. Sudhakar Rao Pujari
V. Perumal
V. Rajendran
N. Elumalai

Recruitment
Finance & Accounts Section

Stores & Purchase Section
Engineering Unit
Office of the Dean (Students)
IC&SR
Security cum Fire Officer

(vi) Heads of Central Services, Facilities and Sections

Central Library
Chief Medical Officer-in-Charge
Chairman, Council of Wardens
Central Gas Supplies Unit & Central Gas Blowing Section
Professor-in-Charge, Central Workshop
Coordinator, NSS
Advisor, Sports
Advisor, Cultural
Advisor, Foreign Students & Weaker Section
Chief Vigilance Officer (part time)

Harish Chandra
Mahalakshmi M. Ravi
M. Prakash Maiya
U.V. Varadaraju
N. Ramesh Babu
John Bosco Lourdusamy
K.P. Sudheer
Udayachandran Chakkingal
Sudarshan Padmanabhan
N. Sivaprasad (up to 27 August 2013)
S. Sankararaman (from 28 August 2013)
N. Ramesh Babu (up to 1 September 2013)
Babu Viswanathan (from 2 September 2013)
M.S. Sivakumar

Placement & Training

Advisor, Mentoring for Individual Transformation (MITr)

(vii) Engineering Unit

Chairman

K.N. Satyanarayana (up to 19 May 2013)
A. Veeraraghavan (from 20 May 2013)
A. Veeraraghavan (up to 9 September 2013)
Ligy Philip (from 10 September 2013)
R. Arumugam
K. Viswanath
L. Venkataraman
V. Seenivasan
K. Dharmaraj
M. Ramachandran
M. Murali Prakash (on extraordinary leave)
H. Anandram
K. Rizwan Ali
N.R. Vineetha

Co-Chairman

Superintending Engineer
Executive Engineers

Assistant Executive Engineers

(viii) IC&SR

Chief Techno-Economic Officer
Senior Techno-Economic Officer

R. Sundaram
V. Suresh

3. ACADEMIC PROGRAMMES AND AWARD OF DEGREES

The Institute offered Ph.D. programmes in all 16 departments, M.S. programmes in 12 departments, M.Tech. programmes in 28 streams/specialisations, M.Sc. programmes in three branches, B.Tech. programmes in 10 branches, Dual Degree (B.Tech. and M.Tech.) programmes in 21 streams/specialisations, Dual Degrees (B.S. and M.S.) in Biological Sciences and Physics, an M.B.A. programme, M.A. integrated programmes in three streams and a PG Diploma in Metro Rail Technology and Management in the Civil Department besides a preparatory course for SC/ST students during the year under report.

3.1. Admissions 2013–2014

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

The numbers of students and scholars admitted to the various programmes in July 2013 and in January 2014 are listed in Table 3.1.

Table 3.1. Fresh admissions

Sl. No.	Department	B.Tech.	Dual Degree	M.Tech.	PG Diploma	M.Sc.	M.B.A.	M.A.	M.S.	Ph.D.	Total
1	Aerospace Engineering	37	20	25	—	—	—	—	24	14	120
2	Applied Mechanics	—	—	23	—	—	—	—	15	14	52
3	Biotechnology	—	53	9	—	—	—	—	12	45	119
4	Chemical Engineering	72	17	46	—	—	—	—	9	26	170
5	Chemistry	—	—	—	—	46	—	—	—	38	84
6	Civil Engineering	62	33	95	—	—	—	—	24	70	284
7	Computer Science and Engineering	29	26	59	—	—	—	—	34	17	165
8	Electrical Engineering	65	52	65	—	—	—	—	49	37	268
9	Engineering Design	—	55	—	—	—	—	—	15	13	83
10	Humanities and Social Sciences	—	—	—	—	—	—	43	—	18	61
11	Management Studies	—	—	—	37	—	72	—	17	13	139
12	Mathematics	—	—	9	—	44	—	—	—	13	66
13	Mechanical Engineering	75	73	117	—	—	—	—	70	78	413
14	Metallurgical and Materials Engineering	36	12	30	—	—	—	—	21	20	119
15	Ocean Engineering	35	19	56	—	—	—	—	27	29	166
16	Physics	28	9	6	—	39	—	—	—	46	128
	Total	439	369	540	37	129	72	43	317	491	2437

In addition, 18 students (OBC PD,3; GE PD, 8; SC PD, 3; ST, 3; ST PD, 1) joined the preparatory course.

OBC/SC/ST students among fresh admissions

Sl.No	Programme	OBC	SC	ST	PD	Female
1.	B.Tech.	124	64	33	5	44
2.	Dual Degree	102	55	25	1	46
3.	M.Tech.	120	64	22	5	75
4.	PG Diploma in Metro Rail	—	—	—	—	—
5.	M.B.A.	13	8	—	—	17
6.	M.Sc.	40	22	1	1	28
7.	M.A.	12	6	4	—	30
8.	M.S.	70	9	—	—	68
9.	Ph.D.	133	36	—	3	144
Total		481	264	85	15	452

The students admitted during the year included the following:

Foreign nationals	1		User-Oriented Programme (M.Tech.)	57
OBC	481			
Scheduled Castes	264		Q.I.P.	M.Tech. 8 Ph.D. 9
Scheduled Tribes	85		Sponsored	M.Tech. 36
Physically handicapped	15		Project	M.S. 56 Ph.D. 17
Women students	452		External registration	M.S. 19 Ph.D. 41
Defence officers (M.Tech.)	50			

3.2. Enrolment of Students/Scholars

The total numbers of students on roll in various programmes of the Institute in the academic year 2012–2013 are provided in Table 3.2.

Table 3.2. Students on roll

Sl. No.	Department	B.Tech.	Dual Degree	M.Tech.	PG Diploma	M.Sc.	M.B.A.	M.A.	M.S.	Ph.D.	Total
1	Aerospace Engineering	132	105	44	—	—	—	—	59	65	405
2	Applied Mechanics	—	—	40	—	—	—	—	48	91	179
3	Biotechnology	75	165	33	—	—	—	—	32	196	501
4	Chemical Engineering	284	92	76	—	—	—	—	37	93	582
5	Chemistry	—	—	—	—	93	—	—	0	224	317
6	Civil Engineering	245	181	170	—	—	—	—	57	210	863
7	Computer Science and Engineering	143	144	115	—	—	—	—	103	79	584
8	Electrical Engineering	—	277	—	—	—	—	—	42	60	379
9	Engineering Design	257	332	125	—	—	—	—	195	163	1072
10	Humanitis and Social Sciences	—	—	—	—	—	213	—	—	46	259
11	Management Studies	—	—	—	37	—	—	173	58	86	354
12	Mathematics	—	—	20	—	101	—	—	—	61	182
13	Mechanical Engineering	321	365	191	—	—	—	—	162	258	1297
14	Metallurgical and Materials Engineering	125	63	54	—	—	—	—	35	96	373
15	Ocean Engineering	130	85	93	—	—	—	—	72	111	491
16	Physics	105	41	14	—	76	—	—	—	160	396
Total		1817	1850	975	37	270	213	173	900	1999	8234

The students on roll included the following:

Foreign nationals	52		QIP	M.Tech.	37
OBC	2079		Sponsored	M.Tech.	51
Scheduled Castes	885		Project	M.S.	179
Scheduled Tribes	345		External registration	Ph.D.	138
Physically handicapped	80			M.S.	126
Women students	1539		Registration kept alive	Ph.D.	14
			Part-Time Programme (Ph.D.)	M.S.	27
Defence officers (M.Tech.)	63		User-Oriented Programme (M.Tech.)	Ph.D.	44
					109

OBC/SC/ST students on roll

Sl. No.	Course	OBC	SC	ST	Female
1	B.Tech.	488	291	155	216
2	Dual Degree	472	275	126	231
3	M.Tech.	227	102	42	131
4	M.Sc.	80	43	0	71
5	M.B.A.	23	30	0	31
6	M.A.	48	33	17	132
7	Ph.D.	539	98	4	556
8	M.S.	202	13	1	171
Total		2079	885	345	1539

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

Table 3.3. B.Tech. students on roll

Sl. No.	Branch	2013	2012	2011	2010	2009 and Earlier Batches	Total
1	Aerospace Engineering	38	31	26	30	7	132
2	Biotechnology	–	–	38	31	6	75
3	Chemical Engineering	68	69	67	68	12	284
4	Civil Engineering	62	63	60	39	21	245
5	Computer Science and Engineering	33	33	31	33	13	143
6	Electrical Engineering	71	72	52	51	11	257
7	Engineering Physics	25	25	29	21	5	105
8	Mechanical Engineering	77	84	82	73	5	321
9	Metallurgical and Materials Engineering	31	31	30	31	2	125
10	Naval Architecture	32	33	30	30	5	130
Total		437	441	445	407	87	1817

Table 3.4. Dual Degree (B.Tech. and M.Tech.) students on roll

Sl. No.	Branch	2013	2012	2011	2010	2009	2008 and Earlier Batches	Total
1	Aerospace Engineering	13	9	11	18	16	4	71
	AE (B.Tech.) & AM (M.Tech.)	8	8	7	7	4		34
2	Biotechnology			16	26	23	2	67
	Biological Engineering	30	26					56
	Biological Sciences (B.S. & M.S.)	19	23					42

3	Chemical Engineering	14	16	18	24	17	3	92
4	Civil Engineering & Infrastructural Civil	24	23	29	35	30	8	149
	CE (B.Tech.) & AM (M.Tech.)	6	6	5	7	7	1	32
5	Computer Science & Engg.	28	29	28	27	20	12	144
6	Electrical Engineering	50	49	65	62	56	13	295
	EE (B.Tech.) & AM (M.Tech.)	9	9	9	7	3	-	37
7	Engineering Design	55	56	53	56	45	12	277
8	Mechanical Engineering	73	77	67	82	63	3	365
9	Metallurgical & Materials Engineering	11	11	11	15	13	2	63
10	Naval Architecture & Ocean Engineering	9	7	9	11	10	2	48
	NA (B.Tech.) & AM (M.Tech.)	8	7	9	6	5	2	37
11	Physics (B.S. & M.S.)	9	8	8	6	10	-	41
	Total	366	364	345	389	322	64	1850

Table 3.5. M.Sc. students on roll

Sl. No.	Branch	2013	2012 and Others	Total
1	Chemistry	46	47	93
2	Mathematics	44	57	101
3	Physics	39	37	76
	Total	129	141	270

Table 3.6. M.Tech. students on roll

Sl. No.	Department\Discipline\Batch	2013	2012	Extended Students	Total
1	Aerospace Engineering	23	19	2	44
2	Applied Mechanics	21	19	—	40
3	Biotechnology—Clinical Engineering	9	24	—	33
4	Chemical Engineering	32	27	1	60
	Catalysis Technology	3	3	—	6
5	Civil Engineering				
	CE 1—Building Technology	8	9	—	17
	CE 2—Environmental Engineering	4	4	—	8
	CE 3—Geotechnical Engineering	7	14	—	21
	CE 4—Hydraulic & Water Resource Engineering	6	3	—	9
	CE 5—Structural Engineering	18	21	—	39
	CE 6—Transportation Engineering	9	6	1	16
	CE 7—Construction Technology and Management	30	30	—	60
6	CS 1—Computer Science and Engineering	58	57	—	115
7	Electrical Engineering				
	EE 1—Communication Systems	20	20	—	40
	EE 2—Power Systems and Power Electronics	10	12	—	22
	EE 3—Micro Electronics and VLSI Design	20	12	—	32
	EE 4—Control and Instrumentation System	9	14	—	23
	EE 5—Photonics	4	4	—	8
8	Industrial Maths & Scientific Computing	9	11	—	20
9	Mechanical Engineering				
	ME 1—Thermal Engineering	40	33	—	73
	ME 2—Design	34	29	—	63
	ME 3—Manufacturing Engineering	22	13	—	35

	ME 4—Automotive Engine Technology	10	10	—	20
10	MM—Metallurgical and Materials Engineering	30	19	1	50
	NE—Nuclear Engineering	10	4	—	14
11	OE—Ocean Engineering	16	12	—	28
	—Ocean Technology and Management	6	3	—	9
	—Petroleum Engineering	10	11	1	22
	—Offshore Structures and Engineering	24	10	—	34
12	Physics				
	PH—Solid State Technology	6	8	—	14
	Total	508	461	6	975

Table 3.7. M.B.A. students on roll

Sl. No.	Branch	2013	2012	Total
1	Management Studies	72	101	173

Table 3.8. M.A. students on roll

Sl. No.	Branch	2013	2012	2011	2010	2009	Total
1	Humanities and Social Sciences	43	43	41	44	42	213

Table 3.9. M.S. scholars on roll

Sl. No.	Branch	I Year	II Year	III Year	IV Year	V Year & others	Total
1	Aerospace Engineering	25	18	9	6	1	59
2	Applied Mechanics	15	22	6	4	1	48
3	Biotechnology	12	10	7	3	—	32
4	Chemical Engineering	8	6	18	3	2	37
5	Civil Engineering	24	18	9	3	3	57
6	Computer Science and Engineering	34	34	21	11	3	103
7	Electrical Engineering	46	50	53	38	8	195
8	Engineering Design	16	8	14	3	1	42
9	Management Studies	19	18	11	7	3	58
10	Mechanical Engineering	67	44	26	15	10	162
11	Metallurgical and Materials Engineering	20	7	5	1	2	35
12	Ocean Engineering	28	20	13	10	1	72
	Total	314	255	192	104	35	900

Table 3.10. Ph.D. scholars on roll

Sl. No.	Branch	I Year	II Year	III Year	IV Year	V Year and Others	Total
1	Aerospace Engineering	14	9	9	9	24	65
2	Applied Mechanics	18	20	17	16	20	91
3	Biotechnology	46	30	34	21	65	196
4	Chemical Engineering	22	14	26	16	15	93
5	Chemistry	41	34	57	39	53	224
6	Civil Engineering	69	34	41	25	41	210
7	Computer Science and Engineering	20	15	9	8	27	79
8	Electrical Engineering	36	35	25	28	39	163
9	Engineering Design	12	14	13	8	13	60

10	Humanities and Social Sciences	16	8	5	7	10	46
11	Management Studies	16	14	20	11	25	86
12	Mathematics	18	9	18	3	13	61
13	Mechanical Engineering	77	48	41	35	57	258
14	Metallurgical and Materials Engineering	18	16	20	14	28	96
15	Ocean Engineering	33	26	23	15	14	111
16	Physics	48	34	19	23	36	160
	Total	504	360	377	278	480	1999

3.3. Courses Offered

In the academic year 2013-14, 1272 courses were offered of which 651 courses in July–Nov. 2013 and 621 courses in Jan–May 2014. The Department-wise details of the courses offered are given below:

Table 3.11. Number of courses offered

Sl. No.	Department	No. of Courses Offered in July–November 2013				No. of Courses offered in January–May 2014			
		Core	Elective	Lab	Total	Core	Elective	Lab	Total
1	Aerospace Engineering	10	11	4	25	6	15	4	25
2	Applied Mechanics	5	7	2	14	9	8	3	20
3	Biotechnology	12	8	3	23	7	10	1	18
4	Chemical Engineering	12	20	3	35	14	15	3	32
5	Chemistry	5	10	2	17	6	13	3	22
6	Civil Engineering	30	29	5	64	24	22	8	54
7	Computer Science and Engineering	12	13	6	31	6	21	4	31
8	Engineering Design	13	3	5	21	12	6	3	21
9	Electrical Engineering	16	32	6	54	15	36	8	59
10	Humanities and Social Sciences	37	36	0	73	30	26	1	57
11	Management Studies	27	41	0	68	6	45	0	51
12	Mathematics	15	19	1	35	12	21	1	34
13	Mechanical Engineering	42	34	6	82	51	24	7	82
14	Metallurgical and Materials Engineering	9	23	4	36	9	23	8	40
15	Ocean Engineering	20	14	2	36	18	8	2	28
16	Physics	20	10	7	37	18	21	8	47
	Total	285	310	56	651	243	314	64	621

3.4. Convocation

The 50th Convocation was held on 19 July 2013. Dr. Subra Suresh delivered the convocation address. A total of 1785 candidates were awarded various degrees, and 1226 candidates received degrees in person. The department-wise details of the degrees awarded are provided in Table 3.12.

Table 3.12. Degrees awarded

Department	Ph.D.	M.S.	M.Tech.	PGD-MRT	PGD-MEM	M.Sc.	M.B.A.	M.A.	Dual Degree		B.Tech.	Total
									B.Tech.	M.Tech.		
Aerospace Engineering	5	9	23	—	—	—	—	—	19	19	18	93
Applied Mechanics	7	14	16	—	—	—	—	—	16	16	—	69
Biotechnology	17	3	8	—	—	—	—	—	17	17	18	80
Chemical Engineering	7	5	29	—	—	—	—	—	14	14	53	122

Chemistry	19	—	—	—	—	49	—	—	—	—	—	68
Civil Engineering	14	8	84	13	—	—	—	—	28	28	37	212
Computer Science and Engineering	8	17	61	—	—	—	—	—	11	11	20	128
Electrical Engineering	10	21	61	—	—	—	—	—	45	45	39	221
Engineering Design	1	6	—	—	—	—	—	—	35	35	—	77
Humanities and Social Sciences	5	—	—	—	—	—	24	—	—	—	—	29
Management Studies	11	7	—	—	33	—	—	51	—	—	—	102
Mathematics	3	17	9	—	—	37	—	—	—	—	—	66
Mechanical Engineering	20	3	90	—	—	—	—	—	49	49	65	276
Metallurgical and Materials Engineering	10	9	17	—	—	—	—	—	8	8	25	77
Ocean Engineering	6	—	42	—	—	—	—	—	7	7	24	86
Physics	13	—	8	—	—	39	—	—	—	—	19	79
Total	156	119	448	13	33	125	24	51	249	249	318	1785

With this convocation, the total number of degrees awarded so far by the Institute is 40,545:

Sl. No.	Programme	No.
1	Ph.D.	3778
2	M.S.	2774
3	M.Tech.	12,741
4	M.Sc.	2914
5	M.B.A.	601
6	M.A.	77
7	Dual Degree	
	B.Tech.	1590
	M.Tech.	1590
8	B.Tech.	14,139
9	PGDMEM	63
10	B.Sc. (Tech.)	20
11	DIIT	245
12	PGDMRT	13
	Total	40,545

3.5. Award of Prizes to Students

3.5.1. Convocation prizes

Prizes awarded to students at the 50th Convocation:

- President of India Prize ... M. Vijay Karthik, B.Tech., Computer Science and Engineering
- Governor's Prize ... Akshay Rangamani, B.Tech., Electrical Engineering
- Sri V. Srinivasan Memorial Prize ... Sai Gautam G., Dual Degree, Metallurgical and Materials Engineering
- Dr. Shankar Dayal Sharma Prize ... Anirudh R. Padia, B.Tech., Mechanical Engineering
(Joint Winners) Siddharth, B.Tech., Mechanical Engineering

Other prizes

S. No.	Name of the Prize	Name of the Student
B.Tech.		
1	HAL Prize [Aerospace Engineering]	Vivek Subramaniam AE09B031
2	The Divashri Award [Boitechnology]	Chetan S. BT09B007

3	Reliance Heat Transfer Pvt. Ltd. Prize [Chemical Engineering]	V. Saranya CH09B055
4	Larsen & Toubro ECC Endowment Prize [Civil Engineering]	Malladi Satya Sarvani CE09B030
5	Siemens Prize [Electrical Engineering]	Milind M. Rao EE09B023
6	Prof. Achim Bopp Endowment Prize [Electrical Engineering]	Anish M. Tamse EE09B006
7	Hema Balasubramanian Excellence Award [Engineering Physics]	Varun Saravanan EP09B021
8	Banco Foundation Prize [Mechanical Engineering]	Preetish K.L. ME09B043
9	Sivasailam Merit Prize [Mechanical Engineering]	Pulidindi Ramakanth ME09B044
10	Vaidy Krishnan Memorial Prize [Mechanical Engineering]	Aniruddh R. Padia ME09B124 Siddharth S. ME09B053 [Joint Winners]
11	Dr. Dhandapani Memorial Prize [Metallurgical and Materials Engineering]	Vrat Pranav MM09B017
12	American Bureau of Shipping Prize [Naval Architecture and Ocean Engineering]	Ashwin Mohandas NA09B007
Dual Degree		
13	Dr. V. Mohan Raman Prize [Aerospace Engineering]	K Rohit AE08B041
14	Mayan Prize [Aerospace Engineering]	Balbudhe Kishor Madhukar AE08B005
15	Institute Merit Prize [Applied Mechanics]	S. Prashanth CE08B077
16	Biocon Prize [Biotechnology]	Shukla Chinmay Jayesh BT08B045
17	B. Ravichandran Memorial Prize [Chemical Engineering]	Siddharth Jain CH08B067
18	Dr. N.R. Dave Prize [Civil Engineering]	Swetha M.D. CE08B063
19	Alumni Association Prize [Computer Science and Engineering]	V. Giridhari CS08B046
20	Institute Merit Prize [Engineering Design]	Bhinge Raunak Dhananjay ED08B005
21	Philips India Prize [Electrical Engineering]	Siddharth Shekar EE08B048
22	Prof. G.V.N. Rayudu Memorial Prize [Mechanical Engineering]	Rajesh Sridhar ME08B082
23	S. Anantharamkrishnan Memorial Prize [Metallurgical and Materials Engineering]	Sai Gautam G. MM08B033
24	Goodearth Shipbuilding Pvt. Ltd. Prize [Naval Architecture and Ocean Engineering]	Vinay K. Sridhar NA08B031
PG Diploma and Management		
25	Smt. Jayalakshmi and Sri R. Narasimhan Prize [Civil Engineering]	Prem Kumar D. CE12G009
26	Chairman—NMCC's Gold Medal	Anindya Biswas MS12V003
27	JICA Gold Medal	Kushal Bir Singh MS12V014

28	IIMC Alumni Association Calcutta Chapter Gold Medal	Abhishek Shukla MS12V002
M.A.		
29	Prof. A. Ravindran Prize [Integrated M.A. programme—Eco]	Prasoon Kumar Singh HS08H015
30	Dr. Dilip Veeraraghavan Memorial Award [Integrated M.A. programme—DS]	Soumya Mishra HS08H027
31	Prof. A.V. Krishna Rao Memorial Award [Integrated M.A. programme—ES]	Prakruti Ramesh HS08H014
M.Tech.		
32	Air India Prize [Aerospace Engineering]	Jasraj Asdev AE11M008
33	Indira Sivasailam Merit Prize [Applied Mechanics]	Nidheesh P. AM11M011
34	Prof. B.V.A. Rao Endowment Prize [Applied Mechanics]	Mainak Bhattacharyya AM11M008
35	Usha Kothandaraman Memorial Prize [Applied Mechanics]	Mainak Bhattacharyya AM11M008
36	Sushruta Award [Applied Mechanics]	Arnab Banerjee AM11M032
37	Institute Merit Prize [Clinical Engineering]	Soumya P.D. BT10M012
38	Dr. K. Subba Raju Memorial Prize [Chemical Engineering]	Amala M. Mathai CH11M002
39	Sri S.V. Balakrishnan Prize [Catalysis Technology]	Veera Raghavulu Kattula CA11M006
40	Mico-Bosch Prize [Chemical Engineering]	Kota Sampath Bharadwaj CH11M014
41	Valli Anantharamakrishnan Merit Prize [Civil Engineering]	Femeena P.V. CE11M071
42	K. Devarajan Memorial Prize [Civil Engineering]	Rajeev Chandra CE11M146
43	L&T Endowment Prize [Construction Technology & Management]	Vandana C. Padmanabha CE11M187
44	CMC Prize [Computer Science and Engineering]	Syama Varma R. CS11M060
45	Prof. H.N. Mahabala Endowment Prize [Computer Science and Engineering]	Saurav Kant Jha CS11M050 K Dinesh CS11M019 [Joint Winners]
46	Siemens Prize [Electrical Engineering]	Hussam Ahmed P. EE11M007
47	Prof. Achim Bopp Endowment Prize [Electrical Engineering]	P.S. Shenil EE11M091
48	Prof. Helmut Neunzert Endowment Prize [Industrial Mathematics & Scientific Computing]	Vinay Prabhakar Katiyar MA11M014
49	Prof. B. Sengupto Prize [Mechanical Engineering]	Kartik S. ME11M118
50	Dr. S. Vaidyanathan Memorial Prize [Mechanical Engineering]	Kartik S. ME11M118
51	Prof. Rama Rao Jayanti Memorial Prize [Nuclear Engineering]	Amman Jakhar NE11M002
52	Giri Brothers Prize [Mechanical Engineering]	Kartik S. ME11M118

53	S. Anantharamakrishnan Merit Prize [Mechanical Engineering]	Geethanjali G. ME11M071
54	Prof. Ramamohana Rao Memorial Prize [Mechanical Engineering]	
55	Delphi-TVS Diesel Systems Ltd. Prize [Automotive Technology]	P.S. Satyanarayana AT11M006
56	Sudharshan Bhat Memorial Prize [Metallurgical and Materials Engineering]	Parthiban R. MM11M013
57	American Bureau of Shipping Prize [Ocean Engineering]	Jithin Jose OE11M004
58	Prof. K.A.V. Pandalai Prize [Ocean Technology and Management]	Savin Viswanathan OE11M037
59	Institute Merit Prize [Offshore Structural Engineering]	Palkar Saloni Sudhakar OE11M076
60	Sri R.R.P. Sinha and Vimla Dewi Prize [Petroleum Engineering]	Jay Karen Maria William PE11M004
61	Sri Krishnamurthy Sundarambal Prize [Solid State Technology]	Panatula Sasidhar PH11M007
M.Sc.		
62	Dr. S.R. Ramadas 60th Birthday Commemoration Award [Chemistry]	Avijit Baidya CY11C011
63	Ratna Rao Memorial Prize [Chemistry]	Avijit Baidya CY11C011
64	Mira Paul Memorial Prize [Mathematics]	Jyoti MA11C018
65	Prof. Chilukuri Ramasastry Memorial Prize [Physics]	Medha Soni PH11C019
M.B.A.		
66	Coka Parthasarathy Prize [Management Studies]	Sunishtha Singh MS11A050
67	K.V. Arunkumar Memorial Prize [Management Studies]	Anuj Tiwari MS11A009
M.S./Ph.D.		
68	Prof. V. Ramamurti Award [Applied Mechanics]	Shyam Kumar M.B. AM06D010
69	Sudharshan Bhat Memorial Prize [Metallurgical and Materials Engineering]	Anand Kumar S. MM09D011
70	Prof. C.N. Pillai Prize [Chemistry—Organic and Biochemistry]	Jagadeesh Chandra Prasad CY07D038 Muthupandi P. CY07D006 [Joint Winners]
71	Prof. G. Sundararajan Endowment Prize [Organic Chemistry]	Gore Sangram Mautrao CY06D020 Rajabhusan Reddy CY06D015 [Joint Winners]
72	Prof. Langmuir Prize [Chemistry—Physical and Theoretical Chemistry]	Sumanta Kumar Mehar CY05D040 Udaya Bhaskara Rao Thumu CY06D028 [Joint Winners]
73	Prof. Werner Prize [Chemistry—Inorganic and Analytical Chemistry]	Geetha Rani K. CY07D027

74	Prof. A.L. Laskar Prize [Physics]	Vinayan B.P. PH08D002 Adarsh Kaniyoor PH07D037 [Joint Winners]
75	Shree Gaayathree Devi Award [Civil Engineering]	Jiji Anna Varughese CE09D030 Neethu Roy CE09D010 [Joint Winners]
76	GE Ecomagination Excellence Award [Civil Engineering—Ecological and Environmental Protection]	K. Sivagami CH08D015
77	Smt. Lakshmikutty Amma and Sri A. Krishnankutty Nair Kutty [Mathematics]	G. Sankara Raju Kosuru MA07D004
78	Bhagyalakshmi and Krishna Ayengar Award	Adarsh Kaniyoor PH07D037 Sheik Mohammed Ali S. EE11S055 Arun Vinayak ME09B008 Sowstik Sourav Dash ME08B088 [Joint Winners]
79	S.R.I. Prize	Vivek Subramaniam AE09B031

3.5.2. Institute Day prizes

The following students were awarded merit prizes on the basis of performance on the fifth Institute Day, on 9 April 2013, at the Student Activities Centre. Sri M. Damodaran, IAS (Retd.), Chairman, Indian Institute of Management, Trichy was the chief guest.

I. Institute Merit Prizes

Silver medal & cash award of ₹5000

- For the student with the best academic record in the first two semesters of the B.Tech./Dual Degree programme (2011 batch)

CS11B059	Srinivasan R (Sri S. Subramanian Prize)
ME11B152	Anoop R. (Sri K. Krishnamurthi Prize)

- For the best academic record in the third and fourth semesters put together in the B. Tech./Dual Degree programme (2010 batch)

AE	AE10B014	G. Karthik [Prof. T.K. Varadan Prize]
BT	BT10B001	Akhil Sai Valluri [Dr. Anita Mehta–Damani Prize]
CH	CH10B026	Krishna Shrinivas [Dr. Anita Mehta–Damani Prize]
CE	CE10B024	Hareesh Pallikara Bahuleyan [Computer Age Management Services Pvt. Ltd. Prize]
CS	CS10B056	Akshay Dhananjai Degwekar [Sri V. Ramachandran Prize]
EE	EE10B035	Saragadam R.V. Vishwanath [Sri V. Rajagopalan Memorial Prize]

ED	ED10B008 ED10B047	K. Dilip (DD) C. Abhijith (DD) [Smt. Latha and Sampath Srinath Prize] [Joint Winners]
EP	EP10B001	Athreya S. [Smt. Latha and Sampath Srinath Prize]
ME	ME10B156	S. Sudarshan [Smt. Jayashree Ananth Prize]
MM	MM10B021	Karthik A. [Sri Satish Pai Prize]
NA	NA10B051	Ambetkar Vighnesh Vidyadhar (DD) [Smt. Latha and Sampath Srinath Prize]
PH	PH10B009	Vishakh Hegde (DD) [B.S. and M.S. PHY] [Institute Merit Prize]

3. For the student with the best academic record in the first four semesters of the B.Tech. programme (2010 batch)

ME	ME10B156	S. Sudarshan (Sri Raghavendra Memorial Prize)
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4. For the student who secured the highest marks in the Mechanical Operations course

CH	CH10B067	Suraj Shankar [Prof. Ramanujam Memorial Award]
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5. For the student with the best academic record in the fifth and sixth semesters in each branch of the B.Tech/Dual Degree programme (2009 batch)

AE	AE09B031	Vivek Subramaniam [Prof. E.G. Tulapurkara Prize]
BT	BT09B007	Chetan S. [Dr. Anita Mehta–Damani Prize]
CH	CH09B070 CH09B084	Merin Thomas (DD) Suyog Sanjay Sawala [Dr. R.K. Viswanath Memorial Prize] [Joint Winners]
CE	CE09B075	Vadali Nandita (DD) [M.S.K. Chaitanya Varma Memorial Prize]
CS	CS09B050	Vijay Karthik M. [Computer Age Management Services Pvt. Ltd. Prize]
EE	EE09B041	Vimal M. [Sri Ramasarma V. Kolluri Memorial Prize]
ME	ME09B095	Sneha Abhyankar (DD) [Dr. Vivekanand Kochikar Award]
MM	MM09B017	Pranav Vrat Ratna Award
NA	NA09B007	Ashwin Mohandas (DD) [Institute Merit Prize]
EP	EP09B021	Varun Saravanan (DD) [Institute Merit Prize]
ED	ED09B019	Nayakanti Nigamaa [Institute Merit Prize]
PH	PH09B002	Gosika Mounika (DD) [B.S. and M.S. PHY] [Institute Merit Prize]

6. For the student with the best academic record (highest CGPA) in the first six semesters in the B.Tech. programme in Mechanical Engineering

ME	ME09B043	Preetish K L Dr S Chandrasekharan Memorial Prize
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7. For the student with the best academic record in the seventh and eight semesters in Dual Degree programme (2008 batch)

AE	AE08B041	K Rohit Institute Merit Prize
AM	EE08B084	Akshay Singhal [AM] Institute Merit Prize
BT	BT08B045	Shukla Chinmay Jayesh Sri Madan Gopal Damani Prize
CH	CH08B067	Siddharth Jain Dr. Anita Mehta–Damani Prize
CE	CE08B066	D. Vinu [Infrastructure Civil Engg] Sri Venkataraman Ravi Prize
CS	CS08B034	S. Nishaanth Computer Age Management Services Pvt. Ltd. Prize
ED	ED08B008	Garudaiah Gari Surya Teja Reddy Institute Merit Prize
EE	EE08B048	Siddharth Shekar [Micro Electronics and VLSI Design] <i>Electronics For You</i> Prize
EE	EE08B071	Vignesh G. [Communication Engineering] D. Anand Subramanian Memorial Award
EE	EE08B007	Banoth Ganesh Kumar [Power Systems and Power Electronics] Sri Ramanan Ramamurthy Prize
ME	ME08B067	Reetik Kumar Sahu [Energy Technology] Raghu Ramamoorthy Prize
ME	ME08B082	Rajesh S. [Product Design] Sri Rajesh Acanta Prize
ME	ME08B105	Tammana Sarana Datta Karthik [Intelligent Manufacturing] Sri Sagar Pushpala Prize
MM	MM08B033	Sai Gautam G. Prof. V. Sundaresan Prize
NA	NA08B031	Vinay K. Sridhar Poovai T.R. Srinivasan and S. Alamelu Award

8. For the student with best academic record in the first two semesters of the M.Tech. programme

AE	AE11M008	Jasraj Asdev [Institute Merit Prize]
AM	AM11M008	Mainak Bhattacharyya [Solid Mechanics] [Institute Merit Prize]
BT	BT11M002	Akhil Raja K. [Institute Merit Prize]
CA	CA11M006	Veera Raghavulu Kattula [Institute Merit Prize]

CH	CH11M002	Amala M. Mathai [Chevron Products Company Prize]
CE	CE11M071	Femeena P.V. [Smt. Jayalakshmi Narasimhan Memorial Prize]
CE	CE11M180	Ramachandran K. [Construction Technology and Management] UoP [Institute Merit Prize]
CS	CS11M060	Syama Varma R. [Institute Merit Prize]
EE	EE11M007	Hussam Ahmed P. Prof. M.K. Achuthan Prize
MA	MA11M014	Vinay Prabhakar Katiyar [IMSC] [Institute Merit Prize]
ME	ME11M118	Kartik S. [Sri Ramanan Ramamurthy Memorial Prize]
ME	AT11M005	Rajarajan K. [Institute Merit Prize]
NE	NE11M002	Amman Jakhar [Prof. Rama Rao Jayanti Memorial Prize]
MM	MM11M013	Parthiban R. [Institute Merit Prize]
OE	OE11M076	Palkar Saloni Sudhakar [Offshore Structure Engineering] [Prof. Vallam Venkataswami Prize]
OE	OE11M037	Savin Viswanathan [Ocean Technology and Management] UoP [Institute Merit Prize]
PE	PE11M004	Jay Karen Maria William [Prof. M.S. Ananth Prize]
PH	PH11M007	Panatula Sasidhar [Solid State Technology] [Ms Lakshmi Ravikumar Memorial Prize]
CE	CE11M071	Femeena P.V. (Hydraulic and Water Resource Engineering) Prof. Gerhard Rouve Memorial Prize
ME	ME11M022	Priyatanu Roy (Mechanical Engineering—Thermal Stream) [Prof. N. Venkatarayulu Memorial Prize]

9. For the student with the best academic record in the first and second semesters of the M.Sc. programme in Chemistry, Mathematics and Physics

CY	CY11C031	Pushp Bajaj [Ms Kalaimani Natarajan Prize]
MA	MA11C017	Jayakrishnan M. [Institute Merit Prize]
PH	PH11C019	Medha Soni [Chilukuri Ramasastry Memorial Prize]

10. For the M.A. student (2011 batch) with the best academic record in the first and second semesters [Institute Merit Prize]

HS	HS11H044	Urvi N. Shah
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11. For the M.A. student (2010 batch) with the best academic record in the third and fourth semesters [Institute Merit Prize]

HS	HS10H039	Vaishali V.
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12. For the students with the best academic record in the fifth and sixth semesters in each branch of the M.A. programme (2009 batch)[Institute Merit Prizes]

HS	HS09H028	Raisa Sherif [Eco]
HS	HS09H014	Chandni Chandran [DS]
HS	HS09H008	Anu Joshy [ES]

13. For the students with the best academic record in the seventh and eighth semesters in each branch of the M.A. programme (2008 batch) [Institute Merit Prizes]

HS	HS08H015	Prasoon Kumar Singh [Eco]
HS	HS08H027	Soumya Mishra [DS]
HS	HS08H014	Prakruti Ramesh [ES]

14. For the student with the best academic record (highest CGPA) in the first seven semesters in the B.Tech programme in Mechanical Engineering

ME	ME09B043	Preetish K.L. [Dr. Dinesh Balagangadhar Prize]
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15. For the B.Tech./Dual Degree student with the best cumulative performance in minor category under “English Studies” in the fifth, sixth and seventh semesters

CS	CS09B002	Arijit Banerjee [Rajalakshmi Krishnamurthy English Prize]
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16. For the student with the best academic record from the first semester to the ninth semester in Intelligent Manufacturing of the Dual Degree (B.Tech. and M.Tech.) programme in Mechanical Engineering

ME	ME08B105	Tammana Sarana Datta Karthik [Prof. V. Radhakrishnan Endowment Award]
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17. For the M.Sc. (Maths) student (2011 batch) with the best academic record up to the third semester

MA	MA11C018	Jyoti [L.V.K.V. Sarma Prize]
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18. For the M.Tech. student (2011 batch) with the best academic record in Industrial Maths and Scientific Computing up to the third semester

MA	MA11M014	Vinay Prabhakar Katiyar [L.V.K.V. Sarma Prize]
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19. For the best third semester M.Sc. Chemistry student satisfying the criteria* specified by the donor
*With the lowest parental income among those with the CGPA at the end of the second semester (combined) greater than 7.0

CY	CY11C041	Shovan Kumar Sen [R. Padmanabhan Memorial Prize]
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20. For the student with the best academic record in the Geotechnical Engineering stream of the M.Tech. programme in Civil Engineering

CE	CE10M051	Athulya Balakrishnan [Rajnikant Gandhi Memorial Award]
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21. For the B.Tech./Dual Degree student with the best cumulative performance in courses offered under the HSS category from the third semester to the seventh semester (2009 batch)

HS	AE09B030	Vennela D. [K. Srinivasan and Indira Srinivasan Prize]
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22. For the B.Tech./Dual Degree student with the best cumulative performance in courses taken under the HSS category and minor in HSS (2009 batch)

CS	CS09B021	Pradeep Kumar S. [Dr. Dilip Veeraraghavan Memorial Award]
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23. Swati/Jayalakshmi Memorial Award to the girl student with the best academic record at the end of the pre-final semester in each of the following programmes

B.Tech.	CS09B048	Aparna K.
Dual Degree	CE08B063	Swetha M.D.
M.Tech.	PE11M004	Jay Karen Maria William
M.A.	HS08H027	Soumya Mishra
M.Sc.	MA11C018	Jyoti

24. For the B.Tech./Dual Degree/M.A. student with the highest CGPA in the Innovation and Entrepreneur minor in the fifth, sixth and seventh semesters

HS	HS09H014	Chandni Chandran [Pattammal Viswanathan Prize]
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25. For the student with the highest CGPA in Marketing Specialization in the M.B.A. programme

MS	MS11A022	Gala Anish Kumar Shantilal [Dr. V. Kumar Prize]
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26. For the B.Tech./Dual Degree/M.A. student with the highest CGPA in the Management minor in the fifth, sixth and seventh semesters

HS	HS09H028	Raisa Sherif [Sri S. Viswanathan Prize]
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Notional prize of ₹1000 and a certificate of merit for 29 B.Tech./DD students of the 2011 batch

Sl. No.	Roll No.	Name	CML
1	EE12B022	Gorla Vineeth	151
2	CS12B014	Koganti Rama Chandra Prasad	163
3	CS12B029	Vipin S.	183
4	CS12B027	Sanjay Ganapathy	194
5	EE12B024	Guddeti Yeswanth Reddy	202
6	CS12B005	Boreddy Niketh Reddy	216
7	CS12B001	A. Ajay Krishna	217
8	CS12B023	Pratik Piyush Panchal	233
9	CS12B013	Kamichetty Naga Varun	237
10	CS12B011	Hemant Karasala	240
11	EE12B046	R. Ashwin	248
12	EE12B062	Thuraka Veda Samhith Reddy	259
13	EE12B038	Menta Sandeep	279
14	CS12B055	Tapan Chugh	291
15	EE12B056	T.R. Sriram	298
16	EE12B018	Geethik Narayana Kamineni	305
17	EE12B031	Karumuri Sri Harsha	310
18	EE12B055	T. Chandrahas	311
19	EE12B029	Kamineni Anirudh	317
20	EE12B026	Gundu Pavan Kumar	318

21	EE12B025	Gulve Rahul Vasant	325
22	EE12B019	Gondimalla Ashish	338
23	EE12B034	Lingineni Tarun Bhasker	340
24	CS12B047	Panse Ameya Chetan	341
25	EE12B003	Adarsh A. Tadimari	346
26	CS12B034	Akshay Sanjay Gadre	366
27	EE12B059	Tanikella Tejaswi	379
28	CS12B052	Samir Suhas Otiv	380
29	EE12B053	Srikanth Prabala	384

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. and Ph.D. programmes.

The areas of teaching and research of the department are aerodynamics and flight mechanics, propulsion and combustion, and structures.

4.1.2. Academic Programmes

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

New courses introduced

Course No.	Faculty	Title	Credits
AS 5040	Aerodynamics faculty	Flight Dynamics and Performance	3 0 0 3
AS 5450	Ranjith Mohan	Wind Turbines	3 0 0 3
AS 5990	Shyam Keralavarma	Micromechanics	3 0 0 3
AS 6000	All faculty	Basic Concepts in Aerospace Engineering	3 0 0 3
AS 6520	All faculty	Mathematics for Aerospace Engineers	3 0 0 3

Students on roll

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	38	31	22	30	7	128
Dual Degree	21	20	22	25	20	108
M.Sc.	—	—	—	—	—	—
M.Tech.	23	20	1	—	—	44
M.B.A.	—	—	—	—	—	—
M.S.	24	15	10	7	6	62
Ph.D.	14	14	12	8	19	67
Total	120	100	67	70	52	409

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad or in India

Sl. No.	Name of Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
India					
1	Dheelibun Remigius, W.	AE12D020	National Workshop on Turbomachinery Aerodynamics: Design and Optimization using CFD	18–27 June 2013, IIT Mandi	Institute
2	Ramesh Kumar	AE11S002	Indian Conference on Applied Mechanics	4-6 July 2013, IIT Madras, Chennai	Institute
3	Gopalakrishnan, E.A.	AE11D006	Symposium “Complex Systems: From Physics to Biology”	13–18 October 2013, JNU, Delhi	Project

4	Vineeth Nair	AE10D014	Symposium "Complex Systems: From Physics to Biology"	13–18 October 2013, JNU, Delhi	Project
5	Vukkum S.V. Ravi Prakash	AE11B048	SAROD 2013	21–23 November 2013, Hyderabad	—
6	Jintu K. James	AE11S001	National Conference on Fluid Mechanics and Fluid Power	9–18 December 2013, NIT Hamirpur	Institute
7	Sonu K. Thomas	AE08D021	National Conference on Fluid Mechanics and Fluid Power	9–18 December 2013, NIT Hamirpur	Institute
8	Ramesh Kumar	AE11S002	8th Asia-Pacific Conference on Wind Engineering	10–14 December 2013, Chennai, India	Institute
9	Aswathy Nair, K.	AE12S013	National Conference on Energy and Environment 2013	11–14 December 2013, RIT Kottayam	Institute
10	Ajith Kumar, S.	AE10D006	National Conference on Energy and Environment 2013	11–14 December 2013, RIT Kottayam	Institute
11	Chandra, N.	AE12D011	INCCOM-12, ISAMPE National Conference on Composites	12–13 December 2013, NAL, Bangalore	Institute
12	Nagendra Kumar	AE12D021	9th International High Energy Materials Conference & Exhibit 2014	13–15 February 2014, VSSC, Trivandrum	Institute
13	Hamza Naseem	AE11D007	9th International High Energy Materials Conference & Exhibits 2014	13–15 February 2014, VSSC, Thiruvananthapuram	Institute
14	Nikunj Rathi	AE13S037	9th International High Energy Materials Conference & Exhibits 2014	13–15 February 2014, VSSC, Thiruvananthapuram	Institute
15	Chaitanya, V.	AE12D023	9th International High Energy Materials Conference & Exhibits 2014	13–15 February 2014, VSSC, Thiruvananthapuram	Institute
16	Chaitanya, V.	AE12D023	Prof. P.J. Paul Memorial Combustion Researchers Meet	22–23 February 2014, Jain University, Bangalore	Institute
17	Gaurav	AE10D016	Prof. P.J. Paul Memorial Combustion Researchers Meet	22–23 February 2014, Jain University, Bangalore	Institute
18	Nagendra Kumar	AE12D021	Prof. P.J. Paul Memorial Combustion Researchers Meet	22–23 February 2014, Jain University, Bangalore	Institute
Abroad					
1	Harendra K. Verma	AE10S010	9th Asia-Pacific Conference on Combustion	19–22 May 2013, Gyeongju Hilton, Korea	Institute
2	Palani Kumar	AE06D005	9th Asia-Pacific Conference on Combustion	19–22 May 2013, Gyeongju Hilton, Korea	Institute
3	Bhatt David Sharad	AE06D004	9th Asia-Pacific Conference on Combustion	19–22 May 2013, Gyeongju Hilton, Korea	Institute
4	Mulla Irfan Ahmed	AE07D016	8th U.S. National Combustion Meeting	19–22 May 2013, Utah, USA	Institute
5	S.K. Thomas	AE08D021	21st International Congress on Acoustics, ICA 2013	2–7 June 2013, Montreal, Canada	Institute
6	S. Venkatesh	AE10S020	11th International Conference on Structural Safety and Reliability	16–20 June 2013, Columbia University, USA	Institute
7	Vineeth V. Nair Gopalakrishnan, E.A. Meenatchidevi, M. Vishnu R. Unni	AE10D014 AE11D006 AE12D019 AE13D006	N-31—Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero and Thermoacoustics	18–21 June 2013, Munich, Germany	Institute
8	Ramgopal, S.	AE07D015	6th European Combustion Meeting—2013	25–28 June 2013, Lund University, Sweden	Institute

9	Ramesh Kumar	AE11S002	International Congress on Materials and Renewable Energy	1–3 July 2013, Athens, Greece	Institute
10	Jogesh Kumar Nanda	AE11S008	49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit	14–17 July 2013, San Jose, CA	Institute
11	Arsad Quraishi	AE13S001	33rd International Electric Propulsion Conference	The George Washington University, USA	Institute
12	Gursideswar, S.	AE09D009	International Conference on Composites, Biocomposites and Nanocomposites	2–4 December 2013, Durban University of Technology, South Africa	Institute
13	Pushpender Sharma	AE12S026	52nd Aerospace Science Meeting—SCITECH 2014	13–17 January 2014, National Harbor, Maryland	Institute
14	Manish Kumar Pandey	AE10S013	Asian Joint Conference on Propulsion and Power—International Conference	5–8 March 2014, Jeju Island, Korea	Institute
15	Harshini Devathi	AE11S007	SIAM Conference on Uncertainty Quantification	March 2014, Georgia, USA	Institute

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	N. Moharana	AE11M014	Best Paper Certificate	ICET—2014, IT Society of India

Names of scholars/students who won Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Prize Awarded by
1	Vineeth V. Nair Gireesh Kumaran Thampi	AE12D014 AE09D011	J.C. Bose Patent Award 2013	IIT Madras
2	Vivek Subramanian	AE09B031	HAL Prize	IIT Madras
3	K. Rohit	AE08B041	Dr. V. Mohan Raman Prize	IIT Madras
4	Balbudhe Kishor Madhukar	AE08B005	Mayan Prize	IIT Madras
5	Jasraj Asdev	AE11M008	Air India Prize	IIT Madras
6	Vivek Subramanian	AE09B031	S.R.I. Prize	IIT Madras
7	K. Ishitha	AE08D019	Institute Blues Award	IIT Madras

4.1.3. Faculty and Their Activities

Faculty and their areas of specialisation

Name and Qualifications	Major Areas of Specialisation (Only 3 Areas)
Professors	
Job Kurian, Ph.D. (IIT Madras)	Gas dynamics, combustion, shock tube flows and measurements
Ramakrishna, M., Ph.D. (University of Texas at Arlington)	Fluid mechanics, numerical methods, computer solutions
Sriram, P., Ph.D. (Georgia Institute of Technology)	Structural mechanics, fatigue and fracture, parallel computing
Bhaskar, K., Ph.D. (IIT Madras)	Structural mechanics, plates and shells, composite structures
Sujith, R.I., Ph.D. (Georgia Institute of Technology)	Acoustics and combustion instability, optical flow diagnostics
Chakravarthy, S.R., Ph.D. (Georgia Institute of Technology)	Propulsion, combustion, fluid mechanics
Velmurugan, R., Ph.D. (IIT Delhi)	Composite structures analysis and design, impact mechanics, 3-D composites
Luoyi Tao, Ph.D. (University of Pittsburgh)	Continuum mechanics and its applications (fluids, solids, multiphase flows, etc.)

Associate Professors	
Panchapakesan, N.R., Ph.D. (Cornell University, USA)	Fluid mechanics, stability and transition of fluid flows, turbulence
Murthy, H.S.N. Ph.D. (Purdue University)	Fatigue and fracture, non-destructive evaluation, tribology, advanced materials, elasticity
Amit Kumar, Ph.D. (Case Western Reserve University)	Combustion, propulsion, fire research, CFD
Ramakrishna, P.A., Ph.D. (Indian Institute of Science)	Combustion, propulsion, fuel cells
Nandan Kumar Sinha, Ph.D. (IIT Bombay)	Nonlinear dynamics, bifurcation theory and continuation methods, flight dynamics and controls
Sunetra Sarkar, Ph.D. (Indian Institute of Science)	Insect aerodynamics, fluid–structure interaction, uncertainty quantification
Rajesh, G., Ph.D. (Andong National University, South Korea)	Shock wave dynamics, high-speed flows, experimental aerodynamics
Sameen, A., Ph.D. (Indian Institute of Science)	Stability, transition and turbulence, CFD
Muruganandam, T.M., Ph.D. (Georgia Institute of Technology)	Combustion, blowout dynamics, optical diagnostics, spectroscopic methods, vortex breakdown, dynamics of mode shifting, high-speed flows, unsteady gas dynamics
Sivasambu Mahesh, Ph.D.	Structure-property modelling of aerospace materials
Assistant Professors	
K.V. Nagendra Gopal, Ph.D. (Aero) (Indian Institute of Science)	Computational mechanics and multi-scale modelling, fracture mechanics, structural dynamics and aero elasticity
Ranjith Mohan, Ph.D.	Helicopters, rotocraft MAVs, spectral methods in fluid dynamics
Santanu Ghosh, Ph.D. (North Carolina University)	CFD, turbulent flows, shock/boundary layer interaction, immersed-boundary methods
Manikandan Mathur, Ph.D.	Geophysical fluid dynamics, Lagrangian coherent structures
Shankar Ghosh, Ph.D.	Hypersonic flow simulation, non-equilibrium effects, CFD, turbulent flows
Shyam M. Keralavarma, Ph.D.	Plasticity, ductile fracture, computational materials modelling, multiscale modelling
Joel George, Ph.D.	Navigation, guidance and control of aerospace vehicles Multi-agent systems theory as applied to multiple unmanned aerial vehicle missions
Shantanu Shashikant Mulay, Ph.D.	Continuum mechanics, large deformation of materials, fracture mechanics and plasticity

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

Sl. No.	Coordinators	Title	Period
1	R. Velmurugan K.V. Nagendra Gopal	Conducted AICTE-sponsored QIP short term course “Recent Trends on Composites Manufacturing”	10–14 February 2013, IIT Madras
2	Amit Kumar	Co-organised an international workshop on fire research	31 July to 2 August 2013, IIT Kanpur
3	Nandan Kumar Sinha	Conducted short-term course “Elementary Flight Dynamics with an Introduction to Bifurcation and Continuation Methods”	16–20 December 2013, IIT Madras
4	R.I. Sujith	Organised an international workshop on experimental methods in thermoacoustics of the TANGO Network	3–7 February 2014, IIT Madras

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

Sl. No.	Name of Faculty Member	Title	Period and Venue
Workshops			
1	Sivasambu Mahesh	TEQIP Workshop on Applied Mechanics	4–7 October 2013, IIT Kanpur
2	Sivasambu Mahesh	Indo-US Workshop on Applied Mechanics	18–21 December 2013, Pune

Seminars/Symposia/Conferences

1	Santanu Ghosh	Symposium on Applied Aerodynamics and Design of Aerospace Vehicle (SAROD 2013)	21–23 November 2013, Hyderabad
2	K.V. Nagendra Gopal	Eighth Asia-Pacific Conference on Wind Engineering (organised by SERC-CSIR)	10–14 December 2013, Chennai
3	P.A. Ramakrishna	Ninth High Energy Materials Conference and Exhibit 2014	13–15 February 2014, Thiruvananthapuram

Meetings

1	Job Kurian chaired a meeting of the Board of Governors of TEQUIP-II at Government Engineering College, Wayanad, Kerala on 12 March 2013		
2	Job Kurian attended a meeting of the Board of Research, Indian Institute of Space Technology (IIST), Thiruvananthapuram on 26 March 2013.		
3	Nandan K. Sinha attended a brainstorming meeting on the High Altitude Airship Research Initiative (HAARI) organised by ARDB in Bangalore during 3–4 April 2013.		
4	Job Kurian attended the fifth meeting of the Engineering Research Council of the Centre for Engineering Research and Development (CERD), Kerala on 25 June 2013 at Thiruvananthapuram.		
5	R.I. Sujith attended the Comprehensive Technical Review of GSLV-D5 Mission with Indigenous Cryogenic Stage at ISRO Headquarters, Bangalore on 23 July 2013. Sunetra Sarkar was invited by GE Global Research, Bangalore for discussions on collaborative research in July 2013.		
6	Sivasambu Mahesh attended Indian National Academy of Engineering Conclave 2013 at New Delhi from 17 to 19 September 2013.		
7	R.I. Sujith attended the review of the Mechanical and Aerospace Engineering departments at IIT Hyderabad on 15 November 2013.		
8	P.A. Ramakrishna attended the Research Council Meeting for ASL at Hyderabad on 25 and 26 November 2013.		
9	P.A. Ramakrishna attended a meeting to study combustion instability in solid rocket motors on 30 November and 1 December 2013 at DRDL, Hyderabad.		
10	A. Sameen and M.S. Manikandan were invited by DRDO to attend a meeting on the development of the HPEM weapon system on 3 January 2014.		
11	R.I. Sujith was invited by ISRO, Bangalore to witness the launch of GSLV-D5 with an indigenous cryogenic stage and the GSAT-14 satellite on 5 January 2014.		
12	R.I. Sujith attended the AR&DB Aerodynamics Panel Meeting at DIAT, Pune on 23 January 2014.		
13	P.A. Ramakrishna participated in discussions at the Propulsion Centre at IIT Bombay during 23–25 January 2014.		
14	P.A. Ramakrishna and H.S.N. Murthy participated in technical discussions regarding “Aging of Propellants and Hypergolic HTPB based Hybrid Propellants” at DRDL on 31 January and 1 February 2014.		
15	P.A. Ramakrishna attended the Prof. P.J. Paul Memorial Combustion Researchers Meet at Bangalore on 22 and 23 February 2014.		
16	K.V. Nagendra Gopal was invited by C-WET, Chennai to be a member of the Working Group for Standards related to activities for wind turbines in India.		

Special lectures delivered by faculty members in other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	Amit Kumar	Numerical Modelling of Electric Propulsion System	VSSC, Trivandrum	6 March 2013
2	T.M. Muruganandam	Continuing Education Lecture	CFEES, Delhi	25 September 2013
3	P.A. Ramakrishna	Modern Aircraft Propulsion Plants and Challenges Thereof	NIAT, Kochi	2 October 2013
4	S.R. Chakravarthy	Combustion	IIT Indore	8–9 October 2013
5	Santanu Ghosh	Compressible Flow Discretization	SRM Easwari Engineering College	12 June 2013
6	R.I. Sujith	Predicting the Onset of an Impending Thermoacoustic Instability	GTRE, Bangalore	November 2013
7	S.R. Chakravarthy	Combustion	SVNIT, Surat	13–16 December 2013

8	S.R. Chakravarthy	Combustion Concepts for Sustainable Energy Development	SVNIT, Surat	2–3 January 2014
9	R.I. Sujith	Predicting the Onset of an Impending Thermoacoustic Instability	TIFR, Bangalore	February 2014
10	K.V. Nagendra Gopal	Composite Materials in Aerospace Structures	Infotech Enterprises, Hyderabad	10 February 2014
11	Sivasambu Mahesh	Polycrystal Plasticity Models Applied to Interstitial Free Steel	Tata Steels, Jamshedpur	22 February 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	R. Velmurugan	Brazil	18–19 April 2013	Paper presentation	Institute
2	R.I. Sujith	Munich, Germany	6 May to 26 June 2013	To accept an assignment as Guest Scientist	Germany
3	Sunetra Sarkar	The Netherlands	15–16 May 2013	Progress Meeting of the Joint Industry Project	Project
4	S.R. Chakravarthy	South Korea	19–22 May 2013	Paper presentation	Institute
5	P.A. Ramakrishna	South Korea	19–22 May 2013	Paper presentation	Institute
6	T.M. Muruganandam	South Korea	19–22 May 2013	Paper presentation	Institute
7	S.R. Chakravarthy	London	25 May to 9 June 2013	Research on collaborative project	Project
8	R.I. Sujith	Switzerland	6 June 2013	To deliver a lecture	Switzerland
9	S.R. Chakravarthy	USA	10–15 June 2013	Part of IIT Madras delegation	Institute
10	R.I. Sujith	Munich, Germany	14 June 2013	To deliver a lecture	Germany
11	S.R. Chakravarthy	Belgium	17–19 June 2013	Joint Working Group Meet	Belgium
12	Sunetra Sarkar	New York, USA	16–20 June 2013	Paper presentation	Institute
13	R.I. Sujith	Munich, Germany	18–21 June 13	To attend International. Summer School and Workshop on Non-normal and Nonlinear Effects in Aero- and Thermoacoustics	Germany
14	S.R. Chakravarthy	Munich, Germany	20–21 June 2013	Paper presentation	Project
15	S.R. Chakravarthy	Sweden	25–28 June 2013	Paper presentation	Project
16	T.M. Muruganandam	USA	14–19 July 2013	Paper presentation	Institute
17	S.R. Chakravarthy	Australia	5–11 August 2013	To deliver lectures	University of Queensland
18	Nandan Kumar Sinha	USA	19–23 August 2013	Paper presentation	Institute
19	Job Kurian	South Korea	9–13 September 2013	Paper presentation	Institute
20	S.R. Chakravarthy	Pennsylvania	1–3 October 2013	To deliver lectures	France
21	R. Velmurugan	Dubai	21–24 October 2013	Paper presentation	Institute
22	N.R. Panchapakesan	Pennsylvania	24–26 November 2013	To chair a session “Computation of Turbulent Boundary Layers”	France
23	A. Sameen	Pennsylvania	24–26 November 2013	To attend the APS Division Annual Meeting	France
24	Manikandan Mathur	Pennsylvania	24–26 November 2013	To attend the APS Division Annual Meeting	France
25	R. Velmurugan	South Africa	2–4 December 2013	To deliver a lecture	South Africa
26	Santanu Ghosh	USA	13–17 January 2014	To attend SciTech 2014	USA

27	S.R. Chakravarthy	Saudi Arabia	16–19 February 2014	To deliver a technical seminar	King Abdullah University of Science and Technology
28	S.R. Chakravarthy	Australia	23–26 February 2014	To attend a workshop	Project
29	Manikandan Mathur	USA	24–26 March 2014	To attend a project meeting	Project

Honours and awards

Sl. No.	Name of Faculty Member	Name of Award
1	R.I. Sujith	Institute Research and Development Mid Career Level Award

Books, monographs authored/co-authored

Sl. No.	Name of Co-Author	Title	Publisher
1	Nandan Kumar Sinha	Elementary Flight Dynamics with an Introduction to Bifurcation and Continuation Methods	CRC Press, USA

Fellowships of academic and professional societies

Sl. No.	Name of Faculty Member	Name of Award
1	R.I. Sujith	Hans Fischer Senior Fellow of the Institute for Advanced Study
2	R.I. Sujith	Alexander Von Humboldt Fellow

Editorial boards of journals

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

4.1.4. Design and Development Activities

New facilities added

Sl. No.	Details	Value (in lakhs of Rs.)
1	A micro gas turbine from Tecquipment has recently (2013) been installed at the Department of Aerospace Engineering. The equipment will be used for the undergraduate and graduate propulsion laboratory experiments to demonstrate how a single-shaft gas turbojet with reheat (afterburner) works and test its performance.	60.0

Patents filed

Sl. No.	Name of the Faculty Member	Title of Patent
1	H. S. N. Murthy	Preparation of Dog-Bone Shaped Micro-Specimen for Testing of Mechanical Properties
2	Sujith, R. I.	System and Methods for Predetermining the Onset of an Impending Blowout in Practical Combustion
3	Ramakrishna, P. A.	Method of Doping Potassium into Ammonium Perchlorate
4	Ramakrishna, P. A.	Enhancement of Hybrid Fuel Regression Rate Using a Bluff Body
5	Sujith, R. I.	System and Method for Predicting the Onset of an Impending Instability in a Practical System
6	Sujith, R. I.	System and Method for Early Detection of Onset of Instabilities in Combustion or Aero-mechanical or Aero-elastic Systems by Constructing Complex Networks

4.1.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Centre of Excellence in Non-instructive Diagnostics	8 May 2013 to 31 March 2016	MHRD	100.0	Job Kurian S.R. Chakravarthy R.I. Sujith N.R. Panchapakesan T.M. Muruganandam
2	Development of Marginally Aluminized Composite Propellants with High Burn Rates		DRDL, Hyderabad	9.6	P.A. Ramakrishna
3	Design of Guidance, Navigation, and Control for Geo-Stationary Positioning and Launch Phase of Stratospheric Airship	12 August 2013 to 11 August 2016	DRDO	87.54	Nandan Kumar Sinha
4	Coupled Physical Processes in the Bay of Bengal and Monsoon Air–Sea Interaction	February 2014 to February 2018	Ministry of Earth Sciences	3856	Manikandan Mathur (along with 10 other Co-investigators and one PI)
5	Experimental Investigation of Nonlinear Thermoacoustic Instabilities in a Swirl Stabilized Combustor	6 May 2013 to 5 May 2015	GATET	110.48	R.I. Sujith
6	An Experimental and Computational Study of Screech in Afterburners	12 August 2013 to 11 August 2017	DRDO	257.36	R.I. Sujith S.R. Chakravarthy
7	Development and Characterization of Solid Propellants to Mitigate Combustion Instability	12 August 2013 to 11 August 2016	DRDO	74.23	S.R. Chakravarthy R.I. Sujith

Industrial consultancy projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Job Kurian	Shock Tunnel Measurements of Heat Transfer Rate and Pressure in the Wire Tunnel Region of Launch Vehicle of HSTDV	DRDL	24.52
2	P.A. Ramakrishna	Development of Marginally Aluminized Composite Propellants with High Burn Rates	DRDL	9.6
3	R. Velmurugan	Composites Test Facility	Common Code	5.0
4	R. Velmurugan	Study of Composites Wastes and Wet Powder for Proper Disposal	Pentair	2.81

Faculty members' participation with other universities under MoUs

MoU signed on 28 March 2014 between Factory Mutual Insurance Company (FM Global) and NCCRD, IIT Madras (S.R. Chakravarthy, NCCRD Contact) for collaborative work to improve technical foundation and communication of research to promote fire safety science and reduce property loss by fire

Research publications

Total number of papers published in refereed national journals: 6

Total number of papers published in refereed international journals: 29

Total number of papers presented in national conferences: 10

Total number of papers presented in international conferences: 26

(a) Refereed national journals

1. Nandan Kumar Sinha (2013) A simple, correct pedagogical presentation of airplane lateral-directional dynamics. *Journal of Aerospace Sciences and Technologies* 65: 235.

2. A.K. Vinayagam and N.K. Sinha (2014) An assessment of thrust vector concepts for twin-engine airplane. *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering* 228(6): 960-979. doi:10.1177/0954410013485697
3. D.M.K.K.V. Rao and N.K. Sinha (2013) A sliding mode controller for aircraft simulated entry into spin. *Aerospace Science and Technology* 28: 154-163.
4. S. Sarkar, S. Chajjed and Krishnan (2013) A study of asymmetric hovering in flapping flight. *European Journal of Mechanics B/Fluids* 37: 72-89.
5. Nandan Kumar Sinha (2014) Why birds and airplanes need no vertical tail. *Journal of Aerospace Sciences and Technologies* 66: 21.
6. C. Palani Kumar and Amit Kumar (2014) Combined effect of diaphragm and oxidizer swirl on regression rate in hybrid rocket motors. *Defence Science Journal* 64(1): 21-26.

(b) Refereed international journals

1. S. Sujith, T.M. Muruganandam and Job Kurian (2013) Effect of trailing ramp angles in strut-based injection in supersonic flow. *Journal of Propulsion and Power* 29(1).
2. Rajiv Kumar and P.A. Ramakrishna (2013) Issues related to the measurement of regression rate of the fast burning hybrid fuels. *Journal of Propulsion and Power* 29(5): 1114-1121.
3. S. Verma and P.A. Ramakrishna (2013) Effect of specific surface area of aluminium on the burn rates of composite solid propellant. *Journal of Propulsion and Power* 29(5): 1200-1206.
4. S. Verma and P.A. Ramakrishna (2013) Investigations on activated charcoal, a burn rate enhancer in composite solid propellant. *Journal of Propulsion and Power* 29(5): 1214-1219.
5. R. Velmurugan, G. Balaganesan and N.K. Gupta (2013) Gupta energy absorption characteristics of nano clay dispersed glass/epoxy composites. *Journal of Key Engineering Materials* 535-536: 72-75.
6. R. Velmurugan and G. Balaganesan (2013) Energy absorption capability of glass/epoxy nano composite laminates. *International Journal of Crash Worthiness* 18(1): 82-92.
7. Vinayak Malhotra, Chenthil Kumar and Amit Kumar (2013) Opposed flow flame spread over an array of thin solid fuel sheets in microgravity environment. *Combustion Theory and Modelling* 17(5): 835-857.
8. Varun Thangamani and Job Kurian (2013) Control of cavity oscillations in a supersonic flow by microjet injection. *Journal of Aircraft* doi:10.2514/1.C032003
9. V. Nair, G. Thampi and R.I. Sujith (2013) Loss of chaos in combustion noise as a precursor of impending combustion instability. *International Journal of Spray and Combustion Dynamics* 5(4): 273-290.
10. V. Nair and R.I. Sujith (2013) Identifying homoclinic orbits in the dynamics of intermittent signals through recurrence quantification. *Chaos* 23(3): 033136.
11. V. Nair, S. Sarkar, and R.I. Sujith (2013) Uncertainty quantification of subcritical bifurcations. *Probabilistic Engineering Mechanics* 34: 177-188.
12. A.K. Khatri, J. Singh and N.K. Sinha (2013) Accessible region for controlled aircraft maneuvering. *AIAA Early Edition Publication, Journal of Guidance, Control and Dynamics* May 3.
13. B. Debalina, M. Kamaraj, S.R. Chakravarthy, N.J. Vasa and R. Sarathi (2013) Understanding the mechanism of nanoparticle formation in a wire explosion process by adopting the optical emission technique. *Journal of Plasma Science and Technology* 15(6).
14. Arjun Jagannathan, Ranjith Mohan and Manhar Dhanak (2013) A spectral method for the triangle cavity flow. *Journal on Computers & Fluids*.
15. H. Raghav, Venkatesan and Nandan K. Sinha (2013) Key factors that affect the performance of flares against a heat-seeking air-to-air missile. *Journal of Defence Modeling and Simulation: Applications, Methodology, Technology* November 8. Published online, 10.1177/1548512913511357
16. C. Palani Kumar and Amit Kumar (2013) Effect of diaphragms on the regression rate in hybrid rocket motor. *Journal of Propulsion and Power* 29(3): 559-572.
17. A.K. Vinayagam and N.K. Sinha (2013) Optimal airplane take-off with thrust vectoring. *Aeronautical Journal* 117(1197): 1119-1138.
18. N.S. Vikramaditya and Job Kurian (2013) Amplitude and phase modulation of cavity modes in supersonic flow. *European Journal of Mechanics—B/Fluids* 42(November-December).
19. C.K. Muthukumaran, G. Rajesh and H.D. Kim (2013) Launch dynamics of supersonic projectiles. *Journal of Spacecraft and Rockets* 50(6): 1150-1161.
20. S. Venkatesh, Sunetra Sarkar and Igor Rychlik (2013) Uncertainties in blade flutter damage prediction under random gust. *Probabilistic Engineering Mechanics*.

21. Jian Guo Sun, Heuy Dong Kim, Yingzi Jin and G. Rajesh (2013) Analytical study on the gas-solid suspension flows through sonic and supersonic nozzles. *Journal of Korean Society of Propulsion Engineers* 1: 9–17.
22. T. Nakabaru, T. Hashimoto, S. Matsuo, T. Setoguchi and G. Rajesh (2013) Generating and focusing of underwater expansion wave using a silicon resin reflector. *Journal of Thermal Science* 22(3): 209–215.
23. C.K. Muthukumar, G. Rajesh and H.D. Kim (2013) Launch dynamics of supersonic projectiles. *Journal of Spacecraft and Rockets* 50(6): 1150–1161.
24. M. Arul Kumar and S. Mahesh (2013) Subdivision and microtexture development in FCC grains during plane strain compression. *International Journal of Plasticity* 44: 95–110.
25. S. Mahesh and M.D. Mathew (2013) Modeling the effect of grain boundary sliding on creep lifetime: Application of two austenitic stainless steels. *Journal of Procedia Engineering* 55:747–750.
26. Ishita Kumar and P.A. Ramakrishna (2014) Enhancing composite solid propellant burning rates with potassium doped ammonium perchlorate. Part I. *Journal of Propulsion and Power* 30(2): 277–284.
27. Ishita Kumar and P.A. Ramakrishna (2014) Enhancing composite solid propellant burning rates with potassium doped ammonium perchlorate. Part II. *Journal of Propulsion and Power* 30(4): 876–882.
28. S. Verma and P.A. Ramakrishna (2014) Dependence of density and burning rate of composite solid propellant on mixer size. *Acta Astronautica* 93: 130–137.
29. I.A. Mulla and S.R. Chakravarthy (2013) Propagation velocity and flame stretch measurements in co-flowing partially premixed flames with widely varying premixedness. *Combustion and Flame* 160(8): 1345–1356.

(c) Proceedings of national conferences

1. R.I. Sujith (2013) Multifractality in combustion noise: Prediction of an impending combustion instability. *Perspectives in Nonlinear Dynamics*, 15–18 July 2013, Hyderabad.
2. Amit Kumar (2013) Flame spread modeling. *International Workshop on Fire Research*, 31 July to 2 August 2013, IIT Kanpur.
3. A. Hira, N. Jain, B. Sandeep and S. Sarkar (2013) Gust and flapping flight. *Ninth International Conference on Intelligent Unmanned Systems*, September 2013, Jaipur.
4. Santanu Ghosh and Syam Sundar Vangara (2013) A slotted wedge-shaped vortex generator for control of shock/boundary-layer interactions. *Symposium on Applied Aerodynamics and Design of Aerospace Vehicle (SAROD 2013)*, 21–23 November 2013, Hyderabad.
5. Sivasambu Mahesh (2013) Polycrystal plasticity simulations as an aid to tune process parameters of pilgering. *Indo-US Workshop on ICME*, 18–21 December 2013, Pune.
6. Jintu K. James and T.M. Muruganandam (2013) Effect of geometry in a supersonic diffuser having shock oscillation across second throat. *National Conference on Fluid Mechanics and Fluid Power*, 9–18 December 2013, NIT Hamirpur.
7. Sonu K. Thomas and T.M. Muruganandam (2013) Resonant gas oscillations in a linearly varying cross sectional closed duct. *National Conference on Fluid Mechanics and Fluid Power*, 9–18 December 2013, NIT Hamirpur.
8. K. Aswathy Nair, S. Ajith Kumar, A. Sameen and S. Anil Lal (2013) Effect of Prandtl number on heat transfer in flow past a heated cylinder. *National Conference on Energy and Environment 2013*, 11–14 December 2013, RIT Kottayam, Kerala.
9. P.A. Ramakrishna and Rajiv Kumar (2014) Possible use of wax based hybrid rocket for a launch vehicle application. *Ninth International High Energy Materials Conference and Exhibit*, 13–15 February 2014, High Energy Materials Society of India, Thiruvananthapuram.
10. P.A. Ramakrishna (2014) Role of activated carbon in the combustion of composite solid propellant. *Prof. P.J. Paul Memorial Combustion Researchers Meet*, 22–23 February 2014, Bangalore.

(d) Proceedings of international conferences

1. R.S. Blumenthal, P. Subramanian, R.I. Sujith and W. Polifke (2013) A time domain perspective on the response of premixed flames to flow perturbations. *EUROMECH Colloquium 546, Combustion Dynamics and Combustion Noise*, 13–16 May 2013.
2. Harendra K. Verma & T.M. Muruganandam (2013) TDLAS temperature non-uniformity sensor of species CO and CO₂. *Ninth Asia-Pacific Conference on Combustion*, 19–22 May 2013, Gyeongju Hilton, Korea.
3. Palani Kumar and Amit Kumar (2013) Numerical assessment of regression rate enhancement in hybrid rocket motors using multiple enhancement techniques in combination. *Ninth Asia-Pacific Conference on Combustion*, 19–22 May 2013, Gyeongju Hilton, Korea.

4. Bhatt David Sharad and S.R. Chakravarthy (2013) Quasi-periodic pulsating behaviour of weakly stratified laminar premixed flames with Lewis numbers greater than unity. *Ninth Asia-Pacific Conference on Combustion*, 19–22 May 2013, Gyeongju Hilton, Korea.
5. Mulla Irfan Ahmed and S.R. Chakravarthy (2013) Measurement of flow field and tangential strain along the flame front in turbulent partially premixed flames. *Eighth US National Combustion Meeting*, 19–22 May 2013, Utah, USA.
6. G. Marothiya, K. Ishitha and P.A. Ramakrishna (2013) A new and effective method to enhance the burn rate of composite solid propellants. *Ninth Asia-Pacific Conference on Combustion*, 19–22 May 2013, Gyeongju Hilton, Korea.
7. S.K. Thomas and T.M. Muruganandam (2013) Acoustic compressor coupled with fluidic diodes. *Twenty-First International Congress on Acoustics, ICA 2013*, 2–7 June 2013, Montreal, Canada.
8. S. Venkatesh, Sunetra Sarkar and Igor Rychlik (2013) Analysis of a fluid structure interaction system under random gust. *Eleventh International Conference on Structural Safety and Reliability*, 16–20 June 2013, Columbia University, USA.
9. R.I. Sujith (2013) Dynamical systems approach towards analyzing thermoacoustic instability. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
10. V. Nair, G. Thampi and R.I. Sujith (2013) Intermittent bursts presage the onset of combustion instability in turbulent combustors. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
11. E.A. Gopalakrishnan and R.I. Sujith (2013) Influence of system parameters and external noise on hysteresis characteristics of a horizontal Rijke tube. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
12. V.R. Unni, M.S. Yogesh Prasad, N.T. Ravi, S.Md. Iqbal, B. Pesala and R.I. Sujith (2013) Experimental investigation of bifurcations in a thermoacoustic engine. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
13. S. Bomberg, J. Zips, W. Polifke and R.I. Sujith (2013) Multi-scale asymptotic analysis of a laminar premixed flame: A nonlinear mimo-flame model. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
14. R. Blumenthal, A. Tangirala, R.I. Sujith and W. Polifke (2013) On the unique energy norm in thermoacoustics. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
15. M. Patel, V. Nair and S. Sarkar (2013) Uncertainty quantification of an airfoil control surface flutter system. *n3I Int'l Summer School and Workshop on Non-Normal and Nonlinear Effects in Aero- and Thermoacoustics*, 18–21 June 2013, Munich, Germany.
16. S. Ramgopal, and S.R. Chakravarthy (2013) Phase-locked PIV measurements of thermo-acoustic instabilities in a backward facing step combustor. *Sixth European Combustion Meeting-2013*, 25–28 June 2013, Lund University, Sweden.
17. Jogesh Kumar Nanda and P.A. Ramakrishna (2013) Development of AP/HTPB based fuel-rich propellant for solid propellant ramjet. *Forty-Ninth AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, 14–17 July 2013, San Jose, CA.
18. Nandan Kumar Sinha (2013) A simple correct pedagogical presentation of airplane longitudinal dynamics. *AIAA Guidance-Navigation and Control & Atmospheric Flight Mechanics Conference*, 19–23 August 2013, Boston, USA.
19. Nandan Kumar Sinha (2013) A simple correct pedagogical presentation of airplane lateral-directional dynamics. *AIAA Guidance-Navigation and Control & Atmospheric Flight Mechanics Conference*, 19–23 August 2013, Boston, USA.
20. Nandan Kumar Sinha (2013) Aircraft design using constrained bifurcation & continuation method. *AIAA Guidance-Navigation and Control & Atmospheric Flight Mechanics Conference*, 19–23 August 2013, Boston, USA.
21. S. Gursideswar and R. Velmurugan (2013) Effect of nanoclay content on mechanical and electrical properties of hybrid nanocomposites. *International Conference on Composites, Biocomposites and Nanocomposites*, 2–4 December 2013, Durban University of Technology, South Africa.
22. Pushpender Sharma and Santanu Ghosh (2014) A novel vortex generator for mitigation of shock induced separation. *Fifty-Second Aerospace Science Meeting—SCITECH 2014*, 13–17 January 2014, National Harbor, Maryland.

23. Manish Kumar Pandey and S.R.Chakravarthy (2014) Gas phase flame structure of fine ammonium perchlorate filled solid propellant sandwiches. *Asian Joint Conference on Propulsion and Power International Conference*, 5–8 March 2014, Jeju Island, Korea.
24. P. Sharma and S. Ghosh (2014) A novel vortex generator for mitigation of shock-induced separation. *Fifty-Second Aerospace Sciences Meeting*, American Institute of Aeronautics and Astronautics, Reston, Virginia (pp.1–16) doi:10.2514/6.2014-1246
25. G.L. Easwara Prasad, B.S. Keerthi Gowda, R. Velmurugan and M.K. Yashwanth (2014) Prediction of properties of CRPCSC particulate composite by ANN. *Experimental Mechanics of Composite, Hybrid and Multifunctional Materials, Conference Proceedings of the Society for Experimental Mechanics Series*, 6: 17–22.
26. G.L. Easwara Prasad, B.S. Keerthi Gowda and R. Velmurugan (2014) Prediction of properties of coir fiber reinforced composite by ANN. *Experimental Mechanics of Composite, Hybrid and Multifunctional Materials, Conference Proceedings of the Society for Experimental Mechanics Series*, 6: 1–7.

Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Shri Rolf Hetico, GM, Advanced Components & Manufacturing Sciences	14 March 2013	To deliver a lecture "Technology Growth at GE Aviation"
2	Prof. Janne Kärki, Team Leader, Multifuel Combustion, VTT Technical Research Centre of Finland	20 March 2013	To deliver a lecture "Low Carbon Technologies for Large Scale Heat and Power Production in Europe"
3	Prof. Satoshi Okajima	8–10 April 2013	To have continuous interaction with the faculty in the setting up of a drop tower at NCCRD.
4	Dr. Wing T.Lai, Ph.D., Dr. Dan Troolin, Ph.D., Mr. Jay Singh—Fluid Mechanics Group, TSI Incorporated, USA	23 April 2013	To deliver lectures "Innovation of Fluid Flow Diagnostics on Volumetric 3D3C Measurements" and "Simultaneous Velocity and Sizing Measurements"
5	Dr. Prabhakar Venkateswaran	28 June 2013	To deliver a lecture "Turbulent Flame Speed and Flame Brush Characteristics of H ₂ /CO ₂ "
6	Dr. V'yacheslav (Slava) Akkerman, West Virginia University	17 July 2013	To deliver a lecture "New Advances in Combustion Instabilities, Turbulent Burning, Flame Acceleration and Deflagration-to-Detonation"
7	Dr. Kalyanasundaram Seshadri, University of California, San Diego	17 July 2013	To deliver a lecture "Chemical Suppression of Fires"
8	Dr. Kalyanasundaram Seshadri, University of California, San Diego	18 July 2013	To deliver a lecture "Selection of Pure Component Fuels as Surrogate Fuel for Bio-Diesel and Its Kinetics Mechanism"
9	Dr. Hans Van Haren, The Netherlands	23 July 2013	To deliver an invited talk "Energy Release Through Large Internal Wave Breaking in the Ocean"
10	Mr. V. Sundararajan, Former Director, GTRE and Head, Tech. Excellence Group, QuEST Global, Bangalore	27 August 2013	To deliver a lecture "Processing Waste Plastics into Liquid Fuels"
11	Dr. Kamimoto, Emeritus Professor of Tokyo Institute of Technology	9 October 2013	To deliver a lecture "Measurement of Soot Mass Concentration in Diesel Exhaust via Light Extinction and Scattering"
12	Dr. Amardip Ghosh, University of Maryland	25 October 2013	To deliver a lecture "Investigation of Physical Mechanisms in Combustion Instability"
13	Prof. Dr. Zhiqiang Guan, University of Queensland, Australia	19 December 2013	To deliver a guest lecture "Development of Hybrid Cooling Technologies for Renewable Power Plants"

14	Dr. Paul D. Ronney, University of Southern California, Los Angeles	20–21 December 2013	To deliver the following lectures: Front Propagation in Narrow Channels: What Darrieus and Landau Didn't Tell You Space Travel and Space Research Internal Combustion Engines: The Worst Form of Vehicle Propulsion, Except for All the Other Forms (Why We Use IC Engines and Why the Alternatives Have Generally not Been Successful)
15	Dr. B. Saravanan, University of Cambridge, UK	31 December 2013	To deliver a guest lecture "Interaction of Self and Forced Excitations in Premixed Flames"
16	Dr. Peter Lindstedt, Imperial College, London	17 January 14	To deliver a guest lecture "Challenges in Sustainable Propulsion"
17	Dr. Narayan Sundaram, IISc, Bangalore	4 February 2014	To deliver a Guest Lecture "Mathematical Methods in Contact Mechanics"
18	Sri Vikram Hrishikeshavan, University of Maryland, College Park, USA	3 March 2014	To deliver a guest lecture "Rotary Wing Micro Air Vehicle Development in Alfred Gessow Rotorcraft Center"

Other activities

(a) International collaboration/achievements by the department

S.R. Chakravarthy is carrying out two projects with international collaborations:

A project, "Optimising Gasification of High-Ash Content Coals for Electricity Generation (OPTIMASH)", funded by the European Commission for a value of Rs.4.26 crores, with collaborations with IIT Madras, Thermax (Pune), ECN (The Netherlands), CNRS (France), Hacettepe University (Turkey) and Turkish Coal Enterprises (TKI).

A project, "Low Emissions Fuel-Flexible Combustion Systems to Enable Decentralized Power Generation Using Renewable Local Supplies", funded by UK-India Education and Research Initiative (UKIERI), for a value of Rs.24.39 lakhs, with collaborations with IIT Madras and University College, London, UK.

S.R. Chakravarthy also been collaborating with Dr. Matthew Juniper of University of Cambridge by supplying combustion-acoustic interaction codes developed by the IIT Madras Combustion Group.

1. Faculty visits

Sl. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	Sunetra Sarkar	Progress meeting of the Joint Industry Project	15–6 May 2013, The Netherlands
2	S.R. Chakravarthy	Research on collaborative project	25 May to 9 June 2013, London
3	S.R. Chakravarthy	Joint Working Group meet	17–19 June 2013, Belgium
4	Manikandan Mathur	Project meeting	24–26 March 2014, USA
5	Sunetra Sarkar	Research on collaborative project	Chalmers University, Gothenburg, Sweden
6	Sunetra Sarkar	Research on collaborative project	Technical University of Delft, The Netherlands
7	Sunetra Sarkar	Research on collaborative project	Centre for Mathematics and Computer Science, Amsterdam, The Netherlands

2. Visits of Faculty from Abroad

Sl. No.	Name of the Faculty Member	Purpose of Visit	Place
1	Dr. Polifke	For collaborative research	Technical University of Munich, Germany
2	Dr. Maria Heckl	For collaborative research	Keel University, UK
3	Dr. Gunilla Efframson	For collaborative research	KTH Stockholm, Sweden
4	Dr. Susann Boij	For collaborative research	KTH Stockholm, Sweden

3. Visits of Students from Abroad

Sl. No.	Name of the Student	Purpose of Visit	Place
1	Mr. Ralph Blumenthal	For collaborative research	Technical University of Munich, Germany



A micro gas turbine from Tecquipment has recently (2013) been installed at the Department of Aerospace Engineering. The equipment will be used in undergraduate and graduate Propulsion Laboratory experiments to demonstrate how a single-shaft gas turbojet with reheat (afterburner) works and to test its performance.

4.2. DEPARTMENT OF APPLIED MECHANICS

4.2.1. Academic Programmes

Students on roll as of September 2013, including research scholars admitted in January 2014

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	—	—	—	—	—	—
Dual Degree	30	31	33	22	20	136
M.A.	—	—	—	—	—	—
M.Sc.	—	—	—	—	—	—
M.Tech.	—	18	—	—	—	43
M.B.A.	—	—	—	—	—	—
M.S.	7	8	23	8	4	50
Ph.D.	4	10	23	15	39	91
Total	105	79	58	35	45	335

Names of students/scholars who attended conferences/seminars/symposia abroad or in India

Sl. No.	Name of Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Venue and Date	Financial Assistance from
Abroad					
1	Abhijit Biswas	AM10D009	Annual ORNL Biomedical Science and Engineering Conference: A Biomechanical Model Of Pacinian Corpuscle & Skin	Oak Ridge, Tennessee, USA, 21–23 May 2013	
2	S. Ranjith Kumar	AM10D020	Seventh MIT Conference on Computational Fluid and Solid Mechanics: Dissipative Particle Dynamics Simulation of Flow in Micro-Channels with Hydrophilic Walls	Cambridge, USA, 12–14 June 2013	
3	Pavan Diwakar Bokinpillewar	AM11S028	Seventh MIT Conference on Computational Fluid and Solid Mechanics: Flow of Wet Granular Material in a Lid Driven Cavity	Cambridge, USA, 12–14 June 2013	
4	Yalla Appala Naidu	AM10D004	Eleventh International Conference on Structural Safety and Reliability: Probabilistic Residual Life Assessment Against Thermal Fatigue and Creep	New York, USA, 16–20 June 2013	
5	Vipin K. Puthenveetil		Identification of Coherent Structures on the Horizontal Plate in Turbulent Convection: Eighth World Congress on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics (ExHFT-8)	Lisbon, Portugal, 16–20 June 2013	

6	Vivek Ramakrishnan	AM12D025	International Conference on Advances in Experimental Mechanics: Measurement of Thickness Stresses in Glass Plates Using Digital Photoelasticity	Cardiff, UK, 3–5 September 2013	
7	K. Vipin		Asian Congress of Fluid Mechanics 14: Horizontal Velocity Field Near the Hot Plate in Turbulent Natural Convection	Hanoi, Vietnam, 15 October 2013	
8	Sangeeth K. E.J. Hopfinger		Asian Congress of Fluid Mechanics 14: Mechanism of Free Surface Bubble Collapse	Hanoi, Vietnam, 15 October 2013	
9	R. Jayendiran	AM10D014	Second International Conference on Advanced Functional Materials: Finite Element Modeling and Experimental Study on Electromechanical Response of 1-3 Piezocomposites	Thiruvananthapuram, Kerala, 19–21 February 2014	
10	S. Sreenivasa Prasath	AM11D020	Second International Conference on Advanced Functional Materials: The Effect of Interphase Material on the Effective Mechanical Constants of Macro Fiber Composites (MFC)	Thiruvananthapuram, Kerala, 19–21 February 2014	
11	V. Kasi viswanathan	AM10S018	Second International Conference on Advanced Functional Materials: Analytical and Numerical Prediction of Effective Properties for Layered Magneto-Electro-Elastic Composite	Thiruvananthapuram, Kerala, 19–21 February 2014	
12	A.K. Jayanthi		Noninvasive blood flow assessment in diabetic foot ulcer using laser speckle contrast imaging technique, <i>SPIE Proceedings Volume 8952, Biomedical Applications of Light Scattering VIII</i> , 89521D doi:10.1117/12.2041874	San Francisco, California, USA, 4 March 2014	
13	R. Sivakumar		Laser Based Tomographic System for Visualization and Characterization of Tissue Optical Phantoms, Proceedings of the 2014 International Conference on Communications, Signal Processing and Computers, ISBN: 978-1-61804-215-6	Switzerland, 2014	
14	Tarkes Dora P.	AM12D008	ICEM 2013–ACEM12: Measurement of Residual Birefringence in Thin Glass Plates Using Digital Photoelasticity	Bangkok, 25–27 November 2013	Institute funding
Others					
1	Tarkes Dora P.	AM12D008	Performing glass moulding experiments	Fraunhofer IPT, Aachen, Germany, 1–7 December, 2013	
2	Vivek Ramakrishnan	AM12D025	Performing glass moulding experiments	Fraunhofer IPT, Aachen, Germany, 1–7 December, 2013	

India					
1	Majid H. Kohl	IIT Delhi student	iNaCoMM 2013	Roorkee, India, 18–20 December 2013	
			air-2013, Advances in Robotics 2013	IIT Roorkee, 2–4 July 2013	
2	Tarkes Dora P.	AM12D008	INCAM_2013_SM_39: Design of an Apparatus for Residual Stress Analysis in Lenses	IIT Madras, 4–6 July 2013	Applied Mechanics Departement
			CAE 2013: Numerical Simulation of Thermal Cycling of Glass Plates	IIT Madras, 19–21 December, 2013	Applied Mechanics Departement
3	Sandeep Jose	AM10D024	INCAM_2013_SM_43: Experiments on Buckling Control of Cylindrical Shells	IIT Madras	
4	Priyank Singh		INCAM_2013_SM_46: Ballistic Impact Simulation of 2-D Elastic Body Using Square Discrete Element Method	IIT Madras	
5	Pradeep V. Malaji	AM13D009	INCAM_2013_SM_71: Electrical Circuits for Vibration Energy Harvesting—A Review	IIT Madras	
6	Siva Prasad B.		INCAM_2013_SM_73: Post-Processing of Digital Image Correlation Results to Obtain Photoelastic Fringe Contours	IIT Madras, 4–6 July 2013	
7	Rajiv Kumar Singh		INCAM_2013_SM_82: Comparative Study of Various Cruciform Specimen Geometry Using Numerically Obtained Photoelastic Fringe Contours	IIT Madras, 4–6 July 2013	ARDE, Pune
8	M. Ilango		INCAM_2013_SM_105: Buckling Control of Columns Using Piezo-Electric Materials	IIT Madras	
9	Jayachandran Warriar	AM12S017	INCAM_2013_SM_112: Modeling Ground Resonance in Helicopters	IIT Madras	
10	Sunir Hassan	AM09D002	INCAM_2013_SM_117: A Study on the Effects of Scaling in Unit Cell	IIT Madras	
11	Dipak Sagar		INCAM_2013_SM_130: Analytical Study of a Cantilever Beam with	IIT Madras	
12	Prakash Packirisamy		INCAM_FM_17: Numerical Simulation of Chaotic Advection in a Micro-mixer	IIT Madras	
13	Nidheesh P.		INCAM_FM_24: Numerical Simulation of Multiphase Fluid Flow in an Oil Separator Using Open Foam	IIT Madras	
14	Saurav Agrawal	AM11S011	INCAM_FM_30: On Forced and Free Oscillations of a Circular Cylinder in an Elliptic Trajectory	IIT Madras	
15	Nachiketa Janardan	AM10D025	INCAM_FM_32: Sessile Drops on Inclined Hysteretic Surfaces—A Study of the Onset of Motion	IIT Madras	
16	Vadivukkarasan	AM10D021	INCAM_FM_33: Non-axisymmetric Breakup of an Inviscid Liquid Jet	IIT Madras	
17	K. Swaminathan	AM11D005	INCAM_FM_41: Drop Spreading in Partially Miscible Liquids	IIT Madras	

18	Pramod Das	AM11D018	INCAM_FM_41: A Suboptimal Proportional-Integral-Differential Control of Vortex Shedding Behind a Circular Cylinder	IIT Madras
19	Kavita Pujari		INCAM_BM_10: Fiber Optic Immunobiosensor Using Gold Nanoparticle Labels	IIT Madras
20	M. Kavitha	AM10D001	INCAM_BM_14: Characterization of Agar Based Tissue Mimicking Phantoms	IIT Madras
21	Varadhan		INCAM_BM_21: Variance Components in Discrete and Cyclical Tangential Force Production Tasks	IIT Madras
22	Jeby Philip	AM08S006	INCAM 2013: Failure Analysis of a Launch Vehicle Interstage Structure Using Photoelasticity	IIT Madras, 4–6 July 2013 VSSC, Thiruvananthapuram
23	Abhinav Thiagarajan	AM12DS013	Symposium on Optics and Photonics: Numerical Simulation of Speckle Images for Image Correlation Measurement Assessment	IIT Madras, 21 March 2014
24	Vipin Koothur Puthenveetil		Fluid Days 2013: Velocity Fields Near the Hot Plate in Turbulent Convection	IISc Bangalore, 18–20 July 2013
25	A.M. Ayyappadas Puthenveetil		Fluid Days 2013: A Model for the Flow Induced by Line Plumes	IISc Bangalore, 18–20 July
26	Krishnan Sangeeth Puthenveetil		Fluid Days 2013: Dynamics of Bubble Bursting at a Free Surface	IISc Bangalore, 18–20 July

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	R. Jayendiran	AM10D014	“Best Poster Award” for the paper titled “Finite Element Modeling and Experimental Study on Electromechanical Response of 1-3 Piezocomposites”	Second International Conference on Advanced Functional Materials, Thiruvananthapuram, Kerala, India, 19–21 February 2014, conducted by CSIR-National Institute for Interdisciplinary Science and Technology
2.	Raghu Prasad		First prize in the Pan IIT Research Expo, conducted as a part of Shaastra	IIT Madras, 4 January 2014

4.2.2. Faculty and Their Activities

Faculty and their areas of specialisation

Name	Major Areas of Specialization
Professors	
M. Ramasubba Reddy [Head]	Biosignal and image processing, bio-instrumentation
K. Ramesh	Digital photoelasticity, fracture mechanics
C. Lakshmana Rao	Fracture mechanics, modelling of materials, piezoelectric materials
M.S. Sivakumar	Smart materials and structures, plasticity

Associate Professors	
S. Vengadesan	Fluid mechanics, turbulent flows and modeling, CFD
S. Ramakrishnan	Biomedical instrumentation, enhancing diagnostic relevance of medical equipment
Mahesh Panchagnula	Spray combustion and atomization, surface tension phenomena, multi-phase flows
A. Arockiarajan	Smart materials, finite elements mesh-free methods
A. Baburaj Puthanveetil	Turbulent convection, interfacial phenomena
M. Manivannan	Haptics, medical simulation
B.S.V. Prasad Patnaik	CFD, flow control, flow-induced vibrations
Assistant Professors	
Anuradha Banerjee	Fracture mechanics, composites
Arul Prakash	Large eddy simulation (LES) and related techniques, CFD, thermal hydraulics
Abhijit Chaudhuri	Modelling of geo-thermal systems, stochastic groundwater hydrology
Pijush Ghosh	Nanocomposites, self-healing materials, molecular dynamics
Rinku Mukerjee	Post-stall flow prediction, applied aerodynamics, boundary layer stability
Raghavendra Sai V.V.	LSPR and SERS phenomena, clinical diagnostics and therapeutics using nanomaterials and nano-devices, sensors for environmental monitoring and explosive detection, fibre optic and microfabricated waveguides, nanoparticles
Sayan Gupta	Dynamics and random vibration, structural reliability, probabilistic mechanics
N. Sujatha	Biomedical optical instrumentation, biomedical spectroscopy, laser based diagnostic imaging, optical signal/image processing
Shaikh Faruque Ali	Vibration control, control of nonlinear systems, feedback linearization, energy harvesting, structural dynamics
Varadhan S.K.M.	Neuromechanics, motor behaviour and motor learning, rehabilitation, understanding action and perception
Sarith P. Sathiyam	Microfluidics and nanofluidics, compressible and rarefied gas flows, microscale and nanoscale thermophysics
Saumendra Kumar Bajpai	Microfabricated biomimetic systems, mechanics of tissue reorganisation, biophysical profiling of cells and tissues
Arun Kumar Thittai	Biomedical ultrasound imaging, ultrasound elastography, image analysis, image processing, ultrasound therapeutics

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

Sl. No.	Co-ordinators	Title	Period
Conferences			
1	C. Lakshmana Rao B.S.V. Prasad Patnaik S.K.M. Varadhan Rinku Mukherjee N. Sujatha Shaikh Faruque Ali V.V. Raghavendra Sai	INCAM 2013: Indian Conference on Applied Mechanics	4–6 July 2013, Department of Applied Mechanics, IIT Madras
Workshops			
1	M.S. Sivakumar	CGPA Workshop	28 September 2013, Teaching Learning Centre, Central Library, IIT Madras
2	A. Arockiarajan Shaikh Faruque Ali	QIP Workshop: Smart Materials, Structures and Systems	25–29 November 2013, Applied Mechanics Department, IIT Madras
3	M. Manivannan	Workshop on CPR in collaboration with ALERT, an NGO in training aid training	25 January 2014, CLT-103, IIT Madras

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

Sl. No.	Name of Faculty Member	Title	Institution	Dates
Workshops				
1	M. Ramasubba Reddy	Second periodic state level workshop under TEQIP-II	Hyderabad	25 June 2013
Conferences				
1	A. Baburaj	Fluid Days 2013: Velocity Fields Near the Hot Plate in Turbulent Convection	IISc Bangalore	18–20 July 2013
2	A. Baburaj	Fluid Days 2013: A Model for the Flow Induced by Line Plumes	IISc Bangalore	18–20 July 2013
3	A. Baburaj	Fluid Days 2013: Dynamics of Bubble Bursting at a Free Surface	IISc Bangalore	18–20 July 2013
4	Mahesh Panchagnula	Fifth International Conference on Population Balance Modelling	IISc Bangalore	11–13 September 2013
5	Prasad Patnaik B.S.V.	Twenty-Second National and 11th ISHMT-ASME Heat and Mass Transfer Conference: Computational Studies on the Thermal-Hydraulics of Nuclear Reactors	Kharagpur	28–31 December 2014

Special lectures delivered by faculty members in other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	Varadhan S.K.M.	Multifinger Co-ordination in Health and Disease	Christian Medical College, Vellore	25 April 2013
2	K. Ramesh	Photoelasticity of Glass	ICSR, IIT Madras	5 July 2013
3	K.V. NagendraGopal	Homogenization Schemes for Estimating Effective Properties of Elastic Composites	ICSR, IIT Madras	5 July 2013
4	V. Raghu Prakash	Methods to Evaluate Fatigue and Fracture Properties Through Miniature Specimen Testing	ICSR, IIT Madras	5 July 2013
5	Palaniappan Ramu	Product Design in Socially Relevant Projects	ICSR, IIT Madras	5 July 2013
6	A.K. Sen	Micro Fluids: Technology & Applications	ICSR, IIT Madras	6 July 2013
7	B. Nageswara Rao	Estimation of Reliability Bounds Using Multi-Cut High Dimensional Model Representation (MHDMR)	ICSR, IIT Madras	6 July 2013
8	V.V. Raghavendra Sai	Fibre Optic Immunobiosensor Using Gold Nanoparticles Labels	ICSR, IIT Madras	6 July 2013
9	H.S.N. Murthy	Solutions of Two-Dimensional Contact Problems	ICSR, IIT Madras	6 July 2013
10	A. Baburaj	Velocity fields Near the Hot Plate in Turbulent Convection	IISc Bangalore	18–20 July 2013 (at Fluid Days 2013)
		A Model for the Flow Induced by Line Plumes	IISc Bangalore	18–20 July 2013 (at Fluid Days 2013)
		Dynamics of Bubble Bursting at a Free Surface	IISc Bangalore	18-20 July 2013 (at Fluid Days 2013)
11	V.V. Raghavendra Sai	Biomedical Applications of Nanomaterials—Invited talk at National Seminar on Futuristic Trends of Nanocomposites and Their Fabrication	RVR & JC College of Engineering, Guntur	September 2013

12	Prasad Patnaik B.S.V.	Introduction to Finite Element Method	Sarada Engg. College, Srikakulam	20–23 April 2013
		Introduction to Turbulence and Its Modeling—at IIT Roorkee Workshop	IIT Roorkee	11–12 December 2013
		Shear Flow Past Bodies: Control of Wake Vortices	NSTL, Visakhapatnam	24–25 December 2013
13	Mahesh Panchagnula	Drops on Real Surfaces—Wetting, Sliding, Advancing and Receding	ICSR, IIT Madras	5 July 2013
		Invited talk at FMFP Conference	National Society of FMFP, IIT Bombay, Mumbai	12 December 2013
14	Sarith P. Sathian	Micro and Nano Scale Heat Transfer	TKM College of Engineering, Kollam, Kerala	18 December 2013
15	K. Arul Prakash	Advanced CFD in Green Technology	Sethu Institute of Technology, Virudhunagar	4 December 2013
16	S. Vengadesan	Application of CFD in Heat Transfer and Fluid Flow	NIT Trichy	9–10 January 2014
		Insect Aerodynamics—at a national conference	NMIT, Bangalore	17 January 2014
		Computational Fluid Dynamics and Applications	Thiagarajar College of Engineering, Madurai	24 February 2014
17	Saumendra K. Bajpai	Advances in Biomaterials for Biological Applications	R.V.R. and J.C. College of Engineering (autonomous)	14–15 March 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Sayan Gupta	USA (New York)	17–21 June 2013	ICOSSAR 2013: Conference on FE based solution of FPK equations for non-linear oscillators driven by coloured Gaussian noise	
2	Baburaj A.	Portugal (Lisbon)	16–20 June 2013	Identification of coherent structures on the horizontal plate in turbulent convection: Eighth World Congress on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics (ExHFT-8)	
		Vietnam (Hanoi, Asian Congress of Fluid Mechanics 14)	15–19 October 2013	Horizontal velocity field near the hot plate in turbulent natural convection	
		Vietnam (Hanoi, Asian Congress of Fluid Mechanics 14)	15–19 October 2013	Mechanism of free surface bubble collapse	
3	S. Ramakrishnan	Japan (Osaka)	3–7 July 2013	Thirty-Fifty Annual IEEE Engineering in Medicine and Biology Society Conference: Identification of brain white matter region for diagnosis of Alzheimer using diffusion tensor imaging	
		Germany (Dusseldorf)	19–23 November 2013	Word Media Tech Forum and Congress	

4	Shaikh Faruque Ali	Republic of Korea (Unist. Ulsan)	18–21 July 2013	Conference on Vibration Energy Harvesting
		UK (Swansea University)	18 May to 10 June 2013	As a part of Newton International Fellowship
		Korea (KAIST)	23–26 July 2013	To deliver a lecture to students on structural vibration control
		USA (Houston)	6–8 December 2013	To attend PanIIT 2013 Global Conference
5	N. Sujatha M. Ramasubba Reddy V.B. Narayanamoorthy	USA (San Francisco, California)	4 March 2014	Conference on Noninvasive Blood Flow Assessment In Diabetic Foot Ulcer Using Laser Speckle Contrast Imaging Technique (Proc. SPIE 8952, Biomedical Applications of Light Scattering VIII, 89521D doi:10.1117/12.2041874)
6	N. Sujatha	Switzerland	2014	Conference on laser based tomographic system for visualization and characterization of tissue optical phantoms (Proceedings of the 2014 International Conference on Communications, Signal Processing and Computers, ISBN: 978-1-61804-215-6)

Patents filed

Sl. No.	Name of Faculty Member/Student	Topic of Patent
1	M. Manivannan Raghu Prasad	A Five Degree-of-Freedom Haptic Interface Device For Laparoscopic Simulation [provisional filing], 3876/CHE/2013, filed in Chennai on 30 August 2013

4.2.3. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Investigations on the Aerodynamics of Insect Hovering in Inclined Stroke Plane	2 years, 2013–2015	ARDB	12	S. Vengadesan, PI K. Arul Prakash, Co-PI
2	Extreme Value Distributions for Stochastic Loads Modelled as LMA Processes	2 years, 2013–2015	Naval Research Board	11.412	Sayan Gupta
3	Laparoscopic Simulation with Haptics Feedback	2009–2014	DIT, Government of India	59.05	M. Manivanann, PI Co-Investigators: Prof. Suresh Devasahayam, CMC Vellore Dr. George Mathew, CMC Vellore

Industrial consultancy projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	M. Manivanann	Non-Linear Chest Technology for CPR	Merkel Haptics Pvt. Ltd	6.8

Research publications

Total number of papers published in refereed national journals: 1

Total number of papers published in refereed international journals: 21

Total number of papers presented in national conferences: 4

Total number of papers presented in international conferences: 17

(a) Refereed national journals

1. M.S. Raghu Prasad and M. Manivannan (2013) Isometric force matching error of index finger and laparoscopic instrument. *Indian Journal of Biomechanics* 4(1): 15–26. ISSN : 0974-0783

(b) Refereed international journals

1. B.S. Suresh Anand and N. Sujatha (2014) Diffuse reflectance spectroscopy for monitoring diabetic foot ulcer: A pilot study. *Optics and Lasers in Engineering* 53: 1–5.
2. Cerine Lal, A. Banerjee and N. Sujatha (2013) Role of contrast and fractality of laser speckle image in assessing flow velocity and scatterer concentration in phantom body fluids. *Journal of Biomedical Optics* 18(11): pp. 111419-1–111419-7.
3. A.P. Baburaj, Vijaya, K. Senthilkumar and E.J. Hopfinger (2013) Motion of drops on inclined surfaces in the inertial regime. *Journal of Fluid Mechanics* 726: 26–61.
4. A. Arockiarajan and R. Jayendiran (2013) Modeling and experimental characterization on temperature-dependent ferroelastic switching of 1-3 type piezocomposites. *International Journal of Engineering Science* 68: 61–74.
5. A. Arockiarajan and R. Jayendiran (2013) Non-linear electromechanical response of 1-3 type piezocomposites. *International Journal of Solids and Structures* 50: 2259–2270.
6. A. Baburaj, Vipin Koothur and Puthenveetil (2013) Velocity fields near the hot plate in turbulent convection. *Fluid Days 2013*
7. A. Baburaj, A.M. Ayyappadas and Puthenveetil (2013) A model for the flow induced by line plumes. *Fluid Days 2013*
8. A. Baburaj, Krishnan Sangeeth and Puthenveetil (2013) Dynamics of bubble bursting at a free surface. *Fluid Days 2013*
9. Shreena, S. Vengadesan, V.G. Idichandy and S.K. Bhattacharyya (2013) CFD study of drag reduction in axisymmetric underwater vehicles using air jets. *Engineering Applications of Computational Fluid Mechanics* May 2013 issue.
10. A. Arockiarajan and R. Jayendiran (2013) Experimental and theoretical studies on ferroelastic switching of 1-3 type piezocomposites. *European Journal of Mechanics—A/Solids* 38 (2013) 48-58
11. A. Baburaj and K. Vipin (2013) Identification of coherent structures on the horizontal plate in turbulent convection. *Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*.
12. S. Sreenivasa Prasath and A. Arockiarajan (2013) Effective electromechanical response of macro-fiber composite (MFC): Analytical and numerical models. *International Journal of Mechanical Sciences* 77: 98–106.
13. K. Senthil, A. Arockiarajan, R. Palaninathan, B. Santhosh and K.M. Usha (2013) Defects in composite structures: Its effects and prediction methods—A comprehensive review. *Composite Structures* 106: 139–149.
14. K. Ramesh, Vivek Ramakrishnan, Tarkes Dora P. and Dipayan Sanyal (2013) A simple approach to photoelastic calibration of glass using digital photoelasticity. *Journal of Non-Crystalline Solids*
15. Raghupathy K. and Ramesh K. (2013) Analytical prediction of fatigue crack growth behavior under negative biaxial loadings. *ASME—Journal of Pressure Vessel Technology*
16. Raghupathy K. and Ramesh K. (2013) Prediction of constraint parameters along the 3D crack front under negative biaxial loadings. *Experimental and Applied Mechanics*
17. Martin Grunwald, Manivannan M., Hyun Kim, Jung Kim, Frank Krause, Stephanie Mueller, Mandayam A. and Srinivasan (2014) Human haptic perception is interrupted by explorative stops of milliseconds. *Front. Psychol Cognition* doi:10.3389/fpsyg.2014.00292 [IF: 1.709]
18. L. Suganthi, M. Manivannan, Brajesh Kumar Kunwar, George Joseph and Debashish Danda (2014) Morphological analysis of peripheral arterial signals in Takayasu’s arthritis. *Journal of Clinical Monitoring and Computing* (in press). [IF: 0.709]
19. Majid Koul, Suril V. Shah, S.K. Saha and M. Manivannan (2013) Reduced-order forward dynamics of multi-closed-loop systems. *Journal of Multibody System Dynamics* 1–26 doi:10.1007/s11044-013-9379-2

20. Nissan Kunju, George Tharion, Suresh Devasahayam and M. Manivannan (2013) Muscle activation pattern and weight bearing of limbs during wheelchair transfers in healthy individuals—A step towards lower limb FES assisted transfer for paraplegics. *Converging Clinical and Engineering Research on Neurorehabilitation*. 197–201. doi:10.1007/978-3-642-34546-3_31 [Citation: 1]
21. K. Kanakapriya and M. Manivannan (2012) CPR Module with variable chest stiffness in high fidelity mannequins. In: A. Chakrabarti (ed.), *CIRP Design 2012*, Springer-Verlag, London 2013. doi:10.1007/978-1-4471-4507-3_16 (Chapter 16, pp. 159–168).

(c) Proceedings of national conferences

1. K. Ramesh and Tarkes Dora P. (2013) Design of an apparatus for residual stress analysis in lenses. 4–6 July 2013.
2. Siva Prasad B. and K. Ramesh (2013) Post-processing of digital image correlation results to obtain photoelastic fringe contours. 4–6 July 2013.
3. Rajiv K. Singh and K. Ramesh (2013) Comparative study of various cruciform specimen geometry using numerically obtained photoelastic fringe contours. 4–6 July 2013.
4. Jeby Philip, Digendranath Swain, Annamala Pillai S. and Ramesh K. (2013) Failure analysis of a launch vehicle interstage structure using photoelasticity. 4–6 July 2013.

(d) Proceedings of international conferences

1. Vipin K., Baburaj A. and Puthenveetil (2013) Identification of coherent structures on the horizontal plate in turbulent convection. *Eighth World Congress on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics (ExHFT-8)* Lisbon, Portugal, 16–20 June 2013.
2. A.P. Baburaj and K. Vipin (2013) Horizontal velocity field near the hot plate in turbulent natural convection. *Asian Congress of Fluid Mechanics 14* Hanoi, Vietnam, 15–19 October 2013.
3. A.P. Baburaj, Sangeeth K. and E.J. Hopfinger (2013) Mechanism of free surface bubble collapse. *Asian Congress of Fluid Mechanics 14* Hanoi, Vietnam, 15–19 October 2013.
4. A.K. Jayanthi, N. Sujatha, M. Ramasubba Reddy and V.B. Narayanamoorthy (2014) Non invasive blood flow assessment in diabetic foot ulcer using laser speckle contrast imaging technique. *SPIE Proceedings Volume 8952: Biomedical Applications of Light Scattering VIII*, San Francisco, California, USA doi:10.1117/12.2041874
5. R. Sivakumar and N. Sujatha (2014) Laser based tomographic system for visualization and characterization of tissue optical phantoms. *Proceedings of the 2014 International Conference on Communications, Signal Processing and Computers*, Switzerland. ISBN: 978-1-61804-215-6.
6. Sasikumar P., Suresh R. and Sayan Gupta (2014) Analysis of CFRP laminated plates with spatially varying non-Gaussian inhomogeneities using SFEM. *Composite Structures* 112: 308–326.
7. Yash Vyas, Y. Appalanaidu and Sayan Gupta (2014) Noise models in numerical analysis of stochastic creep damage growth and residual life assessment. *Journal of Failure Analysis and Prevention* 14(2): 259–264.
8. Y. Appalanaidu, Anindya Roy and Sayan Gupta (2014) Stochastic creep damage estimation in pipings with spatial non-Gaussian uncertainties spectral stochastic finite element method. *International Conference on Structural Integrity*, Kalpakkam, 4–7 February.
9. Gunasegarane G.S. and Puthenveetil B.A. (2014) Dynamics of line plumes on horizontal surfaces in turbulent convection. *Journal of Fluid Mechanics* (in press).
10. Vivek Ramakrishnan and K. Ramesh (2013) Measurement of thickness stress in a glass plate using digital photoelasticity. 2–6 September 2013.
11. Tarkes Dora P. and K. Ramesh (2013) Measurement of residual birefringence in thin glass plates using digital photoelasticity. 25–27 November 2013.
12. Puneet Mahajan, Tarkes Dora P., Subramanyam Reddy M. and K. Ramesh (2013) Numerical simulation of thermal cycling of glass plates. 19–21 December 2013.
13. Abhijit Biswas, M. Manivannan and M.A. Srinivasan (2014) A biomechanical model of Pacinian Corpuscle and skin. BSEC-13, IEEE, ORNL Biomedical Science and Engineering Center, Oak Ridge, Tennessee, USA. Pp. 1–4, doi:10.1109/BSEC.2013.6618485
14. G. Singh and M. Manivannan (2013) Drowsiness detection system for pilots. *ICoRD '13, Lecture Notes in Mechanical Engineering* Pp. 991–1003.

15. M.H. Koul, S.K. Saha and M. Manivannan (2013) Teaching mechanism dynamics using haptics. *Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNaCoMM2013)*, IIT Roorkee, India, 18–20 December 2013. Pp. 649–656.
16. M.H. Koul, S.K. Saha and M. Manivannan (2013) Simulation of haptics force law using SimMechanics and Simulink. *Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNaCoMM2013)*, IIT Roorkee, India, 18–20 December 2013. Pp. 641–648.
17. Majid H. Koul, Subir K. Saha and M. Manivannan (2013) Enhancing the Z-width of haptic interfaces through dual-rate sampling. *AIR'13: Proceedings of Conference on Advances in Robotics*, ACM New York, NY, USA. doi:10.1145/2506095.2506154

Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Sridhar Arjunan Poosapati, Post-doctoral Research Fellow, RMIT University, Melbourne, Australia	23 May 2013	Guest lecture, Research Studies on Application of Surface Electromyogram Signal
2	Dr. Yogesh Kannan Mariappan, Center for Advanced Imaging Research, Mayo Clinic, 200 First Street SW, Rochester, Minnesota, 55905, USA	23 May 2013	Guest lecture, Novel Driver Systems, Contrast Mechanisms and Clinical Applications for Magnetic Resonance Elastography
3	Dr. Namas Chandra, Ph.D., P.E., Professor of Biomedical Engineering, Director, Center for Injury Bio-mechanics, Materials, Medicine, New Jersey Institute of Technology	20 May 2013	Guest lecture, Blast Induced Traumatic Brain Injuries: Experimental and Simulation Approaches
4	Prof. Suresh Devasahayam, CMC Vellore	3 July 2013	Invited talk, Modeling the Musculoskeletal System
5	Prof. Balaji Srinivasan, IIT Delhi	3 July 2013	Invited talk, Towards a Universal Robust Method to Compute Flow
6	Dr. Namburi Adinarayana, GE, Bangalore	3 July 2013	Invited talk, Steam Turbines for Concentrating Solar Power (CSP) Applications
7	Prof. Puneet Mahajan, IIT Delhi	4 July 2013	Invited talk, Mechanics of Snow and Avalanche Initiation
8	Prof. A. Rajagopal, IIT Hyderabad	4 July 2013	Invited talk, Higher Order Natural Element Methods: Towards Iso-geometric Analysis
9	Dr. R.K. Gupta, ASL, DRDO, Hyderabad	4 July 2013	Invited talk, Aerospace Strategic Systems: Design and Development
10	Prof. Namratha Gundiah, IISc Bangalore	4 July 2013	Invited talk, Mechanics of Soft Materials
11	Prof. Sankaran Mahadevan, Vanderbilt University, USA	4 July 2013	Invited talk
12	Prof. Rohit Manchanda, IIT Bombay	5 July 2013	Invited talk, Physiologically Realistic Cellular Bioelectric Models in Medical Engineering
13	Dr. P. Chellapandi, IGCAR, Kalpakkam	5 July 2013	Invited talk, Fast Transient Fluid Structure Interactions Relevant to Nuclear Reactor Safety
14	Dr. R. Ramesh Kumar, VSSC, Thiruvananthapuram	5 July 2013	Invited talk, Effect of Multiple Debonds on Vibration Characteristics of CFRP Skinned Sandwich Beams
15	Prof. Sitikantha Roy, IIT Delhi	6 July 2013	Invited talk, Mechanics of Cell
16	Prof. N. Sukumar, University of California, Davis	6 July 2013	Invited talk, Quadratic Maximum-Entropy Serendipity Shape Functions for Arbitrary Plane Polygon
17	Dr. Ratul Dasgupta, Department of Chemical Physics, Weizmann Institute, Israel	16 July 2013	Invited talk, Microscopic Mechanism of Strain Localization in Amorphous Materials
18	Prof. K.K. Deepak, Department of Physiology, AIIMS, New Delhi		Guest lecture, Autonomic Computing: The Implications to Engineering

4.2.4. Other Activities of the Department

Faculty visits

Sl. No.	Name of the Faculty Member	Purpose of Visit	Venue and Date
1	K. Arul Prakash	External examiner for project viva voce exam	Coimbatore Institute of Technology, Coimbatore, 21–22 May 2013
		Presentation of progress report to the Aerodynamics Panel of AR&DB	VSSC, Thiruvananthapuram, 24 May 2013
		M.Tech. thesis defence exam	IIT Hyderabad, 9 July 2013
		Subject expert to chair technical session at ICEE 2013	Rajiv Gandhi Institute of Technology, Kottayam, Kerala, 12 December 2013
		Fourth Board of Studies Meeting	National Engineering College, Thoothukudi, 22 January 2014
		To give a training session, Basics of CFD	Mahindra & Mahindra, Mahindra Research Valley, 29 March 2014
2	A. Arockiarajan	Board of Studies meeting	MCET, Udumalai Road, Pollachi, 23 March 2013
		NRB Panel meeting	Varanasi, 12 April 2013
		Ph.D. viva voce exam	NIT Trichy, 23 July 2013
		Ph.D. oral examination	Anna University, Chennai, 29 July 2013
		CSIR pre-examination meeting	CSIR, New Delhi, 16–18 September 2013
		Fourth Board of Studies Meeting	National Engineering College, Thoothukudi, 22 January 2014
3	M. Manivannan	Project discussion, Meeting an Expert Doctor	Kochi, 17 November 2013
		DST project review meeting	Bangalore, 2 December 2013
		DST project review meeting	IIT Madras, 29 December 2013
		Haptics Enabled Augmented Reality Virtual Environment Based Skills Trainer (HARVEST) for Construction Skills	L&T ECC, Madras, 30 December 2013
		To attend Honda YES award ceremony as Advisor, Co-curricular Affairs, IIT Madras	Hotel Shangri-La Eros, Connaught Place, New Delhi, 15 February 2013
4	Mahesh V. Panchagnula	Project discussions with Dr. G. Padmanabhan, Associate Director	ARCI, DST, Hyderabad, 25 February 2013
		Project discussion with Eaton Corporation	2 April 2013
		For Ph.D. thesis defence	IISc Bangalore, 15 April 2013
		Paper setting work	CSIR, Durgapur, 3 May 2013
5	Prasad Patnaik B.S.V.	M.S. thesis examination	Hindustan University, Kancheepuram District, Padur, 27 June 2013
		Ph.D. viva exam	Anna University, Chennai, 27 February 2013
6	S. Ramakrishnan	Project meeting	Delhi, 16 August 2013
		Project discussion on calibration	UL India Ltd., Bangalore, 14 November 2013
		Project meeting	RRI, Bangalore, 11–12 July 2013

8	M. Ramasubba Reddy	To organise a brainstorming session to discuss the formulation of a Research & Development	IIT Bombay, 28 February 2013
		Conducting B.Tech. and M.Tech. Board of Studies meetings	SPMVV, Tirupati, 1 March 2013
		External examiner for project viva voce exam	Avinashilingam Institute for Home Science and Higherr Educationn for Women, 15–16 May 2013
		Governing Council for TEQIP-II	JNTUA College of Engineering, Kadapa District, 6 June 2013
		UG Board of Studies Meeting	JNTUA College of Engineering, Kadapa District, 7–9 June 2013
		To conduct interview for full time Ph.D. scholars for award of UGC BSR Research Fellowship	Annamalai University, Annamalai Nagar, 17 June 2013
		To attend the Board of Studies meeting for UG and IDP course structure and syllabus	JNTUH College of Engineering, Hyderabad, 21–22 June 2013
		To attend comprehensive viva voce exam	NIT Warangal, 26–27 November 2013
9	K. Ramesh	Conducting comprehensive viva	IIST, Thiruvananthapuram, 22 March 2013
10	M.S. Sivakumar	AR&DB Structures Panel meeting	R&DE, Pune, 23 February 2013
		Technical Committee and All Specialist Panel co-ordination meeting	NAL, Bangalore, 3 April 2013
		CSIR-HRDG discussion meeting	CSIR, New Delhi, 17 April 2013
11	N. Sujatha	Ph.D. comprehensive viva voce exam	CIS Lab, University of Madras, Guindy Campus, Chennai, 10 April 2013
12	Sayan Gupta	DST-SERB brain-storming session	Department of Civil Engineering, IISc, Bangalore, 30–31 January 2014
13	Shaikh Faruque Ali	CSIR pre-examination Meeting	CSIR, New Delhi, 16–18 September 2013
		DST-SERB brain-storming session	Department of Civil Engineering, IISc, Bangalore, 30–31 January 2014
14	S. Vengadesan	Ph.D. comprehensive viva voce examination	NIT, Trichy, 3 May 2013
			NIT, Trichy, 23 January 2014

Student visits

<i>Sl. No.</i>	<i>Name of Student</i>	<i>Purpose of Visit</i>	<i>Venue and Date</i>
1	Tarkes Dora P.	Discussion with co-guide about numerical experiments related to glass moulding process	IIT Delhi, 4–15 February 2014

4.3. DEPARTMENT OF BIOTECHNOLOGY

4.3.1. Introduction

The Department of Biotechnology at this institute came into formal existence in July 2004 but has grown rapidly in the past nine years. The first batch of B.Tech students graduated in July 2006, and the first Dual Degree batch of students graduated in July 2007.

The vision of the department is to have an international impact through research, teaching, technology transfer and service to society. At present, we have 31 faculty members, and the diversity of challenges that biotechnologies tackle is reflected in our research activities. The thrust areas of research are bioprocess engineering, computational biology, chemical biology and medical biotechnology related to cancer and cardiovascular aspects. Faculty members of the department hold several patents and are involved in active industrial consultancy. Several collaborative and technology transfer projects are currently running with numerous industries, and the department 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 the DBT for programme support on cancer biology. A Bioinformatics Centre has also been set up with funding from the DBT.

Programmes offered currently by our department are the five-year Dual Degree (B.Tech and M.Tech) in Biological Engineering, five-year Dual Degree (B.S. and M.S.) in Biological Sciences, M.S. by research and Ph.D. In addition, we offer M.Tech. (Clinical Engineering) and Ph.D. (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 sufficiently confident to provide solutions to the technological problems faced by Indian biotechnology industries. The undergraduate programme in biotechnology has a strong emphasis on modern biology and engineering and on several laboratory experiences. The M.S. and Ph.D. programmes emphasise excellence in research. The M.Tech. (Clinical Engineering) programme is designed to train students to address the entire management of the technology aspects in a hospital as well as the medical technology needs of the country.

4.3.2. Academic Programmes

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

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

M.Tech. in Clinical Engineering

M.S. by research

Ph.D.

Two programmes, the four-year B.Tech. in Biotechnology and five-year Dual Degree in Biotechnology, which were started at the inception of the department, were discontinued from 2012.

New courses introduced

Sl. No.	Course No.	Title
1	BT5370	Fermentation Technology
2	BT5360	Reactive Species in Medical and Related Technologies
3	BT5380	Technical Communication in Biology

Students on roll as of September 2013 including research scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.						
Dual Degree						
M.A.						
M.Sc.						
M.Tech.						
M.B.A.						
M.S.						
Ph.D.						
Total						

Names of students/scholars who attended conferences/seminars/symposia abroad or in India

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Soumya Lipsa Rath	BT09D043	27th Annual Symposium of Protein Society	20–23 July 2013, Boston, Massachusetts, USA	IIT Madras
2	Naagarajan N.	BT12S016	Development, Characterization and Modeling of Small Molecule Controlled Release From Boric Acid–Polyvinyl Alcohol Coordinate Complex Films	16–20 December 2013, Maui, Hawaii	
3	Nandakumar V.	BT10D003	GRC Biomaterials & Tissue Engineering	28 July to 2 August 2013, USA	DST
4	Anju V. Nair	BT12D001	EPNOE 2013 International Polysaccharide Conference	21–23 October 2013, France	IIT Madras
5	Pramal Biswa	BT09D003	2nd International Conference on Microbial Diversity (MD2013)	22–25 October 2013, Turin, Italy	IIT Madras
6	Boobalan T.	Project Associate	7th International Conference on Materials for Advanced Technologies (ICMAT)	30 June to 5 July 2013, Singapore	—
7	Prabhawathi V.	Senior Research Fellow	7th International Conference on Materials for Advanced Technologies (ICMAT)	30 June to 5 July 2013, Singapore	CSIR
8	Anju V. Nair	BT12D001	EPNOE 2013 International Polysaccharide Conference	21–24 October 2013, France	IIT Madras
9	R. Sneha Priya	BT08D038	AIDS Vaccine 2013	7–10 October, 2013, Barcelona, Spain	IIT Madras
10	Soumya Lipsa Rath	BT09D043	27th Annual Symposium of Protein Society	20–23 July 2013, Boston, Massachusetts, USA	IIT Madras
11	Potunuru Uma Rani	BT09D017	Atherosclerosis Thrombosis Vascular Biology Scientific Sessions 2013	1–3 May 2013, Florida, USA	IIT Madras IIT Madras IIT Madras
12	Sasirekha N.	BT10D005	Gordon Research Conferences— Calcium Signaling	14–21 June 2013, Renaissance Tuscany II Ciocco Resort in Lucca (Barga), Italy	Institute fellowship and IIT alumni travel grant,
13	Pramal Biswa	BT09D003	2nd International Conference on Microbial Diversity 2013: Microbial Interactions in Complex Ecosystems	23–25 October 2013, Turin, Italy	IIT Madras

14	L.P. Merlin Rajesh Lal	BT10D018	TERMIS-AM 2013	10–13 November, Atlanta, USA	IIT Madras
15	Shashi Prakash Singh	BT09D042	International <i>Dictyostelium</i> Conference	4–8 August 2013, Ashville, NC, USA	IIT Madras and Alumni Association
16	Debostuti GhoshDastidar	BT10D015	58th Annual Biophysical Society Meeting	5–19 February 2014, San Francisco, California	IIT Madras
17	Hemant Giri	BT08D030	North American Vascular Biology Organization meeting	20–24 October 2013, Cape Cod, MA, USA	Alumni Association
India					
1	Himabindu Kumdam	BT10D027	First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering	28–29 June 2013, Tirupati, Andhra Pradesh, India	
2	Nagarajan Arumugam	Project Associate	First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering	28–29 June 2013, Tirupati, Andhra Pradesh, India	
3	Sree Ahila Retnadas	BT13D027	First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering	28–29 June 2013, Tirupati, Andhra Pradesh, India	
4	Ulaganathan Sivagnanam	BT11D022	First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering	28–29 June 2013, Tirupati, Andhra Pradesh, India	
5	Vincent Gerard Francis	BT08D026	First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering	28–29 June 2013, Tirupati, Andhra Pradesh, India	
6	Sarika Rayala	BT12D022	International Conference on Biomolecular Forms and Functions—A Celebration of 50 Years of the Ramachandran Map	8–11 January 2013, IISc Bangalore, India	
7	Mandali Alekhya	BT11D017	Bioquest, 2013	10–14 August 2013, Amrita Viswa Vidyapeetam University	Amrita Viswa Vidyapeetam University
8	Mandali Alekhya	BT11D017	3rd Bangalore Cognitive Workshop, 2013	8–21 December 2013, IISc Bangalore	IISc Bangalore
9	Aarthi R.	BT13D031	ICTP-ICTS Winter School on Quantitative Systems Biology	9–20 December 2013, NCBS & IISc Bangalore	Conference organisers
10	Mandali Alekhya	BT11D017	ACCS, 2014	3–5 March 2014, India International Centre, New Delhi	
11	Soumya Lipsa Rath	BT09D043	Internantional Conference on Biomolecular Simulation and Dynamics	28–30 November, IIT Madras	IIT Madras
12	Anant Raheja	BT09D039	Sheath Based Optimization of PVA-PCL Core–Sheath Electrospun Fibers for Encapsulation of Insulin	13–15 February 2014, Panjab University, Chandigarh	
13	Balaji R.	BT12D003	Surface Fuctionalization of Poly(ethylene terephthalate) to Improve Haemocompatibility	16–19 February 2014, IIT Madras	
14	Sudhin Thampi	BT09D037	Development and Characterization of Aligned Fibro Porous Polycarbonate Urethane/GO Nanocomposite Membrane for Biomedical Applications	10–12 July 2013, Thiruvananthapuram	
15	Naagarajan N.	BT12S016	Studies on Electrospun Coaxial Fibers for Development of Protein Delivery Systems	12–13 April 2013, Pondicherry	

16	Kavya R. Menon	BT09S002	Up-conversion of light as a novel technique for cultivation of <i>Chlorella</i> for bio-fuel production, Asian Congress on Biotechnology (ACB) 2013	15–19 December 2013, New Delhi, India	CSIR fellowship
17	Balan R.	BT09D022	The bio-oil potential of <i>Chlorella vulgaris</i> : Effects of UV-A radiation on growth and lipid yields, Asian Congress on Biotechnology (ACB) 2013	15–19 December 2013, New Delhi, India	CSIR fellowship
18	S. Archanaa		Aconitase inhibition: A means to enhance the green fuel from microalgae <i>Chlorella vulgaris</i> , Asian Congress on Biotechnology (ACB) 2013	15–19 December 2013, New Delhi, India	CSIR fellowship
19	R. Dinesh	BT12S002	Cancercon 2014	30 January to 2 February 2014, IIT Madras	
20	Thacker Pooja	BT09D029	4th International Conference on Stem Cells and Cancer (ICSCCB-2013)	19–22 October 2013	
21	N. Prabhavathy	BT07D024	Cancercon 2014	30 January to 2 February 2014, IIT Madras	
22	G. Suresh	Project Associate	International conference, Emerging Trends in Chemical Sciences (IETC)	5–7 December 2013, Vellore	
23	Malapaka Kiranmayi	BT11D014	11th Annual Conference of International Society for Heart Research	8–9 February 2014	IIT Madras
24	Kalyani A.	BT09D033	11th Annual Conference of International Society for Heart Research (Indian Section)	8-9 February 2014	IIT Madras
25	Kush Tripathi	BT12D034	14th Asia Pacific Conference on Nondestructive Testing	18–22 November 2013, Renaissance Hotel, Mumbai	IIT Madras
26	M. Kiranmayi	BT11D014	11th Annual Conference of International Society for Heart Research (Indian Section)	8–9 February 2014, National Institute of Pharmaceutical Education and Research, Punjab, India	
27	R. Harsha Narayani	BT12D006	42nd National Seminar on Crystallography and International Workshop on Application of X-ray Diffraction for Drug Discovery	21–23 November 2013, JNU, New Delhi, India	
28	Nagarajan R.	BT12D012	(1) 2nd IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics (2) 6th International Symposium on Recent Trends in Macromolecular Structure and Function	(1) 27–28 September 2013, IIT Madras (2) 22–24 January 2014, Madras University	IIT Madras IIT Madras
29	Paruchuri Anoosha	BT13D008	2nd IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics	27–28 September, 2013, IIT Madras	IIT Madras
30	M.D. Homaidur Rahman	BT13D013	Satellite Workshop on Advances in Molecular Dynamics of Biomolecules	3–4 December 2013, JNU Convention Center School of Computational & Integrative Sciences, Jawaharlal Nehru University, New Delhi	DST
31	Venkata Reddy Chirasani	BT12D026	International Conference on Biomolecular Simulations and Dynamics 2013	28–30 November 2013, IIT Madras	IIT Madras

32	Soumya Lipsa Rath	BT09D043	Internantional Conference on Biomolecular Simulation and Dynamics 2013	28–30 November 2013, IIT Madras	IIT Madras
33	Rothangmawi Victoria Hmar	BT09D018	Asian Congress on Biotechnology (ACB-2013)	15–19 December 2013, Indian Habitat Centre, New Delhi, India	IIT Madras
34	Sreeja S.	BT12D046	Asian Congress on Biotechnology (ACB-2013)	15–19 December 2013, Indian Habitat Centre, New Delhi, India	IIT Madras
35	T. Saravanan	BT08D033	International Conference on Emerging Trends in Chemical Sciences (IETC 2013)	5–7 December 2013, VIT University, Vellore	IIT Madras
36	V. Sowmyalakshmi	BT09D001	International Conference on Emerging Trends in Chemical Sciences	5–7 December 2013, VIT University, Vellore, Tamil Nadu, India	IIT Madras
37	K.Y.N.V. Kumar	BT11D015	2nd IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics	27–28 September 2013 IIT Madras	IIT Madras
38	A. Kalyani	BT09D033	11th Annual Conference of International Society for Heart Research (Indian Section)	8–9 February 2014, National Institute of Pharmaceutical Education and Research, Sector 67, S.A.A. Nagar (Punjab)	IIT Madras
39	Mandeep Kaur	BT12S014	Asian Congress on Biotechnology 2013 (ACB-2013)	15–19 December 2013, New Delhi	DBT
40	Priyashree Chaudhary	BT12S019	(1) Second IIT Madras –Tokyo Tech Joint International Symposium on Techniques and Applications of Bioinformatics (2) BIOMERS, BIOtech MEet for ResearcherS (3) BIOWORLD 2013, 3rd Annual Conference on Computational Biology in Disease and Disorder	(1) 27–28 September 2013, IIT Madras (2) 16–17 November 2013, IIT Madras (3) 8–11 December 2013, IIT Delhi	IIT Madras IIT Madras IIT Madras
41	Sneh Sanjay Badle	BT09D040	Asian Congress on Biotechnology 2013 (ACB-2013)	15–19 December 2013, New Delhi	IIT Madras
42	Veerabhadra M.V.	BT12S004	Asian Congress on Biotechnology 2013 (ACB-2013)	IIT Madras	IIT Madras
43	Ranjini Balan	BT09D022	Asian Congress on Biotechnology 2013 (ACB-2013)	19–24 December 2013, New Delhi, India	IIT Madras
44	Venkata Reddy Chirasani	BT12D026	Advances in Molecular Dynamics of Biomolecules	3–4 December 2013, JNU, New Delhi	IIT Madras
45	Debostuti Ghosh Dastidar	BT10D015	International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras
46	Debostuti Ghosh Dastidar	BT10D015	Advances in Molecular Dynamics in Biomolecules (ADMdBio)	3–4 December 2013, JNU, New Delhi	IIT Madras
47	Rajeswari A.	BT10D006	International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras
48	Rajeswari A.	BT10D006	Advances in Molecular Dynamics in Biomolecules (ADMdBio)	3–4 December 2013, JNU, New Delhi	IIT Madras
49	M.D. Homaidur Rahman	BT13D013	International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras
50	Mohd Ahsan	BT13D045	International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras

51	Sujata Chakraborty		International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras
52	Suchetana Gupta	BT13D072	International Conference on Biomolecular Simulation and Dynamics-2013 (ICBSD-2013)	28–30 November 2013, IIT Madras	IIT Madras
53	Mahajabeen P.	BT08D014	International conference on Emerging Trends in Chemical Science	5–7 December 2013, Institute of Technology, Vellore	IIT Madras
54	Prassana Kumar V.	1194pp	International conference on Emerging Trends in Chemical Science	5–7 December 2013, Institute of Technology, Vellore	IIT Madras
55	Sana Nivedita	BT12D021	Asian Congress on Biotechnology 2013 (ACB-2013)	14–19 December 2013, IIT Delhi	IIT Madras
56	Saravanan K.	BT12D043	Asian Congress on Biotechnology 2013 (ACB-2013)	9–11 December 2013, IIT Mandi	IIT Madras
57	Sindhu S., R. Preetha and Anju Chadha	979pp	Frontiers and Challenges in Health Care, Biotechnology and Food Processing Technology	3–5 February 2014, Anna University, Chennai	DST
58	Shoba Narayan	3279ss	NanoSciTech 2014	13–15 February 2014, Chandigarh, India	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	M. Kiranmayi	BT11D014	Dr. N.K. Ganguly Award for best oral presentation in clinical research at the 11th Annual Conference of International Society for Heart Research (Indian Section)	International Society for Heart Research (Indian Section)
2	Rothangmawi Victoria Hmar	BT09D018	Best Poster Award in the category Bioprocess Engineering	Asian Federation on Biotechnology
3	T. Saravanan	BT08D033	Best Poster Award	VIT University
4	Veerabhadra M.V.	BT12S004	Best Poster Award	2nd Asian Congress on Biotechnology, New Delhi
5	N. Prabhavathy	BT07D024	Winner of the Biochemical Journal Poster Prize	Cancercon 2014, IIT Madras
6	Sindhu S. R. Preetha	979pp	Best Poster Award	International Conference on Frontiers and Challenges in Health Care Biotechnology and Food Processing Technology Organizing Committee

4.3.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization
Professors	
Mukesh Doble [Head]	Biomaterials, drug design, biochemical engineering
K.B. Ramachandran	Bioprocess engineering and modelling, metabolic engineering
Anju Chadha	Biocatalysis, green chemistry, biosensors
T.S. Chandra	Microbiology and genetics
A. Jayakrishnan	Biomaterials science and technology
Guhan Jayaraman	Biochemical and bioprocess engineering
D. Karunakaran	Cancer biology, signal transduction, apoptosis

G. K. Suraishkumar	Reactive species, algal biofuels
S. Mahalingam	Molecular virology and cell biology
Rama Shanker Verma	Stem cell biology and tissue regeneration, cancer therapeutics
V. Srinivasa Chakravarthy	Computational neuroscience
Satyanarayana Gummadi	Bioprocess engineering
K. Subramaiam	Developmental biology
Associate Professors	
Amal Kanti Bera	Ion channels and signalling
Sanjib Senapati	Computational biophysics
Nitish R. Mahapatra	Cardiovascular genetics, molecular medicine
Michael Gromiha	Protein bioinformatics
A. Gopala Krishna	Signal transduction and protein biochemistry
K. Chandraraj	Biofuels, bioremediation, industrial enzymes
Rayala Suresh Kumar	Cancer biology
N Manoj	Structural biology
V Kesavan	Chemical biology
R. Baskar	Developmental genetics
Assistant Professors	
R. Murugan	Theoretical biology, biophysics
Madhulika Dixit	Vascular biology
Karthik Raman	Computational systems biology
Vignesh Muthuvijayan	Biomaterials, tissue engineering
Smita Srivastava	Plant biotechnology, bioprocess engineering
Athi Narayanan	Experimental/computational protein folding
Hamsa Priya Mohana Sundaram	Protein solution thermodynamics
Vani Janakiraman	Infection biology

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

Sl. No.	Coordinator(s)	Title	Period
Conferences			
1	S. Mahalingam	International Conference on Cancer Biology	30 January to 1 February 2014
2	Sanjib Senapati	International Conference on Biomolecular Simulations and Dynamics 2013	28–30 November 2013
Seminars			
1	Vignesh Muthuvijayan	National Seminar on Stem Cells and Tissue Engineering	28 February 2014
2	Smita Srivastava	Teaching Assistant Orientation Programme	17 January 2014
3	Smita Srivastava	Teaching Assistant Orientation Programme	31 July 2013
Symposia			
1	M. Michael Gromiha and N. Manoj	IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics	27–28 September 2013
Workshops			
1	Mukesh Doble and Sathyanarayana N. Gummadi	Summer Workshop on Bioreactors: Continuing education programme	8–13 July 2013
2	Mukesh Doble, T.S. Sampath Kumar, Dr. Balaji Narasimhan and Dr. Surya Mallapragada	Harnessing Nanotechnology to Combat Infectious Diseases: From Bench to Bedside	9 November 2013
3	Sanjib Senapati	International Workshop on Advances in Molecular Dynamics of Biomolecules	3–4 December 2013

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
Workshops				
1	M. Michael Gromiha	National Workshop on Genomics, Proteomics and Bioinformatics	Annamalai University	July 2013
2	Karthik Raman	Workshop on Non-linear Dynamics in Biology	IISc Bangalore	8–12 July 2013
3	Athi Narayanan	The Conformational Landscape of an Intrinsically Disordered Protein	CECAM-ETHZ, Zurich, Switzerland	2–5 September 2013
4	Vignesh Muthuvijayan	International Workshop on Coatings and Surfaces for Biomedical Engineering (IWCSB 2014)	IIT Madras	16–19 February 2014
5	Vignesh Muthuvijayan	Summer Workshop on Bioprocess Engineering (title of talk: Bioreactor Design)	IIT Madras	8–13 July 2013
Seminars				
1	M. Michael Gromiha	Seminar on Emerging Trends in Bioinformatics	Taipei, Taiwan	April 2013
2	Vignesh Muthuvijayan	Emerging Trends in Biotechnology Research	Lady Doak College, Madurai	12 December 2013
3	Vignesh Muthuvijayan	Application of Chemical Engineering Principles in Biotechnology	NIT Trichy	28–29 June 2013
4	Smita Srivastava	Invited lecture in the Institute of Biomedical Sciences and Vaidya R.N. Sharma Institute of Ayurved and Alternate Medicine	Bundelkhand University, Jhansi	15 June 2013
5	Sanjib Senapati	The Mechanism of Long-Term DNA Stability in Hydrated Ionic Liquids	University of Gothenberg, Sweden	June 2013
Symposia				
1	M. Michel Gromiha	Second BMIRC International Symposium on Advances in Bioinformatics and Medical Engineering	Fukuoka, Japan	January 2014
2	M. Michael Gromiha	6th International Symposium on Recent Trends in Macromolecular Structure and Function	University of Madras, Chennai	January 2014
3	Karthik Raman	XVII ADNAT Symposium	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	23–24 February 2014
4	Amal Kanti Bera	International Gap Junction Meeting	International Gap Junction Society	13–18 July 2013
Conferences				
1	M. Michael Gromiha	International Conference on Intelligent Computing	China	July 2013
2	Karthik Raman	Computer Applications in Biotechnology	IIT Bombay	16–18 December 2013
3	Athi Narayanan	A Disorder Induced Domino-Like Destabilization Mechanism Governs the Folding and Functional Dynamics of the Repeat Protein I κ B α	IIT Madras, Chennai, India	28–30 November 2013.
4	D. Karunakaran	33rd Annual Convention of Indian Association for Cancer Research (IACR)	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	13–15 February 2014
5	Mukesh Doble	Enzyme Immobilized Polycaprolactam as a Biomaterial	World Biotechnology Congress 2013, Boston, USA	3–6 June 2013

6	Mukesh Doble	Diagnostic Significance of Urine Composition in Patients with Clinical Disorders	URINOMICS 2013, Portugal	9–11 September 2013
7	K.B. Ramachandran	Bioprocessing India	New Delhi, India	5–7 December 2013
8	K.B. Ramachandran	Asian Congress on Biotechnology 2013	New Delhi, India	15–19 December 2014
9	Madhulika Dixit	Vascular Biology 2013, NAVBO	North American Vascular Biology Organization (NAVBO)	20–24 October 2013

Special lectures delivered by faculty members in other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	M. Michael Gromiha	Emerging Trends in Bioinformatics	Yuan Ze University, Taipei, Taiwan	April 2013
2	M. Michael Gromiha	Evaluation of Prediction Methods and Recognition Mechanism of Protein–DNA Complexes	Chuo University, Tokyo, Japan	June 2013
3	M. Michael Gromiha	Development of Position Specific Potentials for Aggregation Forming Peptides: Applications to Discrimination	Chuo University, Tokyo, Japan	May 2013
4	M. Michael Gromiha	Analysis of Binding Site Residues and Binding Specificity of Protein–Protein Complexes	Chuo University, Tokyo, Japan	May 2013
5	M. Michael Gromiha	Bioinformatics: Concepts and Applications	VelTech University, Chennai	July 2013
6	M. Michael Gromiha	Development of Position Specific Potentials for Aggregation Forming Peptides: Applications to Discrimination (International Conference on Intelligent Computing)	China	July 2013
7	M. Michael Gromiha	Biological Databases and Tools (National Workshop on Genomics, Proteomics and Bioinformatics)	Annamalai University	July 2013
8	M. Michael Gromiha	Development of Databases and Algorithms for Understanding the Recognition Mechanism of Protein–DNA Complexes (IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics)	IIT Madras	September 2013
9	M. Michael Gromiha	Protein–DNA Complexes: Binding Site Analysis, Discrimination, Prediction and Recognition Mechanism (Workshop and Training on Sequence Analysis and Molecular Simulation)	Anna University, Chennai	December 2013
10	M. Michael Gromiha	Protein Folding and Prediction: DNA Binding Proteins/Residues	University of Madras, Chennai	December 2013
11	M. Michael Gromiha	Computational Approaches for Structural and Functional Annotation of Membrane Proteins	Stockholm University, Sweden	January 2014
12	M. Michael Gromiha	Factors Governing the Stability of Proteins: Database Analysis, Prediction and Applications (Second BMIRC International Symposium on Advances in Bioinformatics and Medical Engineering)	Fukuoka, Japan	January 2014
13	M. Michael Gromiha	Computational Approaches for Structural and Functional Annotation of Membrane Proteins (6th International Symposium on Recent Trends in Macromolecular Structure and Function)	University of Madras, Chennai	January 2014
14	M. Michael Gromiha	Computational Approaches for Understanding the Recognition mechanism of Protein–DNA Complexes (Indo-UK Seminar on Biomolecular Simulation)	Institute of Mathematical Sciences, Chennai	February 2014

15	M. Michael Gromiha	Computational Approaches for Understanding the Recognition Mechanism of Protein–DNA Complexes	NIPER, Chandigarh	March 2014
16	Sathyanarayana N. Gummadi	Optimization of Bioprocess: A Case Study on β -1,3-Glucan	Sree Buddha College of Engineering, Pattor, Kerala	28 November 2013
17	Sathyanarayana N. Gummadi	Introduction to Modeling of Fermentation Process	NIT Warangal	8 November 2013
18	Sathyanarayana N. Gummadi	Bioprocess Development for Production of Industrially Important Metabolites	University of Delhi, South Campus	18 October 2013
19	Sathyanarayana N. Gummadi	Elusive Flippases and Scramblases	Anna University, Trichy	24 August 2013
20	Sathyanarayana N. Gummadi	Biological Process for Caffeine Degradation in Food Products and Effluents	SASTRA, Thanjavur	26 July 2013
21	Sathyanarayana N. Gummadi	Industrial Biotechnology for Society	NIT Trichy	29 June 2013
22	Sathyanarayana N. Gummadi	Biodegradation of Caffeine	NIT Trichy	29 June 2013
23	Sathyanarayana N. Gummadi	Bioprocess Development for Caffeine Degradation	Sengunthar Engineering College, Erode	January 2013
24	Karthik Raman	Representation and Modelling of Metabolic Networks	Anna University	11 December 2013
25	Karthik Raman	Computational Modelling of Metabolic Networks	PSG Coimbatore	26 October 2013
26	Karthik Raman	Engineering Metabolic Networks Using In Silico Approaches	Hindustan Petroleum Corporation Limited, Bangalore	30 January 2014
27	Karthik Raman	In Silico Identification of Drug Targets for Combinatorial Therapy	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	23 January 2014
28	Athi Narayanan	A Disorder Induced Domino-Like Destabilization Mechanism Governs the Folding and Functional Dynamics of the Repeat Protein I κ B α	IIT Madras	28 November 2013
29	Athi Narayanan	The Conformational Landscape of an Intrinsically Disordered Protein	Center for Biotechnology, Anna University	12 December 2013
30	Athi Narayanan	A Disorder Induced Domino-Like Destabilization Mechanism Governs the Folding and Functional Dynamics of the Repeat Protein I κ B α	SVIMS Bioinformatics Centre, Tirupati, India	14 February 2014
31	D. Karunakaran	Effects of MicroRNA -106b-25 on Cell Migration and Invasion in H1299 (Non-Small Cell Lung Cancer) Cells	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	13–15 February 2014
32	D. Karunakaran	The Aberrations of Signal Transduction in Cancer	Prof. Dhanapalan College of Arts & Sciences, Chennai	27 February 2014
33	D. Karunakaran	Role of miRNAs in Cancer	University of Madras	21 February 2014
34	D Karunakaran	Regulation of Signaling Pathways by Naphthoquinones in Human Cancer Cells: Implications for Cancer Therapy	Interdisciplinary Science & Technology Research Academy (ISTRA), Pune	10–12 February 2014
35	A. Gopala Krishna	Mechanism of Activation of G Proteins	SBCI, University of Hyderabad	
36	A. Gopala Krishna	History and Evolution of Our Understanding of GPCRs	Trendy's at University of Hyderabad	

37	K.B. Ramachandran	Bioprocess Modelling	NIT Waranagal	9–11 November 2013
38	Madhulika Dixit	Insulin and Insulin Resistance: Ringleaders of Endothelial Dysfunction	APPICON, NIMHANS, Bangalore	29–30 November 2013
39	Madhulika Dixit	Insulin and Insulin Resistance: Bad news for the Cardiovascular System	82nd Society for Biological Chemists (SBC) Meet	5 December 2013
40	Madhulika Dixit	Insulin and Insulin Resistance: Bad News for the Cardiovascular System	Madras Science Club, Mat Science, Chennai	10 September 2013
41	Madhulika Dixit	Insulin Resistance and Impaired Glucose Tolerance: Bad News for Vascular Progenitors	John Hopkins University, Washington, USA	17 October 2013
42	Madhulika Dixit	Insulin and Insulin Resistance: Bad News for the Endothelium	Bloomberg School of Public Health, JHU, Washington, USA	18 October 2013
43	N. Manoj	Structural Basis of Substrate Binding and Specificity of a SGNH Arylesterase	School of Life Sciences, Jawaharlal Nehru University	22 November 2013
44	N. Manoj	Comparative Genomics of the Neuropeptide S Receptor Reveals Deep Ancestry	IIT Madras	27 September 2013
45	N. Manoj	Structural Characterization of a Novel SGNH Arylesterase (Centre of Advanced Study in Crystallography & Biophysics)	University of Madras	22 January 2014
46	N. Manoj	Structural Basis of Substrate Binding and Specificity of a SGNH Arylesterase	Pondicherry University	12 March 2014
47	Anju Chadha	Using Enzymes: Nature's Own Catalysts for Chemical Transformation	IIT Gandhinagar	5 September 2013
48	Anju Chadha	Developing a Triglyceride Biosensor: A Case Study in Inter-disciplinary	Kasturba Medical College, Manipal	16 November 2013
49	Anju Chadha	Biodiesel: Hope or Hype?	IIT Madras	2 March 2014
50	Sanjib Senapati	The Mechanism of Long-Term DNA Stability in Hydrated Ionic Liquids	University of Gothenberg, Sweden	June 2013

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	M. Michael Gromiha	Yuan Ze University, Taipei, Taiwan	April 2013	Delivering an invited lecture and chairing a session at the Seminar on Emerging Trends in Bioinformatics	IIT Madras and Yuan Ze University
2	M. Michael Gromiha	Chuo University, Tokyo, Japan	May–June 2013	Collaborative research and delivering invited lectures	Chuo University
3	M. Michael Gromiha	International Conference on Intelligent Computing, China	July 2013	Presenting a paper and chairing a session	IIT Madras
4	M. Michael Gromiha	Chuo University, Japan	October 2013	Collaborative research and delivering invited lectures	Chuo University, Japan
5	M. Michael Gromiha	Tokyo Institute of Technology, Japan	January 2014	Collaborative research and delivering invited lectures	Tokyo Institute of Technology, Japan
6	M. Michael Gromiha	Computational Biology Research Center, Tokyo, Japan	March 2014	Collaborative research and Indo-Japan project discussion	Molecular Profiling Laboratory for Drug Discovery, AIST, Japan

7	M. Michael Gromiha	Stockholm University, Sweden	January 2014	Research collaboration under ICMR International Fellowship for Senior Biomedical Scientists	Indian Council of Medical Research
8	Karthik Raman	Berlin, Germany	19–23 July 2013	21st Annual International Conference on Intelligent Systems for Molecular Biology/12th European Conference on Computational Biology (ISMB-ECCB)	CPDA
9	Amal Kanti Bera	USA	13–18 July 2013	Conference	DST
10	Athi Narayanan	Switzerland	2–5 September 2013	Workshop, Intrinsically Disordered Proteins: Connecting Computation, Physics and Biology	CPDA
11	Mukesh Doble	USA	3–6 June 2013	Presenting paper at World Biotechnology Congress 2013, Boston, USA	CPDA
12	Mukesh Doble	Portugal	9–11 September 2013	Presenting paper at URINOMICS 2013	CPDA
13	Nitish Mahapatra	USA	June 30 to July 4 2013	XXI World Congress of the International Society for Heart Research held at Convention Center, San Diego, California	CPDA and DST travel grant
14	Sanjib Senapati	Sweden	June 2013	Delivering an oral presentation	IIT Madras
15	Madhulika Dixit	USA	16–20 October 2013	Talks and conference	DBT

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	S.N. Gummadi	Talented Industrial Biotechnologist Award	Association of Biotechnology and Pharmacy		2013
2	S.N. Gummadi	Elected Fellow	Association for the Advancement of Biodiversity Science		2014
3	G.K. Suraish Kumar	Expert	Faculty Selection Committee, Anna University		
4	G.K. Suraish Kumar	Member, Advisory Committee	Drug Controller General of India (DCGI)		
5	G.K. Suraish Kumar	Member, Academic Committee	Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram		
6	Smita Srivastava	Session chair	Shanghai International Conference on Biological Science and Engineering (SICBEN 2013)		12–14 July 2013
7	Madhulika Dixit	YFRA	IIT Madras	Excellence in teaching and research	5 September 2013
Awards					
1	M. Michael Gromiha	ICMR International Fellowship for Senior Biomedical Scientists	Indian Council of Biomedical Research		July 2013

2	M. Michael Gromiha	Visiting Associate Professorship	Chuo University, Japan	April 2013
3	M. Michael Gromiha	Best paper	DBT	February 2014
4	Amal Kanti Bera	DST travel	DST	Attending International Gap Junction Meeting July 2013
5	Sanjib Senapti	Prof. B.K. Bachhawat International Travel Grant for Young Scientists, 2013	CMC, Vellore	International travel grant

Books and monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	M. Michael Gromiha	Emerging Intelligent Computing Technology and Applications (Communications in Computer and Information Science)	Springer	Co-author
2	G.K. Suraish Kumar	Continuum Analysis of Biological Systems: Conserved Quantities, Forces and Fluxes	Springer	Author

Fellowships of academies and professional societies

Sl. No.	Name of Faculty Member	Year of Admission
1	Mukesh Doble, Fellow of Royal Society of Chemistry, England	2011

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	M. Michael Gromiha	Editor-in-Chief	<i>Open Structural Biology</i>
2	M. Michael Gromiha	Associate Editor	<i>BMC Bioinformatics</i>
3	M. Michael Gromiha	Editorial Board Member	<i>Current Computer Aided Drug Design</i>
4	M. Michael Gromiha	Guest Editor	<i>Protein and Peptide Letters</i>
5	M. Michael Gromiha	Editorial Board Member	<i>Biology Direct</i>
6	Nitish R. Mahapatra	Guest Editor	<i>International Journal of Hypertension</i>
7	Smita Srivastava	Member	<i>Bioinformatics and Biotechnology</i>
8	Smita Srivastava	Member	<i>Research Journal of Biotechnology, ISBT</i>
9	K.B. Ramachandran	Editorial Board Member	<i>Bioresource Technology, Elsevier</i>
10	K.B. Ramachandran	Editorial Board Member	<i>Preparative Biochemistry and Biotechnology, Taylor and Francis</i>
11	Mukesh Doble	Editorial Board Member	<i>Chemical Engineering, McGraw Hill</i>

4.3.4. Design and Development Activities

New facilities added and major equipment procured

Sl. No.	Equipment	Value (in lakhs of ₹)
1	Minifors fermenter (2.5 L)	10.5
2	Cell sorter	411
3	Super-resolution microscope	423
4	Live cell imaging system	70
5	Real-time PCR	23
6	Ultra centrifuge	43
7	Computer cluster	50
8	Cancer tissue storage facility	130

Patents filed

Sl. No.	Name of Faculty Member	Topic of Patent
1	Mukesh Doble	Process of blending cyclic glucan compound with synthetic or biopolymer for use as a drug carrier
2	Mukesh Doble	Antibiofilm and antimicrobial food packaging using enzyme modified polymer films and the process for the production thereof
3	Mukesh Doble	IN-875077 microbial degradation of waxy crude oil deposition at surface and downhole facilities for flow assurance
4	Enakshi Bhattacharya, Anju Chadha, Shanthi Pavan, M.S. Veeramani, N.P. Ratchagar and K.P. Shyam	Miniaturized blood serum triglyceride monitoring system
5	Anju Chadha, C. Kabilan and Rony Roy	High yield process for producing omega-3 highly unsaturated fatty acid from thraustochytrid-T01

4.3.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Dissecting important amino acid residues for folding and binding of proteins	2013–2016	DST	24.7	M. Michael Gromiha and N. Manoj
2	Investigating protein aggregation using structural analysis, prediction methods and molecular dynamics study with applications to an eye disease, corneal dystrophy	2013–2016	DBT	37.53	M. Michael Gromiha and D. Velmurugan (University of Madras)
3	Bioprocess optimization of recombinant expression of xylose reductase from <i>Debaryomyces nepalensis</i>	2013–2016	DBT	39.92	PI, S.N. Gummadi; Co-PI, A. Gopalakrishna
4	Studies on the biochemical, biophysical and functional characterization of human phospholipid scramblase 1 (hPLSCR1) interaction with topoisomerase II	2013–2016	BRNS	27.05	PI, S.N. Gummadi; Co-PI, R. Suresh Kumar
5	Purification and biochemical characterization of caffeine demethylase and its applications on food products	2011–2014	DBT	37.07	S.N. Gummadi
6	Bioprocess development for production of ethanol and polyols by <i>Debaryomyces nepalensis</i>	2011–2014	DBT	24.76	S.N. Gummadi
7	Metabolic network analysis of pathogenic organisms for designing novel therapeutic intervention strategies	2013–2016	DBT	24.37	Karthik Raman and N. Manoj
8	Probing the conformational changes associated with the gating of acid sensing ion channel	2013–2016	DST	52.8	Amal Kanti Bera
9	A study on the mechanism of pannexin mediated ischemic cell death	2013–2016	ICMR	42	Amal Kanti Bera

10	Characterizing the link between folding mechanism and function in a transcription regulatory protein by combining experiments, simulations and statistical models	2013–2016	DBT	41.81	Athi Narayanan
12	Reactive species for improved bio-oil yields from microalgae	2013–2016	DST	32.83	G.K. Suraishkumar (PI) and Karthik Raman (Co-PI)
13	Natural products as inhibitors of mPGES-1 for the treatment of inflammation and cancer	2013–2016	DST	14.74	Mukesh Doble
14	Sorting of deformable objects in microchannels for biomedical applications	2013–2016	DBT	48.35	Mukesh Doble (Co-PI)
15	Regulation of the novel catecholamine-metabolizing enzyme renalase by microRNAs	2013–2016	DBT	51.08	Nitish Mahapatra
16	Transcriptional and post-transcriptional regulation of monoamine oxidase A and B	2012–2015	DBT	68.43	Nitish Mahapatra and Sanjib Senapati
17	Regulation of HMG-CoA reductase gene by microRNAs	2012–2015	CSIR	19.92	Nitish Mahapatra
18	Molecular mechanisms of regulation of the cystathionine gamma-lyase gene	2011–2015	BRNS, DAE	24.15	Nitish Mahapatra
19	National facility of cancer tissue biobank	2013–2018	DST	3200	S. Mahalingam, Mukesh Doble and Madhulika Dixit
20	Development rapid assay for early detection of HIV	2011–2014	DST	86	S. Mahalingam
21	Functional analysis of nucleolar GTPase, GNL3L	2009–2014	DAE	100	S. Mahalingam
22	Enhanced production of alpha-tocopherol by genetically transformed cell culture of <i>Helianthus annuus</i> L.	3 years	DBT	29	Karthik Raman and R. Baskar
23	Over expression of <i>Arabidopsis thaliana</i> HPPD gene for enhanced α -tocopherol production in in vitro culture of sunflower (<i>Helianthus annuus</i>)	3 years	DST	19.9	Smita Srivastava
25	Probing the conformational changes of monomeric FtsZ in GTP-bound, GDP-bound, and nucleotide-free states	2013–2016	DBT	48	Sanjib Senapati
26	Role of protein hydration water in the flap opening–closing mechanism of HIV-1 protease: Possible implications for designing new class of anti-AIDS drugs	2012–2015	DST	39	Sanjib Senapati
27	Nucleotide-dependent conformational changes in free tubulin dimer and microtubule dynamic instability	2011–2014	CSIR	19	Sanjib Senapati
28	Signal transduction mechanism of novel calcium binding protein calumenin	2012–2015	BRNS	26	A Gopala Krishna

29	Bioincubator facility	2013–2018	BIRAC-DBT	1191.18	K.B. Ramachandran, Guhan Jayaraman, Srikumar Suryanarayanan and Mukesh Doble
30	Biochemical and biophysical characterization of AnAEst, an arylesterase	2012–2015	DBT	25.8	N. Manoj and S.N. Gummadi
31	The evolutionary origin of membrane bound proteins	2012–2015	Department of Neuroscience, Uppsala University, Sweden	8.2	N. Manoj
32	Structure function relationship in human protein Z, a regulator of blood coagulation	2013–2016	WOS, DBT	46.0	Tanusree Sengupta and N.Manoj
33	Design and application of a robust Process Analytical Technology(PAT) platform for a real-time	2013–2016	DBT	6.9	Guhan Jayaraman
34	Production and improvement of bacterial keratinase and demonstration of feather waste management	2013–2016	DBT	24	Chandraraj K.
35	Metabolic engineering of <i>Lactococcus lactis</i> for the production of propionic acid	2013–2016	DBT	16.35	Guhan Jayaraman
36	Identification of diferentially expressed genes by gene expression analysis of gamma irradiated	2013–2016	BRNS	34.04	Rama S. Verma
37	Control of in vivo polymerization by synthetic biology approaches	2013–2017	DBT	136	Guhan Jayaraman
38	Fast sampling analyses for anthropogenic micro pollutants in wet environmental compartments	2013–2016	IITM	24.2	Chandra T.S.
39	Development of a 3-dimensional culture system using micro-gravity: Maintenance of hematopoietic ste	2013–2016	DRDO	26.49	Rama S. Verma
40	Investigating the oncogenic potential of KIBRA	2013–2016	MOST	19.6	Rayala Suresh Kumar
41	High value low volume biocatalytically prepared chiral synthons: Studies on the enzymes involved in the production of L-carnitine intermediate	2011–2014	DBT	45	Anju Chadha and (Co-PI) Sathyanarayana N. Gummadi
42	Development of a biocatalytic process for the oxidation o of primary and secondary alcohols: A kinetic and mechanistic study	2012–2015	CSIR	16.9	Anju Chadha
43	Selective biocatalytic oxidation of alcohols: Developing a green oxidizing agent	2011–2014	WOS(A) DST	24.8	Anju Chadha and Preetha R.
44	Chemical strategies for conjugating florescent labeled VEGFR targeting peptides to gold nanoparticles	2011–2014	DST FAST TRACK	26	Anju Chadha and Shoba Narayan
45	Centre for NEMS and Nanophotonics	2011–2016	DIT	5000	PI, E. Bhattacharya and N. DasGupta; Co-PI, Anju Chadha; and 15 co-investigators

Industrial consultancy projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	K.B. Ramachandran	Bioprocess Development	Orchid Chemicals and Pharmaceuticals Limited	6.00
2	K.B. Ramachandran	Fermentation Process Development	Richcore Life Sciences Private Limited	5.40
3	Rama S. Verma	Screening and Development of Phytochemicals Lead for Treating Asthma	Ocius Life Science Private Limited	2.5
4	Chandraraj K.	To Screen, Isolate and Characterize the Active Compound Responsible for the Bio-pesticide Activit	SDS Ramcides CropScience Private Limited	16.2

RBIC projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	D. Karunakaran/Sanjib Senapati	Kinase Drug Discovery	Parthys Reverse Informatics Analytic Solutions Private Limited, Chennai	90

Exchange programmes with other institutions/universities under MOUs

1. GSIC, Tokyo Institute of Technology, Japan (Michael Gromiha)
2. Department of Neuroscience, Uppsala University, Sweden (N. Manoj)
3. University of California San Diego, USA (Sanjib Senapati)

Research publications

1. Total number of books: 1
2. Total number of chapters in books: 3
3. Total number of articles published in refereed international journals: 101
4. Total number of papers presented at international conferences: 15

(a) Books

1. G.K. Suraish Kumar, *Continuum Analysis of Biological Systems: Conserved Quantities, Forces and Fluxes*, Springer.

(b) Chapters in books

1. S. Mahalingam, M.R.K. Subba Rao, Neelima Boddapati, T. Indu Jose and Debduti Datta (2013) Nucleolar transport of putative GTPase GNL1 and related proteins. In: Danton H. O'Day and Andrew Catalano (Eds.) *Proteins of the Nucleolus: Regulations, Translocations, and Biomedical Functions*. Springer. Pp. 197–208.
2. V. Srinivasa Chakravarthy and Pragathi Priyadharsini B. (2014) The basal ganglia system as an engine for exploration. In: *Encyclopedia of Computational Neuroscience* (invited contribution).
3. S. Senapati and D. Ghoshdastidar (2014) Ionic liquid-in-oil microemulsions. In: Bidyut K. Paul (Ed.). John Wiley & Sons, Hoboken, NJ.

(c) Articles in refereed international journals

1. S. Rayala, V.G. Francis and S.N. Gummadi (2014) N-terminal proline rich domain is required for scrambling activity of human phospholipid scramblases. *Journal of Biological Chemistry* (in press).
2. A. Rajasekharan, V.G. Francis and S.N. Gummadi (2013) Biochemical evidence for energy-independent flippase activity in bovine epididymal sperm membranes: An insight into membrane biogenesis. *Reproduction* 146: 209–220.
3. A.K. Shettihalli and S.N. Gummadi (2013) Biochemical evidence for lead and mercury induced transbilayer movement of phospholipids mediated by human phospholipid scramblase 1. *Chemical Research in Toxicology* 26: 918–925.
4. V.G. Francis, A. Majeed, A. Gopala Krishna, S.N. Gummadi (2013) The single C-terminal helix of human phospholipid scramblase is required for membrane insertion and scrambling activity. *FEBS Journal* 280: 2855–2869.

5. K. Hima Bindu, N. Shweta, S.N. Gummadi (2013) Production of ethanol and arabitol by *Debaryomyces nepalensis*: Influence of process parameters. *AMB Express* 3: 23.
6. Muralidharan V., Balasubramani P.P., Chakravarthy V.S., Lewis S.J. and Moustafa A.A. (2014) A computational model of altered gait patterns in Parkinson's disease patients negotiating narrow doorways. *Frontiers in Computational Neuroscience* 7: 190.
7. Helie S., Chakravarthy S. and Moustafa A.A. (2013) Exploring the cognitive and motor functions of the basal ganglia: An integrative review of computational cognitive neuroscience models. *Frontiers in Computational Neuroscience* 7: 174.
8. Gupta A., Balasubramani P.P. and Chakravarthy V.S. (2013) Computational model of precision grip in Parkinson's disease: A utility based approach. *Frontiers in Computational Neuroscience* 7: 172.
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(d) Papers presented at international conferences

1. H. Kumdam and S.N. Gummadi. (2013) Batch production of xylitol and arabitol by *Debaryomyces nepalensis* NCYC 3413 in a stirred tank reactor. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.
2. N. Arumugam and S.N. Gummadi (2013) Isolation and characterization of food grade glutaminase free L-asparaginase enzyme from endophytic fungi. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.

3. B. Gilbert, S.A. Retnadas and S.N. Gummadi (2013) Purification and characterization of caffeine demethylase and biodegradation of caffeine by *Pseudomonas putida*. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.
4. A. Rajasekharan and S.N. Gummadi (2013) Identification of biogenic membrane flippase in bovine sperm cells. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.
5. U. Sivagnanam and S.N. Gummadi (2013) Biochemical characterization of human phospholipid scramblases interaction with topoisomerase II. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.
6. V.G. Francis and S.N. Gummadi (2013) pH dependent conformation changes in human phospholipid scramblase (hPLSCR1). *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering*, 28–29 June 2013, Tirupati, Andhra Pradesh, India.
7. G.K. Suraishkumar (2013) Reactive species in upstream bioprocesses. *Asian Congress of Biotechnology*, 15–19 December 2013, New Delhi. Invited talk.
8. Nitish R. Mahapatra (2013) *XXI World Congress of the International Society for Heart Research*, 30 June to 4 July 2013, Convention Center, San Diego, California.
9. M. Michael Gromiha, S. Biswal, A.M. Thangakani, S. Kumar, G.J. Masilamoni and D. Velmurugan (2013) Role of protein aggregation and interactions between α -synuclein and calbinding in Parkinson's disease. *Lecture Notes Art. Intel.* 7996, 677–684.
10. Rashmi and Smita Srivastava (2013) Enhancement in alpha-tocopherol production by over-expression of p-hydroxyphenyl pyruvate dioxygenase (HPPD) gene in *Helianthus annuus* cell culture. *Shanghai International Conference on Biological Science and Engineering (SICBEN 2013)*, 12–14 July 2013, Shanghai, China. Oral presentation.
11. Nandakumar V. and Mukesh Doble (2013) A novel high glycolic–polylactic co glycolic acid blend as ureteral stent material. *GRC Biomaterials & Tissue Engineering*, 28 July to 2 August 2013, USA.
12. Anju V. Nair and Mukesh Doble (2013) Cyclic (1@3, 1@6)- β -glucans from *Bradyrhizobium japonicum* MTCC 120. *EPNOE 2013 International Polysaccharide Conference*, 21–23 October 2013, France.
13. Pramal Biswa and Mukesh Doble (2013) Effect of membrane permeabilizers on acylated homoserine lactone-based quorum sensing of a Gram positive bacteria. *2nd International Conference on Microbial Diversity (MD2013)*, 22–25 October 2013, Italy.
14. Boobalan T., V. Prabhawathi, K. Thirunavukarasu, Parasuveera Uppara and Mukesh Doble (2013) Biodegradation of LDPE by surfactant producing bacteria. *7th International Conference on Materials for Advanced Technologies (ICMAT)*, 30 June to 5 July 2013, Singapore.
15. Prabhawathi V. and Mukesh Doble (2013) Biofriendly food wrapper. *The International Conference on Materials for Advanced Technologies, 7th International Conference on Materials for Advanced Technologies (ICMAT)*, 30 June to 5 July 2013, Singapore.

Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. K. Wuthrich	18 January 2014	Lab visit

4.3.6. Other Activities of the Department

1. Gold medal at the iGEM Regional Conference held in Hongkong (October 2013).
2. Life Catalyst Technologies (a start-up from the Department of Biotechnology) won the grand prize at the INDIAFRICA Business Venture Contest, and they will present their idea at the World Economic Forum meeting in January 2014 at Davos, Switzerland.
3. Life Catalyst Technologies won the first prize in the India's Best Biotechnology Business Plan Competition, organized by ABLE (Association for Biotechnology Led Enterprises), DBT, Government of India in August 2013.

4.4. DEPARTMENT OF CHEMICAL ENGINEERING

4.4.1. Introduction

The Department of Chemical Engineering was established in 1959. The department has 26 faculty members, who carry out research in state-of-the-art areas. The focus of the research is on energy, materials and the environment. The faculty work towards analysing these systems by understanding their behaviour at the molecular level as well as by using a systems approach.

4.4.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	CH5014	Interfacial Science and Engineering
2	CH6260	Carbon Capture and Sequestration

Students on roll as of September 2013 including research scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	68	70	64	68	13	283
Dual Degree	14	16	21	24	19	95
M.Tech.	45	29	—	1	—	75
M.S.	8	7	18	4	4	40
Ph.D.	20	15	24	19	15	93
Total	155	137	127	116	51	586

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad or in India

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/Symposium/ Workshop	Date and Venue	Financial Assistance from
Abroad					
1	G. Keerthiga	CH09D007	The 6th Asia-Pacific Congress on Catalysis	13–17 October, 2013, Taipei, Taiwan	IIT Madras
2	Jyothi Latha Tamalapakula	CH09D008	4th IFBF International Flow Battery Forum	26–27 June 2013, Dublin, Ireland	IIT Madras
3	Santhosham Aruna	CH10D012	8th International Conference on Chemical Kinetics-2013	8–12 July 2013, University of Seville, Spain	IIT Madras
4	R. Piramuthu Raja Ashok	CH11D007	1st International Workshop on Wetting and Evaporation: Droplets of Pure and Complex Fluids	17–20 June 2013, Marseilles, France	Self-funded
5			12th European Conference on Molecular Electronics	3–7 September 2013, London, UK	IIT Madras
6	R.J. Basavaraja	CH11D019	International Conference on Coal & Science Technology	29 September to 4 October 2013, Pennsylvania, USA	IIT Madras

7	Beula C.	CH11D020	CCEA-2013—International Conference on Chemical Engineering and Application	12–13 October 2013, Paris, France	IIT Madras
8	Jason Ryan Picardo	CH11D026	Bifurcations and Instabilities in Fluid Dynamics	8–11 July 2013, Technion, Haifa, Israel	IIT Madras
9	Rajalakshmi C.	CH11D029	American Physical Society, March meeting	3–7 March 2014, Denver, USA	IIT Madras
10	Satyam Naidu Vasireddy	CH11D030	ICCS&T 2013—International Conference on Coal Science & Technology	29 September to 3 October 2013, Pennsylvania, USA	IIT Madras
11	Venkata Sesa Praveen Bulusu	CH11D032	CMP-UGM Meeting	30 May 2013, Hanyang University, Seoul	IIT Madras
12	Praveenkumar Sappidi	CH11D033	AIChE Annual Meeting 2013	3–8 November 2013, San Francisco, USA	IIT Madras
13	Avinash Sahu	CH11S012	American Physical Society (APS-2014)	3–7 March 2014, Denver, USA	IIT Madras
14			AIChE Annual Conference 2013	3–8 November 2013, San Francisco, USA	IIT Madras
15	Danny Raj M.	CH11S013	Advances in Microfluidics and Nanofluidics	23–26 May 2013, Indiana, USA	IIT Madras
16	Arun Sridharan	CH11S035	Modeling and Optimization: Theory and Applications	14–16 August 2013, Lehigh University, Bethlehem, USA	IIT Madras
17	C.N. Pratheeba	CH10D015	CISS Summer School	17–24 August 2013, Lund University, Sweden	—
18	Dipin S. Pillai	CH10D017	Symposium on Bifurcations & Instabilities in Fluid Dynamics	8–11 July 2013, Technion, Haifa, Israel	IIT Madras
19	M. Nabil	CH09D004	Summer School on Optimization	14–28 June 2013, University of Calgary, Canada	—
20			European Control Conference 2013	17–19 July 2013, Zurich, Switzerland	DST
21	Kulkarni Shekhar Rajabhau	CH11S019	Advances in Microfluidics and Nanofluidics Conference	23–26 May 2013, South Bend, Indiana, USA	IIT Madras
22			American Physical Society (APS-2014)	3–7 March 2014, Denver, USA	IIT Madras
23	Mohamed Shahid	CH11S034	MRS Spring Meeting 2013	1–5 April 2013, San Francisco, USA	IIT Madras
24	Easter Prince J.	CH11S036	ASNT Annual Conference 2013	4–7 November 2013, Las Vegas, USA	IIT Madras
25	Amala Mathai	CH10M002	Bifurcations and Instabilities in Fluid Dynamics	8–11 July 2013, Technion, Haifa, Israel	IIT Madras
India					
1	Nabil	CH09D004	10th IFAC International Symposium on Dynamics and Control of Process System	18–20 December 2013, IIT Bombay	Partly by IIT Madras
2	Rajmohan K.S.	CH10D003	International Conference on Frontiers in Chemical Engineering (ICFCE 2013)	6–12 November 2013, NIT Rourkela	IIT Madras
3	Seelam Narasimha Reddy	CH11D005	XIII International Seminar on Mineral Processing Technology—MPT-2013	9–13 December 2013, CSIR IMMT, Bhubaneswar	IIT Madras
4	Satheesh Kumar Perepu	CH11D011	10th International Symposium on Dynamics and Control of Process Systems	18–20 December 2013, IIT Bombay	IIT Madras

5			International Conference on Frontiers in Chemical Engineering (ICFCE-2013)	9–11 December 2013, NIT, Rourkela	IIT Madras
6	Abhishankar Kumar	CH11D016	International Workshop on Perspectives in Dynamical Systems and Control	17–22 March 2014, IIT Bombay	IIT Madras
7			IFAC Symposium on Dynamics and Control of Process Systems	18–20 December 2013, IIT Bombay	IIT Madras
8	C. Ajith	CH11D017	National Conference of Advanced Naval Materials	22–23 February 2014, NIOT	IIT Madras
9	Basavaraja R.J.	CH11D019	4th International Conference on Advances in Energy Research	10–12 December 2013, IIT Bombay	IIT Madras
10	Chinta Sankar Rao	CH11D022	Third International Conference on Advances in Control and Optimization of Dynamical Systems	13–15 March 2014, IIT Kanpur	IIT Madras
11			10th IFAC International Symposium on Dynamics and Control of Process System	18–20 December 2013, IIT Bombay	Partly by IIT Madras
12	Rajalakshmi C.	CH11D029	3rd Federation of Asian Polymer Societies (FAPS) Polymer Congress and MACRO 2013	15–18 May 2013, IISc, Bangalore	IIT Madras
13			International Conference on Advanced Polymeric Materials ICAPM 2013	11–14 October 2013, MGU, Kottayam, Kerala	IIT Madras
14	Satyam Naidu Vasireddy	CH11D030	International Conference on Frontiers in Chemical Engineering (ICFCE-2013)	7–13 December 2013, NIT Rourkela	IIT Madras
15	Venkata Sesha Praveen Bulusu	CH11D032	International Conference on Advanced Functional Materials 2014	19–21 February 2014, Thiruvananthapuram	IIT Madras
16	Praveen Kumar Sappidi	CH11D033	3rd Federation of Asian Polymer Societies (FAPS) Polymer Congress and MACRO 2013	15–18 May 2013, IISc Bangalore	IIT Madras
17			5th Asian Conference on Colloid and Interface Science	18–26 November 2013, Darjeeling	IIT Madras
18	Prathibha Biswal	CH11D037	22nd National & 11th International ISHMT-ASME Heat and Mass Transfer Conference	26 December to 1 January 2014, IIT Kharagpur	IIT Madras
19	Dhanya Ram V.	CH12D002	Third International Conference on Advances in Control and Optimization of Dynamical Systems	10–17 March 2014, IIT Kanpur	IIT Madras
20	R. Savitha	CH12D004	International Conference on Chemical and Bioprocess Engineering	16–17 November 2013, NIT Warangal	IIT Madras
21	Anil B. Vir	CH12D010	CHEMCON 2013—66th Annual Indian Chemical Engineering Congress	27–30 December 2013, ICT, Mumbai	IIT Madras
22			Induscop Workshop	16–17 November 2013, NIT Warangal	IIT Madras
23			International Conference on Chemical and Bioprocess Engineering	12–13 December 2013, NCL, Pune	DST
24	Volga M.	CH12D019	International Conference on Advances in Energy Research 2013	10–12 December 2013, IIT Bombay	IIT Madras
25			Indo-US Workshop on Electrocatalytic Materials for Fuel and Biofuel Cells	26–28 February 2014, BHU, Varanasi	IIT Madras
26	Kulkarni Shekhar Rajabhau	CH11S019	CHEMCON 2013	27–20 December 2013, ICT, Mumbai	IIT Madras
27			Induscop Workshop	12–13 December 2013, NCL, Pune	DST
28			Research Expo—Shaastra	2–3 January 2014, NCL, Pune	NA
29	Easter Prince J.	CH11S036	5th International Conference on Population Balance Modelling	11–13 September 2013, IISc, Bangalore	IIT Madras

30	Avinash Sahu	CH11S012	CHEMCON 2013—66th Annual Indian Chemical Engineering Congress	27–30 December 2013, ICT, Mumbai	IIT Madras
31			IEEE Workshop on MEMS, Microfluids and Microsystems	2–13 July 2013, IIT Kharagpur	IIT Madras
32			Research Expo—Shastra	2–3 January 2014, NCL, Pune	NA
33			Induscop Workshop	12–13 December 2013, NCL, Pune	DST
34	Lalit Musmade	CH11S021	Third International Conference on Advances in Control and Optimization of Dynamical Systems	13–15 March 2014, IIT Kanpur	IIT Madras
35	Ashutosh Singh	CH12S002	International Conference on Mathematical Modelling and Computer Simulations with Applications	31 December to 2 January 2014, IIT Kanpur	IIT Madras
36			5th International Workshop on Quantitative Finance	20–25 December 2013, IIT Kanpur	IIT Madras
37	G.S.N.V.K.S.N. Swamy	CH12S003	40th National Conference on Fluid Mechanics and Fluid Power 2013	12–14 December 2013, NIT Hamirpure	IIT Madras
38	Pooja Bansal	CH12S014	Rheology of Complex Fluids 2013	14–18 December 2013, IIT Delhi	IIT Madras
39	Rahul P.R.	CH12S015	International Conference on Frontiers in Chemical Engineering	6–12 November 2013, NIT Rourkela	IIT Madras
40			CHEMCON 2013—66th Annual Indian Chemical Engineering Congress	27–30 December 2013, ICT, Mumbai	IIT Madras
Others					
41	Bulusu Venkata Sessa Praveen	CH11D032	Research work	26 May to 2 June 2013, Hanyang University, Ansan, Korea	Project

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	R. Savitha	CH12D004	Best Poster Presentation Award	NIT Warangal
2	Satheesh Kumar Perepu	CH11D011	Best Presentation Award	IIT Mumbai
3	Abhishankar Kumar	CH11D016	Best Presentation Award	IIT Mumbai
4	Sangram Roy	CH08S004	Chemical Weekly Award for Best Paper	Indian Institute of Chemical Engineers
5	Tanmay Voore	CH04B064	IIChe NRC Award for Best Paper Kuloor Memorial Award for Best Technical Paper	
6	Suyog Savala	CH09B084	Best Project Award under Mechanical Division in the Jed-I Project competition	IISc Bangalore

Students/Scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prizes
Alumni Day Prizes 2013			
1	Sri Ram Jasti	CH08B044	Smt. D.L. Saraswati Memorial Prize
2	Mayank Lodha	CH11M019	Prof. M. Ramanujam Memorial Award
3	N. Pradeep	CH13B086	Notional Prize
Institute Day Prizes 2013			
1	Krishna Shrinivas	CH10B026	Dr. Anita Mehta–Damani Prize
2	Suraj Shankar [CH2040]	CH10B067	Prof. Ramanujam Memorial Award
3	Merin Thomas D.D. Suyog Sanjay Sawala	CH09B070 CH09B084	Dr. R.K. Viswanath Memorial Prize—Joint winners

4	Siddharth Jain	CH08B067	Dr. Anita Mehta–Damani Prize
5	Amala M. Mathai	CH11M002	Chevron Products Company Prize
Convocation Prizes 2013			
1	V. Saranya	CH09B055	Reliance Heat Transfer Private Limited Prize
2	Siddharth Jain	CH08B067	B. Ravichandran Memorial Prize
3	Amala M. Mathai	CH11M002	Dr. K. Subba Raju Memorial Prize
4	Kota Sampath Bharadwaj	CH11M014	Mico-Bosch Prize
5	K. Sivagami	CH08D015	GE Ecomagination Excellence Award

4.4.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization
Professors	
P.S.T. Sai [Head]	Chemical reactor analysis and design
Abhijit Deshpande	Rheology of complex fluids, polymers and polymeric composites, Processing flow visualisation
A.R. Balakrishnan	Thermodynamics of azeotropic mixtures, two-phase flows and boiling in narrow tubes
M. Chidambaram	Process control
A. Kannan	Mathematical modelling, simulation and optimization of chemical processes
R. Nagarajan	Particle science and technology, ultrasonic processing, statistical quality control
T. Panda	Bioprocess optimization, bioprocess technology, enzyme design
S. Pushpavanam	Modelling and simulation, non-linear dynamics, flow visualisation
Raghunathan Rengasamy	Process systems engineering, fuel cells, computational discrete microfluidics
R. Ravi	Applied statistical mechanics, foundations of thermodynamics and mechanics, process dynamics and control
Shankar Narasimhan	Process design, data mining, fault diagnosis
Sreenivas Jayanti	Fuel cells, combustion, energy systems
Susy Varughese	Physics and mechanics of polymeric materials, polymeric nanocomposites
Tanmay Basak	Microware application, mathematical modelling and simulation
Upendra Natarajan	Polymer science and engineering, molecular simulation, statistical thermodynamics of complex fluids, nanostructured hybrid composite materials
Associate Professors	
Arun K. Tangirala	Process systems engineering, control, identification and monitoring, applied signal processing
Preeti Aghalayam	Chemical reaction engineering
Raghuram Chetty	Electrocatalysis, fuel cells, wastewater treatment
S. Ramanathan	Electrochemistry, chemical mechanical planarisation for semiconductor processing
R. Ravikrishna	Contaminated sediment remediation, contaminant fate and transport, air pollution process and control
Sridharakumar Narasimhan	Process system engineering, optimisation, process control, fault diagnosis
Assistant Professors	
M.G. Basavaraja	Directed assembly of colloids, microstructure and rheology of colloids, surfactants, polymers and their mixtures, interfacial rheology, ionic liquids, particulate gels
Ethayaraja Mani	Molecular simulations, self-assembly, mathematical modelling
R. Ramnarayanan	High-resolution microscopy and spectroscopy, ideating original concepts in the life sciences, revisiting old ideas of value in the physical and chemical sciences
T. Renganathan	Multi-phase reactors, computational fluid dynamics
R Vinu	Thermo-catalytic conversion of biomass to useful intermediates, photocatalysis for environmental decontamination, microkinetic modelling of complex reactions

Adjunct Professors	
Niket S. Kaisare	Microreactor technology, multiscale modelling, process control, fuel processing, fuel cells
Professor Emeritus	
K. Krishnaiah	Chemical reactor analysis, design fluidisation
Hosted Fellow	
K Vijaya Raghavan	Environmental biotechnology, water quality, wastewater treatment
INSPIRE Fellow	
Nirav P. Bhatt	Data analysis, process systems engineering, kinetic modelling
Chevron Chair Professor	
Suresh Kumar Bhatia	Monte Carlo simulations and molecular dynamics
Guest Faculty	
Dr. K.S. Ravindran	Technology development and transfer to manufacturing, materials and thin film technologies quality management systems
Dr. M. Surianarayanan	Chemical process safety, thermo-kinetic analysis of chemical process reactions, occupational safety and health, accident database, charge transfer polymerizations and bioanalysis
Dr. G. Vaidyanathan	Nuclear thermal hydraulics and safety

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

Sl. No.	Coordinator(s)	Title	Period
Workshops			
1	Srini Raghavan S. Ramanathan	A Technology Appreciation Programme on Surface Preparation Methods	12 August 2013
Short-term courses			
1	M.G. Basavaraja	Colloids and Interfaces with Polymers and Surfactants	3–7 March 2014
2	A. Kannan R. Ravikrishna	Statistics for Experimentalists	17–19 March 2014

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

Sl. No.	Name of Faculty Member	Title	Institution	Period
Workshops				
1	P. Sessa Talpa Sai	Case Study on Process Intensification	Gujarat Technical University, Ahmedabad	28–29 March 2014
Seminars				
1	P. Sessa Talpa Sai	National Seminar on Recent Advances in Fuel Cycle Technologies (CHEMENT-2014)	Indian Institute of Chemical Engineers, Kalpakkam Regional Centre and IGCAR, Kalpakkam	6 March 2014
Symposia				
Conferences				
1	Arun K. Tangirala	Dynamics and Control of Process Systems	BARC, Mumbai	18–20 December 2013
2	Preeti Aghalayam	2013 AIChE Annual Meeting	San Francisco, USA	3–08 November 2013
3	K. Vijayaraghavan	3rd ScienceOne International Conference	Dubai, UAE	21–23 January 2014
4		World Green Infrastructure Congress	Nantes, France	9–14 September 2013
5	R. Vinu	Fundamentals of (Fast) Co- Pyrolysis of Biomass and Polymers	7th International Symposium on Feedstock Recycling of Polymeric Materials, India, Habitat Center, New Delhi	23–26 October 2013

Meetings				
1	Nagarajan R.	Villgro Board Meeting	IIT Madras Research Park	19 August 2013
2		Unconvention of Villgro, Inc.	Mumbai	18–19 April 2013
Others				
1	S. Pushpavanam	Faculty selection committees	IIT Kharagpur	3 September 2013
2			Kolkata University	17 September 2013
3			Jadavpur University	30 September 2013

Special lectures delivered at other institutions by faculty members

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	Abhijit P. Deshpande	Ionic Polymers: Rheology/Structure and Their Blends for Membrane Applications	IIT Kanpur	6 July 2013
2		Fuel Cells and Polymeric Materials Used as Electrolytes: Material Characterisation and Rheology	Government Engineering College, Calicut	22 July 2013
3	Nagarajan R.	Addressed alumni, students and faculty	Sree Sastha College, as Chief Guest on Reunion Day	6 April 2013
4		Nano-emulsions	Shaastra University, Thanjavur	9 August 2013
5	Ramnarayanan R.	What Can We Offer Europe in Horizon 2020: A Personal EUFP7 Perspective	EEAS via European Union, delivered at Taj Connemara	31 January 2014
6	P. Sesha Talpa Sai	Case Studies on Process Intensification	RVR & JC College of Engineering, Guntur	1 February 2014
7		Air Pollution Control Equipment for Simultaneous Removal of Particulates and SO ₂	SSN College of Engineering, Chennai	27 February 2014
8	R. Vinu	Understanding Photocatalytic Reactions Using Complex Network Models (STTP on Advances in Chemical, Biochemical and Environmental Engineering)	Pondicherry Engineering College, Puducherry	5 December 2013
9		Chemical Reaction Kinetics of Biomass Conversion to Fuels/Intermediates (STTP on Advances in Chemical, Biochemical and Environmental Engineering)	Pondicherry Engineering College, Puducherry	5 December 2013

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Nagarajan R.	USA	29 April to 31 May 2013	Visited 20 campuses in the USA to promote collaborations with IIT Madras	IIT Madras
2		Houston, New York, Toronto and Bay Area	2–7 December 2013	PanIIT Alumni Meet	IIT Madras
3	S. Pushpavanam	Technion, Haifa, Israel	8–11 July 2013	5th International Symposium on Bifurcations and Instabilities in Fluid Dynamics (BIFD 2013)	IIT Madras
4		San Francisco, USA	3–8 November 2013	2013 AIChE Annual Meeting	IIT Madras
5	Tanmay Basak	University of Witwatersrand, Johannesburg, South Africa	24–30 August 2013	To deliver lecture	—
6		University of Witwatersrand, Johannesburg, SA	23–29 June 2013	To deliver lecture	—

7	Sreenivas Jayanti	Birmingham, UK	20–26 July 2013	MAAD-SOFC, UK	—
8	Preethi Aghalayam	San Francisco, USA	3–8 November 2013	2013 AIChE Annual Meeting	—
9		Brussels, Belgium	16–20 June 2013	Project Consortium Progress Meeting	Project funds
10	Sridharkumar Narasimhan	Zurich, Switzerland	17–19 July 2013	12th European Control Conference	IIT Madras
11	Ramnarayanan R.	France	9–28 May 2013	QEM 2013 and French industry (Automaxion)	IC&SR (RMF/PCF) and CPDA
12		Germany	17–19 September 2013	Poster presentation as part of BASF Insights 2013	BASF

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	Shankar Narasimhan	Elected Fellow of the INAE	Council of INAE	Distinguished contribution to engineering	January 2013
Awards					
1	P. Sessa Talpa Sai	Chemical Weekly Award	Indian Institute of Chemical Engineers	Numerical Studies on Average Solids Holdup in a Liquid–Solid Circulating Fluidized Bed Reactor	2013
2		IChE NRC Award			
3		Kuloor Memorial Award			
4	Arun K. Tangirala	Institute Research & Development Award	IIT Madras	Research and development at junior level	2013–2014
5		Best Presentation Award	IIT Mumbai	An Adaptive Basis Estimation Method for Compressed Sensing with Applications to Missing Data Reconstruction	18–20 December 2013
6	Raghuram Chetty R. Ravikrishna	Best Poster Presentation Award	NIT Warangal	TiO ₂ -Based Photocatalytic Mineralization of Paracetamol in Wastewater	16–17 November 2013
7	Sridharkumar Narasimhan	Best Presentation Award	IIT Mumbai	Robust Plant Friendly Optimal Input Design (at the IFAC Symposium on Dynamics and Control of Process Systems)	18–20 December 2013

Fellowships of academies and professional societies

Sl. No.	Name of Faculty Member	Year of Admission
INAE		
1	Shankar Narasimhan	2013
2	A.R. Balakrishnan	2003
TNASc		
1	A.R. Balakrishnan	1996
Institute of Engineers		
1	A.R. Balakrishnan	2013
CSIR		
Central Institute of Mining & Fuel Research, Dhanbad		
1	Sreenivas Jayanti	2013–2016
Raman Fellowship for Post-Doctoral Research		
1	Raghuram Chetty	Michigan State University, USA, 2013–2014

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	A.R. Balakrishnan	Editor	<i>International Journal of Heat and Mass Transfer</i>
2			<i>International Communications in Heat and Mass Transfer</i>
3			<i>Journal of Energy, Heat and Mass Transfer</i>
4	Shankar Narasimhan	Member	<i>ICE, Advances in Chemical Engineering</i>
5	Tanmay Basak	Associate Editor	<i>International Journal of Heat and Mass Transfer</i>
6			<i>International Communications in Heat and Mass Transfer</i>
7	Raghuram Chetty	Member	<i>Nano Hybrids</i>

4.4.4. Design and Development Activities

New facilities added and major equipment procured

Sl. No.	Equipment	Value (in lakhs of ₹)
1	Pyroprobe 5150 Pyrolyzer (from CDS Analytical USA)	19.9
2	Fourier transform infrared spectrometer (FTIR) Cary 660 (from Agilent Technologies)	8.52
3	Gas analyser for CO, CO ₂ and CH ₄	2.00

Patents filed

Sl. No.	Name of Faculty Member	Topic of Patent
1	Raghunathan Rengasamy	Intelligent fare metering system for metropolitan transport services
2	Shankar Narasimhan S.	Intelligent fare metering system for metropolitan transport services
3	Sreenivas Jayanti and K. Srinivasan	Efficient and optimal linkage of fluid flow ducts using Bezier curves
4	Sreenivas Jayanthi	Efficient methodology for optimal linkage of arbitrarily oriented fluid flow ducts using single parameter Bezier curves
5		A method for placement to variable length guide vanes for flow control in manifolds
6		Flow regulator for multi-feed fluid manifolds
7	Ramanathan S.	Lanthanum doping of ceria abrasive to obtain robust CMP polish rates
8	Raghuram Chetty	A method of preparing palladium dendrites on carbon based substrates (International Application No. PCT/IN2013/000522, Pub. No. WO/2014/033756)

Patents awarded

Sl. No.	Name of Faculty Member	Topic of Patent
1	Sreenivas Jayanti	A method of, and an apparatus for, combusting hydrocarbon fuels for providing a clean heat/energy source

4.4.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Controlled drop spreading and squeeze flow analysis for improved permeability description in composite process simulation	February 2012 to January 2015	ARDB	16.96	Abhijit P. Deshpande
2	Adhesive joining technology	October 2012 to 2014	TDB	146.00	G.D. Janaki Ram Srinivasa Rao Bakshi, MM Abhijit P. Deshpande, CH

3	Buckling control of cylindrical and conical shells for aerospace applications using PZT actuators	September 2010 to 2013	ISRO	29.48	C. Lakshmana Rao Arun K. Tangirala
4	Nanoparticle films for water evaporation retardation-film elasticity, rupture and re-formation	36 months	CSIR	27.4	Basavaraja M. Gurappa
5	Rheology & microstructure of cellulose–ionic liquid mixtures	January 2013 to December 2016	BRNS	32.75	Basavaraj M. Gurappa (PI) Abhijit P. Deshpande (Co-PI)
6	Self-assembly of Janus colloids	March 2012 to February 2015	DST	55.00	Ethayaraja Mani
7	Megasonic cleaning	October 2009 to 2013	Crest Ultrasonics Corporation, USA	6.7	R. Nagarajan
8	Process intensification	5 May 2014 to April 2016	OAA	3.5	R. Nagarajan
9	Study of cell migration under thermal and chemical gradients using microfluids based BIO-MEMS	September 2010 to 2013	DBT	65.00	Sarit Kumar Das T. Panda Amitava Das Gupta Nandita Das Gupta
10	Elucidation of physio-chemical mechanisms in absorption of carbon dioxide using microchannels for optimal design of absorption systems	2012–2015	DST	62.00	S. Pushpavanam Abhijit P. Deshpande
11	Stratification studies in the event of a core disruptive accident	2010–2013	IGCAR	22.00	S. Pushpavanam T. Sundarajan (ME)
12	Liquid jet instabilities	2012–2013	DAE	3.8	S. Pushpavanam
13	Svagata.eu-Experience Europe as an Indian	4 years	European Commission	4.00	S. Pushpavanam
14	DAE-Graduate Fellowship Scheme(DGFS)	1 year	Board of Research in Nuclear Sciences	3.80	S. Pushpavanam Amla Mathai
15	A nanocomposite material for high power lithium battery cathodes	2012–2015	DST (under Indo-Australian Strategic Research Fund)	35.15	Raghuram Chetty P. Selvam, CY
16	Electrochemical and corrosion behaviour of 216L stainless steel as a potential alternative to 316L SS bipolar plates in fuel cell applications	2012–2014	Renault Nissan Technology & Business Centre India Private Limited	9.75	Raghuram Chetty N. Lakshman, MM
17	Titania nanotubes as an alternative catalyst support for direct methanol fuel cells	2013–2016	Ministry of New and Renewable Energy	52.12	Raghuram Chetty (PI) S Ramaprabhu, PH (Co-PI)
18	Characterization and modification of ceria particles for STI CMP	2011–2014	DST+NRF	31 (+40 million Korean Won)	R. Ramanathan Tanmay Basak, Jin Goo Park (Korean PI)
19	PVD–electrochemical hybrid method to eliminate toxic H ₂ Se in CIGS solar cell fabrication process	2013–2016	DST-SERI	93.90	S. Ramanathan Kasi Viswanathan
20	The changing risks posed by petroleum hydrocarbons in groundwater environments: Multiphase fluid dynamics coupled to multispecies biodegradation	2011–2014	DST/DIISR (Indo-Australian Joint Research Programme)	39.26	Indu Nambi, CE R Ravikrishna, CH G Suresh Kumar, OE

21	Evaluation of strategies for the environmental restoration of Pallikaranai marsh	2013–2014	Department of Forestry, Government of Tamil Nadu	5.00	Indu Nambi, CE R. Ravikrishna, CH T. Swaminathan, CH
22	Fast sampling analyses for anthropogenic micro pollutants in wet environmental compartments	2013–2016	IIT Madras (sub-project of IGCS)	24.28	R. Ravi Krishna, CH Ligy Philip, CE (CI) T S Chandra, BT (PI) Ing. Martin Kranert, Ing. Christian Springer, University of Stuttgart Tobias Schnabel-MFPA Weimer
23	Centre for Environmental Technology Dissemination, Demonstration and R&D for Industrial Pollution Abatement	3 years	TPCB	5.00	Indumathi M. Nambi (PI) Balaji Narasimhan Sachin S. Gunthe Srinivasan K., Sudheer K.P. Soumendranath Kuiry Venu Chandre, Shiva Nagendran S.M. Srinivasa Reddy, ME Sathyanarayana Gummadi, BT Mukesh Doble, BT Raghuram Chetty, CH Ravikrishna R., CH
24	Experiment design using convex optimization	2013–2016	Board of Research in Nuclear Sciences	19.16	Sridharkumar Narasimhan
25	Molecular interaction between water soluble polymers and ionic surfactants: Insights from atomistic molecular dynamics simulation	2013–2017	DST	17.00	Upendra Natarajan
26	Development of novel organic semiconductor based solar harvesting devices to probe plasmonic effects	3 years	DST	4.56	Soumya Dutta (PI) Enakshi Bhattacharya, EE Amitava Das Gupta, EE Nandita Das Gupta, EE Ananth Krishnan, EE Susy Varughese, CH
27	Fundamentals of co-processing of biomass residues with waste polymers via fast pyrolysis for biofuels production and resource recovery	January 2013 to December 2015	DST	52.00	R. Vinu S. Ramanathan
28	Identification of heterogeneous reaction systems based in multi-sensor data—INSPIRE Faculty Award	2013–2018	DST	86.27	Nirav Pravinbhai Bhat
29	Design and development of hybrid biofilter to treat polluted urban runoff: Role of soil, plants, microbes and sorbent materials	2013–2016	DST	13.75	K. Vijayaraghavan
30	Green roofs: An extensive study to assess the role of substrate, plants and soil microbes to improve runoff quality	5 years	DBT, Government of India	74.50	K. Vijayaraghavan

Industrial consultancy projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	S. Pushpavanam T. Renganathan	Mathematical modelling of a fluidised bed gasifier for a mixture of Indian coal and petcoke	Bharat Petroleum Corporation Limited (BPCL) and Centre for High Technology	50.00
2	S. Pushpavanam A. Kannan	Characterising tea extraction in a vending machine: An analysis of different protocols	Tata Global Beverages	16.00
3	Raghunathan Rengaswamy	A computational experimental framework for conceptualisation, design and synthesis of large-scale complex droplet-based microfluidic networks	New Faculty Seed Grant	35.00
4	S. Ramanathan R. Ramnarayanan	SERB School on Fundamental Electrochemical Principles Applied to Problems in Science and Engineering	DST-SERB	3.78
5	R. Ravikrishna	Investigation of surface mechanism influencing the release and deposition of bioerosols from solid surfaces	IC&SR	10.00

RBIC projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Basavaraja M. Gurappa	Design of self-foaming liquid hand wash: Effect of surfactant type and concentration on interfacial properties and stability	Hindustan Unilever Limited	16.18
2	Preeti Aghalayam	Reduction in detailed reaction mechanisms for carbon black production	Aditya Birla Science and Technology	7.65
3	Raghuram Chetty	Study of reactions' relevance to IOCL	IOC	24.00
4	Sreenivas Jayanti	Assessment of agro-based fuel for power generation	Metso Power India Limited	2.25
5	R. Vinu	Characterisation and degradation of engine oils	Caterpillar India Private Limited, Chennai	5.00
6		Improving the selectivity of ethylbenzene hydroperoxide during the oxidation of ethylbenzene in the SMPO process	Shell Technology Center, Bangalore	20.5
7	Vinu and S. Varunkumar, ME	Characterisation of biomass briquettes and modelling of reciprocating grate biomass combustor	Thermax India Limited, Pune	15.00

Faculty members' participation with other institutions under MoUs

Sl. No.	Name of Faculty Member	Name of University/Institution
1	S. Pushpavanam	University of Luxemburg, Luxemburg
2	R. Nagarajan	Purdue University, USA
3		The University of Melbourne, Australia
4		University of Technology Sydney, Australia
5		Swinburne University, Australia
6		Swinburne University, Australia (JDP)
7		NTHU, Taiwan (JDP)
8		ENSAM, France
9		Hochschule Esslingen, University of Applied Science, Germany

Research publications

Total number of papers published in refereed national journals: 3

Total number of papers published in refereed international journals: 79

Total number of papers presented at international conferences: 43

Total number of chapters in books: 1

(a) Papers in refereed national journals

1. Kuchibhotla S. and Sai P.S.T. (2013) Enhancement of esterification reaction between ethanol and sulphuric acid using ionic liquids. *Indian Chemical Engineer* 55(3): 143–152.
2. Santosh S. and Chidambaram M. (2013) Model reference control of unstable second-order systems with time delay. *Indian Chemical Engineer* 55(2): 104–111.
3. Vijaykumar V., V.S. Ramachandra Rao and M. Chidambaram (2014) Centralized multi-input multi-output controllers for non-minimum phase systems. *Indian Chemical Engineer* 56: 1–13.

(b) Papers in refereed international journals

1. A. Padmarekhaa, Kanmani Chockalingama, U. Saravanan, Abhijit P. Deshpande and J. Murali Krishnan (2013) Large amplitude oscillatory shear of unmodified and modified bitumen. *Road Materials and Pavement Design* 14(S1): 12–24.
2. Prathyusha K.R., Deshpande A.P., Laradji M. and Kumar P.B.S. (2013) Shear-thinning and isotropic–lamellar–columnar transition in a model for living polymers. *Soft Matter* 9(42): 9983–9990.
3. Mahesh A., Deshpande A.P. and Varughese S. (2013) Effect of PES on the morphology and properties of proton conducting blends with sulfonated poly(ether ether ketone). *Journal of Applied Polymer Science* 127(6): 5100–5110.
4. Kanakasabai P., Deshpande A.P. and Varughese S. (2013) Novel polymer electrolyte membranes based on semi-interpenetrating blends of poly(vinyl alcohol) and sulfonated poly(ether ether ketone). *Journal of Applied Polymer Science* 127(3): 2140–2151.
5. Narayana Iyer, K.A., Pantina, R. and Deshpande, A.P (2014) Modelling and simulation of drop spreading on fibrous porous media. *Journal of the Textile Institute* 105(3): 294–303.
6. Naskar, M., Reddy, K.S., Chaki, T.K., Divya, M.K. and Deshpande, A.P. (2013) Effect of ageing on different modified bituminous binders: Comparison between RTFOT and radiation ageing. *Materials and Structures/Materiaux et Constructions* 46(7): 1227–1241.
8. S. Gigi and Arun K. Tangirala (2013) Quantification of interaction in multiloop control systems using directed spectral decomposition. *Automatica* 49(5): 1174–1183.
9. J. Dhanalakshmi, P.S.T. Sai and A.R. Balakrishnan (2013) Effect of inorganic salts on isobaric vapour–liquid equilibrium of ethyl acetate–ethanol systems. *Journal of Chemical and Engineering Data* 58: 560–569.
10. J. Dhanalakshmi, P.S.T. Sai and A.R. Balakrishnan (2013) Study of ionic liquids as entrainers for the separation of methyl acetate–methanol and ethyl acetate–ethanol systems using COSMO-RS model. *Industrial and Engineering Chemistry Research* 52: 16396–16405.
11. Dugyala V.R., Daware S.V. and Basavaraj M.G (2013) Shape anisotropic colloids: Synthesis, packing behavior, evaporation driven assembly, and their application in emulsion stabilization. *Soft Matter* 9(29): 6711–6725.
12. Santosh S. and Chidambaram M. (2013) A simple method of tuning series cascade controllers for unstable systems. *Journal of Control Theory and Applications* 11(4): 661–667.
13. Sukanya Hazarika and M. Chidambaram (2014) Design of proportional integral controllers with decouplers for unstable two input two output systems. *I&EC Research* 53: 6467–6476.
14. Deepti Sen, Dulshad Raihan A.V and M. Chidambaram (2014) Multiway continuous hidden Markov model-based approach for fault detection and diagnosis. *International Journal of AIChE* 60: 2035–2047.
15. Ethayaraja Mani, Wolfgang Lechner, Willem Kegel and Peter G. Bolhuis (2014) Equilibrium and non-equilibrium cluster phases in colloids with competing interactions. *Journal of Soft Matter* doi:10.1039/C3SM53058B
16. K. Goutham and E. Mani (2014) Self-assembly driven crystallization in Keplarate-type polyoxometalates. *Journal of Molecular Engineering Materials* doi:10.1142/S225123731440005X
17. Kaparapu Goutham and Ethayaraja Mani (2014) Self-assembly driven crystallization in Kepalarate-Tupe polyoxometalates. *Journal of Molecular and Engineering Materials* doi:10.1142/S225123731440005
18. Suresh K. and Kannan A. (2013) Simulation of non-Newtonian fluid–food particle heat transfer in the holding tube used in aseptic processing operations. *Food and Bioproducts Processing* 91(2): 129–148.

19. Ponmani S., William J.K.M., Samuel R., Nagarajan, R. and Sangwai J.S. (2014) Formation and characterization of thermal and electrical properties of CuO and ZnO nanofluids in xanthan gum. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 443: 37–43.
20. Jagannathan T.K., Mohanan S. and Nagarajan R. (2014) Mechanistic modeling of destratification in cryogenic storage tanks using ultrasonics. *Ultrasonics* 54(1): 76–83.
21. Ponmani S., Nagarajan R. and Sangwai J. (2013) Applications of nanotechnology for upstream oil and gas industry. *Journal of Nano Research* 24: 7–15.
22. R. Nagarajan, S. Jain, M.A. Prabhudesai, A. Khanolkar, M.P. Reddy, M.S. Kumar, R. Vetrinmurugan, P. Sundin, S. Thottathil and M.J. Goodson (2013) Megasonic cleaning to remove nano-dimensional contaminants from wafer surfaces: An analytical study. *Solid State Phenomena* 195: 209–212.
23. M.A. Philip, U. Natarajan and R. Nagarajan (2013) Sono-synthesis of polystyrene/aumina nanocomposites. *Journal of Nanoengineering and Nanosystems* doi:10.1177/1740349912456497
24. Ganesan Saraswathi, Tapobrata Panda and Tanmay Basak (2013) A simplified approach to derive Cleland model for enzymatic reactions. *Biotechnology Letters* 35(5): 785–789.
25. Ghosh S., Sahoo N., Sajanal P.R., Sarangi N.K., Ramesh N., Panda T., Pradeep T. and Das S.K. (2014) Anomalous subsurface thermal behavior in tissue mimics upon near infrared irradiation mediated photothermal therapy. *Journal of Biomedical Nanotechnology* 10(3): 405–414.
26. Iyer R.I. and Panda T. (2014) Biogenic synthesis of gold and silver nanoparticles by seed plants. *Journal of Nanoscience and Nanotechnology* 14(2): 2024–2037.
27. Poulouse S., Panda T., Nair P.P. and Théodore T. (2014) Biosynthesis of silver nanoparticles. *Journal of Nanoscience and Nanotechnology* 14(2): 2038–2049.
28. Deepa K., Singha S. and Panda T. (2014) Doxorubicin nanoconjugates. *Journal of Nanoscience and Nanotechnology* 14(1): 892–904.
29. Singha S. and Panda T. (2014) Improved production of laccase by *Daedalea flavida*: Consideration of evolutionary process optimization and batch-fed culture. *Bioprocess and Biosystems Engineering* 37(3): 493–503.
30. Sminu Bhaskaran, Anuradda Ganesh, Sanjay Mahajani, Preeti Aghalayam, R.K. Sapru and D.K. Mathur, (2013) Comparison between two types of Indian coals for the feasibility of underground coal gasification through laboratory scale experiments *Fuel* 113: 837–843.
31. J.R. Picardo and S. Pushpavanam (2013) Core-annular two-phase flow in a gently curved circular channel. *Journal of AIChE* 59(12): 4871–4886. doi:10.1002/aic.14247
32. Anil B. Vir, Shekhar R. Kulkarni, J.R. Picardo, Avinash Sahu and S. Pushpavanam (2013) Holdup characteristics of two-phase parallel microflows. *Journal of Microfluidics and Nanofluidics* doi:10.1007/s10404-013-1269-7
33. Jason R. Picardo and S. Pushpavanam (2013) On the conditional superiority of counter-current over co-current extraction in microchannels. *Microfluidics and Nanofluidics* 15(5): 701–713. doi:10.1007/s10404-013-1173-1
34. Anu N., Rangabhashiyam S., Selvaraju N. and Pushpavanam S. (2013) A holistic approach combining factor analysis, positive matrix factorization and UNMIX applied to receptor modeling. *Journal of Scientific and Industrial Research* 72(12): 754–759.
35. Selvaraju N., Pushpavanam S. and Anu N. (2013) A holistic approach combining factor analysis, positive matrix factorization, and chemical mass balance applied to receptor modeling. *Environmental Monitoring and Assessment* 185(12): 10115–10129.
36. K. Vilez, R. Rengaswamy and V. Venkatasubramanian (2013) Generalized shape constrained spline fitting for qualitative analysis of trends. *Journal of Computers and Chemical Engineering* 58: 116–134.
37. R. Rengaswamy, S. Narasimhan and K. Vidyashankar (2013) Receding-horizon nonlinear Kalman (RNK) filter for nonlinear state estimation. *Journal of IEEE Transactions on Automatic Control* 58(8): 2054–2059.
38. J. Maddala and R. Rengaswamy (2013) Drop digital signal generation in microfluidic networks using model predictive control. *Journal of Process Control* 23(2): 132–139.
39. J. Maddala, W. Wang, S.A. Vanapalli and R. Rengaswamy (2013) Traffic of pairs of drops in microfluidic ladder networks with fore–aft structural asymmetry. *Journal of Microfluidics and Nanofluidics* 14(1–2): 337–344.
40. Danny Raj M. and Rengaswamy R. (2014) Understanding drop-pattern formation in 2-D microchannels: A multi-agent approach. *Microfluidics and Nanofluidics*.
41. K.K. Maniam and R. Chetty (2013) Electrodeposited palladium nanoflowers for electrocatalytic applications. *Fuel Cells* 13: 1196–1204.

42. B.V.S. Praveen, R. Manivannan, T.D. Umashankar, Byoung-Jun Cho, Jin-Goo Park and S. Ramanathan (2014) Abrasive and additive interactions in high selectivity STI CMP slurries. *International Journal of Microelectronic Engineering* 114: 98–104.
43. R. Manivannan, Byoung-Jun Cho, Xiong Hailin, S. Ramanathan and Jin-Goo Park (2014) Characterization of non-amine based post-copper chemical mechanical planarization cleaning solution. *International Journal of Microelectronic Engineering* 122: 33–39.
44. S. Chandrasekaran, Tanmay Basak and S. Ramanathan (2013) Microwave heating characteristics of graphite based powder mixtures. *Journal of International National Communications in Heat and Mass Transfer* 48: 22–27.
45. S. Chandrasekaran, S. Ramanathan and Tanmay Basak (2013) Microwave food processing: A review. *Journal of Food Research International* 52: 243–261.
46. Ravi R. (2013) Phase rule and the azeotrope: A critique and a new interpretation. *International Communications in Heat and Mass Transfer* 40(1): 19–24.
47. Sai P.S.T. (2013) Drying of solids in a rotary dryer. *Drying Technology* 31(2): 213–223.
48. S. Roy, P.S.T. Sai and S. Jayanti (2014) Numerical simulation of the hydrodynamics of a liquid solid circulating fluidized bed. *Powder Technology* 251: 61–70.
49. Srinivas Appari, Vinod M. Janardhanan, Ranjit Bauri, Sreenivas Jayanti and Olaf Deutschmann (2014) A detailed kinetic model for biogas steam reforming on Ni and catalyst deactivation due to sulfur poisoning. *Applied Catalysis A: General* 471: 118–125.
50. Ramesh Avvari and Sreenivas Jayanti (2013) Heuristic shape optimization of gas ducting in process and power plants. *Chemical Engineering Research and Design* 91(6): 999–1008.
51. Srinivas Appari, Vinod M., Janardhanan, Ranjit Bauri and Sreenivas Jayanti (2014) Deactivation and regeneration of Ni catalyst during steam reforming of model biogas: An experimental investigation. *International Journal of Hydrogen Energy* 39(1): 297–304.
52. Jaggi V. and Jayanti S. (2013) A conceptual model of a high-efficiency, stand-alone power unit based on a fuel cell stack with an integrated auto-thermal ethanol reformer. *Applied Energy* 110: 295–303.
53. C. Nowneswara Reddy and S. Jayanti (2013) A model for the prediction of safe heat flux from a downward-facing hot patch. *Nuclear Engineering and Design* 265: 45–52.
54. Reddy E.H., Monder D.S. and Jayanti S. (2013) Parametric study of an external coolant system for a high temperature polymer electrolyte membrane fuel cell. *Applied Thermal Engineering* 58(1–2): 155–164.
55. Jayanti S. and Rajesh Reddy K. (2013) Effect of spacer grids on CHF in nuclear rod bundles. *Nuclear Engineering and Design* 261: 66–75.
56. Jyothilatha Tamalapakula and S. Jayanti (2014) Ex-situ experimental studies on serpentine flow field design for redox flow battery systems. *Journal of Power Sources* 248:140–146.
57. Sudhakar Munuswamy, Sridharakumar Narasimhan and Niket S. Kaisare (2013) Approximate dynamic programming based control of hyperbolic PDE systems using reduced-order models from method of characteristics. *Computers and Chemical Engineering* 57: 122–132.
58. Tanmay Basak, R. Anandalakshmi and Pratibha Biswal (2013) Analysis of convective heat flow visualization within porous right angled triangular enclosures with a concave/convex hypotenuse. *Journal of Numerical Heat Transfer, Part A: Applications* 64(8): 621–647.
59. Tanmay Basak, Abhishek Kumar Singh, Rini Richard and S. Roy (2013) Finite element simulation with heatlines and entropy generation minimization during natural convection within porous tilted square cavities. *Industrial & Engineering Chemistry Research* 52(23): 8046–8061.
60. Tanmay Basak, R. Anandalakshmi and Monisha Roy (2013) Heatlines based natural convection analysis in tilted isosceles triangular enclosures with linearly heated inclined walls: Effect of various orientations. *International Communications in Heat and Mass Transfer* 43: 39–45.
61. Tanmay Basak, Abhishek Kumar Singh and R. Anandalakshmi (2014) Analysis of entropy generation during conjugate natural convection within a square cavity with various location of wall thickness. *Industrial & Engineering Chemistry Research*, 53(9): 3702–3722.
62. Tanmay Basak (2014) Role of various distributions of discrete samples on efficient microwave associated material processing. *Journal of Chemical Engineering Science* 105: 104–120.
63. Tanmay Basak, R. Anandalakshmi, S. Roy and I. Pop (2014) Role of entropy generation on thermal management due to thermal convection in porous trapezoidal enclosures with isothermal and non-isothermal heating of wall. *International Journal of Heat and Mass Transfer* 67: 810–828.
64. Tanmay Basak, R. Anandalakshmi and T.P. Akshaya Sruthi (2014) Analysis of entropy generation due to natural convection for hot and cold materials confined within two entrapped triangular cavities. *Industrial & Engineering Chemistry Research* 52(46): 16414–16426.

65. Tanmay Basak, R. Anandalakshmi and Abhishek Kumar Singh (2013) Heatline analysis on thermal management with conjugate natural convection in a square cavity. *Chemical Engineering Science* 93: 67–90.
66. Pratibha Biswal and Tanmay Basak (2014) Bejan's heatlines and numerical visualization of convective heat flow in differentially heated enclosures with concave/convex side walls. *Energy* 64: 69–94.
67. R. Anandalakshmi and Tanmay Basak (2013) Heat flow visualization analysis on natural convection in rhombic enclosures with isothermal hot side or bottom wall. *European Journal of Mechanics-B/Fluids* 41: 29–45.
68. R. Anandalakshmi and Tanmay Basak (2013) Analysis of natural convection via entropy generation approach in porous rhombic enclosures for various thermal aspect ratios. *International Journal of Heat and Mass Transfer* 64: 224–244.
69. Madhuchhanda Bhattacharya, Tanmay Basak, Hakan F. Oztop and Yasin Varol (2013) Mixed convection and role of multiple solutions in lid-driven trapezoidal enclosures. *International Journal of Heat and Mass Transfer* 63: 366–388.
70. D. Ramakrishna, Tanmay Basak and S. Roy (2013) Analysis of heatlines and entropy generation during free convection within trapezoidal cavities. *International Communications in Heat and Mass Transfer* 45: 32–40.
71. D. Ramakrishna, Tanmay Basak and S. Roy (2013) Heatlines for visualization of heat transport for natural convection within porous trapezoidal enclosures with various wall heating. *Numerical Heat Transfer, Part A: Applications* 63(5): 347–372.
72. Madhuchhanda Bhattacharya and Tanmay Basak (2013) A theoretical study on the use of microwaves in reducing energy consumption for an endothermic reaction: Role of metal coated bounding surface. *Journal of Energy* 55: 278–294.
73. Madhuchhanda Bhattacharya and Tanmay Basak (2013) On multiple steady states for natural convection (low Prandtl number fluid) within porous square enclosures: Effect of nonuniformity of wall temperatures. *International Journal of Heat and Mass Transfer* 59: 230–246.
74. Ram Satish Kaluri and Tanmay Basak (2013) Role of distributed heating on enhancement of thermal mixing for liquid food processing with heat flow visualization method. *Innovative Food Science & Emerging Technologies* 18: 155–168.
75. R.R. Tiwari and U. Natarajan (2013) Effect of organic modification on properties of PPO/PS miscible blend–clay nanocomposites. *Journal of Thermoplastic Composite Materials* 26(3): 392–415.
76. P. Sappidi, M.S. Sulatha and U. Natarajan (2014) Conformations and hydration structure of hydrophobic polyelectrolyte atactic poly(ethacrylic acid) in dilute aqueous solution as a function of neutralization. *Molecular Simulation* 40(4): 295–305.
77. Vinu R. and Madras G. (2013) Renewable energy via photocatalysis. *Current Organic Chemistry* 17: 2538–2558.
78. Sri Bala G. and Vinu R. (2014) Unified kinetic model for cellulose deconstruction via acid hydrolysis. *Industrial & Engineering Chemistry Research* doi:10.1021/ie5007905
79. Sri Bala G and Vinu R. (2014) Unified kinetic model for cellulose deconstruction via acid hydrolysis. *Industrial & Engineering Chemistry Research*. doi:10.1021/ie5007905.

(c) Papers presented at international conferences

1. Perepu S.K. and Tangirala A.K. (2013) An adaptive basis estimation method for compressed sensing with applications to missing data reconstruction. *IFAC Proceedings Volumes (IFAC-Papers Online)* 10(1): 190–195. *10th IFAC Symposium on Dynamics and Control of Process Systems, DYCOPS 2013*, 18–20 December 2013, Mumbai, India.
2. Rao C.S. and Chidambaram M. (2013) Subspace identification of unstable systems by MON4SID algorithm. *10th IFAC Symposium on Dynamics and Control of Process Systems, DYCOPS 2013*, 18–20 December 2013, Mumbai, India.
3. Prasath G., Recke B., Chidambaram M. and Jørgensen J.B. (2013) Soft constrained based MPC for robust control of a cement grinding circuit. *IFAC Proceedings Volumes (IFAC-Papers Online)* 10(1): 475–480. *10th IFAC Symposium on Dynamics and Control of Process Systems, DYCOPS 2013*, 18–20 December 2013, Mumbai, India.
4. C. Sankarrao and M. Chidambaram (2014) Subspace identification of unstable transfer function model for a magnetic levitation system. *ACODS*, IIT Kanpur.

5. Lalit Musmade and M. Chidambaram (2014) Learning automata based set-point weighted parameter for unstable systems. *ACODS*, IIT Kanpur.
6. Lalit Musmade and M. Chidambaram (2013) Learning automata based self tuning of a PI controller for bioreactors. *Proceedings of the International Conference on Trends in Industrial Measurements and Automation (TIMA 2013)* Pp. 18–22.
7. Hanmant G. Malkapure and M. Chidambaram (2014) Comparison of two methods of incorporating an integral action in linear quadratic regulator. *ACODS*, IIT Kanpur.
8. Hanmant G. Malkapure and M. Chidambaram (2013) Linear quadratic control of inverters for stand-alone photovoltaic system. *International Conference on Trends in Industrial Measurements and Automation (TIMA 2013)* Pp. 41–45.
9. N. Varun Choudhary and M. Chidambaram (2014) Robust controller design for first order plus time delay systems using Kharitonov theorem. *ACODS*, IIT Kanpur.
10. N. Varun Choudhary, S. Sukanya and M. Chidambaram (2013) Robust controller design for integrator plus time delay systems using Kharitonov theorem. *International Conference on Trends in Industrial Measurements and Automation (TIMA 2013)* Pp. 101–106.
11. Dhanyaram V. and M. Chidambaram (2014) Closed loop reaction curve method for identification of TITO systems. *ACODS*, IIT Kanpur.
12. Easter J. Prince, R. Nagarajan and Arun K. Tangirala (2013) Inferential sensing of ball mill for cement manufacturing process. *ASNT Annual Conference 2013*, Las Vegas, USA.
13. E. Middha and R. Nagarajan (2013) Influence of dry and wet ball milling conditions on reducing in size of zinc oxide particles. *13th AIChE Annual Meeting*, 3–8 November, San Francisco, CA.
14. N.P. Dhanalakshmi, S. Balakrishnan and R. Nagarajan (2013) Coal desulfurization and additive techniques to combat downstream corrosion and fouling effect: An experimental and theoretical study. *International Conference on Coal Science and Technology*, 29 September to 3 October, College Station, Penn State University, Pennsylvania, USA.
15. S. Jain and R. Nagarajan (2013) Experimental investigation of ultrasonic frequency on cleaning of various disk drive components. *4th International Conference on Chemistry and Chemical Engineering (ICCC 2013)*, 6–7 July, Hong Kong.
16. C. De Beer, P. Brandese, P. Pillay, B. Bullecks and R. Rengaswamy (2013) Degradation of high temperature PEM fuel cells and the impact on electrical performance. *IEEE International Conference on Industrial Technology, ICIT 2013*, Cape Town, South Africa. Article number 6505755, pp. 690–694.
17. K.S. Rajmohan and R. Raghuram Chetty (2014) Nitrate reduction at electrodeposited copper on copper cathode. *Electrochemical Conference on Energy & the Environment (ECEE 2014)*, 13–16 March 2014, Shanghai, China.
18. Gopinath S.H. and Raghuram Chetty (2014) Pt Electrodeposited on titania nanotubes for electrochemical oxidation of methanol. *11th International Conference on Indian Society for Electro Analytical Chemistry (ISEAC-DM 2014)*, 20–25 February 2014, Amritsar, India.
19. Fazil A. and Raghuram Chetty (2014) Synthesis and evaluation of carbon nanotubes supported silver catalyst for alkaline fuel cell. *11th International Conference on Indian Society for Electro Analytical Chemistry (ISEAC-DM 2014)*, 20–25 February 2014, Amritsar, India.
20. Subash R., Raghuram Chetty and Lakshman Neelakantan (2014) Low Ni austenitic stainless steel as bipolar plate for PEM fuel cells. *International Corrosion Prevention Symposium for Research Scholars (CORSYM 2014)*, 20–21 February 2014, IIT Bombay, Mumbai, India.
21. Kranthi Kumar Maniam, Volga Muthukumar and Raghuram Chetty (2013) Approaches towards improving the dispersion of electrodeposited palladium on carbon supports. *4th International Conference on Advances in Energy Research (ICAER 2013)*, 10–12 December 2013, IIT Bombay, Mumbai, India.
22. Volga Muthukumar, Kranthi Kumar Maniam and Raghuram Chetty (2013) Morphological evolution of Pt/C catalyst by electrochemical activation. *4th International Conference on Advances in Energy Research (ICAER 2013)*, 10–12 December 2013, IIT Bombay, Mumbai, India.
23. Purvali Chaudhari and Raghuram Chetty (2013) Pt-Sn core-shell structure catalyst for electrooxidation of trimethoxymethane in fuel cells. *4th International Conference on Advances in Energy Research (ICAER 2013)*, 10–12 December 2013, IIT Bombay, Mumbai, India.
24. Rajmohan K.S. and Raghuram Chetty (2013) Electrochemical reduction of nitrate from wastewater using copper phthalocyanines supported on carbon nanotubes. *International Conference on Frontiers in Chemical Engineering (ICFCE 2013)*, 9–11 December 2013, NIT Rourkela, India.

25. Keerthiga G., Viswanathan B. and Raghuram Chetty (2013) Electrochemical reduction of CO₂ on Cu and electrodeposited Cu electrodes: Crystalline phase sensitivity on selectivity. *6th Asian Pacific Congress on Catalysis (APCAT-6)*, 13–17 October 2013, Taipei, Taiwan.
26. Ramnarayanan R. (2013) Three thoughts (or more) to stop by. *BASF Insights*, 19 November 2013, Germany.
27. Savitha R., Ravi Krishna R. and Raghuram Chetty (2013) TiO₂ based photocatalytic mineralization of paracetamol in wastewater. *International Conference on Chemical and Bio-process Engineering (ICCBPE 2013)*, 16–17 November 2013, NIT Warangal, India.
28. Fathima Fasmin and S. Ramanathan (2013) Simulation of large amplitude multisine EIS with log spaced frequencies. *Proceedings of Fifth ISEAC Triennial International Conference on Advances and Recent Trends in Electrochemistry (ELAC-2013)*, 16–20 January 2013, Hyderabad. Pp. 562–566.
29. B.V.S. Praveen and S. Ramanathan (2013) Abrasive effects on high selectivity shallow trench isolation chemical mechanical planarization. *CMP-UGM Meeting*, 30 May 2013, Hanyang University, Seoul.
30. Nabil and Sridharkumar Narasimhan (2013) Optimal selection of sensor network and backed-off operating point based on economics. *12th European Control Conference (ECC 13)*, 17–19 July 2013, Zurich, Switzerland.
31. Sreeram Joopudi, Suraj Rathi, S. Narasimhan and R. Rengaswamy (2013) A new cluster validity index for fuzzy clustering. *DYCOPS*, Mumbai.
32. Danny Raj and Raghunathan Rengasamy (2013) Understanding emergent dynamics of drops: A simple model approach. *Advances in Microfluidics and Nanofluidics (AMN 2013)* 24–26 May, Notre Dame, IN, USA.
33. Danny Raj and Raghunathan Rengasamy (2013) Understanding drop–drop contacting patterns in a micro-channel: A reaction engineering perspective. *AICHE*, San Francisco.
34. Baikadi A.K., Kaur M., Sreeja S., Jayaraman G. and Narasimhan S. (2013) Extraction of pure component spectrum from mixture spectra containing known diluents. *IFAC Proceedings Volumes (IFAC—PapersOnline)*, 10(1): 649–653. *10th IFAC Symposium on Dynamics and Control of Process Systems, DYCOPS 2013*, 18–20 December 2013, Mumbai, India.
35. Abhishankar Kumar Gupta and Sridharkumar Narasimhan (2013) Robust plant friendly optimal input design. *IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS)*, 18–20 December 2013, IIT Mumbai.
36. R. Chockalingam and U. Natarajan (2013) Molecular simulation studies of the self-association behavior of atactic poly(methacrylic acid) in aqueous solution. *3rd Federation of Asian Polymer Societies (FAPS) Polymer Congress and Macro-2013*, 15–18 May 2013, IISc Bangalore, India.
37. P. Sappidi and U. Natarajan (2013) Structure of polymethacrylic acid (PMA) chain in water–ethanol mixed solvent system investigated by molecular dynamics simulations. *3rd Federation of Asian Polymer Societies (FAPS) Polymer Congress and MACRO 2013*, 15–18 May 2013, IISc Bangalore, India.
38. R. Chockalingam and U. Natarajan (2013) Association studies of poly(methacrylic acid) investigated by molecular dynamics simulations. *International Conference on Advanced Polymeric Materials (ICAPM 2013)*, 11–13 October 2013, Kottayam, Kerala, India.
39. P. Sappidi and U. Natarajan (2013) MD simulation study of polyelectrolyte chain collapse in aqueous mixed solvent due to hydrophobicity: PAA–water–ethanol. *American Institute of Chemical Engineers (AIChE) Annual Meeting*, 3–8 November 2013, San Francisco, CA, USA.
40. P. Sappidi and U. Natarajan (2013) Swelling and collapse behavior of poly(acrylic acid) in water–ethanol mixed solvent system investigated by molecular dynamics simulations. *5th Asian Conference on Colloid and Interface Science (ACCIS 2013)*, 20–23 November 2013, Darjeeling, India.
41. R. Chockalingam and U. Natarajan (2014) Simulations of the structure of symmetric polyelectrolyte block copolymer micelle in salt-free aqueous solution. *American Physical Society (APS) March Meeting-2014*, 3–7 March 2014, Denver, Colorado, USA.
42. Vinu R. and Ojha D. (2013) Fundamental understanding of co-fast-pyrolysis of biomass and polymers for energy and resource recovery. *7th International Symposium on Feedstock Recycling of Polymers*, October 2013, New Delhi, India.
43. Yanez A., Mayes H., Zhou X., Vinu R., Beckham G. and Broadbelt L.J. (2013) Lignocellulosic biomass decomposition understood through coupled structural and kinetic models. *TCBIOMASS 2013, The International Conference on Thermochemical Conversion Science*, September 2013, Chicago, IL, USA.

(d) Chapters in books

1. Arun K. Tangirala, Siddhartha Mukhopadhyay and Akhilanand P. Tiwari (2013) Chapter Three: Wavelets applications in modeling and control. *Advances in Chemical Engineering* 43: 107–204.

Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Anand Tanikella, Director, Saint Gobain Research, India	5 April 2013	Innovation as an Attitude (seminar talk)
2	Dr. Senthil Murugan, ABB, Bangalore	8 April 2013	Monitoring and Optimization of Reverse Osmosis Is Desalination Process (seminar talk)
3	Dr. Ramaswamy, University of Minnesota, USA	28 May 2013	3D Structure Characterization of Fibrous Porous Bio-Based Materials and Biocomposites and Their Relationship to Transport and Mechanical Properties (seminar talk)
4	Dr. Catherine Klapperich, Associate Professor, Biomedical Engineering, Boston University, Boston, MA 02215	12 July 2013	Towards Minimally Instrumented Molecular Diagnostics (seminar talk)
5	Dr. Rukmini Kumar, co-founder of Vantage Research (Private) Limited	23 August 2013	Mathematical Modeling in the Pharmaceutical Industry (seminar talk)
6	Dr. K.S. Balaraman, Former Head, CHT and Head, CPCL Research Centre	19 September 2013	Indian Refining Industries: Future Challenges (seminar talk)
7	Dr. Surya Mallapragada, Iowa State University, USA	31 October 2013	Polymeric Biomaterials and Bionspired Materials (seminar talk)
8	Dr. Balaji Narasimhan, Iowa State University, USA	7 November 2013	Pathogen Mimicking Nanovaccine Platform Technology: A New Paradigm (seminar talk)
9	Dr. Karthik Natarajan, Singapore University of Tech & Design, Singapore	7 November 2013	Distributional Robust Optimization: Applications in Portfolio Optimization and Predictive Choice Analytics (seminar talk)
10	Dr. Nazmul Karim, Texas A&M University	2 January 2014	Identification, Control, and Monitoring of Complex Chemical and Biochemical Systems (seminar talk)
11	Dr. Srikanth Arisetty, University of Delaware	3 January 2014	Investigating Durability of PEM Fuel Cell Catalyst Layers (seminar talk)
12	Dr. Nageswara Rao Peela, Department of Chemical Engineering, University of Delaware, USA	13 March 2014	Core-Shell Nanocatalyst Design by Combining High-Throughput Experiments and First Principle Simulations (seminar talk)
13	Dr. D.P. Rao, Former Professor (Department of Chemical Engineering, IIT Kanpur)	18–19 November 2013	To review the performance of the department over the past five years
14	Dr. Giridhar Madras, Professor (Department of Chemical Engineering), IISc Bangalore		
15	Dr. Ashok Krishna, Vice President (Technology for Global Downstream) Chevron Corp. USA		

4.4.6. Other Activities of the Department

Faculty and staff

Sl. No. Item

1. Prof. A R Balakrishnan, Department of Chemical Engineering served, on the selection committee for Professors as the Visitor's Nominee at IIT Roorkee on March 26, 2014.
2. Prof. K Krishnaiah, has been appointed as the Professor Emeritus in the Department of Chemical Engineering on contract for a period of three years w.e.f. July 1, 2013.
3. Prof. T Swaminathan was re-employed as Professor in the Department of Chemical Engineering w.e.f. 3 March 2013–June 30 2013.
4. Dr Susy Varughese and Dr Upendra Natarajan, have been appointed as Professor in the Department of Chemical Engineering w.e.f. July 19, 2013.
5. Dr Raghuram Chetty and Dr R Ravikrishna, have been appointed as Associate Professor in the Department of Chemical Engineering w.e.f. July 19 2013

6. Dr Sridharkumar Narasimhan has been appointed as Associate Professor in the Department of Chemical Engineering w.e.f. July 22 2013
7. Sri R Selva Ganapathy, Technical Superintendent, Chemical Engineering has been chosen as the Winner of the Volunteer Hero 2013 Award by iVolunteer for his volunteer work for AID India

Results obtained in research work (from M.S. & Ph.D theses) of scholars/faculty members

Ph.D.

1. Anandalakshmi R and Tanmay Basak: Studies on Heatline and Entropy Generation for Natural Convection in Rhombic Enclosures
2. Dhanalakshmi N.P. and R. Nagarajan: Process Intensification Via Power Ultrasound-Unifying Principles
3. Gigi Sebastian and Arun K. Tangirala: Reconstruction and Quantification of Interaction Pathways in Multivariate Systems Using Directed Spectral Analysis
4. Hemanth Kumar Bilihalli and R. Ravi: Transport and Thermodynamic Properties of Liquid Metals
5. Kranthi Kumar M. and Raghuram Chetty: Development of Shape Controlled Palladium Structures as Electrocatalysts for Fuel Cell Applications
6. Sivagami K., T. Swaminathan and R. Ravikrishna: Studies on Photocatalytic Degradation of Pesticides in a Slurry and Immobilized Bead Photoreactor
7. Vijay P. and Susy Varughese: Post Impact Studies of Conducting Polymers Used in Inkjet Printing

M.S.

8. Abhilasha Krishnamurthy and R. Ravikrishna: Photocatalytic Degradation of Organic Chemicals using a Titania–Carbon Mixture
9. Challa Nowneswara Reddy and Sreenivas Jayanti: Studies of Boiling Heat Transfer from a Downward-Facing Hot Patch
10. Hemalatha R., P.S.T. Sai and A. Kannan: Enhancement of Extraction of Black Tea Constituents Using Ultrasound
11. Sreenita Bhattacharya and R. Nagarajan: Acoustically-Enhanced Formulation of Neem Oil Nanoemulsions: Optimization of Process Parameters by Quantitative and Qualitative Characterization
12. Vikas Jaggi and Sreenivas Jayanti: High-Efficiency High-Temperature PEM Fuel Cell Power Unit with an Integrated Auto-Thermal Ethanol Reformer

Socially relevant activities carried out by the department

1. There was support from Devakonda Addela families to help conduct reach-out programmes that help attract quality Ph.D. students to the department (21 February 2014).
2. Abhijit P. Deshpande and Susy Varughese: Prakriti is the wildlife club of IIT Madras. It was founded in April 2002 by a group of wildlife enthusiasts comprising students, faculty members, staff members, residents and alumni of IIT Madras. The formation of the club was spurred by a growing recognition of the need to protect the unique biodiversity of the IIT Madras campus. This club organises an annual bird watching training programme for campus children, students of KV IIT Madras and Vanavani aged 6 years and above within the campus for one week during the summer vacation from 6:30 to 8:00 am.

International collaboration

Faculty visits

Sl. No.	Name of the Faculty Member	Purpose of Visit	Date and Venue
1	Prof. Srini Raghavan, University of Arizona, USA	Chevron Chair—interacted with many faculty members working in the areas of electrochemistry, surface cleaning and semiconductor processing	5–21 August 2013, IIT Madras
2	Prof. Suresh Kumar Bhatia, School of Chemical Engineering, The University of Queensland, Brisbane, Australia	Chevron Chair	19 March to 18 April 2014, IIT Madras
3	Dr. Venkatesh Balan, Associate Professor, Department of Chemical Engineering & Material Sciences, Michigan State University	To meet the HoD and faculty	7 November 2013, IIT Madras

Student visits

<i>Sl. No.</i>	<i>Names of the Students</i>	<i>Purpose of Visit</i>	<i>Date and Venue</i>
1	Mr. Byoung Jun Cho and Mr. Heon Yul Ryu	For conducting experiments and research interaction—funded by DST-NRF Indo-Korea project	6–16 January 2014, IIT Madras
2	Ms Gorugantu Sri Bala, CH12S012	DAAD Sandwich System	September 2013 to March 2014. Karlsruhe Inst. of Tech., Germany

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 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 M.Sc. and Ph.D. programmes in chemistry. As on date, 765 students have graduated with the M.Sc. degree and 566 students with the Ph.D. degree. The department is also involved in teaching various aspects of chemistry at the preparatory level (for weaker section students) and B.Tech. (core as well as minor stream courses in chemistry). Presently, the department is very well equipped with modern instrumentation facilities and is actively engaged in quality teaching and research in frontier areas.

4.5.2. Academic Programmes

The department has revised the M.Sc. curriculum and syllabus and implemented them from July 2011.

Students on roll as of June 2013 + M.S. and Ph.D. scholars admitted in January 2013

Programme	I year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	NA	NA	NA	NA	NA	NA
Dual Degree	NA	NA	NA	NA	NA	NA
M.A.	NA	NA	NA	NA	NA	NA
M.Sc.	46	47	NA	NA	NA	93
M.Tech.	NA	NA	NA	NA	NA	NA
M.B.A.	NA	NA	NA	NA	NA	NA
M.S.	NA	NA	NA	NA	NA	NA
Ph.D.	55	46	46	30	48	225
Total	101	93	46	30	48	318

Names of students/scholars who attended conferences/seminars/symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue
Abroad				
1	D. Balamurugan	CY09D007	Paris 2013 Symposium on Foldmers	10–12 April 2013, Paris, France
2	Indranath Charkraborty	CY11D060	Research work	1 May to 31 July 2013, Tokyo University of Science, Japan
3	R. Ramya	CY06D025	Poster Presentation—Third International Conference on Bio-sensing Technology (BITE—2013)	12–15 May 2013, Spain
4	Swarup Ghosh	CY10D055	Poster presentation—International conference ISGC 2	21–24 May 2013, France
5	Amitava Srimany	CY11D004	61st ASMS Conference on Mass Spectrometry and Allied Topics and to present poster	9–13 June 2013, York University, Minneapolis, Minnesota, USA

6	Amitava Srimany	CY11D004	61st ASMS Conference on Mass Spectrometry and Allied Topics to present poster	9–13 June 2013, York University, Minneapolis, Minnesota, USA
7	Raghupati Rao Shahukaru	CY09D044	Seventh International Conference on Materials for Advanced Technologies (ICMAT 2013)	30 June to 5 July 2013, Suntec, Singapore
8	Depanjan Sarkar	CY12D055	Visiting Research Scholar position in Purdue University	1 July to 30 September 2013, West Lafayette, USA
9	Ananya Baski	CY11D042	Visiting Hanyang University, for an exchange programme (Indo-Korea Research Internship)	1 July to 30 September 2013, Seoul, South Korea
10	M. Balaganesh	CY10D024	29th International Symposium on Shock Waves	14–19 July 2013, Wisconsin University, Madison
11	Debakanta Tripathy	CY08D028	ESOC—2013, 18th European Symposium on Organic Chemistry	7–12 July 2013, Marseille, France
	Mrinmay Mandal	CY11D069		
	Pavan Kumar Mandali	CY10D044		
12	D. Sharmila	CY12D029	European Boron—Sixth International Conference on Boron Chemistry	8–13 September 2013, Radziejowice, Poland
13	D. Ganapathy	CY10D034	15th BMOS—Brazilian Meeting on Organic Synthesis	10–13 November 2013, Sao Paulo, Brazil
14	Pavan Kumar Mandali	CY10D044	Shastri Student internship (SSIP 2013–2014)	20 March to 19 June 2014, Canada
India				
1	Amitava Srimany	CY11D004	Oral Presentation —12th ISMAS Triennial International Conference on Mass Spectrometry	3–8 March 2013, Dona Paula, Goa
2	Radha Gobinda Bhuiin	CY10D047	12th ISMAS Triennial International Conference on Mass Spectrometry	3–8 March 2013, Dona Paula, Goa
3	Rabin Rajan J Methikkalam	CY11D075	12th ISMAS Triennial International Conference on Mass Spectrometry	3–8 March 2013, Dona Paula, Goa
4	Depanjan Sarkar	CY12D055	12th ISMAS Triennial International Conference on Mass Spectrometry	3–8 March 2013, Dona Paula, Goa
5	C. Ramanjaneyulu	CY11D029	National Symposium on Recent Advances in Chemistry (NSRAC—2013)	22–23 March 2013, Pondicherry
6	Chanchal Agarwal	CY08D048	5th Asian Conference on Colloid and Interface Science (ACCIS 2013)	20–23 November 2013, University of North Bengal, Darjeeling
	John Prakash	CY09D015		
	Jitendriya Swain	CY10D035		
7	Akash Kumar Gupta	CY11D001	National Organic Symposium Trust IX (JNOST 2013—IX)	4–6 December 2013, IISER, Bhopal
	Dharmendra Singh	CY13D010		
	Pratap Kumar Chhotaray	CY11D026		
	Chennuri Bharath Kumar	CY13D009		
	Somenath Panda	CY12D033		
	Gyanendra Sharma	CY11D018		
8	Prasanta Kundu	CY09D32	International Conference on Biomolecular Simulations and Dynamics (ICBSD—2013)	28–30 November 2013, IC&SR, IIT Madras
	Avik Kumar Pati	CY11D049		
9	Umesh Babu	CY10D056	Directions in Materials Science, an International Conference	30 November to 1 December 2013, JNCASR, Bangalore
	Nirod Kumar Sarangi	CY08D035		
10	Nisha C.	CY10D043	Modern Trends in Inorganic Chemistry (MTDIC–XV)	13–16 December 2013, IIT Roorkee
	Anjana S.S.	CY11D044		
	Deepan Chakravarthy	CY07D017		
	D. Elias Jesu Packiam	CY11D057		
11	Rakesh	CY12D023	International Union of Materials Research Society ICA 2013 (IUMRS–ICA)	16–20 December 2013, Bangalore
	Veera Babu Medabalmi	CY12D042		
12	Avik Kumar Pati	CY11D049	Trombay Symposium on Radiation and Photochemistry (TSRP–2014)	4–13 January 2014, Mumbai
	Jitendriya Swain	CY10D035		

13	S. Senthilkumar	CY09D051	27th International Carbohydrate Symposium	12–17 January 2014, IISc, Bangalore
14	Borkar Santosh Ramdos	CY10D026	CARBO–XXVIII Conferences on Challenges in Chemistry and Biology of Carbohydrates	17–25 January 2014, Dehra Dun
15	Venkata Rama Mohan Talla	CY10D057	16th National Workshop on Catalysis for Sustainable Development	4–5 February 2014, NEERI, Nagpur
	Rajesh Kumar P	CY11D077		
	Anil Kumar	CY09D004		
16	Ramanjaneyulu	CY11D029	SDMC 2014 Spectroscopy and Dynamics of Molecules and Clusters	20–23 February 2014, NISER, Bhubaneswar
17	Subrata Mondal	CY11D088	XI-ISEAC International Discussion Meet on Electrochemistry and Its Applications	20–25 February 2014, Amritsar, Punjab
	Ashis Das	CY12D083		
	Aravindan N.	CY12D082		
	Sivasubramanian	CY10D050		
18	V. Pavan Kumar	CY07D019	ICAFM 2014, International Conference on Advanced Functional Materials	19–21 February 2014, Thiruvananthapuram
	Rakesh	CY12D023		
	Satyanarayana	CY11D031		
	Rajeshkhanna Gaddam	CY11D076		
	Shakeela	CY12D074		
19	Deepan Chakravathy	CY07D017	Indo–French collaborative meeting	24–26 February 2014, Bhubaneswar
20	D. Sharmila	CY12D029	Chennai Chemistry Conference	8–10 February 2014, CLRI, Chennai
21	S. Kaviya	CY11D064	Nature Inspired Initiatives in Chemical Trends (NIICT–2014)	2–5 March 2014, Andhra Pradesh
	B. Sindhura	CY12D032		
	Nidhi Sharma	CY11D073		
22	Indranath Chakraborty	CY11D060	International Conference on Nano Science and Technology (ICONSAT-2014)	2–6 March 2014, Mohali, Punjab
	Anirban Som	CY10D022		
23	Avik Kumar Pati	CY11D049	Trombay Symposium on Radiation and Photochemistry—2014	6–9 January 2014, BARC, Mumbai
24	Jitendriya Swain	CY10D035	Trombay Symposium on Radiation and Photochemistry—2014	6–9 January 2014, BARC, Mumbai
25	Avik Kumar Pati	CY11D049	International Conference on Biomolecular Simulation and Dynamics—2013	28–30 November 2013, IIT Madras
26	Jitendriya Swain	CY10D035	Fifth Asian Conference on Colloid and Interface Science—2013	20–23 November 2013, North Bengal University
27	J. Prakash	CY09D015	Fifth Asian Conference on Colloid and Interface Science—2013	20–23 November 2013, North Bengal University
28	M. Mohapatra	CY10D035	National seminar and 15th regional conference of Orissa Chemical Society 2013	14–15 September 2013, Salipur College, Orissa
29	Vikram Singh	CY11D091	International Conference on Nanoscience and Nanotechnology-2013	18–20 November 2013, BBAU, Lucknow
30	Ivy Sarkar	CY11D061	FCS, 2013	24–28 November 2013, IISc and JNCASR, Bangalore
31	Vikram Singh	CY11D091	Chemistry in-House Symposium—2013	21 August 2013, IIT Madras
32	Vikram Singh	CY11D091	Chemistry in-House Symposium—2013	21 August 2013, IIT Madras
33	Sudarsan Reddy	CY11D033	Medicinal Chemistry Conference	25–26 October 2013, IIT Madras
34	Sudarsan Reddy	CY11D033	Ninth J-NOST Conference—2013	4–6 December 2013, IISER, Bhopal
35	Tiwari P.K.	CY11D027	27th International Carbohydrate Symposium (ICS) 2014	12–17 January 2014, IISc, Bangalore
36	Suresh Babu Bemineni	CY11D034	Ninth J-NOST Conference—2013	4–6 December 2013, IISER, Bhopal
37	Suresh Babu Bemineni	CY11D034	Chemistry in-House Symposium—2013	21 August 2013, IIT Madras

Names of students/scholars who won outside prizes and awards

Sl. No	Name of the Student/Scholar	Guide	Name of Prize	Prize Awarded by
1	Getha Rani (CY07D027)	Sundargopal Gosh	Werner Prize (Inorganic and Analytical)	IIT Madras
2	Jadeesh Chandra Prasad (CY07D038)	G. Sekar	Prof. C.N. Pillai Prize (Organic and Bio-organic)	IIT Madras
3	Muthupandi P. (CY07D006)	G. Sekar	Prof. C.N. Pillai Prize (Organic and Bio-organic)	IIT Madras
4	Gore Sangram Mautrao (CY06D020)	S. Baskaran	Prof. G. Sundararajan Prize (Organic)	IIT Madras
5	Rajabhusan Reddy (CY06D015)	Santosh J. Gharpure and Dillip Kumar Chand (Guide i/c)	Prof. G. Sundararajan Prize (Organic)	IIT Madras
6	Sumanta Kumar Meher (CY05D040)	G. Ranga Rao	Langmuir Prize	IIT Madras
7	Udaya Bhaskara Rao T. (CY06D028)	T. Pradeep	Langmuir Prize	IIT Madras
8	Sandeep Guchait (CY11C035)	S. Sankararaman	Prof. Ramamurthy Endowment Prize for Best M.Sc Dissertation	IIT Madras
9	Piyali Bhanja (CY11C029)	M.V. Sangaranarayanan	Prof. Ramamurthy Endowment Prize For best M.Sc. Dissertation	IIT Madras
10	Pranab Deb (CY11C030)	Sundargopal Ghosh	Prof. Ramamurthy Endowment Prize for Best M.Sc. Dissertation	IIT Madras
11	P. Rajamalli (CY08D051)	Edamana Prasad	Prof. Ramamurthy Endowment Prize for best Ph.D. Thesis	IIT Madras
12	Sanjib Chowdhury (CY13C033) Pratap Panda (CY12C024)		Prof. M.V.C. Sastry Award	IIT Madras
13	John Prakash (CY09D015)	A.K. Mishra	Eli Lilly Outstanding Thesis Award	Eli Lilly & Co.
14	Pappuru Sreenath (CY11D023)	Dillip Kumar Chand	Best Poster Award (NICT—2014)	CSIR

4.5.3. Faculty and their activities

Faculty

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

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

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

Sl. No.	Co-ordinator(s)	Title	Period
Conferences			
1	S. Sankararaman (co-convener)	MEDCHEM 2013	25–26 October 2013
2	A.K. Mishra	ACS on Campus Meet	27 November 2013
3	Nandita Madhavan	MEDCHEM 2013	25–26 October 2013

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

Sl. No.	Name of Faculty Member	Title	Institution	Period
Workshops				
1	T. Pradeep	Chemistry and Physics of Advanced Materials	Victoria College, Palakkad, Kerala	1–2 March 2013
2	K. Mangala Sunder	NAARM Workshop Sponsored by Commonwealth of Learning.	National Academy of Agricultural Research Management, Hyderabad.	15–17 May 2013
3	K. Mangala Sunder	NMEICT Workshop	NIT, Srinagar	17–20 June 2013
4	S. Sankararaman	Invited lecture at a workshop for PG students	Christ University, Bangalore	13–14 September 2013
5	P. Anbarasan	Invited talk—"Workshop"	Mother Teresa Women's University, Kodaikanal	19–20 September 2013
6	P. Selvam	RSC–SI Workshop on Photocatalysis	Trichy	9 October 2013
7	G. Sekar	Seminar/Workshop in Organic and Bioorganic Chemistry (KSCSTE)	Calicut University, Kerala	24 October 2013
8	K.M. Muraleedharan	Science Academies Lecture Workshop on Recent Advances in Materials Science	Payyanur College, Kerala	24–25 June 2013

Symposia				
1	S. Sankararaman	National Symposium on Recent Trends in Chemistry	G.N.D. University, Amritsar	27–28 March 2013
2	K. Mangala Sunder	DAE BRNS Symposium on Current Trends in Theoretical Chemistry (CTTC—2013)	Mumbai	26–28 September 2013
3	Sanjay Kumar	DAE BRNs Symposium on Current Trends in Theoretical Chemistry (CTTC—2013)	Mumbai	26–28 September 2013
4	G. Sekar	National Symposium on Frontiers in Organic Chemistry	Hyderabad	10–12 October 2013
5	Sundargopal Ghosh	Symposium, MTIC	IIT Roorkee	12–16 December 2013
6	T. Pradeep	16th CRSI National Symposium in Chemistry	IIT Bombay	7 February 2014
7	T. Pradeep	Symposium cum Workshop on Mass Spectrometry (28th ISMAS–WS—2014)	Chandigarh	10–11 March 2014
8	Indrapal Singh Aidhen	27th International Carbohydrate Symposium (ICS)	IISc, Bangalore	12–17 January 2014
9	B. Rajakumar	29th International Symposium on Shock Waves	Madison WI, USA	14–19 July 2014
Conferences/seminars				
1	A. Patnaik	Seminar on Realms of Electrochemistry 2013	SSN College of Engineering, Department of Chemistry	
2	T. Pradeep	12th ISMAS Triennial International Conference on Mass Spectrometry (12th ISMAS–TRICON—2013)	Goa	4 March 2013
3	B. Rajakumar	Talk at National Seminar on Emerging Trends in Chemistry	A.V.S. College of Arts and Science, Salem	15 March 2013
4	G. Sekar	Talk at National Seminar on Emerging Trends in Chemistry	A.V.S. College of Arts and Science, Salem	15 March 2013
5	M.N.S. Rao	Invited talk at a conference, Prospectives of Interdisciplinary Research in Basic Sciences—2013	P.R. Government College, Kakinada, Andhra Pradesh	29–30 May 2013
6	Archita Patnaik	International Conference on Interdisciplinary Area with Chemical Sciences (ICIACS 2013)	Chandigarh	30 October to 1 November 2013
7	T. Pradeep	Ninth JNCASR Research Conference on Chemistry of Materials—2013	Thiruvananthapuram, Kerala	14–16 October 2013
8	Indrapal Singh Aidhen	International Conference on Interdisciplinary Area with Chemical Sciences (ICIACS 2013)	Chandigarh	30 October to 1 November 2013
9	A.K. Mishra	5th Asian Conference on Colloid and Interface Science	University of North Bengal, Darjeeling	20–23 November 2013
10	T. Pradeep	An international conference	Bangalore	30 November 2013
11	Ramesh Gardas	8th National Conference on Thermodynamics of Chemical, Biological and Environmental Systems—2013 (TCBES—2013)	Lucknow	25–26 November 2013
12	G. Sekar	Invited talk at Chiral India—2013, conference	Mumbai	14 November 2013
13	K. Mangala Sunder	Fifth IEEE International Conference on Technology for Education (T 4 E 2013)	IIT Kharagpur	17–21 December 2013

14	Sekar	International conference, World Congress on Research And Innovations (WCRI 2K13)	St. Joseph's College, Kerala	18 December 2013
15	K.M. Muraleedharan	National Conference on Current Trends in Chemistry (CTriC 2014)	Cochin	17–18 January 2014
16	K.M. Muraleedharan	Lecture at one day national seminar, Recent Trends in Chemicals	Nirmalagiri College	24 March 2014
17	K.M. Muraleedharan	National Conference on Computer Aided Drug Design and Development	Thiruvananthapuram	27 March 2014
18	G. Sekar and P. Anbarasan	One day national seminar, Catalysis and Catalysed Reactions	MK University, Madurai	28 March 2014
19	Prasad Edamana	Fourth Trilateral Conference on Advances in Nanoscience: Energy, Water & Healthcare	MRS Conference, Materials Research Society, Singapore	5–7 December 2013
20	K.M. Muraleedharan	National Conference on Green Processes and Nano-materials (NCGPNM 2014)	Hindustan Institute of Technology and Science, Chennai	8–9 January 2014
21	K.M. Muraleedharan	National Seminar on Current Trends in Chemistry (CTRIC)	Cochin University of Science and Technology, Cochin	17–18 January 2014
22	K.M. Muraleedharan	National Seminar on Recent Trends in Chemical Sciences	Nirmalagiri College, Kuthuparamba	24 March 2014
23	K.M. Muraleedharan	National Conference on Computer Aided Drug Design and Development	Srinivasa Ramanujan Institute For Basic Science (SRIBS), Kottayam	27 March 2014
24	Archita Patnaik	Structured Interfaces of Functional Fullerenes: Electronic Coupling and Intramolecular Charge Transport	International Conference on Interdisciplinary Areas with Chemical Sciences (ICIACS), Institute of Nanoscience and Technology, Chandigarh	30 October to 1 November 2013

Meetings

1	Indrapal Singh Aidhen	BRNS, project related meeting	Chandigarh	21–22 March 2013
2	Indrapal Singh Aidhen	CSIR—exam meeting	CBRI, Roorkee	12 April 2013.
3	A.K. Mishra	CSIR confidential meet	CBRI, Roorkee	12–14 April 2013
4	U.V. Varadaraju	Confidential meeting	CBRI, Roorkee	12 April 2013
5	S. Sankararaman	Selection Committee meeting	Ramco Institute of Technology, Chennai	12 April 2013
6	N. Chandrakumar	Chancellor's nominee at Selection Committee meeting	West Bengal State University, Kolkata	19 April 2013
7	N. Chandrakumar	CSIR-SPMF Assessment Committee meeting	CSIR—HDRG, Delhi	30 April 2013
8	U.V. Varadaraju	Meeting of Board of Studies	GVP College of Engineering, Visakhapatnam	24 May 2013
9	M.N.S. Rao	Syllabus meeting	Central University of Karnataka, Bangalore	17–18 May 2013
10	A.K. Mishra	Board of Courses Expert Committee meeting	Central University of Tamil Nadu, Tiruvarur	20 May 2013
11	S. Sankararaman	Board of Studies meeting	Central University of Tamil Nadu, Tiruvarur	20 May 2013.
12	S. Baskaran	Indian Academy of Science: A mid-year meeting	IISc, Bangalore	5–6 July 2013
13	K. Mangala Sunder	MHRD DTH Meeting	New Delhi	7–8 July 2013
14	K. Mangala Sunder	DTH IIT Meeting of Technical Committee members	IIT Delhi, MHRD	15–17 July 2013
15	M.V. Sangaranarayanan	56th Research Council Meeting	CECRI, Karaikudi	24 July 2013

16	Ramesh Gardas	Theme Meeting on Recent Trends in Materials Chemistry (RTMC —2013)	VIT University, Vellore	25–27 July 2013
17	T. Pradeep	Indo–UK Meeting on Water	IISc, Bangalore	13 August 2013
18	S. Sankararaman	DST–PAC (Organic) Meeting at Bangalore University	Bangalore	23–25 August 2013
19	K. Mangala Sunder	Meeting with Prof. Arunan at NPTEL office	IISc Bangalore	19–21 August 2013
20	Indrapal Singh Aidhen	CSIR—meeting	Bangalore	24–26 August 2013
21	N. Chandrakumar	Selection Committee meeting	IIT Delhi	27 August 2013
22	N. Chandrakumar	Chemical Sciences—CSIR Advisory Committee meeting	CSIR Complex, Pusa, New Delhi	5 September 2013
23	K. Mangala Sunder	MHRD Standing Committee meeting of National Mission on Education (NMEICT)	New Delhi	18–19 September 2013
24	M.V. Sangaranarayanan	CSIR Progress Review Meeting	New Delhi	12 September 2013
25	S. Baskaran	DST–Fast Track meeting	NCL, Pune	4–5 October 2013
26	K. Mangala Sunder	NMEICT Programme, review meeting	IIT Bombay	3 October 2013
27	S. Sankararaman	Peer Review Committee meeting at IGCAR	Kalpakkam	22–23 October 2013
28	S. Sankararaman	DST–PAC (Organic) meeting	GNDU, Amritsar	21–22 November 2013
29	Indrapal Singh Aidhen	Selection Committee meeting	Central University, Karnataka	15–16 November 2013
30	M.V. Sangaranarayanan	Research Council meeting	CECRI, Karaikudi	4–5 December 2013
31	R. Kothandaraman	Project meeting	ISRO, Thiruvananthapuram	23–24 December 2013
32	S. Sankararaman	SERB-DST meeting	Hyderabad	24 January 2014
33	Arti Dua	Soft Matter—Young Investigator Meeting (SM-YIM)	Pune	5–7 January 2014
34	A.K. Mishra	Expert members, BOG meeting	NIT, Kurukshetra	21 February 2014
35	U.V. Varadaraju	Review meeting of Expert Committee	IISc, Bangalore	28 February 2014
36	T. Pradeep	Indo–UK meeting	Ahmedabad	24–25 February 2014
37	A.K. Mishra	Faculty Selection Committee meeting	VVSUT, Sambalpur	4–5 March 2014
38	A.K. Mishra	Curriculum development meeting	MK Univesity, Madurai	7 March 2014
39	T. Pradeep	UGC-CAS meeting	IISc, Bangalore	14 March 2014
40	A.K. Mishra	ACS on Campus Meet	IIT Madras	27 November 2013
41	B. Rajakumar	Winter School on Atmospheric Aerosol Physics, Measurements and Sampling Techniques	IIT Madras	13–16 January 2014
42	B. Rajakumar	Spectroscopy Division, University of Rennes 1	Rennes, France	12 June 2014
43	Archita Patnaik	DST(WOS-A) subject (chemical sciences) expert committee meeting	Goa International Centre, Goa	7–8 March 2014
44	Archita Patnaik	CSIR-SRF/RA selection committee meeting	CSIR Complex, New Delhi	19–20 December 2013

Special lectures delivered by faculty members at other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	S. Sankararaman	4th INDIGO Conference	Regensburg, Germany	7–9 October 2013
2	R. Dhamodharan	Inaugural lecture: Green Nanocomposites—Applications in Environmental Remedy	NIT, Calicut	17 June 2013
3	R. Dhamodharan	Erudite Scholar Lecture Series on the History and Development of the Science of Macromolecules	Mahatma Gandhi University, Kottayam	18–21 September 2013
4	A. Patnaik	Structured Interfaces of Functional Amphiphiles: Intramolecular Electronic Communication Awards in Oriented Assemblies	IPC, IISc and Royal Society of Chemistry	4 July 2013
5	A. Patnaik	Seminar on Realms of Electrochemistry 2013	SSN College of Engineering, Department of Chemistry	2 March 2013
6	A. Patnaik	INSPIRE lecture	Vikrama Simhapuri University, Nellore	30 July 2013
7	A. Patnaik	Special lecture: Think Edu Conclave	The Indian Express, Chennai	7–8 February 2013
8	A. Patnaik	A Molecular Electronic Approach to Electron Transport in Fullerene C ₆₀ Based Dyads	School of Applied Sciences, KIIT University, Bhubaneswar	23 January 2014
9	T. Pradeep	Lecture Workshop—Chemistry and Physics of Advanced Materials		1–2 March 2013
10	T. Pradeep	12th ISMAS Triennial International Conference on Mass Spectrometry (12th ISMAS–TRICON–2013)	Goa	4 March 2013
11	Ramesh Gardas	National Seminar on Current Research Trends and Developments in Chemical Sciences—2013 (CRTDCS—2013)	Chittoor (A.P.)	9–0 March 2013
12	S. Baskaran	DST—Fast Track Committee	IIT Guwahati	15–16 March 2013
13	M.V. Sangaranarayanan	Research Council meeting	CECRI, Karaikudi	13 March 2013
14	T. Pradeep	Advisory Board meeting of Institute of Life Sciences	Ahmedabad, Gujarat	20–23 March 2013
15	Archita Patnaik	Presentation related to nanotechnology	SRM University	12 March 2013
16	B. Rajakumar	Talk at National Seminar on Emerging Trends in Chemistry	AVS College of Arts and Science, Salem	15 March 2013
17	G. Sekar	Talk at National Seminar on Emerging Trends in Chemistry	AVS College of Arts and Science, Salem	15 March 2013
18	A.K. Mishra	Confidential meeting, CSIR-HRDG	New Delhi	20 March 2013
19	S. Sankararaman	Invited lecture	MS University, Baroda; Sun Pharma, Baroda	21–22 March 2013
20	Indrapal Singh Aidhen	BRNS, project related meeting	Chandigarh	21–22 March 2013
21	B. Rajakumar	Talk at NSRAC-2013	Pondicherry	22 March 2013
22	Indrapal Singh Aidhen	CSIR—exam meeting	CBRI, Roorkee	12 April 2013.
23	A.K. Mishra	Training under Faculty Development Programme of TEQIP -II	SLIET, Punjab	27–28 March 2013
24	S. Sankararaman	National Symposium on Recent Trends in Chemistry	G.N.D. University, Amritsar	27–28 March 2013
25	N.N. Murthy	Faculty Selection Committee member	Rajiv Gandhi University, Hyderabad	28 March 2013
26	T. Pradeep	Lecture—Outreach Programme of IIT Madras	PGS Thiruvananthapuram	2–3 April 2013

27	T. Pradeep	Presentation titled "Arsenic and Metal Removal: Community Based Water Supply Plant"	Kolkata	10–12 April 2013
28	A.K. Mishra	CSIR confidential meeting	CBRI, Roorkee	12–14 April 2013
29	U.V. Varadaraju	Confidential meeting	CBRI, Roorkee	12 April 2013
30	S. Sankararaman	Selection Committee meeting	Ramco Institute of Technology, Chennai	12 April 2013
31	A.K. Mishra	Expert at Selection Committee	NCL, Pune	15 April 2013
32	A.K. Mishra	Talk in DST INSPIRE programme	Sambalpur Universtiy, Orissa	18–21 April 2013
33	N. Chandrakumar	Chancellor's nominee at Selection Committee meeting	West Bengal State University, Kolkata	19 April 2013
34	N. Chandrakumar	CSIR-SPMF Assessment Committee meeting	CSIR–HDRG, Delhi	30 April 2013
35	Kothanadaraman R.	ISRO project discussion	VSSC, Thiruvananthapuram	23 April 2013
36	P. Anbarasan	Talk at Research Trends in Inorganic Chemistry	Mother Teresa Women's University, Kodaikanal	19–20 March 2013
37	U.V. Varadaraju	Meeting of Board of Studies	GVP College of Engineering, Visakhapatnam	24 May 2013
38	U.V. Varadaraju	Invited talk	Andhra University, Visakhapatnam	28–29 June 2013
39	T. Pradeep	Visit to nanotechnology production facility	Haldia, Kolkatta	13–14 May 2013
40	P. Selvam	Project discussion	Hyderabad	16–17 May 2013
41	G. Ranga Rao	Summer course—delivering a lecture, Surface Spectroscopic Methods	Sambalpur University, Odhisa	23–27 May 2013
42	M.N.S. Rao	Syllabus meeting	Central University of Karnataka, Bangalore	17–18 May 2013
43	Sundargopal Ghosh	Invited lecture	JNU, New Delhi	20–23 May 2013
44	A.K. Mishra	Board of Courses Expert Committee meeting	Central University of Tamil Nadu, Tiruvarur	20 May 2013
45	K. Mangala Sunder	NAARM workshop sponsored by Commonwealth of Learning	National Academy of Agricultural Research Management, Hyderabad	15–17 May 2013
46	K. Mangala Sunder	NMEICT workshop	NIT, Srinagar	17–20 June 2013
47	S. Sankararaman	CTDT Selection Committee	Anna University	07 May 2013
48	S. Sankararaman	Board of Studies meeting	Central University of Tamil Nadu, Tiruvarur	20 May 2013.
49	M.N.S. Rao	Invited talk at a conference, "Prospectives of Interdisciplinary Research in Basic Sciences—2013"	P.R. Government College, Kakinada, Andhra Pradesh	29–30 May 2013
50	S. Baskaran	Indian Academy of Science: A mid-year meeting	IISc, Bangalore	5–6 July 2013
51	K. Mangala Sunder	MHRD DTH meeting	New Delhi	7–8 July 2013
52	K. Mangala Sunder	DTH IIT meeting of Technical Committee members	IIT Delhi, MHRD	15–17 July 2013
53	M.V. Sangaranarayanan	56th Research Council Meeting	CECRI, Karaikudi	24 July 2013
54	Ramesh Gardas	Theme meeting at Recent Trends in Materials Chemistry (RTMC–2013)	VIT University, Vellore	25–27 July 2013
55	T. Pradeep	Affordable Drinking Water Using Advanced Materials, Indo-Japan International Conference on Frontiers in Energy Environment, Health and Materials Research	Bhubaneswar	12–13 August 2013

56	T. Pradeep	Indo–UK Meeting on Water	IISc, Bangalore	13 August 2013
57	S. Sankararaman	DST–PAC (Organic) meeting at Bangalore University	Bangalore	23–25 August 2013
58	K. Mangala Sunder	Meeting with Prof. Arunan at NPTEL office	IISc, Bangalore	19–21 August 2013
59	K. Mangala Sunder	NPTEL Additional (Quadrants Creation NMEICT Review)	VJU, Belgaum	22–24 August 2013
60	K. Mangala Sunder	Adobe & Education Event	Coimbatore	27–28 August 2013
61	Indrapal Singh Aidhen	CSIR—meeting	Bengaluru	24–26 August 2013
62	Prof. N. Chandrakumar	Selection Committee meeting	IIT Delhi	27 August 2013
63	G. Sekar	Lecture, “Refresher Course in Chemistry”	UGC–Academics Staff College, Hyderabad	28 August 2013
64	N. Chandrakumar	Chemical Sciences—CSIR Advisory Committee meeting	CSIR Complex, Pusa, New Delhi	5 September 2013
65	K. Mangala Sunder	Asian Summit on Education & Skills 2013, in partnership with MHRD	Mumbai	12–13 September 2013
66	K. Mangala Sunder	MHRD Standing Committee meeting of National Mission on Education (NMEICT)	New Delhi	18–19 September 2013
67	K. Mangala Sunder	DAE BRNS Symposium on Current Trends in Theoretical Chemistry (CTTC–2013)	Mumbai	26–28 September 2013
68	Ranga Rao	Invited talk	Indian Institute of Space Science & Research	25 September 2013
69	M.V. Sangaranarayanan	CSIR progress review meeting	New Delhi	12 September 2013
70	Sanjay Kumar	DAE BRNs Symposium on Current Trends in Theoretical Chemistry (CTTC—2013)	Mumbai	26–28 September 2013
71	S. Sankararaman	Invited lecture at a workshop for PG students	Christ University, Bangalore	13–14 September 2013
72	G. Sekar	Shortlisting operation of the First Recruitment in Chemistry Exercise of the Central University of Karnataka	Bangalore	10 September 2013
73	Sundargopal Ghosh	CSIR project monitoring session	Pusa, New Delhi	16 September 2013
74	P. Anbarasan	Invited talk—“Workshop”	Mother Teresa Women’s University, Kodaikanal	19–20 September 2013
75	Archita Patnaik	International Conference on Interdisciplinary Area with Chemical Sciences (ICIACS 2013)	Chandigarh	30 October to 1 November 2013
76	S. Baskaran	DST—Fast Track Meeting	NCL, Pune	4–5 October 2013
77	Chandrakumar	Science camp under DST—INSPIRE Internship Programme	P.S.R. Engineering College, Sivakasi	11 October 2013
78	K. Mangala Sunder	NMEICT Programme, review meeting	IIT Bombay	3 October 2013
79	T. Pradeep	Ninth JNCASR research conference, “Chemistry of Materials—2013”	Thiruvananthapuram, Kerala	14–16 October 2013
80	P. Selvam	RSC–SI Workshop on Photocatalysis	Trichy	9 October 2013
81	S. Sankararaman	Peer Review Committee meeting at IGCAR	IGCAR, Kalpakkam	22–23 October 2013
82	Indrapal Singh Aidhen	International Conference on Interdisciplinary Area with Chemical Sciences (ICIACS 2013)	Chandigarh	30 October to 1 November 2013
83	G. Sekar	National Symposium on Frontiers in Organic Chemistry	Hyderabad	10–12 October 2013
84	G. Sekar	Seminar/Workshop in Organic and Bio-organic Chemistry (KSCSTE)	Calicut University, Kerala	24 October 2013

85	Sundargopal Ghosh	Collaboration at IPC Department	IISc, Bangalore	14–15 October 2013
86	A.K. Mishra	Fifth Asian Conference on Colloid & Interface Science	University of North Bengal, Darjeeling	20–23 November 2013
87	G. Ranga Rao	Selection Committee as an expert	NIT, Rourkela	20–22 November 2013
88	Archita Patnaik	A.P. Science Congress—2013, Innovations in Science & Technology for Emerging Knowledge Society (ISTEKS)	University of Hyderabad	14 November 2013
89	S. Sankararaman	Observing the function of lime kilns as part of a RUTAG project	Thirunelveli	28–30 November 2013
90	S. Sankararaman	To deliver lecture	Ethiraj College	2 December 2013
91	S. Sankararaman	DST–PAC (Organic) meeting	GNDU, Amritsar	21–22 November 2013
92	M.V. Sangaranarayanan	Indo–German brainstorming on energy research	New Delhi	26–27 November 2013
93	Indrapal Singh Aidhen	Selection Committee meeting	Central University, Karnataka	15–16 November 2013
94	T. Pradeep	An international conference	IISc, Bangalore	30 November 2013
95	T. Pradeep	ICANN 2013	IIT Guwahati	2 December 2013
96	Ramesh Gardas	Eighth National Conference on Thermodynamics of Chemical, Biological and Environmental Systems—2013 (TCBES—2013)	Lucknow	25–26 November 2013
97	G. Sekar	Invited talk at Chiral India—2013 conference	Mumbai	14 November 2013
98	G. Sekar	DST project proposal	G.N.D. University, Amritsar	22 November 2013
99	M.V. Sangaranarayanan	Research Council meeting	CECRI, Karaikudi	4–5 December 2013
100	U.V. Varadaraju	Selection Committee —faculty position	IIT (BHU)	12–13 December 2013
101	T. Pradeep	International Union of Materials Research Society ICA 2013 (IUMRS–ICA)	Bangalore	17 December 2013
102	K. Mangala Sunder	Fifth IEEE International Conference on Technology for Education (T 4 E 2013)	IIT Kharagpur	17–21 December 2013
103	Sundargopal Ghosh	Symposium, MTIC	IIT Roorkee	12–16 December 2013
104	Sekar	International conference, World Congress on Research And Innovations (WCRI 2K13)	St. Joseph's College, Kerala	18 December 2013
105	R. Kothandaraman	Project meeting	ISRO, Thiruvananthapuram	23–24 December 2013
106	Ramesh Gardas	NCRDGC—2013	Coimbatore	18–19 December 2013
107	Archita Patnaik	To deliver a talk	KIIT, University	22–24 January 2014
108	M.V. Sangaranarayanan	Selection Committee for Group III, CECRI	CECRI, Karaikudi	17 January 2014
109	S. Sankararaman	Lecture	Bangalore	20 January 2014
110	S. Sankararaman	SERB-DST meeting	Hyderabad	24 January 2014
111	Arti Dua	Soft Matter—Young Investigator Meeting (SM-YIM)	Pune	5–7 January 2014
112	K.M. Muraleedharan	National Conference on Current Trends in Chemistry (CTriC 2014)	Cochin	17–18 January 2014

113	Sundargopal Ghosh	Collaboration work	IACS, Kolkata	6–8 January 2014
114	Indrapal Singh Aidhen	Lecture, “Enriching Education in Chemistry”	Queen Mary’s College, Chennai	7 February 2014
115	A.K. Mishra	Expert member, BOG meeting	NIT, Kurukshetra	21 February 2014
116	G. Ranga Rao	Invited lecture	IIST, Thiruvananthapuram	3 February 2014
117	S. Sankararaman	Invited lecture	IISER, Pune	14 February 2014
118	S. Sankararaman	Invited lecture	Bharathiar University, Combatore	28 February 2014
119	U.V. Varadaraju	CHEMZEAL 2014	Pondicherry University	18 February 2014
120	U.V. Varadaraju	Review meeting of Expert Committee	IISc, Bangalore	28 February 2014
121	T. Pradeep	16th CRSI National Symposium in Chemistry	IIT Bombay	7 February 2014
122	T. Pradeep	Indo–UK meeting	Ahmedabad	24–25 February 2014
123	Sundargopal Ghosh	Invited lecture	Jadavpur University	19 February 2014
124	Sundargopal Ghosh	Scientific discussion with Prof. Pradyut Ghosh	IACS, Kolkata	14–19 February 2014
125	A.K. Mishra	Faculty Selection Committee meeting	VVSUT, Sambalpur	4–5 March 2014
126	A.K. Mishra	Curriculum development meeting	MK University, Madurai	7 March 2014
127	T. Pradeep	ICONSAT—2014	Chandigarh	3–5 March 2014
128	T. Pradeep	Symposium cum Workshop on Mass Spectrometry (28th ISMAS—WS—2014)	Chandigarh	10–11 March 2014
129	T. Pradeep	UGC-CAS meeting	IISc, Bangalore	14 March 2014
130	U.V. Varadaraju	Visit to IIT Jodhpur	IIT Jodhpur	5–7 March 2014
131	Indrapal Singh Aidhen	Discussion with fellow scientist at National Chemical Laboratory (NCL)	INCL, Pune	19–21 March 2014
132	R. Dhamodharan	Monitoring project progress, UGC project at Bharathidasan University	BHU Trichy	18–19 March 2014
133	K.M. Muraleedharan	Lecture at one day national seminar, Recent Trends in Chemicals	Nirmalagiri College	24 March 2014
134	K.M. Muraleedharan	National Conference on Computer Aided Drug Design & Development	Thiruvananthapuram	27 March 2014
135	G. Sekar and P. Anbarasan	One day national seminar, Catalysis & Catalysed Reactions	MK University, Madurai	28 March 2014
136	R. Dhamodharan	Green Nanocomposites: Applications in Environmental Remedy, inaugural lecture	NIT, Calicut	17 June 2013
137	R. Dhamodharan	Erudite Scholar Lecture Series on the History and Development of the Science of Macromolecules	Mahatma Gandhi University, Kottayam	18–21 September 2013
138	Archita Patnaik	Why Are not India’s Professional Colleges World Class?	The New Indian Express, Chennai	7–8 February 2013
139	Indrapal Singh Aidhen	Acyl Anion Chemistry for 2-Deoxy-C-aryl Furanosides/Pyranosides, at Emerging Trends in Glycoscience and Glycotechnology	Department of Chemistry, IIT Delhi	8–10 January 2014.
140	S. Baskaran	Domino Synthesis of Iminosugar-C-Glycosides	Indian Academy of Sciences, IISc, Bangalore	5–6 July 2013
141	S. Baskaran	Stereoselective Synthesis of Iminosugar-C-Glycosides	Regensburg, Germany	6–10 October 2013
142	S. Baskaran	Domino Synthesis of Iminosugar-C-Glycosides	University of Hyderabad	11–12 October 2013

143	Prof. S. Baskaran	Stereoselective Synthesis of Novel Iminosugar Derivatives from Carbohydrates	IISc, Bangalore	12–17 January 2014
144	S. Baskaran	Diversity Oriented Synthesis of Biologically Significant Iminosugar-C-Glycosides	Orchid Chemicals & Pharmaceuticals Ltd., Chennai	22 November 2013
145	S. Baskaran	Diversity Oriented Synthesis of Biologically Active Molecules	VIT University, Vellore	5–7 December 2013
146	T. Pradeep	Molecular Chemistry of Noble Metal Clusters	PSG Institute of Advanced Studies, Coimbatore	2 April 2013
147	T. Pradeep	Ideas of Tomorrow, Emerging Interfaces of Molecular Materials	IIT Madras	10 August 2013
148	T. Pradeep	Affordable Drinking Water Using Advanced Materials	Health and Materials Research, Bhubaneswar	12–13 August 2013
149	T. Pradeep	A Century of Chemistry!, INSPIRE inaugural lecture	Ahmedabad University, Ahmedabad	21 October 2013
150	T. Pradeep	Luminescent Clusters of Noble Metals	Goa University, Goa	29 October 2013
151	T. Pradeep	Affordable Point-of-Use Drinking Water through Nanomaterials, Indo-UK Perspective on Water	IISc, Bangalore	13–14 August 2013
152	T. Pradeep	A Century of Chemistry!, ChemFest	Stella Maris College, Chennai	18 September 2013
153	T. Pradeep	Imaging Nano–Bio Interactions, International Workshop on Hyperspectral Imaging	CMC, Ludhiana.	19 October 2013
154	T. Pradeep	Clusters, Nanoparticles and Water, plenary lecture at ICANN	IIT Guwahati, Guwahati	2 December 2013
155	T. Pradeep	Clusters, Nanoparticles and Water	Chemical Engineering, IISc	5 December 2013
156	T. Pradeep	Clusters, Nanoparticles and Water, plenary lecture at International Conference, Nanomaterials: Science, Technology and Applications	B S Abdur Rahman University, Chennai	5–7 December 2013
157	T. Pradeep	Affordable Clean Water Using Nanomaterials	IUMRS-ICA 2013, Forum on Clean Water	17 December 2013
158	Archita Patnaik	Chemistry at Structured Interfaces	Andhra Pradesh Science Congress, Hyderabad	14–16 November 2013

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	P. Bhyrappa	University of Erlangen-Nurnberg, Germany	11 May to 11 August 2013	Alexander von Humboldt Foundation's research fellowship and renewed research stay	Alexander von Humboldt Foundation
2	E. Prasad	Singapore	5–7 December 2013	4th Trilateral Conference on Advances in Nanoscience: Energy, Water & Healthcare (MRS)	
3	S. Sankararaman	Regensburg, Germany	7–9 October 2013	Fourth INDIGO Conference	
4	P. Bhyrappa	Germany	11 May to 11 August 2013	AVH Foundation sponsored renewed fellowship	
5	Sundargopal Ghosh	Chinese University, Hongkong	13–17 May 2013	Invited for seminar	

6	P. Selvam	Tohoku University, Sendai, Japan	20 May to 17 July 2013	Professional visit—Initiating new projects for project discussion and planning
7	B. Rajakumar	Rennes University, France	12 June to 12 July 2013	Visiting Institute of Physics (IPR)
8	T. Pradeep	Aalto University	7–21 June 2013	Visit prior to and after workshop
9	T. Pradeep	Helsinki, Finland	12–14 June 2013	Workshop, Stabilized Noble Metal Nanoparticles
10	T. Pradeep	Singapore	30 June to 5 July 2013	Symposium on Synthesis & Architecture of Nanomaterials
11	Edamana Prasad	Spain	23 June to 27 July 2013	International Dendrimer Symposium (IDS—8)
12	Edamana Prasad	Purdue University, USA	10–14 June 2013	Research workshop involving IIT Madras and Purdue University
13	T. Pradeep	Coex, Seoul, Korea	10–12 July 2013	Nano Korea 2013, the 11th international Nanotech Symposium & Nano-Convergence Expo in Korea
14	T. Pradeep	Colorado State University, Pingree Park, Colorado	31 July to 3 August 2013	ISMPC 13 International Symposium
15	Indrapal Singh Aiden	Germany	1–31 July 2013	Visit to Helmholtz Zentrum Fur Infektionsforschung (HZI)—renewed research visit for Humboldt Fellows
16	P. Selvam	Lund, Sweden	22–26 July 2013	International Conference 2013—Second International Conference on Catalysis for Renewable Source: Fuel Energy, Chemicals
17	B. Rajakumar	Madison, Wisconsin, USA	14–19 July 2013	Attending International Symposium on Shock Waves (ISSW 29)
18	T. Pradeep	American Chemical Society, Indianapolis	8–12 September 2013	ACS 246th Fall National Meeting and Exposition
19	P. Selvam	St. Petersburg and Moscow, Russia	16–20 September 2013	IV Russian–Indian Symposium on Catalysis & Environmental Engineering, Indo–Russian project discussion meeting
20	P. Selvam	Russia	17–18 September 2013	Visiting Zelinsky Institute of Organic Chemistry RAS for discussing future cooperation in field of environment catalysis and catalysis by zeolites and zeolite-like materials
21	S. Baskaran and S. Sankararaman	Germany	6–10 October 2013	Fourth Ph.D. Research Conference & intensive course of the Indian–German Graduate School of Advanced Organic Synthesis for a Sustainable Future (INDIGO)
22	K. Mangala Sunder	UK	20–27 October 2013	Study tour on e-Learning
23	R. Kothandaraman	San Francisco, USA	27 October to 1 November 2013	224th Electro Chemical Society Meeting
24	Sundargopal Ghosh	France	15 October to 6 November 2013	Visiting University of Rennes

25	P. Selvam	Brisbane	7–8 November 2013	International workshop, Application of Nanotechnology in Clean Energy, Biofuels, Chemical and Hydrogen Generation with Special Emphasis in Material Synthesis, Characterization, Development and Applications in Catalysis, Photo-catalysis and Energy Storage Systems
26	P. Selvam	Japan	25–27 November 2013	10th International Conference on Flow Dynamics
27	T. Pradeep	South Africa	24–29 November 2013	Third South African Nanoscience and Nanotechnology Summer School 2013
28	P. Selvam	Busan, Korea	8–10 January 2014	International Workshop on Advanced Porous Materials
29	P. Selvam	Sydney, Australia	5–8 February 2014	Indo-Australian Joint Project visit, University of Western Sydney
30	P. Selvam	Sydney, Australia	9–14 February 2014	Second Asia-Pacific Conference on Electrochemical Energy Storage and Conversion
31	P. Selvam	Dublin, Ireland	24–28 February 2014	Indo-Ireland Joint Project Meeting, visiting Dublin City University
32	T. Pradeep	Aalto University, Finland	12–14 June 2013	Surface Functionalization of Atomically Precise Clusters, Workshop on Stabilized Noble Metal Nanoparticles
33	T. Pradeep	University of Javaskyla, Finland	17 June 2013	Molecular Chemistry of Noble Metal Clusters
34	T. Pradeep	ICMAT 2013, Singapore	1–5 July 2013	New Protocols for the Synthesis of Stable Ag and Au Nanocluster Molecules
35	T. Pradeep	Fusion Technology Center, Hanyang University	9 July 2013	Biopolymer-Reinforced Synthetic Granular Nanocomposites for Affordable Point-of-Use Water
36	T. Pradeep	Nano Korea 2013	10–12 July 2013	Affordable and Clean Drinking Water through Nanomaterials
37	T. Pradeep	Asian Research, Network Summer Camp 2013, Hanyang University,	12–13 July 2013	New Protocols for the Synthesis of Stable Ag and Au Nanocluster Molecules
38	T. Pradeep	Protected Clusters 2013, Pingree Park, Colorado	31 July to 3 August 2013	Chemistry of Atomically Precise Clusters of Noble Metals, International Symposium on Monolayers
39	T. Pradeep	246th ACS Meeting, Indianapolis	8–12 September 2013	Affordable and Clean Drinking Water through Nanomaterials
40	T. Pradeep	Nanoscience and Nanotechnology Summer School, University of the Western Cape	25 November 2013	Water Resources: Shrinking Limits and Chemical Diversity—Need of Nanotechnology, South African
41	T. Pradeep	Vaal University of Technology, Vanderbijlpark, South Africa	30 March to 2 April 2014	Plenary speaker, NanoAfrica 2014

Honours and awards obtained by faculty members

Awards

Sl. No.	Name of the Faculty Member	Name of the Award	Awarded by
1	P. Bhyrappa	AVH Fellowship	AVH Foundation, Germany
2	Sundargopal Ghosh	Institute Research & Development Awards (IRDA)	IIT Madras
3	A.K. Mishra	Wahid Uddin Malik Memorial Award	Indian Council of Chemists
4	A.K. Mishra	Acharya P.C. Ray Memorial Award	Indian Chemical Society
5	T. Pradeep	Eminent Mass Spectrometrists Award	Indian Society for Mass Spectrometry

Honours

Sl. No	Name of the Faculty Member	Name of the Awards	Awarded by
1	Archita Patnaik	Listed by American Chemical Society as one among 30 high quality publishers from India	
2	Archita Patnaik	Subject Expert Committee member, WOS-A, 2013–2015	DST Women's Science Programme
3	Archita Patnaik	CSIR Physical Sciences Subject Expert Committee member for SRF and RA selection	
4	T. Pradeep	Appointed as a member on the editorial board of a reputed journal of chemistry for a period of 4 years from 2014	<i>Chemistry—An Asian Journal</i> , one of the sister journals of <i>Angewandte Chemie</i>
5	T. Pradeep	Symposium Chair, IUMRS-ICA meeting, Bangalore	
6	S. Sankararaman	Associate Editor of <i>Journal of Chemical Sciences</i>	Indian Academy of Sciences
7	S. Baskaran	Member, National Representative, IUPAC	
8	S. Baskaran	Fellow of the Indian Academy of Sciences, Bangalore	Indian Academy of Sciences, Bangalore
9	T. Pradeep	Adjunct Professor, Institute of Life Sciences, Ahmedabad University	PSG Institute of Advanced Studies, Coimbatore
10	T. Pradeep	Distinguished Visiting Professor	PSG Institute of Advanced Studies, Coimbatore
11	T. Pradeep	Elected fellow of the Indian National Academy of Engineering	Indian National Academy of Engineering

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	T. Pradeep	<i>Aquananotechnology: Global Prospects</i>	CRC Press, New York	David E. Reisner
2	T. Pradeep	<i>Noble Metal Nanoparticles</i>	Springer, Heidelberg	T.S. Sreepasad
3	D.K. Chand	<i>Hand Book of Reagents for Organic Synthesis: Catalytic Oxidation Reagents</i>	John Wiley and Sons Ltd.	R.D. Chakravarthy
4	D.K. Chand	<i>Molybdenum: Its Biological and Coordination Chemistry and Industrial Applications</i>	Nova Science Publishers, Inc.	R.D. Chakravarthy
5	G. Sekar	<i>Domino Reactions: Concept for Efficient Organic Synthesis</i> , 2nd edition, chapter titled "Oxidation and Reduction Reactions in Domino Processes"	Wiley-VCH, Weinheim	I. Karthikeyan D. Ganapathy
6	P. Selvam	Selective catalytic oxidation over ordered nanoporous metallo-aluminophosphates, chapter in <i>Liquid Phase Oxidation via Heterogeneous Catalysis: Organic Synthesis and Industrial Applications</i>	John Wiley and Sons	A. Sakthivel

Fellowships of academies and professional societies

Sl. No.	Name of Faculty Member	Society and Year of Admission
Humboldt Fellowship		
1	P. Bhyrappa	AVH Fellowship (2013)
Others		
1	A.K. Mishra	Fellowship of the National Academy of Sciences, India (2004)

Journal Editorial Boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	S. Sankararaman	Associate Editor	<i>Journal of Chemical Sciences</i> , Indian Academy of Science
2	T. Pradeep	Member	<i>Journal of Chemistry</i>

4.5.4. Design and Development Activities

Patents filed

Sl. No.	Name of Faculty Member	Title of Patent
1	K.M. Muraleedharan	N-Methylpyrrolidinone hydroperoxide as an efficient epoxidation reagent
2	N. John Victor	
3	T. Pradeep	A granulation composition for powder ingredients
4	A. Anil Kumar	
5	M. Udhaya Sankar	
6	Amrita Chaudhary	
7	Anshup	
8	T. Pradeep	Water filled organic templated metal oxide/hydroxide/oxyhydroxide particle network for water purification and a device thereof
9	M. Udhaya Sankar	
10	Amrita Chaudhary	
11	A. Anil Kumar	
12	Anshup	
13	T. Pradeep	Water purifier
14	T. Pradeep	AMRIT drinking water purifier
15	T. Pradeep	Dechlorination of lindane and its removal from water using graphene nanocomposites
16	Soujit Sengupta	
17	Indranath Chakraborty Shihabudheen	
18	M. Maliyekkal	
19	T. Pradeep	Molecular ionization from carbon nanotube paper
20	Debanjan Sarkar	
21	Rahul Narayanan	
22	T. Pradeep	A method for preparing monolayer protected silver clusters as antibacterial agents
23	Indranath Chakraborty	
24	Udayabhaskararao Thumu	
25	G. K. Deepesh	
26	R. Kothandaraman	Effect of semi-labile multidentate ligands on oxygen reduction performance of non-precious metal catalysts
27	R. Kothandaraman	Multilayer sandwich design of a redox flow battery cell

Patents awarded

Sl. No.	Name of Faculty Member	Title of Patent
1	A.K. Mishra	Preparation and properties of suger–triazole cardanol conjugates (provisional Indian patent application no: 4611/CHE/2013)
2	A.K. Mishra	Synthesis of amorfrutin and cajaninstilbenes and their analogues from a common building block
3	D.K. Chand	Sulfoxidation catalysts and methods of their preparation and use

4.5.5. Research and Consultancy

Sponsored research projects (new)

Sl. No	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	Transition Metal-Catalysed Asymmetric Trifluoromethylation and Perfluoroalkylation of Activated Alkenes: Application towards the Asymmetric Synthesis of Trifluoromethylated Building Blocks and Bioactive Natural Products	3	Council of Scientific and Industrial Research	24.42	Anbarasan Pazhamalai
2	Design and Development of Novel Tetradentate P- and P,N-Ligands for Iron Catalysed Asymmetric Hydrogenation	3	Board of Research in Nuclear Sciences	17.00	Anbarasan Pazhamalai
3	Thermal Decomposition Studies of Alkyl Silanes and Alkyl Phenols Behind the Reflected Shock Waves in a Single Pulse Shock Tube between 1000–1500 K	3	Council of Scientific and Industrial Research	24.42	Rajakumar B.
4	New and General Strategy for the Synthesis of Centrolobine Analogues and Other Important Diarylheptanoids	3	Board of Research in Nuclear Sciences	31.12	Indrapal Singh Aidhen
5	Investigation of Transition Metal Catalysed Reactivity of α -Diazoimines Derived from 1,2,3-Triazoles: Divergent Synthesis of Molecules of Therapeutic Importance and Bioactive Natural Products	3	Department of Science & Technology	54.12	Anbarasan Pazhamalai
6	Organized CNT–Noble Metal Cluster Conjugates	3	Department of Science & Technology	40.07	Pradeep T.
7	Establishment of Pulsed Laser Photolysis—Laser Induced Fluorescence Spectrometer and Measurement Of Atmospheric Lifetimes of Volatile Organic Compounds in the Earth's Atmosphere	3	Ministry of Earth Sciences, New Delhi	114.08	Rajakumar B. Mangala Sundar K.
8	Synthesis of Novel CI-20 and Its Derivatives	1	Defence Research and Development Organisation	18.94	Baskaran S.
9	Novel methodology and Applications In Magnetic Resonance Spectroscopy And Imaging	3	Department of Science & Technology	27.00	Chandrakumar N.
10	Study of the Response of ESPT Fluorescence Probes Towards Composition, Morphology and Associated Physical Properties of Lipid Bilayer Membranes	3	Department of Science & Technology	55.00	Mishra A.K.
11	Nanomolecular Aggregates from Glycolipid Mimics and Cyclic Peptides with Applications in Drug Delivery, Membrane Engineering and Vaccine Development	3	Department of Science & Technology	49.80	Muraleedharan K.M.

12	Investigation of Atmospheric Lifetimes and Global Warming Potentials of Biogenically Emitted Volatile Organic Compounds (BVOCs) Using PLP-LIF and Cross Photolysis—CRD Methods in the Conditions Relevant to the Earth's Atmosphere	3	Department of Science & Technology	123.70	Rajakumar B.
13	Design, Synthesis and Application of New Classes of Easily Recoverable and Reusable Transition Metal Nanocatalysts: An Extension to Asymmetric Synthesis	3	Department of Science & Technology	49.40	Govindasamy Sekar
14	Synthesis, Fabrication and Performance Evaluation of Dye Sensitized Solar Cell (DSSC) with ionic Liquid as Electrolyte and Carbon Rich, Fractal Type Molecular Assembly as Photon Absorbing Species: A Novel Approach to Enhance the Efficiency of DSSC	3	Department of Science & Technology	407.49	Edamana Prasad Sankararaman S.
15	Iron-Containing Nanostructured Catalysts for Environmental Protection (Indo-Russia)	2	Department of Science & Technology	21.97	Selvam P.
16	Iron-Catalysed C–H Functionalization and C–N Bond Formation through Controlled Carbon and Nitrogen Radicals: Application in Total Synthesis of Biologically Active Compounds	3	Department of Science & Technology	53.00	Govindasamy Sekar

Sponsored research projects (ongoing)

Sl. No.	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	Augmentation of Research Facilities in the Department (FIST)	5	Department of Science & Technology	407.00	Head of the Department
2	Establishment of Cavity Ring Down Spectrometer (CRDS) for the Absorption Measurement of Trace Species in the Earth's Atmosphere	3	Department of Science & Technology	115.61	Rajakumar B. Mangala Sundar K.
3	Total Synthesis of Biologically Active Isokotinin-A Kotinin and Desertorin-C Natural Products through Catalytic, Enantioselective Oxidative Coupling	3	Council of Scientific and Industrial Research	23.26	Govindasamy Sekar
4	Abnormal N-Heterocyclic Carbene Ligands: Synthesis, Transition Metal Complexes (Pd, Ni, Cu) and Applications in Asymmetric Synthesis	3	Council of Scientific and Industrial Research	13.20	Sankararaman S.
5	Polymerization of Cyclic Esters Using Activated Monomer Mechanism	3	Council of Scientific and Industrial Research	19.26	Debashis Chakraborty
6	Understanding the Microviscosity and Micropolarity of Different Pluronic Polymers and Their Mixtures	3	Department of Science & Technology	22.15	Mishra A.K.
7	Non-precious Metal Catalysts with Increased Active Catalytic-Site Density for Electrochemical Oxygen Reduction Reaction	2	Nissan Research Support Program	8.80	Kothandaraman Ramanujam
8	Top Chemistry Departments in the International Year of Chemistry (2011)	2	Department of Science & Technology	150.00	Head of the Department
9	J.C. Bose Fellowship	5	Department of Science & Technology	62.20	Chandrakumar N.
10	Unit of Nanoscience at IIT Madras—Phase II	5	Department of Science & Technology	555.50	Pradeep T.
11	Low Energy Ion Collision on Molecular Solids: Chemical Reactions, Phase Transformations and Unique Properties	5	Department of Science & Technology	494.50	Pradeep T.

12	Phase-II of the Facility on Spatially Resolved Magnetic Resonance	5	Department of Science & Technology	1349.73	Chandrakumar N.
13	Chemistry and Application of Metallasilica- and Metallagermaboranes Derived from Group 14 Unsaturated Organic Substrates	3	Indo-French Centre for the Promotion of Advance Research	37.63	Sundargopal Ghosh
14	New Class of Organochalcogen Derivatives Derived from Group 5, 6 Metallaboranes	3	Council of Scientific and Industrial Research	18.76	Sundargopal Ghosh
15	Analysis of Underpotential Deposition of Metals for Electrocatalytic Applications	3	Council of Scientific and Industrial Research	16.76	Sangaranarayanan M.V.
16	Non-precious Metal Catalyst for Oxygen Reduction Reaction in Polymer Electrolyte Membrane Fuel Cells (PEMFC) with Improved Durability and Activity	3	Indian Space Research Organisation	31.40	Kothandaraman Ramanujam Raghuram Chetty
17	Functional Noble Metal Nanoparticles	3	Council of Scientific and Industrial Research	25.92	Dillipkumar Chand
18	Encapsulation of Divalent Lanthanides in Dendrimers and Lanthanide Based Nano-structures in Dendritic Aggregates to Generate Novel Optically Active Nano-systems	3	Department of Science & Technology	37.00	Edamana Prasad
19	Water purification using Nanotechnology	5	Department of Science & Technology	1081.00	Pradeep Sarit Kumar Das
20	Thermodynamic Studies of Model Electrolyte and Non-electrolyte Solutes in "Protic Ionic Liquids" and Their Mixtures with the Parent Bronsted Acids and Bases	3	Council of Scientific and Industrial Research	20.42	Ramesh Gardas
21	Design and Synthesis of Metallaborane Clusters for Catalytic Cyclotrimerization of Alkynes	3	Board of Research in Nuclear Sciences	22.44	Sundargopal Ghosh
22	Metal Nanoclusters for Fluorescence, Catalysis, and Heavy Metal Scavenging	3	Department of Science & Technology	42.81	Pradeep T.
23	Chemistry and Applications Of Group 4-5 Metallaboranes	3	Department of Science & Technology	54.15	Sundargopal Ghosh
24	Generation of Solar Hydrogen	3	Department of Science & Technology	50.28	Selvam P. Viswanathan B.
25	N-Heterocyclic Carbene Ligands and Their Lanthanide Ion Complexes: Synthesis, Structure, Redox and Luminescence Studies	3	Department of Science & Technology	45.90	Sankararaman S.
26	Design and Development of a Modular Fibre-Optic Based Multipurpose Optical Spectrometer for Electronic Absorption and Emission Spectroscopy and Its Application to the Analysis of Multifluorophoric Systems	3	Council of Scientific and Industrial Research	25.17	Mishra A.K.
27	High Temperature and High Pressure Thermodynamic Properties of Energetic Nitrogen-Rich Ionic Liquids and Their Mixtures with Organic Solvents	3	Department of Science & Technology	27.00	Ramesh Gardas
28	Measurement of Atmospheric Lifetimes of Hydrofluoroolefins (HFOs), Hydrofluoroethers (HFEs) and Hydrofluorothioethers (HFTEs) Due to Their Reactions with Hydroxyl Radicals and Cl in the Earth's Atmosphere	3	Board of Research in Nuclear Sciences	33.64	Rajakumar B.
29	Functionalized Poly(phenylene) Dendrimers and Dendrimer-Porphyrin Assemblies: Synthesis and Their Properties	3	Council of Scientific and Industrial Research	13.92	Bhyrappa P.

30	Experimental Measurement and Prediction of Thermo Physical and Electrochemical Properties of Ionic Liquids Useful for Metal Ions Separation	3	University Grants Commission	6.09	Ramesh Gardas
31	Electrospun <i>Calotropis</i> Nanofibre Scaffolds for Applications in Tissue Engineering, Agriculture and Environment	3	Department of Biotechnology	25.85	Pradeep T.
32	Luminescent Poly(aryl ether) Dendron Based Gel Systems for Nanoparticle Stabilization, Mesophase Formation and Energy Transfer Studies	3	Council of Scientific and Industrial Research	17.50	Edamana Prasad
33	A Nanocomposite Material for High-Power Lithium Battery Cathodes	3	Department of Science & Technology	35.15	Selvam P. Raghuram Chetty
34	Electrochemical Synthesis of Nanomaterials at Liquid/Liquid Interfaces and Applications	3	Department of Science & Technology	42.60	Sanganarayanan M.V.
35	Quantum Cluster Solar Cells	3	Department of Science & Technology	165.61	Pradeep T.
36	Research of New Layered Oxides for Energy Storage And Conversion	3	Indo-French Centre for the Promotion of Advance Research	22.17	Varadaraju U.V.
37	Thermal Decomposition Studies of Alternatives to Chlorofluorocarbons (CFCs) in the Temperature Range of 800–1500 K Behind the Reflected Shock Waves in a Single Pulse Shock Tube (SPST)	—	Defence Research and Development Organisation	95.60	Rajakumar B.

Industrial consultancy projects (new)

Sl. No.	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	Synthesis of Mesoporous Carbon Materials for Catalytic Applications	1	Shell India Markets Private Limited	18.43	Selvam P. Viswanathan B.
2	NMR, Mass Spectrum, FTIR, CHN, SXR, PXRD, TGA & DSC, TPD & TPR, Sorptometer, UV-VIS, etc.	3	Common Code	1.50	Head of the Department
3	NMR, Mass Spectrum, FTIR, CHN, SXR, PXRD, TGA & DSC, TPD & TPR, Sorptometer, UV-VIS, etc.	3	Common Code	0.79	Head of the Department
4	Development of Rare Earth Composites for Hydrogen Generation Utilizing Solar Energy	1	Bharat Heavy Electricals Ltd.	9.57	Ranga Rao G.
5	NMR, Mass Spectrum, FTIR, CHN, SXR, PXRD, TGA & DSC, TPD & TPR, Sorptometer, UV-VIS, etc.	3	Common Code	0.50	Head of the Department
6	Novel Method of Directly Converting Rice Husks (RH) to Carbon-Encapsulated, Nano-structured Silicon (cnSi) for Li-Ion Battery (LiB) Anodes	2	Sky Solar & Power India Ltd.	3.60	Kothandaraman Ramanujam

Industrial consultancy projects (ongoing)

Sl. No.	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	Development of Heterogeneous Catalyst for Selective Hydrogenation of Nitrobenzene (NB) to <i>p</i> -Aminophenol (PAP) for Economically Feasible Commercial Application	2	Granules India Ltd.	29.64	P. Selvam
2	NMR, Mass Spectrum, TPR & TPD, Sorptometer, XRD, CHN, Elemental Analysis	3	Common Code	0.00	Head of the Department (Chy)

3	NMR/Mass Spectrum, TPR & TPD, Sorptometer, XRD, CHN, Elemental Analysis	3	Common Code	1.24	Head of the Department (hy)
4	Synthetic Route for APIs	5	Apex Labotaories Pvt. Ltd.	0.66	Baskaran S.
5	NMR, Mass Spectrum, FTIR, CHN, SXRD, PXRD, TPD & TPR	3	Common Code	0.24	Head of the Department (Chy)
6	Development of Differentiated Gel Ink that Can Deliver Better Writing Smoothness with Controlled Ink Flow than Existing Gel Inks	2	ITC Ltd.	31.90	Edamana Prasad Ramesh Gardas
7	NMR, Mass Spectrum, FTR, CHN, SXRD, PXRD, TGA & DSC, TPD & TPR, Sorptometer, UV-VIS, etc.	3	Common Code	0.00	Head of the Department (Chy)

New Faculty Scheme (new)

Sl. No	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	New Modes of the Dihydro Diels—Alder Reaction: Synthesis of Polycyclic, Poly-substituted Phenols, Pyridines and Bridged Systems	3	New Faculty Scheme	25.00	Beeraiah Baire
2	New Acceptor-Donor-Acceptor(A-D-A) Type Small Molecule Acceptors for Organic Solar Cells	3	New Faculty Scheme	26.00	Venkatakrishnan P.
3	Asymmetric Green Catalysis in the Development of Nitroso and Thionitroso Chemistry for Organic Synthesis	3	New Faculty Scheme	25.00	Mahiuddin Baidya Md.
4	Functional Organic Materials for Electronics, Photonics and Energy	3	New Faculty Initiation Grant	5.00	Venkatakrishnan P.
5	Synthetic Organic Chemistry	3	New Faculty Initiation Grant	5.00	Beeraiah Baire
6	Organic Synthesis and Catalysis	3	New Faculty Initiation Grant	5.00	Mahiuddin Baidya Md.

New Faculty Scheme (ongoing)

Sl. No.	Title	Period (years)	Agency	Value (in lakhs of ₹)	Co-ordinator(s)
1	Asymmetric Trifluoromethylation Using Transition Metal-Catalyst	3	New Faculty Scheme	19.00	Anbarasan Pazhamalai
2	Thermodynamic Studies of Ionic Interactions in Pure Ionic Liquids and Their Mixtures with Organic Solvents	3	New Faculty Scheme	19.00	Ramesh Gardas
3	Exploding Type Metal Precursors for Synthesis of Non-precious Metal Catalyst with Improved Oxygen Reduction Activity	2	New Faculty Scheme	20.70	Kothandaraman Ramanujam
4	Demonstration of 1.5 W Single Cell All Vanadium Flow Battery	1	Industrial Consultancy & Sponsored Research	7.37	Varadaraju U. Kothandaraman Ramanujam

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Baskaran S.	Synthetic Route for APIs	Apex Labotaories Pvt. Ltd.	0.66
2	P. Selvam	Development of Heterogeneous Catalyst for Selective Hydrogenation of Nitrobenzene (NB) to <i>p</i> -Aminophenol (PAP) for Economically Feasible Commercial Application	Granules India Ltd.	29.64

3	Edamana Prasad	Development of Differentiated Gel Ink that can Deliver Better Writing Smoothness with Controlled Ink Flow than Existing Gel Inks	ITC Ltd.	31.90
4	Selvam P.	Synthesis of Mesoporous Carbon Materials for Catalytic Applications	Shell India Markets Pvt. Ltd.	18.43

Research publications

Total number of papers published in refereed national journals: 1

Total number of papers published in refereed international journals: 149

(a) Refereed national journals

1. K.S. Kumar and A. Patnaik. 2013. Thermodynamic, kinetic and electronic structure aspects of a charge-transfer active bichromophoric organofullerene. *J. Chem. Sci.* 125: 237–246.

(b) Refereed international journals

1. N. Ramesh, N.K. Sarangi and A. Patnaik. 2013. Establishing the ellipsoidal geometry of a benzoic acid-based amphiphile via dimer switching: Insights from intramolecular rotation and facial H-bond torsion. *J. Phys. Chem. B* 117: 5345–5354.
2. N. Ramesh, M. Ganesan, N.K. Sarangi, K.M. Muraleedharan and A. Patnaik. 2014. Tailoring strained oxanorbornane headgroups to dimensionally controlled nanostructures through hydrogen bonding. *RSC Adv.* 4: 9762.
3. N.B. Padalwar, C. Pandu and K. Vidyasagar. 2013. Monovalent metal phenylphosphonates and phenylarsonates: Single crystal X-ray structures of $A(\text{HO}_3\text{PPh})(\text{H}_2\text{O}_3\text{PPh})$ ($A = \text{K, Rb, Cs, Tl}$) and $\text{Na}(\text{HO}_3\text{AsPh})(\text{H}_2\text{O}_3\text{AsPh})$ and methylamine intercalation of $A(\text{HO}_3\text{PPh})(\text{H}_2\text{O}_3\text{PPh})$ ($A = \text{Li, Na, K, Tl}$). *J. Solid State Chem.* 203: 321–325.
4. A. Krishnan, R. Gettu, R. Dhamodharan and P.S. Nair. 2013. Exploratory use of a fluoropolymer to modify cement mortar for waterproofing. *International Journal of 3R's.* 4: 595–601.
5. V. Swarnalatha, A. Esther-Rani and R. Dhamodharan. 2013. Immobilization of α -amylase on gum acacia stabilized magnetite nanoparticles, an easily recoverable and reusable support. *Journal of Molecular Catalysis: Enzymatic* 96: 6–13.
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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. Haiwon Lee, Director, Asian Research Network Director, Honors Program, Director, Institute of Nano Science and Technology, Professor, Department of Chemistry, Hanyang University, Seoul 133-791, Korea	15 April 2013	Guest lecture
2	Dr. Florenz Sasse, Department of Chemical Biology Helmholtz Centre for Infection Research, Braunschweig, Germany	19 April 2013	Guest lecture
3	Dr. Hari Mohan Gobburu, Associate Director, Global Sourcing Eli Lilly and Company (India) Pvt. Ltd., No. 46, Phoenix Pinnacle, Ground Floor, Ulsoor Road, Bangalore	22 April 2013	Guest lecture
4	Prof. G.U. Kulkarni, Dean—Academic, Chemistry & Physics of Materials Unit, DST Unit on Nanoscience Associate Faculty Member, ICMS, Jawaharlal Nehru Centre for Advanced Scientific Research	1 May 2013	Guest lecture
5	Dr. Sukumar Venkataramani, Research Scientist, Orchid Pharma, Chennai	8 May 2013	Talk
6	Dr. Sreedhara R. Voleti, Ph.D., Chief Scientific Officer, Theraxel Discoveries Pvt. Ltd., Hyderabad	9 May 2013	Guest lecture
7	Prof. Hosahudya N. Gopi, Department of Organic Chemistry, Indian Institute of Science Education and Research, Pune	18 June 2013	Guest lecture
8	Prof. G.. Naresh Patwari, Department of Chemistry, Indian Institute of Technology Bombay, Mumbai	25 June 2013	Guest lecture
9	Dr. Sivaguru (former student of our department), Associate Professor, Department of Chemistry & Molecular Biology, North Dakota State University, USA	2 July 2013	Guest lecture
10	Prof. Hedi Mattoussi, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, Florida	22 July 2013	Guest lecture
11	Dr. Swadeshmukul Santra, Ph.D., Associate Professor, Nano Science Technology Center, Department of Chemistry and Burnett School of Biomedical Sciences, University of Central Florida 12424 Research Parkway Suite 400, Research Pavilion Orlando, FL 32826, USA	30 July 2013	Guest lecture
12	Dr. Tapan Kanti Paine, Associate Professor, Department of Inorganic Chemistry, IACS, Kolkatta	7 August 2013	Guest lecture
13	Prof. Reshef Tenne, Department of Materials and Interfaces, Weizmann Institute, Rehovot 76100, Israel, Member of the Israeli Academy of Sciences and Academia Europaea	29 November 2013	Guest lecture
14	Prof. Mireille Blanchard-Desce, Head, The Institute of Molecular Sciences, University of Bordeaux1 (CNRS UMR 5255), Bordeaux, 33405, France	9 December 2013	Guest lecture
15	Dr. Sneha Bajpe, Marie Curie Postdoctoral Fellow, Department of Materials Science & Metallurgy, University of Cambridge, UK	23 December 2013	Guest lecture
16	Dr. Jagannath Mondal, currently working with Prof. Bruce J. Berne, Columbia University, New York	3 January 2014	Guest lecture
17	Prof. Kurt Wüthrich, Nobel Laureate	17 January 2014	Guest lecture
18	Dr. Digambara Patra, Associate Professor, Department of Chemistry, American University of Beirut, Beirut, Lebanon	23 January 2014	Guest lecture
19	Thomas J. Colacot, Ph.D., FRSC, M.B.A., Global R&D Manager (Homogeneous Catalysis), Johnson Matthey Catalysis & Chiral Technologies, New Jersey 08066, USA	10 February 2014	Guest lecture
20	Dr. Ludovic Biennier, Institut de Physique de Rennes, CNRS – Université de Rennes 1, France	19 February 2014	Guest lecture
21	Mr. Hardik Valera, Eli Lilly India Pvt. Ltd.	20 February 2014	Guest lecture
22	Prof. Y.D. Vankar, Department of Chemistry, IIT Kanpur, Kanpur	21 February 2014	Guest lecture
23	Prof. Pravat Mandal, Professor, Neuroimaging & Neurospectroscopy Lab, National Brain Research Center; Associate Professor (Adj), Division of Neuroradiology, Department of Radiology, Baltimore, Johns Hopkins Medicine, USA	26 February 2014	Guest lecture

24	Prof. Lanny S. Liebeskind, Ph.D., Department of Chemistry, Emory University, Atlanta, USA	10 March 2014	Guest lecture
25	Prof. Dr. Ron M.A. Heeren, FOM-AMOLF, Biomolecular Imaging Mass Spectrometry, Science Park 104, 1098 XG Amsterdam, The Netherlands	13 March 2014	Guest lecture
26	Prof. Dr. Nadia C. Mösch-Zanetti, Institute of Chemistry—Inorganic Chemistry, Karl-Franzens-University Graz, Austria	18 March 2014	Guest lecture

4.5.6. Other Activities of the Department

Sl. No.	Details	Venue and Date
1	Archita Patnaik	A talk, Career in Totality, 21 March 2013, Department of Chemistry
2	Edamana Prasad	What Motivates You to Do Research, 28 March 2013, Department of Chemistry
3	Chemistry in-House Symposium (CiHS—2013) Convener: B. Rajakumar Co-convener: Ramesh Gardas	IC&SR Auditorium, 21 August 2013
4	MEDCHEM 2013, focusing on advances in anticancer drug discovery and development Conveners: Nandita Madhavan S. Sankararaman	IC&SR Auditorium, 25–26 October 2013
5	Prof. K.K. Balasubramanian Endowment Lecture 2013, by Prof. M. Periasamy, F.A.Sc., F.N.A., School of Chemistry, University of Hyderabad, Hyderabad, “New Methods of Synthesis of Important Useful Chiral Organic Skeletons”	Media Resource Centre, Central Library, IIT Madras, 5 September 2013
6	Prof. P.T. Manoharan Endowment Lecture 2013, by Prof. Ashutosh Sharma, IIT Kanpur, “Self-organization on Small Scales: Fabrication beyond the Top-down and Bottom-up”	Central Lecture Theatre, 14 October 2013
7	Ph.D. interview, July–November 2013	22–23 May 2013
8	Ph.D. interview, January–May 2014	25–26 November 2013
9	ACS–on-Campus Convener: A.K. Mishra	IC&SR, 27 November 2013
10	Peer Review Committee meeting	16–17 December 2013

4.6. DEPARTMENT OF CIVIL ENGINEERING

4.6.1. Introduction

The Department of Civil Engineering has been in existence since the inception of IIT Madras, in 1959. Since then, it is contributing to the nation's infrastructure development and human resource generation. The B.Tech., Dual Degree, M.Tech., M.S. and Ph.D. programmes of the department are among 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, the Netherlands, the former USSR, etc. The faculty members, along with research scholars in the department, carry out innovative and challenging high-end research and industrial projects.

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

4.6.2. Academic Programmes

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

The department has postgraduate programmes leading to Dual Degree, M.Tech., M.S. and Ph.D. degrees in various disciplines of civil engineering in addition to the undergraduate (B.Tech.) programme in civil engineering.

New courses introduced

Sl. No.	Course No.	Title
1	CE5970	Barrier Systems for Waste Containment
2	CE6011	Smart Buildings and Automation

Students on roll as of September 2012 + M.S. and Ph.D. scholars admitted in January 2013

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	62	64	52	40	14+7	239
Dual Degree	30	31	42	42	37+9	191
M.A.	—	—	—	—	—	—
M.Sc.	—	—	—	—	—	—
M.Tech.	82	81	06	01	—	170
M.B.A.	—	—	—	—	—	—
M.S.	26	16	09	04	01	56
Ph.D.	45+27	55	21	34	18+10	210
PG Diploma	—	—	—	—	—	—
Total	272	247	130	121	96	866

Names of students/scholars who attended conferences, seminars and symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Berlin M.	CE10D010	8th IAHS Ground Water Quality Conference	21–26 April 2013, USA	IIT Madras
2	R.M. Subramanian	CE09D022	Seventh International Conference on Case Histories in Geotechnical Engineering	1–4 May 2013, USA	IIT Madras
3	Kanaga Durga	CE12D043	International conference, ICSCMCE 2013	1–2 June 2013, Singapore	IIT Madras
4	Leon Raj	CE12D044	International conference, ICSCMCE 2013	1–2 June 2013, Singapore	IIT Madras
5	P. Poluraju	CE13D005	Second International Conference on Sustainable Construction Materials and Computer Engineering	1–2 June 2013, Singapore	IIT Madras
6	R. Shobha	CE09D021	Cross Boundary Coordination Practices in Global Engineering Firms	7–11 July 2013, USA	—
7	Venkata Sonthosh Kumar Delhi	CE09D008	Framework for Post-award Governance of Public–Private Infrastructure Projects in India	9–11 July 2013, USA	IIT Madras
8	Smaranika Panda	CE12S020	Winter School on Environment, Energy Science and Technology	17–28 August 2013, Japan	Kyushu University
9	S. Muthulingam	CE10D028	International Conference on the European Corrosion Congress	1–5 September 2013, Portugal	IIT Madras
10	Kishore Kumar	CE11S011	International Conference on Air Quality Measurement Methods and Technology	10–21 November 2013, USA	IIT Madras
11	V.S. Chitra	CE11S0	International Conference on Air Quality Measurement Methods and Technology	10–21 November 2013, USA	IIT Madras
12	P. Balaji	CE11S007	International conference, Geomonterreal 2013	20 September to 3 October 2013, Canada	IIT Madras
13	Tabish Umar Ansari	CE12S023	Climate Modeling Workshop	13 October to 14 November 2013, New York	Project
14	S. Mohana Sundaram	CE09D011	2013 AGU Fall Meeting	9–13 December 2013, USA	IIT Madras
15	Nebidita Sahoo	CE11S014	Fourth International Conference on Structural Engineering and Construction Management	13–15 December 2013, Sri Lanka	IIT Madras
16	S. Rajthilak	CE12S014	International Conference on the Pan American Congress of Applied Mechanics	24–28 March 2014, Chile	IIT Madras
India					
1	G. Sridhar	CE10D035	Fourth Indian Young Geotechnical Engineers Conference (4YGECE-2013)	17–18 May 2013, IIT Madras	IIT Madras
2	V.S. Chitra	CE 09D023	Breathing Spaces: Sustainability at Work	15 May 2013, Delhi	Project
3	G. Sivakumar	CE12D056	Fourth Indian Rock Conference	16 May to 3 June 2013, Solan	IIT Madras
4	Rohit, J.	CE12D015	International Conference on Advanced Engineering Optimization through Intelligent Techniques	1–4 July 2013, Surat	IIT Madras

5	Hrishikesh C.G.	CE12D041	International Conference on Advanced Engineering Optimization through Intelligent Techniques	1–4 July 2013, Surat	IIT Madras
6	S. Muthulingam	CE10D028	CORCON 2013	30 September to 3 October 2013, New Delhi	IIT Madras
7	Sunitha K. Nair	CE09D016	74th Annual IRC Congress	18–22 January	Project
8	B.S. Dhanya	CE11D017	Fourth International fib Congress and Exhibition	11–14 February 2014, Mumbai	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	Jadhav Aakanksha Viswas	CE10B088	2013 Bentley Student Design Competition Award in the “Innovation in Bridge/Road Design” category	Bentley, USA
2	Godbole Siddhesh Maheshwar	CE10B079		
3	Dinesh S. Soundappa	CE10B017		
4	Payal Kishor Firodiya	CE10S010	ICI (TNCC)—Ultra Tech Award 2013 for outstanding thesis in the field of concrete in Tamil Nadu.	Indian Concrete Institute (Tamil Nadu, Chennai Centre)
5	Bhaskar Sangoju	CE07D021		

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Name of Donor
1	Malladi Satya Sarvani	CE09B030	Larsen & Toubro ECC Endowment Prize	Convocation Prize
2	S. Prasanth	CE08B063	Institute Merit Prize	
3	M.D. Swetha	CE08B063	Dr. N.R. Dave Prize	Institute day Prizes
4	D. Prem Kumar	CE12G009	Smt. Jayalakshmi & Sri Narasimhan Prize	
5	Femeena P.V.	CE11M071	Valli Ananthakrishnan Merit Prize	
6	Rajeev Chandra	CE11M0146	K. Devarajan Memorial Prize	
7	Jiji Anna Varughese	CE09D030	Sree Gayathree Devi Award	
8	Neethu Roy	CE09D010		
9	Vandana C Padmanabhan	CE11M187	Larsen & Toubro Endowment Prize	
10	Hareesh Pallikara Bahuleyan	CE10B024	Computer Age Management Services Pvt. Ltd. Prize	
11	Vadali Nandita	CE09B075	M.S.K. Chaitanya Varma Memorial Prize	
12	D. Vinu	CE08B066	Sri Venkatasraman Ravi Prize	
13	Femeena P.V.	CE11M071	Smt. Jayalakshmi & Sri Narasimhan Prize	
14	K. Ramachandran	CE11M180	Institute Merit Prize	
15	Athulya Balakrishnan	CE10M051	Rajnikant Gandhi Memorial Award	

4.6.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Area of Specialization
Professors	
P. Alagusundaramoorthy, Ph.D.(IIT Madras)	Composite technology
K.Ananthanarayanan, Ph.D. (IIT Madras)	Building technology and construction management
Benny Raphael, Ph.D. (University of Strathclyde, UK)	Building technology and construction management
A. Boominathan, Ph.D. (Moscow)	Geotechnical engineering
Devdas Menon, Ph.D. (IIT Madras)	Structural engineering
S.R. Gandhi, Ph.D. (IIT Madras)	Geotechnical engineering
Koshy Varghese, Ph.D. (Texas, Austin)	Building technology and construction management
Ligy Philip (Ms.) Ph.D. (IIT Kanpur)	Environmental engineering

Manu Santhanam Ph.D. (Purdue University)	Building technology and construction management
A. Meher Prasad, Ph.D. (RICE)	Structural engineering
S. Mohan, Ph.D. (IISc, Bangalore)	Water resources engineering
B.S.Murty, Ph.D. (Washington State)	Water resources engineering
B. Nageswara Rao, Ph.D (Iowa University)	Structural engineering
C.V.R. Murty, Ph.D. (California Institute of Technology)	Structural engineering
K. Rajagopal, Ph.D. (Florida)	Geotechnical engineering
K. Ramamurthy, Ph.D. (IIT Madras)	Building technology and construction management
Ravindra Gettu, Ph.D.(Northwestern)	Building technology and construction management
R.G. Robinson, Ph.D. (IISc, Bangalore)	Geotechnical engineering
S.R. Satish Kumar, D.Engg. (Nagoya University)	Structural engineering
K.N. Satyanarayana, Ph.D. (Clemson)	Building technology and construction management
R.Sivanandan, Ph.D. (Virginia Tech.)	Transportation engineering
K. Srinivasan, Ph.D. (IIT Madras)	Water resources engineering
K.P. Sudheer, Ph.D. (IIT Delhi)	Water resources engineering
A. Veeraragavan, Ph.D. (Bangalore University)	Transportation engineering
Associate Professors	
Amlan Kumar Sengupta, Ph.D. (University of Missouri)	Structural engineering
G. Appa Rao, Ph.D. (IISc, Bangalore)	Structural engineering
Arul Jayachandran, Ph.D. (IIT Madras)	Structural engineering
G.R. Dodagoudar, Ph.D. (IIT Bombay)	Geotechnical engineering
Karthik K. Srinivasan, Ph.D. (Texas, Austin)	Transportation engineering
J. Murali Krishnan, Ph.D (IIT Madras)	Transportation engineering
Indumathi M. Nambi, Ph.D.(Clarkson University)	Environmental engineering
S.T.G. Raghukanth, Ph.D. (IISc, Bangalore)	Structural engineering
U. Saravanan, Ph.D. (Texas A&M)	Structural engineering
Lelitha Devi, Ph.D. (Texas A&M)	Transportation engineering
S.M. Shiva Nagendra, Ph.D. (IIT Delhi)	Environmental engineering
Assistant Professors	
Arun Menon, Ph.D.(University of Pavia, Italy)	Structural engineering
Ashwin Mahalingam (Stanford University)	Building technology and construction management
Balaji Narasimhan, Ph.D. (Texas A&M University)	Water resources engineering
Dali Naidu Arnepalli, Ph.D. (IIT Bombay)	Geotechnical engineering
Gitakrishnan Ramadurai, Ph.D.(University.of Rensselaer)	Transportation engineering
Radhakrishna G. Pillai, Ph.D. (Texas A&M University)	Building technology and construction management
Rupen Goswami, Ph.D. (IIT Kanpur)	Structural engineering
Sachin S Gunthe, Ph.D. (IITM Pune)	Atmospheric chemistry and physics
Sivakumar Palaniappan, Ph.D. (Arizona State University)	Building technology and construction management
Subhadeep Banerjee, Ph.D. (NUS, Singapore)	Geotechnical engineering
Soumendra Nath Kuiry (IIT Kharagpur)	Hydraulics and water resources engineering
T. Thyagaraj, Ph.D. (IISc, Bangalore)	Geotechnical engineering
Vidya Bhushan Maji, Ph.D. (IISc, Bangalore)	Geotechnical engineering
Venu Chandra, Ph.D. (IIT Kanpur)	Hydraulics and water resources engineering
Adjunct Faculty	
N. Raghavan	Structural engineering
Visiting Faculty	
Atul Narayanan, Ph.D. (Texas A&M)	Transportation Engineering

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

Sl. No.	Coordinator(s)	Title	Period
Conferences			
1	Soumendra Nath Kuiry	CEP: Modelling Approaches for Free Surface Flow and Water Quality Management	18–23 November 2013
2	Lelitha Devi	Second Conference of Transportation Research Group of India	12–15 December 2013
3	Venu Chandra	Modelling Approaches for Free Surface Flow and Water Quality Management	18–23 November 2013
4	R.G. Robinson	Fourth Indian Young Geotechnical Engineers Conference	17–18 May 2013
5	Rupen Goswami	Earthquake Behaviour of Buildings	21–26 January 2013
6	V. Lelitha Devi	Application of Systems and Control Theory to Intelligent Transportation Systems	7–11 October 2013
7	Ravindra Gettu	ICI-IITM Seminar on Precast Concrete and Waterproofing	22 October 2013
8	S.M. Shiva Nagendra	Third National Conference on Refrigeration and Air Conditioning (NCRAC2013)	12–14 December 2013
9	M.P. Maiya		
Workshops			
1	V. Lelitha Devi	Indo-US Workshop on Indo-US Joint Network Centre on Intelligent Transportation Systems: Lessons Learned and Future Research Directions	9–10 December 2013
2	Gita Krishnan Ramadurai	Workshop on Urban Freight Transport: A Global Perspective	24–25 June 2013
3	R.G. Robinson T. Thyagaraj	Laboratory Testing of Soils	25–29 November 2013
4	Gitakrishnan Ramadurai	Purdue–IIT Madras Workshop on Sustainable Urban Transportation	13 February 2014
5	S.R. Gandhi	Workshop on R&D Needs on Liquefaction Remedial Measures to Prepare a Detailed Proposal to DST/IGSTC	19–20 February 2014
6	Indumathi M Nambi	World Water Day Workshop on Rainwater Harvesting and Grey Water Recycling	22 March 2014
7	S.R. Gandhi	First Meeting of the National Advisory Board (NAB) of National Centre for Safety of Heritage Structures (NCSHS)	27 January 2014
8	Arun Menon		
Short-term courses			
1	Sivakumar PALaniappan	Theory and Advanced Practices in Construction Project Management	4–8 March 2013
2	Lelitha Devi	Short Term Training Programme on Application of Systems and Control Theory To Intelligent Transportation Systems	16–20 September 2013
3	R.G. Robinson	CEP short-term course, “Laboratory Soil Testing”	25–29 December 2013
4	Ravindra Gettu K.N. Satyanarayana	Short Course for engineers of Shapoorji Palonji Construction	3–9 October 2013
5	S.M. Shiva Nagendra M.P. Maiya	Winter School on Indoor Air Quality and Health Effects	9–14 December 2013
6	Sachin S Gunthe R. Ravikrishna	Winter School on Atmospheric Aerosol Physics, Measurements and Sampling Techniques	13–16 January 2014
7	Ligy Philip	QIP Short Term Course on Disasters, Environment and Risk Reduction	27–31 January 2014
Training programmes			
1	A. Veeraragavan	Gap Graded Mixes	12–13 April 2013
2	A. Veeraragavan	Warm Mix Asphalt—Challenges and Way Forward	9 August 2013
Symposia			
1	V. Lelitha Devi	Indo-US Symposium on Intelligent Transportation Systems	9 December 2013

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
Workshops				
1	Arun Menon	Faculty Development Programme	AICTE, New Delhi	14 June 2013
2	Dali Naidu Arnepalli	Workshop	Indian Geotechnical Society, Guntur	28 June 2013
3	Devdas Menon	Workshop, "Future Cities"	IIT Madras	19 July 2013
4	Sachin S. Gunthe	International workshop, "Atmospheric Composition and Asian Monsoon"	International Centre for Integrated Mountain Development, Nepal	10–13 June 2013
5	Devdas Menon	Workshop, "Structural Rehabilitation and Retrofitting Using Construction Chemicals"	IIT Bombay	24 September 2013
6	A. Boominathan	Workshop, "Soil Strength Improvement Techniques"	National Institute of Technology	26 September 2013
7	Ravindra Gettu	Workshop, "Structural Rehabilitation and Retrofitting Using Construction Chemicals"	IIT Bombay	25 September 2013
8	Balaji Narasimhan	River Ecosystem Workshop	IIT Kanpur	17–18 October 2013
9	A. Boominathan R.G. Robinson Subhadeep Banerjee	Workshop on Geotechnical Aspects in Infrastructure Development	The Indian Geotechnical Society, Madurai	25 January 2014
10	Sachin S. Gunthe	Workshop on Participate in Climate Science and Policy	IIT Bombay	6 February 2014
11	S.M. Shiva Nagendra	Workshop on GIS and Modelling Applications in Environmental Engineering	SJCE, Mysore	30 March 2014
12	A. Veeraragavan	The Review Workshop of Highway Capacity Manual—2014	CSIR, Chennai	28–30 March 2014
Seminars				
1	S.M. Shiva Nagendra	National Seminar on Biomass Burning and Its Impact on Global Climate	Sri Krishna College of Technology, Coimbatore	13 April 2013
2	R.G. Robinson	National Seminar on Recent Developments and Innovative Trends in Civil Engineering	Fatima Michael College of Engineering & Technology, Madurai	18 October 2013
3	S. Arul Jayachandran			
4	Gitakrishnan Ramadurai			
5	A. Veeraragavan	National Seminar on Use of Eco-friendly and Alternate Materials in Highway Constructions	Sir M. Visvesvaraya Institute of Technology, Bangalore	14–15 February 2014
		National Seminar on Research and Applications of Innovations in Highway Technology	M.S. Ramiah Institute of Technology, Bangalore	10–11 March 2014.
6	R. Sivanandan	ITS for Urban India—Application Issues and Challenges	Highway Development and Intelligent Transport Systems, Chennai	19 April 2014
Symposia				
1	Boominathan	Fifth International Geotechnical Symposium on Geotechnical Engineering for Disaster Prevention & Reduction, Environmentally Sustainable Development	University of Incheon, Republic of Korea	22–24 May 2013
2	Dali Naidu Arnepalli	Symposium on geotechnical practices (GeoPractices-2013)	Jawaharlal Nehru Technical University, Hyderabad	4 October 2013

Conferences				
1	Devdas Menon	International conference and exhibition on implementation challenges in precast construction for buildings and infrastructure projects, ICCICPC 2013 and Concrete Build Expo 2013	GVP College of Engineering, Visakapatnam	22 April 2013
2	S.R. Gandhi	DFI international conference, "Super Pile 2013"	Minneapolis, USA	15–16 May 2013
3	A. Boominathan	Seventh International Conference on Case Histories in Geotechnical Engineering	Chicago, USA	29 April to 4 May 2013
4	S.M. Shiva Nagendra	AOGS 2013	Brisbane, Australia	24–28 June 2013
5	G. Appa Rao	Nuclear Power Plant Structures, Rehabilitation of Structures, Fracture Mechanics and Pre-stressed Concrete	Andhra Pradesh Power Generation Corporation Limited, Ibrahimpatnam	8–9 August 2013
6	Ravindra Gettu	Innovative World of Concrete	Indian Concrete Institute, Hyderabad	24–25 October 2013
7	A. Veeraragavan	International Conference on Recent Innovations in Civil Engineering (IC_RICE)	Poojya Doddappa Appa College of Engineering, Gulbarga	25–27 October 2013
8	S.R. Gandhi	Indian Geotechnical Conference 2013	IIT Roorkee	22–24 December 2013
9	A. Boominathan			
10	Subhadeep Banerjee			
11	Vidya Bhushan Maji			
12	S.M. Shiva Nagendra	Water, Air and Soil Sampling and Analysis (WASSA-2014)	National Institute of Technology Calicut	12 March 2014
Training programmes				
1	S.R. Gandhi	In-house Training Programme	Larsen & Toubro, Chennai	4 March 2014
Short-term courses				
1	G.R. Dodagoudar	Short Term Course on Reliability Analysis and Design of Sub-structures	National Institute of Technology Tiruchirappalli	3–4 October 2013

Special lectures delivered by faculty members at other institutions

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Topic of Lecture</i>	<i>Institution</i>	<i>Date</i>
1	K. Srinivasan	Sustainable Water Resources Planning, Management and Impact of Climate Change	Birla Institute of Technology and Science, Hyderabad	4–6 April 2013
2	S.M. Shiva Nagendra	Urban Air Pollution and Environmental Health	Madras Medical College, Chennai	4 April 2013
3	Arun Menon	Conservation Engineering	Kumaran College of Technology, Coimbatore	4–5 April 2013
4	S.M. Shiva Nagendra	Emission inventory of domestic air pollutants emerging from open biomass burning	Sri Krishna College of Technology, Coimbatore	13 April 2013
5	Amlan K. Sengupta	Seismic Retrofitting of Buildings	B S Abdur Rahman University	18 April 2013
6	S.R. Gandhi	Retrofitting of Foundations	Indian Geotechnical Society, Cochin	20 April 2013
7	Devdas Menon	Rapid affordable mass housing using GFRG panels	GVP College of Engineering, Visakapatnam	22 April 2013

8	G. Appa Rao	Nuclear Power stations Rehabilitation of Structures	Training Institutes, Dr. NTTPS, Ibrahimpatnam	30 April to 3 May 2013
9	A. Veeraragavan	Rural Road Construction and Maintenance	NIT Trichy	8–9 May 2013
10	A. Boominathan	Non-Linear Seismic Response Analysis by Endocronic Approach	University of Incheon, Republic Korea from	22–24 May 2013
11	G.R. Dodagoudar	Geotechnical Earthquake Engineering – Ground motion, Dynamic Soil Properties and Liquefaction. Ground Improvement Techniques	Annasaheb Dange College of Engineering & Technology, Mumbai	17–19 June 2013
12	G.R. Dodagoudar	Sensors in Geotechnical Engineering Research – Theory and Applications	College of Civil Engineering, Trivandrum	27 June 2013
13	G.R. Dodagoudar	Geotechnical Earthquake Engineering: Theory and Applications	Rajiv Gandhi Institute of Technology Kottayam, Kerala	1–2 July 2013
14	Arun Menon	Earthquake Resistant Design of Structural Rehab	Rajiv Gandhi Institute of Technology, Kottayam	2–3 July 2013
15	A. Meher Prasad	New Building Technologies for Low cost Housing	National Symposium on Affordable Housing, Ministry of Housing and Urban Poverty Alleviation, New Delhi	22 July 2013
16	K. Rajagopal	Experience with construction of very high reinforced soil retaining walls in India”	National Institute of Technology Rourkela	23 July 2013
17	Amlan K. Sengupta	Investigation of the Stresses due to Mid-Jacking Operation on a Precast Segmental Bridge Deck	68th Meeting of the Highway Research Board, Indian Roads Congress	13 August 2013
18	R.G. Robinson	Understanding Ground	SSN College of Engineering	16 August 2013
19	R.G. Robinson	Physical Modeling in Geotechnical Engineering	National Institute of Teachers Training & Research, Taramani	30 August 2013
20	Rupen Goswami	Earthquake Protection of Buildings	Disaster Management Authority	24 August 2013
21	T. Thyagaraj	Stabilization of Expansive Soil	National Institute of Teachers Training & Research, Taramani	29 August 2013
22	Devdas Menon	Invited lecture to faculty and students	AISAI, Kochi	30 August 2013
23	Devdas Menon	A Good Work Culture	LBS Institute of Technology for Women, Trivandrum	6 September 2013
24	Devdas Menon	Rehabilitation of a Tsunami Damaged Lighthouse at Little Andaman	IIT Bombay	25 September 2013
25	Ligy Philip	Sustainable Water and Wastewater Management in the Campuses	Amrita School of Engineering, Coimbatore	5 September 2013
26	J. Muralikrishnan	Modified Binder Specifications	National Institute of Technology, Calicut	23 September 2013
27	Dali Naidu Arnepalli	Evaluation of Geosynthetic Liner Long-Term Performance under Landfill Conditions	Jawaharlal Nehru Technical University, Hyderabad	3 October 2013
28	B. Nageswara Rao	Reliability Analysis of Structural Systems	National Institute of Technology Trichirappalli	3–4 October 2013
29	G.R. Dodagoudar	Reliability Analysis of Geotechnical Systems	National Institute of Technology Trichirappalli	3–4 October 2013
30	R.G. Robinson	Soft Clay Engineering	Fathima Michael College of Engg. & Tech, Madurai	18 October 2013
31	S. Arul Jayachandran	Fast Track Constructions		
32	Gitakrishnan Ramadurai	Intelligent Transport Systems		
33	S.M. Shiva Nagendra	Urban Air Pollution Issues		
34	Ravindra Gettu	Effect of Fly Ash Blended Cement on Chloride Induced Corrosion of Reinforcement in Concrete	Indian Concrete Institute, Hyderabad	25 October 2013

35	Amlan K. Sengupta	Seismic Retrofitting of Buildings	Building Technology Centre, Anna University	25 November 2013
36	S.M. Shiva Nagendra	Urban Air Quality Management	Institute of Engineers, Gulbarga	20 December 2013
37	A. Veeraragavan	Sustainable Roads of the Future- Innovations in Design, Construction and Maintenance	Sir M. Visvesvaraya Institute of Technology, Bangalore	4–15 February 2014
38	A. Veeraragavan	Recent Developments in Pavement Construction Technology	MS Ramiah Institute of Technology, Bangalore	10–11 March 2014
39	A. Veeraragavan	Concrete Pavements for Sustainable Road Infrastructure	Jeppiar Engineering College	13 March 2014
40	S.R. Gandhi	Innovations in Design and Construction of Foundations	Larsen & Toubro, Chennai	4 March 2014
41	S.M. Shiva Nagendra	Air Pollution Dispersion Modeling	Central Leather Research Institute, Chennai	13 March 2014
42	S.M. Shiva Nagendra	Simulation of Air Quality in Urban areas	Sri Jayachamarajendra College of Engineering, Mysore.	30 March 2014

Visits abroad by faculty

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit
1	C.V.R. Murty	Malaysia	10–11 April 2013	Symposium on Earthquake Engineering—Malaysia & Asia Pacific Region
2	G. Appa Rao	USA	14–18 April 2013	ACI Spring 2013 Convention—Responsibility in Concrete Construction
3	R. Sivanandan	France	25–28 April 2013	French Institute of Science & Technology for Transport, Development and Networks
4	Koshy Varghese	UK	3–13 May 2013	University of London to discuss collaborative research Salford University for Construction Management Programme Cambridge University for Construction Engineering and Technology
5	S.R. Gandhi	USA	14–17 May 2013	“Super Pile 2013” at Minneapolis, USA
6	Balaji Narasimhan	USA	16 May to 9 July 2013	Research collaboration in hydrologic modelling
7	Indumathi M. Nambi	USA	21–24 May 2013	To visit University of Illinois at Urbana, Champaign, USA
		France		To visit Veolia Water Universities Club in Lyon, France
8	Ligy Philip	Africa	26 May to 8 June 2013	To attend the national “Healthy Village” programme
9	Sivakumar Palaniappan	France	10–12 July 2013	Life Cycle Assessment and Construction 2012 Symposium
10	Sachin S. Gunthe	Germany	14 June to 1 July 2013	Collaborative research work, Max Planck Institute
11	Balaji Narasimhan	France	11–19 July 2013	International Soil and Water Assessment Tool at Toulouse, France
12	Ligy Philip	Germany	2–5 July 2013	IGCS Summer School on “Sustainable development of future urban environments: Integrated approaches for water waste management”
13	B.S. Murthy	Germany	2–5 July 2013	IGCS summer school, Sustainable Development of Future Urban Environments: Integrated Approaches for Water Waste Management
14	K.P. Sudheer	USA	10–14 June 2013	Joint Research Workshop at Purdue University
15	S.M. Shiva Nagendra	Australia	24–28 June 2013	AOGS Conference 2013
16	S.M. Shiva Nagendra	Singapore	3 July 2013	To visit IAQ laboratory in NUS

17	Koshy Varghese	Canada	12–14 August 2013	30th International Symposium on Automation and Robotics in Construction and Mining
18	Manu Santhanam	Kyoto, Japan	18–21 August 2013	Third International Conference on Sustainable Construction Materials and Technologies
19	Radhakrishna G. Pillai	Kyoto, Japan	18–22 August 2013	Third International Conference on Sustainable Construction Materials and Technologies
20	Ravindra Gettu	Kyoto, Japan	18–22 August 2013	Third International Conference on Sustainable Construction Materials and Technologies
21	Ravindra Gettu	Paris, France	31 August to 5 September 2013	Meeting of RILEM, the International Association of Laboratories and Experts in Construction Materials, Systems and Structures—Technical Committee and Board Meeting in conjunction with an international conference on rheology
22	Ravindra Gettu	Milan, Italy	8–12 September 2013	To visit Politecnico di Milano Indo-Italy project on self-healing of concrete
23	Ligy Philip	Africa	21–25 October 2013	National “ Health Village” programme
24	Ravindra Gettu	Brazil	27–31 October 2013	55th Brazilian Congress on Concrete—55CBC
25	K.P. Sudheer	Australia	4 November to 29 December 2013	Emerging Leaders Fellowship from Australia India Institute, Melbourne University for advanced research and networking
26	K. Anantha Narayana	Malaysia	6 November 2013	Second Asian Consortium Department of Economics Conference 2013
27	K. Rajagopal	Ghana	16–20 November 2013	Second African Regional Conference on Geosynthetics
28	Gitakrishnan Ramadurai	UK	21–23 November 2013	IIT Alumni Association UK Conference
29	U. Saravanan	Houston, USA	1–11 December 2013	Workshop, “On Collaboration with Universities in Texas and Pan IIT Meet 2013”, organized by Dean International Relations, IIT Madras
30	Ravindra Gettu	South Africa	2–4 December 2013	10th International Symposium on Advancements in Cement and Concrete Technologies
31	Benny Raphael	USA	2–5 December 2013	Conference on Autodesk University
32	S.R. Satish Kumar	Sri Lanka	13–15 December 2013	International Conference on Structural Engineering and Construction Management
33	Koshy Varghese	Sri Lanka	13–14 January 2014	To attend a meeting and have discussion with construction management faculty at University of Moratuwa
34	Alagusundaramoorthy	USA	13–17 January 2014	TRB 93rd Annual Meeting at Washington and to visit University of Kentucky, Lexington, USA
35	A. Boominathan	Russia	5–7 February 2014	International Geotechnical Conference
36	A. Boominathan	Korea	22–24 May 2013	Fifth International Geotechnical Symposium
37	A. Boominathan	USA	29 April to 4 May 2013	Seventh International Conference on Case Histories in Geotechnical Engineering
38	P. Alagusundaramoorthy	Muscat, Oman	8–9 February 2014	To attend meeting and have discussion on projects on Joint Development Agreement(JDA) Consultancy
39	Ravindra Gettu	Belgium	8–13 March 2014	Annual Spring Meeting of RILEM
40	Manu Santhanam	Belgium	9–12 March 2014	RILEM strategic workshop, Brussels

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of award
Honours					
1	Ravindra Gettu	Member of the CSIR-Structural Engineering Research Centre, Chennai for a period of three years (2013–2016)	CSIR		

2	Ravindra Gettu	Outstanding contributions in the field of Sustainable Construction Materials	Japan Concrete Institute, Japan
3	A. Veeraragavan	Member of the Research Council	CSIR-Central Road Research Institute, New Delhi for a period of three years.
4	A. Veeraragavan	Chairman of Research Council	National Transportation Planning and Research Centre (NATPAC)
5	R. Sivanandan	Member of the Expert Committee to review the National Urban Transport Policy 2006	Ministry of Urban Development, Govt. of India.
6	R. Sivanandan	Member, Board of ICSR	IIT Madras
7	C.V.R. Muthy	Appointed as Director	IIT Jodhpur
8	A. Boominathan	President	Chennai Chapter of Indian Geotechnical Society
9	R. Sivanandan	Reviewed a proposal for Science & Engineering Research Board	Department of Science and Technology

Awards

1	Benny Raphael	Best Paper Award	International Conference on Civil and Building Engineering Informatics, Tokyo	Paper presented at the conference	8 November 2013
2	Amlan K. Sengupta	Suchit K. Ghosh Memorial Prize	The Institution of Engineers (India)	The best paper published in the <i>Series 'A' Journal</i>	20 December 2013
3	Lelitha Devi	Bhagyalakshmi-Krishna Ayengar Award	IIT Madras	Guiding the best M.S. thesis in the area of infrastructure improvement	2013
4	Devdas Menon	Distinguished Service to the Institute Award	IIT Madras	Contributions to the legacy and future of IIT Madras	2014

Books and monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
Books				
1	B. Raphael	<i>Engineering Informatics: Fundamentals of Computer Aided Engineering</i>	John Wiley	I.F.C. Smith
2	Sivakumar Palaniappan	<i>Proceedings of the International Conference on Advances in Building Sciences, 2013</i>	Department of Civil Engineering, IIT Madras	Ashwin Mahalingam
3	Saravanan U.	<i>Advanced Solid Mechanics</i>	NPTEL	—
4	C.V.R. Murty	<i>Some Concepts in Earthquake Behaviour of Buildings</i>	Gujarat State Disaster Management Authority, Gandhinagar	R. Goswami, A.R. Vijayanarayanan and V.V. Mehta
5	C.V.R. Murty	<i>Introduction to Earthquake Protection of Non-structural Elements in Buildings</i>	Gujarat State Disaster Management Authority, Gandhinagar	R. Goswami, A.R. Vijayanarayanan, V.V. Mehta and R. Pradeep Kumar
6	C.V.R. Murty	<i>How to Build a Safe House with Confined Masonry</i>	Gujarat State Disaster Management Authority, Gandhinagar	K. Iyer, S.M. Kulkarni, S. Subramaniam, R. Goswami and A.R. Vijayanarayanan
7	A. Veeraragavan	<i>Highway Engineering</i> —revised 10th edition	Nemchand & Bros.	S.K. Khanna and C.E.G. Justo

Fellowships of academies and professional societies

Details	Name of Faculty Member	Year of Admission
IGBC Chennai Chapter—Core Committee member	Benny Rapheal	2013
Indian Roads Congress	Rupen Goswami	2003

Journal Editorial Boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	K.P. Sudheer	Associated Editor	<i>Journal of Hydrology and Hydromechanics (JHH)</i>
2	B. Nageswara Rao	Member, Editorial Board	<i>International Journal on Structural Monitoring & Maintenance</i>

4.6.4. Design and Development Activities

Structural Glass Research and Testing (SGRT) Facility was inaugurated on 26 July 2013 by the Director, IIT Madras.

Brief and specific details of process/instruments/equipment/software designed and developed

Dali Naidu Arnepalli. Development of Geoenvironmental Research Laboratory, which houses state-of-the-art equipment such as an atomic absorption spectrophotometer, UV–vis spectrophotometer, UV weatherometer, gas chromatography equipment, flexible wall permeameter, ultra-sieve shaker, gas permeability and diffusion test setups, geotechnical centrifuge, melt-indexer, environmental stress crack resistance apparatus, ultra gas pycnometer and time domain reflectometer

Lelitha Devi. An inductive loop sensor for traffic data collection under Indian conditions

Lelitha Devi. A dynamic bus tracking and bus arrival prediction system

Venuchandra. Developed a new laboratory facility in the towing tank, i.e. hydraulic rectangular flume of length 15 m, width 0.9 m and height 1.0 m, to carry out research in experimental hydraulics

Sivakumar Palaniappan. Procured five licenses of a professional discrete-event simulation tool called “ExtendSim” using a new faculty seed grant. This software is available at the Department Computer Facility (DCF). This will be useful to research scholars working in the areas of construction management, lean construction and simulation based modeling of construction processes.

New facilities added or major equipment procured

Sl. No.	Name of Equipment	Value (in lakhs of ₹)
1	Constant pressure controller	3.09
2	Dell precision system	1.34
3	Computer system	1.39
4	HP Compaq system	3.38
5	Upgrading of software	3.18
6	Load cell	3.96
7	ACDC welding machine	6.00
8	Dell precision system	4.69
9	Intel systems (4)	2.67
10	Torque sensor	2.57
11	DC Amplifier	14.45
12	AMPT Uniaxial Fatigue Kit	2.96
13	Automatic titrator	3.93
14	Digital point gauge	2.56
15	Environment chamber	4.25
16	Rock drilling machine	2.88
17	Laser kit	2.02
18	Autosampler	3.46
19	FLAC3D software—ITASCA	18.79

20	Intel processor (4)	2.12
21	Rheometer	11.92
22	Air-cooled chiller	2.33
23	Portable Aensel spectrometer	16.98
24	Measuring amplifier	1.94
25	SASSI software	4.58
26	KD2 Pro Thermal	4.20
27	Portable Debar corrosion analyser	8.27
28	Indirect tensile kit and accessories	12.00
29	GCMS and accessories	50.77

4.6.5. Research and Consultancy

Sponsored Research Projects

Number of projects: 11

Value of projects: ₹2,311.00 lakhs

Sl. No.	Title	Period	Agency	Value (in lakhs of ₹)	Principal Investigator
1	Deep stabilization of expansive soil using fly ash	19 April 2013 to 18 April 2016	Department of Science & Technology	33.18	Thyagaraj T.
2	Studies on behaviour of reinforced concrete shear walls with various aspect ratios (DAE-Graduate Fellowship Scheme - DGFS)	15 April 2013 to 14 April 2014	Board of Research in Nuclear Sciences	4.00	Appa Rao G.
3	Indo-German partner group on atmospheric sciences	31 March 2013 to 30 March 2016	Indian German Science & Technology Center	40.50	Sachin S. Gunthe
4	Proposal for Induction of Fly Ash subject in Civil Engineering Curriculum	19 April 2013 to 18 October 2014	Department of Science & Technology	25.11	Thyagaraj T.
5	National Centre for Safety of Heritage Structures (NCSHS)	4 July 2013 to 31 March 2018	Ministry of Human Resource and Development	1211.50	Murty C.V.R./ Arun Menon
6	Sustainable decentralized waste management in urban residential areas	25 July 2013 to 24 July 2016	Department of Science & Technology	44.39	Ligy Philip
7	Characterizing properties of atmospheric aerosols to understand climatic and health impact	25 September 2013 to 24 September 2016	Department of Science & Technology	91.71	Sachin S. Gunthe
8	Centre for Environment Technology Dissemination, Demonstration and R&D for Industrial pollution Abatement	16 September 2013 to 15 September 2016	Tamil Nadu Pollution Control Board	500.00	Indumathi M. Nambi
9	CoE of MoUD (Phase II) Performance Evaluation Study of Sewerage Treatment Plants sanctioned under CBULB Scheme	1 January 2014 to 31 March 2018	Ministry of Urban Development	272.00	Ligy Philip
10	Development of robust data assimilation techniques for nonlinear dynamical systems	17 March 2014 to 31 March 2016	Board of Research in Nuclear Sciences	21.77	Nageswara Rao B.
11	Conservation and retrofitting of Sri Kedarnath Temple, Uttarakhand	NULL	Archeological Survey of India	66.84	Arun Menon

RBIC projects

Number of projects: 20

Value of projects: ₹204.95 lakhs

Sl. No.	Faculty Member	Title	Agency	Value (in lakhs of ₹)
1	Radhakrishna G. Pillai	Performance evaluation of corrosion inhibitors for reinforced concrete systems	ICOMAT Pvt. Ltd.	2.50
2	Ashwin Mahaligam	Case studies of public private partnerships in infrastructure in India	IDFC Foundation	9.57
3	Arul Jayachandran S.	Structural Glass Research and Testing Facility	Glazing Society of India	22.47
4	Satish Kumar S.R.	Study the feasibility to use bolted joints/ riveted joints instead of welding joints to reduce the erection cycle time	Bharat Heavy Electricals Ltd.	0.67
5	Appa Rao G.	Development of special polymer concrete structure for machine base and moving parts of Horizontal milling machine	MTAB Engineers Pvt. Ltd.	3.37
6	Alagusundaramoorthy P.	Hauling the submarine for TTDC, Govt. of Tamilnadu	Tradex Shipping Co. (P) Ltd.	8.99
7	Alagusundaramoorthy P.	Soil investigation and structural design of multistoreyed buildings for slum clearance board	Tamilnadu Slum Clearance Board	19.66
8	Indumathi M. Nambi	Sustainable Irrigation using Treated Textile Effluent	Vardhman Textiles Ltd.	28.45
9	Alagusundaramoorthy P.	Soil investigation and analysis and design of multistoreyed building for Slum Clearance Board	Tamilnadu Slum Clearance Board	19.66
10	Ashwin Mahaligam	Developing a case study on the tirupur water supply project	Tamilnadu Infrastructure Development Board	1.35
11	Koshy Varghese	Development & Evaluation of Virtual Models for planning and Execution of ESP Projects	Bharat Heavy Electricals Ltd.	11.80
12	Manu Santhanam	Studies on Permissible Temperature for High Density Concrete in FBR Vault	Indira Gandhi Centre for Atomic Research	21.64
13	Manu Santhanam	Cement Bonded High Performance Systems	Saint - Gobain Research India Ltd.	12.98
14	Koshy Varghese	Representation of GFRG structures using building information models (BIM)	Building Materials & Technology Promotion	6.00
15	Dodagoudar G.R.	Probabilistic quality assurance and acceptance sampling strategies for construction applications residential complex building at Anna Nagar and Hostel building at Anna Salai	S P Infocity	15.00
16	Koshy Varghese	Optimization study for PEB structures for Automobile Assembly Requitrements	Mahindra vehicle Manufacturers Ltd.	2.25
17	Ligy Philip	Study on polluted River Stretches	Tamil Nadu Pollution control Board	2.50
18	Arul Jayachandran S.	Preparation of draft code on steel concrete composite box girder bridges for IRC	Institute for Steel Development & Growth	3.46
19	Ashwin Mahaligam	British High Commission - Post Award Governance Strategics for Public Private Partnerships (PPPs) in India	Athena Infonomics India Private Ltd.	7.00
20	Nageswara Rao B.	Experimental Study on CICABLOC Wall	CICABLOC Construction Private Limited	5.62

Industrial consultancy projects

Number of projects: 162

Value of projects: ₹921.34 lakhs

Sl. No.	Principal Investigator	Title	Agency	Value (in lakhs of ₹)
1	Rajagopal K.	Connection strength between modular blocks and green block facia elements	Green Infrastructure Systems Pvt. Ltd.	1.69
2	Ravindra Gettu	Testing of shotcrete for tunnels in the Jammu–Udhampur Road Project	Afcons Infrastructure Ltd.	2.25
3	Rajagopal K.	Proof checking of designs and laboratory testing for strength of geosynthetic reinforcements	Techfab India	4.21
4	Devdas Menon	Testing of HT strands and elastomeric bearings	Common Code	2.22
5	Devdas Menon	Proof checking of CMRL-Metro headquarters building structural designs	Chennai Metro Rail Ltd.	20.53
6	Satish Kumar S.R.	Checking of PEB design for NS Instruments	Zamil Steel Buildings (I) Pvt. Ltd.	3.37
7	Satish Kumar S.R.	Proof checking of PEB for TNAMB in Tamil Nadu	Mahadev Profiles Pvt. Ltd.	1.20
8	Alagusundaramoorthy P.	Proof checking the design and vetting the design of jump form system	Paharpur Cooling Towers Ltd.	3.93
9	Devdas Menon	Dynamic load test of concrete sleepers	GPT Infra Projects Ltd.	3.37
10	Meher Prasad A.	Proof checking of peer review of structural design—Banyan Block (B+S+G+7) —Orchards Project, Devanahalli	BCV Developers Pvt. Ltd.	12.92
11	Arul Jayachandran S.	Design of 30000 KL steel tank superstructure and miscellaneous mechanical works at Irimpanam for BPCL	Bharat Petroleum Corporation Ltd.	3.37
12	Gandhi S.R.	Foundation consultancy	Common Code	0.67
13	Rajagopal K.	Recommendation of connection strength between facing blocks and strata geogrids	Strata Geosystems (India) Pvt. Ltd.	3.37
14	Koshy Varghese	Proof checking of drawings for movable winch and cast in-situ formwork for Hyderabad	Larsen and Toubro Ltd.	22.47
15	Nageswara Rao B.	Design calculation and certification for spreader beam	Common Code	0.25
16	Ligy Philip	Audit of TNWML operated CHWTSDF in Gummidipoondi	Industrial Waste Management Association	1.12
17	Shiva Nagendra S.M.	Performance evaluation of existing desox system and conducting environmental compliance audit	Saint-Gobain Glass India Ltd.	8.43
18	Alagusundaramoorthy P.	Assessment, repair and rehabilitation of fire damaged Hatsun building	Hatsun Agro Products Ltd.	5.06
19	Satyanarayana K.N.	Lean construction training and implementation programme	Institute for Lean Construction Excellence	33.71
20	Meher Prasad A.	Testing of jack calibration	Common Code	1.01
21	Appa Rao G.	Assessment of quality of concrete, testing of materials and proof checking of design drawings	Common Code	1.96
22	Devdas Menon	Testing of load transfer (6)	Dynamic Prestress (I) Pvt. Ltd.	3.37
23	Devdas Menon	Proof checking of construction of 100 bed ESI Hospital at Doddaballapur	Technicaliya Consultants Pvt Ltd.	8.43
24	Devdas Menon	Testing of drying and shrinkage expansion and effective bearing area	Fosroc Chemicals (India) Ltd.	1.12

25	Appa Rao G.	Safety assessment of Food Sciences and Technology Block with additional floor	Pondicherry University Engineering Wing	3.00
26	Robinson R.G.	Stabilization method for yielding formation between Haripad and Ambalapuzha	Southern Railway	3.37
27	Arul Jayachandran S.	Design and structural adequacy checking of steel structural components and systems	Common Code	0.84
28	Arul Jayachandran S.	Proof checking the designs of (i) bolted and (ii) hollow section connections	Larsen and Toubro Ltd.	2.25
29	Arul Jayachandran S.	Proof checking the design of barrack, Hostel-I, GMR, Bajoli, hydro power project	Design & Engineering Department	1.39
30	Rajagopal K.	Vetting of design calculations and recommendations on canal lining using geosynthetics	Punjab Irrigation Department	1.69
31	Satish Kumar S.R.	Proposed residential apartment at ECR Reflection	Olympic Merlin Developers Pvt. Ltd.	2.81
32	Arul Jayachandran S.	Assessment of structural adequacy of a new PEB hanger	Sree Kailas	1.28
33	Arul Jayachandran S.	Design of boiler supporting tower steel structure as per IS:800 (2007)—ASD	Hitachi Power Europe GMBH	5.00
34	Boominathan A.	Investigation on the impact of structures provided in the project on water bodies	National Highways Authority of India	2.25
35	Alagusundaramoorthy P.	Soil investigation and structural design of multistoreyed buildings for Slum Clearance Board	Tamil Nadu Slum Clearance Board	10.39
36	Devdas Menon	Proof checking of six laning of Chilaluripet–Nellore section of NH 5 from km 1182.802 to km 1366.547 in the state of Andhra Pradesh	Simhapuri Expressway Ltd.	7.19
37	Boominathan A.	Investigation on settlement of breakwaters at Fishing Harbour of Chettuva	Harbour Engineering Department	2.25
38	Alagusundaramoorthy P.	Evaluation of failure mode and repair and rehabilitation of cantilever retaining wall	Gamesa Wind Turbines Pvt. Ltd.	1.69
39	Thyagaraj T.	Foundation recommendations for 41 MLD infiltration gallery and intake well for Bankura project	Larsen and Toubro Ltd.	1.69
40	Devdas Menon	Proof checking of construction of bridge between Ottumpuram in Thanur and Kettungal Kadav in Parappangadi Panchayat in Malappuram District	Seguro Foundations & Structures Pvt. Ltd.	2.64
41	Arul Jayachandran S.	Evaluation of coupler product under tension and compression	Sanrok Enterprises	2.53
42	Satish Kumar S.R.	Proof checking of PEB for GE India	Tata Blue Scope Steel	5.62
43	Alagusundaramoorthy P.	Assessment and strengthening of retaining wall for IOCL, Trichy	Gas Projects India Pvt. Ltd.	1.69
44	Ligy Philip	TSS and turbidity monitoring at Kattupalli shipyard cum port	Larsen & Toubro Shipbuilding Ltd.	2.68
45	Satish Kumar S.R.	Proof checking of PEB for SC Kindler India at Chakan	Pennar Engineered Building Systems Ltd.	4.94
46	Devdas Menon	Testing of HT strands and elastomeric bearing	Common Code	3.16
47	Alagusundaramoorthy P.	Vetting of the design and drawings of water treatment plant and intake structure for Patna	Bihar Urban Infrastructure Development Corporation Ltd.	32.87
48	Appa Rao G.	Quality assessment and core testing of concrete for K.V. Bagalkot (Karnataka)	Hindustan Steelworks Construction Ltd.	2.09
49	Devdas Menon	Proof checking of four laning of Narketpalli–Addanki–Medarametla road(SH-2) from km 0.000 to km 212.500 in the state of Andhra Pradesh	Ramky Infrastructure Ltd.	4.44

50	Venu Chandra	Foundation recommendations for intakes at Rajmahal and Sahibganj	Larsen and Toubro Ltd.	2.25
51	Thyagaraj T.	Recommendation for foundation soil and filter material for its use in embankment work	Indu Projects Ltd.	1.12
52	Devdas Menon	Proof checking of construction of trainees' and farmers' hostel at Horticulture Management Training, Thally, Krishnagiri District under NADP	Tamil Nadu Horticulture Development Agency	2.43
53	Devdas Menon	Proof checking the design and drawing of Pettah ROB	Thiruvananthapuram Road Development Company Limited	1.80
54	Rajagopal K.	Design of ground improvement work for construction of bridge across Olavippu Kayal in Thuravoor	Seguro Foundations & Structures Pvt. Ltd.	1.35
55	Ligy Philip	Testing Aquatain Waterguard	Secuforce Facility Services	3.37
56	Dali Naidu Arnepalli	Review of design drawings for construction of secured landfill facility at VAL	Gareware-Wall Ropes Ltd.	2.25
57	Appa Rao G.	Proof checking of bridge design and drawings (LC-52, LC-375, LC-356)	Rawatsons Engineers Pvt. Ltd.	2.45
58	Arul Jayachandran S.	Evaluation of the coupler product as per RDSO specifications	Sanrok Enterprises	5.06
59	Appa Rao G.	Safety and stability checking of ROB (Design and Drawings) Jamtara Dumka Section (ROB at ch.562km)	Ramky Infrastructure Ltd.	4.78
60	Manu Santhanam	Evaluation of barite waste as fine aggregate and filler	Trimex Industries Ltd.	3.60
61	Alagusundaramoorthy P.	Analysis and design of raw water conduits	Siva Swathi Constructions Pvt. Ltd.	1.77
62	Alagusundaramoorthy P.	Analysis and Design of Residential Flats	Deepak Kumar D. Jain	6.31
63	Devdas Menon	Testing of POT/PTEF Bearing	Dynamic Prestress (I) Pvt. Ltd.	1.57
64	Robinson R.G.	Consultancy charges for recommendation of treatment of expansive soil	Airports Authority of India	2.25
65	Gandhi S.R.	Consultancy services for review of soil data at Godda Power Plant	Jindal Power Ltd.	5.62
66	Gandhi S.R.	Construction of bulidings for National Institute of Technology, Manipur	Central Public Works Department	2.47
67	Devdas Menon	Testing of HTS Strands & Bearings	Common Code	3.75
68	Alagusundaramoorthy P.	Analyzing and design of structures for differnt applications	Common Code	0.84
69	Ravindra Gettu	Testing of shotcrete panels for the Chennai-Nashri Tunnel Project	Leighton Welspun Contractors Pvt. Ltd.	4.94
70	Indumathi M. Nambi	Characterisation of oil spil site @ Tondiarpet	Bharat Petroleum Corporation Ltd.	11.80
71	Boominathan A.	Controlling post rain damages due to surface run off and external subsoil water for CIL installation in Rajasthan	Cairn India Ltd.	32.25
72	Gandhi S.R.	Consultancy services for design of ashy dyke above ground level for disposal of HCSD ash from Power Plant and Process Boiler	Jindal Steel & Power Ltd.	3.37
73	Satish Kumar S.R.	Provision of Hangar and Allied Facilities at 2 Acres land at Bhubneswar	Helios Consulting Engineers	1.35
74	Gandhi S.R.	Consultancy services for compilation of geotechnical report, recommendation for foundation system	Indian Institute of Management Tiruchirappalli	5.62

75	Ravindra Gettu	Evaluation of shotcrete for the Krishanganga Hydroelectric project, Bandipora, Jammu & Kashmir	Hindustan Construction Co. Ltd.	4.94
76	Alagusundaramoorthy P.	Analyzing and Testing of Strands, Bearing Pads and Structural Elements for Civil Infrastructure Applications	Common Code	0.38
77	Alagusundaramoorthy P.	Repair and rehabilitation of form filling sealing (FFS) section of Caress Beauty Care Building and Ponds Cold Cream Line Building	Caress Beauty Care Products Pvt. Ltd.	5.06
78	Rajagopal K.	Consultancy services for ground improvement work for the construction of new board gauge line in Orissa	Bharat Geosystems Pvt. Ltd.	1.69
79	Rajagopal K.	Design of canal lining system for sirhind and Rajasthan feeder canals	Punjab Irrigation Department	16.85
80	Alagusundaramoorthy P.	Condition Assessment of Software Development Block-1	Larsen and Toubro Ltd.	2.81
81	Dali Naidu Arnepalli	Review of design drawings for construction of secured landfill facility at JSW Steel limited, Toranagallu, Bellary, Karnataka.	Gareware-Wall Ropes Ltd.	2.25
82	Devdas Menon	Proof checking of post tension slab designs of CPWD	Central Public Works Department	2.25
83	Alagusundaramoorthy P.	Investigation on the uplift/settlement of sulphuric acid plant's rack columns and remedial measures	Southern Petrochemical Industries and Construction Ltd.	2.25
84	Gandhi S.R.	Rectification of damage, advisory services to ONGC MPL at Aromatic Complex Project	Oil and Natural Gas Corporatoin Ltd.	13.10
85	Shiva Nagendra S.M.	Air pollution dispersion study at Hyundai Motors India Ltd.	Hyundai Motor India Ltd.	6.07
86	Meher Prasad A.	Vibration and crack analysis of GG VI building	Tata Consultancy Services	7.87
87	Meher Prasad A.	Structural design including foundationn for 150 m high self support steel tower and joint details of fixture and fixing arrangement for cables, aviation lights, antennals, ladders ,etc.	All India Radio	6.74
88	Devdas Menon	Consultancy charges towards inspection of the bridge, review of NDT test results, technical advice for lifting of the bridge	Southern Railway	1.12
89	Arul Jayachandran S.	NDT evaluation of the superstructure of Scherzer span (span no. 114) of the Pamban Bridge (Br. No. 346) in MMM–RMMM section	Southern Railway	8.99
90	Arul Jayachandran S.	Experimental evaluation of aluminium tower	Sobha Developers Ltd.	1.46
91	Meher Prasad A.	TWAD Board—design prepared for overhead tanks for various capacities by TWAD Board	Tamil Nadu Water Supply and Drainage Board	3.37
92	Devdas Menon	Testing of H.S. strands & relaxation test and bearing test	Common Code	1.80
93	Gandhi S.R.	Consultancy of geotechnical design for delayed coker unit, CPCL	Heurtey Petrochem	2.25
94	Robinson R.G.	Doubling of railway track, Kerala	Bharat Geosystems Pvt. Ltd.	1.69
95	Meher Prasad A.	Testing of impact load test of air spring bracket	Wheels India Ltd.	5.62
96	Devdas Menon	Proof checking of ROB at Ch: 125+605 of NH 67	Transstory Trichy–Karaikudi Tollways Pvt. Ltd.	5.39
97	Alagusundaramoorthy P.	Proof checking the design and vetting the drawings of an industrial building at Cellore for SAMCO Metal & Alloys	Unique Roof Private Ltd.	2.36
98	Nageswara Rao B.	HTS strands—mechanical and relaxation testing	Common Code	1.69

99	Nageswara Rao B.	Anchorage efficiency, load transfer, sheeting pipe testing	GVR Infra Projects Ltd.	2.16
100	Dodagoudar G.R.	Witnessing the pile load test and vetting the result for RBI residential complex building at Anna Salai, Chennai and pile eccentricity mapping	S P Infocity	3.20
101	Devdas Menon	Proof checking of design calculations and drawings of bridge at Kandappanchal, Kozhikode (arch bridge—resting on soil)	Sree Giri Consultants	1.80
102	Gandhi S.R.	Construction of check dam across Bharathapuzha at Mannannur in Palakkad District	Irrigation Design & Research Board	2.25
103	Appa Rao G.	Characterization of engineering materials and verification of design and drawing	Common Code	0.90
104	Arul Jayachandran S.	Axial compression tests on circular hollow section (CHS) tubes—service load and ultimate load tests	CCCL Infrastructure Ltd.	1.12
105	Satish Kumar S.R.	NDT evaluation and suggestion of repair strategy to UAV hangar at naval base, Kochi	Naval Project	3.37
106	Veeraraghavan A.	Investigation of distresses on bridge deck and suggesting remedial measures	National Highways Authority of India	1.12
107	Devdas Menon	Load transfer test on 19DP15 (3 nos.)	Dynamic Prestress (I) Pvt. Ltd.	1.69
108	Arul Jayachandran S.	Design verification of ceiling structures for meeting the NTPC stipulations (WSM)	Hitachi Power Europe GMBH	2.09
109	Satish Kumar S.R.	Proof checking of PEB design for SMCC-TOYOTA-TSUSHO	Tiger Steel Engineering	4.00
110	Ligy Philip	Evaluation of production capacity at CETP, Tirupur	Mannarai Common Effluent Treatment Plant Pvt. Ltd.	3.93
111	Dodagoudar G.R.	Verification of BBS for RBI residential complex building at Anna Nagar and hostel building at Anna Salai, Chennai	S P Infocity	3.00
112	Gandhi S.R.	Consultancy service for benzene tank at OMPL—Mangalore site	Vishal Structurals Pvt. Ltd.	1.69
113	Gandhi S.R.	Vetting of geotechnical design documents and specifications—Safdarjung Hospitality, New Delhi	Larsen & Toubro Construction, Buildings & Factories	1.12
114	Arul Jayachandran S.	Experimental evaluation of prototype tower—(1*60000) portal frame (2*25000) primary beam+panel test+drop head test (5*10000), single prop tests (2*5000)	Sobha Developers Ltd.	1.91
115	Nageswara Rao B.	Detailed investigation of collapse of 4 PSC girders of the flyover on Gudivada section	VGTM Urban Development Authority	2.50
116	Arul Jayachandran S.	Experimental investigations on predicting the strength of prototype speed floor systems for JSPL at site in Chennai	Design & Engineering Department	4.49
117	Arul Jayachandran S.	Experimental static testing of steel pallets for carrying coated steel coils—2 tests fatigue testing of steel pallets subjected to million cycles	Tata Blue Scope Steel	1.97
118	Thyagaraj T.	Evaluation of efficacy of STABILIG stabilizer—four different type of soils	Stabilig Road Solutions Pvt. Ltd.	6.29
119	Devdas Menon	Proof checking of four lane national highway connectivity to ICTT at Vallarpadam in Cochin	Suncon Soma JV	2.64
120	Devdas Menon	PSC Sleeper for 25 T axle load—design validation & design qualification tests	Patil Rail Infrastructure Pvt. Ltd.	1.12

121	Boominathan A.	Controlling post-rain damage at CIL installation in Rajasthan—Phase II	Cairn India Ltd.	34.83
122	Devdas Menon	Load testing of L&T formwork components/systems	Larsen and Toubro Ltd.	9.58
123	Satish Kumar S.R.	Checking PEB for Pepsico at Sricity	Tata Blue Scope Steel	3.50
124	Devdas Menon	Proof checking/vetting of the Structural Design—Material and Metallurgical Engineering Building at NIT Warangal	Central Public Works Department	22.36
125	Nageswara Rao B.	HTS strands—mechanical and relaxation testing	Common Code	2.64
126	Alagusundaramoorthy P.	Analysis and design of (G+3) tenements at Pillaiyar Koil Rear Side Scheme, Chennai for Tamil Nadu Slum Clearance Board	Tamil Nadu Slum Clearance Board	2.65
127	Alagusundaramoorthy P.	Analysis and design of (G+3) tenements at Nehru Park, Chennai for Tamil Nadu Slum Clearance Board	Tamil Nadu Slum Clearance Board	10.87
128	Nageswara Rao B.	Proof checking of civil design for 2*660 MW Suratgrah STPS Stage-V	Bharat Heavy Electricals Ltd.	19.80
129	Devdas Menon	AVBOT—tests on POT–PTFE bearings	Modern Road Makers Pvt. Ltd.	1.62
130	Arul Jayachandran S.	Design and structural adequacy checking of steel structural components and systems	Common Code	0.00
131	Alagusundaramoorthy P.	Analysis and design of (G+3) tenements at Lock Nagar, Triplicane Village, Chennai District for Tamil Nadu Slum Clearance Board	Tamil Nadu Slum Clearance Board	11.70
132	Devdas Menon	Anchorage efficiency test	Freyssinet Prestressed Con. Co. Ltd.	1.69
133	Devdas Menon	Common code	Common Code	0.67
134	Boominathan A.	Conducting hydrogeological survey for ONGC MPL at Aromatic Complex Project, Mangalore	ONGC Mangalore Petrochemicals Ltd.	30.00
135	Sudheer K.P.	Concurrent evaluation study of mitigation of floods in Kuttanad region	Irrigation Department	75.00
136	Satyanarayana K.N.	Professional consultancy to conduct technology conclave at L&T construction	Larsen and Toubro Ltd.	2.25
137	Satyanarayana K.N.	Work specifications and analysis of rates for GFRG Buildings	Building Materials & Technology Promotion	3.75
138	Appa Rao G.	Proof checking of design and drawing of ROB	National Highways Authority of India	3.37
139	Devdas Menon	PSC sleeper for 25 T axle load	Patil Rail Infrastructure Pvt. Ltd.	8.76
140	Devdas Menon	Testing of prop 3.0 and 3.5 m	PERI (India) Pvt. Ltd.	2.70
141	Devdas Menon	Proof checking of Gandhi Mandapam Salai–Ponnaianman Koil Salai junction at Kotturpuram	Bridges Department	4.44
142	Meher Prasad A.	Consultancy services for peer review of elevated road in MIAL's section	Mumbai International Airport Pvt. Ltd.	39.33
143	Meher Prasad A.	Dharma Chandbali Expansion Project—design review and proof checking of conveyors BCL-9 and BCU-1	Larsen and Toubro Ltd.	1.69
144	Meher Prasad A.	Proof checking of Buddh Circuit Studios-II Project, Jaypee Sports City East, Mizapur Tower T2	Larsen & Toubro Construction, Vuildings & Factories	4.93
145	Devdas Menon	Proof checking of OMR–Rajiv Gandhi Salai (IT Corridor Project)—Improvement to Old Mahabalipuram Road from Siruseri to Mahabalipuram junction	IT Expressway Ltd.	4.33

146	Alagusundaramoorthy P.	Proof checking and vetting the design of a multistoreyed building at Sholinganallur	Baashyaam Construction Pvt. Ltd.	6.74
147	Alagusundaramoorthy P.	Analysis and testing of bearing pads	Hevea Rubber Technologies Pvt. Ltd.	1.12
148	Devdas Menon	Proof checking of post-tensioned slabs and beams for Cochin International Airport Limited	Utracon Structural System Pvt. Ltd.	13.48
149	Devdas Menon	Anchorage efficiency test (2)	Larsen and Toubro Ltd.	1.69
150	Koshy Varghese	Proof checking of design & drawings of hinged launching girder and underslung launching tackles for Hyderabad Metro Project	Larsen and Toubro Ltd.	29.21
151	Nageswara Rao B.	Calibration of proving ring	Common Code	0.87
152	Saravanan U.	Testing of rooftop and ground mount steel structures	Sun Edison Energy Pvt. Ltd.	1.73
153	Manu Santhanam	Advice on acceptance criteria for durability	Shapoori Pallonji and Company Ltd.	2.25
154	Devdas Menon	Relaxation test on HT strands	Common Code	0.28
155	Gandhi S.R.	Advisory services for monitoring heritage structures	Afcons Infrastructure Ltd.	7.75
156	Gandhi S.R.	Design of stracker rail foundation	Neyveli Lignite Corporation Ltd.	4.49
157	Ligy Philip	Evaluation of the performance of trial run of zero liquid discharge system	Karaipudur Common Effluent Treatment Plant Pvt. Ltd.	3.93
158	Arun Menon	Madhya Pradesh Monuments Project	Cultural Resource Conservation Initiative	3.37
159	Meher Prasad A.	Proof checking of intermediate pumping station 1-7 and 58 MLD STP Moradabad Sewerage Project Phase I	Water & Effluent SBG	3.03
160	Arul Jayachandran S.	Proof checking the design of PEB by Kirby for MRF Anakapally extension	Building System India Ltd.	1.40
161	Arul Jayachandran S.	Design checking of pre engineered building design for Caterpillar SSL by Lloyds Insulation	Lloyd Insulations (India) Ltd.	1.06
162	Indumathi M. Nambi	Evaluation of ETP at ITC Paper Mills	ITC Ltd.	0.22

Retainer consultancy projects

Number of projects: 1

Value of projects: ₹0.22 lakhs

Sl. No.	Principal Investigator	Title	Agency	Value (in lakhs of ₹)
1	Indumathi M. Nambi	Evaluation of ETP at ITC Paper Mills	ITC Ltd.	0.22

Exchange programme with other universities including institutions/universities under MoUs

- Sachin S. Gunthe visited Max Planck Institute, Germany from 14 June to 1 July 2013 to carry out collaborative research work.
- K.P. Sudheer visited Purdue University, USA from 10 to 14 June 2013 for a joint research workshop.
- Balaji Narasimhan visited Texas A&M University, USA from 16 May to 9 July 2013 to take up collaborative research work on soil and water assessment.
- Ravindra Gettu visited Italy from 8 to 12 September 2013 for a collaborative research project.

Research publications of the faculty members and research scholars

Total number of papers published in refereed national journals: 20

Total number of papers published in refereed international journals: 110

Total number of papers presented at national conferences: 35

Total number of papers presented at international conferences: 40

(a) Refereed national journals

1. G. Appa Rao and A. Leon Raj. 2013. Performance of RC deep beams with different combinations of web reinforcement. *Applied mechanics and materials* 343: 9–13.
2. G. Appa Rao and R. Sundaresan. 2014. Size dependent shear strength of RC deep beams based on refined strut-and-tie model. *Journal of Frontiers in Construction Engineering* 3: 1–24.
3. Anjana Bhasi and K. Rajagopal. 2013. Study of the effect of pile type used for supporting basal reinforced embankments on soft clay. *Indian Geotechnical Journal* 43(4): 344–353, 39(6): 632–644 2013.
4. G. Appa Rao and P. Poluraju. 2013. Seismic behaviour of precast reinforced concrete beam-column connections: A literature review. *Applied Mechanics and Materials* 343: 21–26.
5. G. Appa Rao and S. Kanaka Durga. Effect of bracing elements on mechanics and shear strength of exterior beam-column joints in moment resisting frames. *Applied Mechanics and Materials* 343: 15–19.
6. S. Ganesh Kumar, R.G. Robinson and K. Rajagopal. 2013. Improvement of soft clays by combined vacuum consolidation and geosynthetic encased stone columns. *Indian Geotechnical Journal* DOI: 10.1007/s40098-013-0067-1
7. K. Rama Raju, A. Meher Prasad, K. Muthumano, N. Gopalakrishnan, Nagesh R. Iyer and N. Lakshmanan. 2013. Experimental studies on use of toggle brace mechanism fitted with magnetorheological dampers for seismic performance enhancement of three-storey steel moment-resisting frame model *Structural Control Health Monitoring* 20: 373–386.
8. V. Kanagaraj, G. Asaithambi, K.K. Srinivasan and R. Sivanandan. 2013. Vehicle classwise analysis of time gaps and headways under mixed traffic condition for Chennai city. *Journal of Road Transport* 11: 1–32.
9. K. Lini Dev, Rakesh J. Pillai and R.G. Robinson. 2013. Estimation of critical state parameters from conventional soil parameters. *Indian Geotech. Journal* 43(3): 229–237.
10. A. Menon and C.V.R. Murty. 2013. Seismic damage and strengthening of Buddhist monasteries in Sikkim, India. *International Journal of 3R's: Repair, Restoration and Renewal of Built Environment* 4(2): 543–549.
11. V. Narayanamurthy, C. Lakshmana Rao and B.N. Rao. 2014. Numerical simulation of ballistic impact on armour plate with a simple plasticity model. *Defence Science Journal* 64(1), DOI:10.14429/dsj.64.4521.
12. Rahul Oberoi and A. Veeraragavan., 2013. Rehabilitation and upgradation of an existing airfield runway pavement for operation of next generation aircrafts., *Journal of the Indian Roads Congress* 74–3.
13. B. Rajeevan, A.K. Sengupta and A. Belarbi. A modified approach to incorporate the poisson's effect in the softened membrane model. *Journal of Structural Engineering*
14. Rajib B. Mallick, Michael Radzicki, Yamini V. Nanagiri and A. Veeraragavan. 2013. The impact of road construction on depletion of natural aggregates and consequence of delay in recycling pavements- key factors in sustainable road construction. *Indian Highways Journal* 41(12).
15. A.K. Sengupta and Naga Nandhini E. 2013. Investigation of the stresses due to mid-jacking operation on a precast segmental bridge deck. *Highway Research Journal* 6(1): 71–77.
16. Subhadeep Banerjee and Omprakash N. Shirole. 2014. Numerical analysis of piles under cyclic lateral load. *Indian Geotechnical Journal* DOI: 10.1007/s40098-013-0092-0 (in press).
17. Subhadeep Banerjee, Siang Huat Goh and Fook Hou Lee. 2014. Earthquake-induced bending moment in fixed head piles in soft clay. *Geotechnique*. DOI: 10.1680/geot./12-P-195 (in press).
18. P. Subramaniam and S. Banerjee. 2013. Shear modulus degradation model for cohesive soil. *Soil dynamics and Earthquake Engineering* 53: 210–216.
19. T. Thyagaraj and S.M. Rao. 2013. Osmotic swelling and osmotic consolidation behavior of compacted expansive clay. *Geotechnical and Geological Engineering* 31(2): 435–445.
20. Tushar K. Padhy, Devdas Menon and A. Meher Prasad. 2013. Simplified fuzzy-random seismic fragility of open ground storey buildings. *SRESA's International Journal of Life Cycle Reliability and Safety Engineering* (Society for Reliability and Safety) 2(1): 13–20.

(b) Refereed international journals

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20. A. Menon and C.V.R. Murty (2013) Seismic damage and strengthening of Buddhist Monasteries in Sikkim, India. *Proceedings of the International Conference on Rehabilitation and Restoration of Structures* (13–15 February, 2013), Chennai, India (Eds.: R. Gettu, M. Santhanam, A. Menon and R. Pillai), pp. 645–655.
21. S.G. Mohanasundaram, Suresh Kumar and B. Narasimhan (2013). Numerical modelling of fluid flow through unsaturated zone using a dual porosity approach. *ISH Journal of Hydraulic Engineering* 19(2): 97–110.
22. S. Mohanasundaram, Balaji Narasimhan. and G. Suresh Kumar (2013) The significance of autocorrelation and partial autocorrelation on univariate groundwater level rise (Recharge) time series modeling. *Journal of Groundwater Research* (ISSN: 2321–4783), 2(1): 131–142.
23. Neethu Roy, A. Veeraragavan and J. Murali Krishnan (2013) Influence of air voids of hot mix asphalt on rutting within the framework of mechanistic-empirical pavement design. *2nd Conference of Transportation Research Group of India (CTRG)* (12–15 December, 2013), paper ID 310.
24. K. Rajagopal (2013) Construction of high geosynthetic reinforced soil retaining walls. *One-day seminar organized by Indian Geotechnical Society* (9 March 2013), Chennai chapter.
25. K. Rajagopal (2013) Geosynthetic reinforced pile supported embankments. *One-day national seminar GeoApp organized by IIT Hyderabad* (16 March 2013), Hyderabad.
26. K. Rajagopal and A. Veeraragavan (2013) Case study of construction & performance of geocell reinforced unpaved road in black cotton soil. National Conference “Applications of Geosynthetics in Infrastructure Projects” (20–21 June 2013), Bhopal.

27. Rajeev Chandra, A. Veeraragavana and J. Murali Krishnan (2013) Evaluation of mix design methods for reclaimed asphalt pavement mixes with foamed bitumen. *2nd Conference of Transportation Research Group of India (CTRG)* (12–15 December 2013), paper ID 299.
28. Rakesh Behera, Devarsh Kumar, Lelitha Vanajakshi (2013) Data analytics based dynamic passenger information system. *6th Urban Mobility Conference* (December 2013), Delhi, India.
29. J. Rohit, S.M. Shiva Nagendra and R. Sivanandan (2013) Characterization of indoor air pollution in a mechanically ventilated building. *In the proceedings of the National Conference on Refrigeration and Air Conditioning (NCRAC-2013)* (12–14 December 2013), IIT Madras, Chennai.
30. Sanjay Radhakrishnan and Gitakrishnan Ramadurai (2013) Heterogeneous traffic flow discharge at signalized intersections. *Urban Mobility India 2013 Research Symposium* (December 2013).
31. N. Saranya and D.N. Arnepalli (2013) Influence of zeta potential on fundamental behaviour of clayey soils. *Fourth Indian Young Geotechnical Engineer's Conference-2013* (17–18 May 2013), IIT Madras, Chennai.
32. Vincy Verghese, Shankar C. Subramanian and Lelitha Vanajakshi (2013) Model based traffic control in indian conditions. *2nd Conference of Transportation Research Group of India (CTRG)* (December 2013), Agra, India.
33. X. Wang, M. White, P. Tuppad, T. Lee, R. Srinivasan, T. Zhai, D. Andrews and B. Narasimhan (2013) Simulating sediment loading into the major reservoirs in Trinity River Basin. *Journal of Soil and Water Conservation* 68(5): 372–383.
34. Yoga Priyadarshini, Sonal Maheshwari, A. Padmarekha and J. Murali Krishnan (2013) Effect of mixing and compaction temperature on dynamic modulus of modified binder bituminous mixtures. *2nd Conference of Transportation Research Group of India (CTRG)* (12–15 December 2013), paper ID 346.

(d) Proceedings of international conferences

- 1 Ajitha Thankappan, Lelitha Vanajakshi and Shankar C. Subramanian (2013) A hybrid model for arterial traffic density estimation. *Transportation Research Board* (2013), National Research Council, Washington, D. C.
- 2 Anjana Bhasi and K. Rajagopal (2013) Numerical analysis of embankments supported on geosynthetic basal layer and floating piles. *Proceedings of International Conference on Geosynthetics* (18–20 November 2013), GeoAfrica, Accra, Ghana.
- 3 Anusha S.P., Lelitha Devi. V and Anuj Sharma (2013) A simple methodology for estimation of queue length, international journal of innovative research in science, engineering and technology, *Volume 2, Special Issue 1, December 2013* (Proceedings Of International Conference On Energy And Environment-2013 (ICEE 2013).
- 4 Astitva Tripathi, Shankar C. Subramanian and Lelitha Vanajakshi (2013) An enhanced bus travel time prediction method for heterogeneous traffic. *9th European ITS Congress* (June 2013), Dublin.
- 5 Chethan Gouder and Saravanan U. Modeling diffusion of sulfate through concrete using mixture theory. *14th Pan-American Congress of Applied Mechanics*, Santiago, Chile.
- 6 G. Appa Rao (2013) Evaluation of shear strength of RC deep beams using refined strut-and-tie model. *ACI Convention Spring 2013* at Minneapolis (14–18 April 2013), MN, USA.
- 7 S.R. Gandhi (2013) Difficulties in construction of marine piles in area with high tidal range super PILE 2013 at Minneapolis (14–17 May 2013), USA organized by DFI
- 8 P. Firodiya, R.G. Pillai, A.K. Sengupta and D. Menon (2013) Corrosion rates of plain mild steel and cold-twisted deformed steel reinforcement. *Proceedings of UK India Education and Research Initiative (UKIERI) Concrete Congress* (5–8 March 2013), National Institute of Technology Jalandhar, Punjab, paper no. 334.
- 9 Girish Kumar, Anjaneyappa, A. Veeraragavan and Rajib Basu Mallick (2013) Forensic investigation of pre-mature rutting failure of an inservice flexible highway pavement. *Fourth International Seminar on Forensic Geotechnical Engineering* (10–12 January 2013), Bangaluru.
- 10 Hrishikesh C.G. and Shiva Nagendra S.M. (2013) Neuro-fuzzy applications in urban air quality management. *Proceedings of International Conference on Advanced Engineering Optimization through Intelligent Techniques, 2013, NIT Surat*.
- 11 J. Naveen, P. Pooja and B. Narasimhan (2013). Estimation of in stream flow requirements of Son river in Ganga basin. *HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering* (4–6 December 2013), Department of Ocean Engineering, IIT Madras, India.

- 12 V. Kanagaraj, K.K. Srinivasan, R. Sivanandan and G. Asaithambi (2014) Modeling unique merging behavior under mixed traffic conditions. *93rd Transportation Research Board Annual Meeting* (January 2014), WashingtonD.C., USA.
- 13 M.K. Nivedya, K. Lakshmi Roja, A. Veeraragavan and J. Murali Krishnan (2013) Rheological investigations on foamed bitumen. *Airfield and Highway Pavement, 2013*, ASCE T&DI Congress, 967–976.
- 14 M.R. Nivitha, C. Jayasree and J. Murali Krishnan (2013) Viscoelastic U non-Newtonian transitory response of cement paste and superplasticizer combinations. *International Conference on Sustainable Construction Materials & Technologies (SCMT3)* (18–21 August 2013), Kyoto, Japan.
- 15 N. Nithila Devi, K. Sangeetha, K.P.Sudheer and B.Narasimhan (2013) Study on the effect of different objective functions for calibration of a simple conceptual rainfall runoff model. *HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering* (4–6 December 2013), Department of Ocean Engineering, IIT Madras, India.
- 16 Nair, A.R. Ganesan and K. Ramamurthy (2013). Characterization of Fresnel lens as daylight concentrator. *Proceedings of the International Conference , Advances in Building Sciences* (13–16 February 2013), IIT Madras, India, pp.71–80.
- 17 B. Narasimhan (2013). Some modifications to the simulation of irrigation practices in Paddy using SWAT. *Presented at the 2013 International SWAT conference at Toulouse* (17–20 July 2013), France.
- 18 B. Narasimhan, J. Naveen, P. Pooja, J.G. Arnold and R. Srinivasan (2013) Integration of a pseudo 3D finite element ground water model with SWAT. *Presented at the 2013 International SWATconference at Toulouse* (17–20 July 2013), France.
- 19 Neethu Roy, A. Veeraragavan and Murali Krishnan (2013) Influence of air voids of hot mix asphalt on rutting within the framework of mechanistic-empirical pavement design. *2nd Conference of Transportation Research Group of India, Procedia, Sceince Direct, Social and Behavioural Sciences*, 104 (2013).
- 20 Nithish Agarwal P., Sunny RajaVarma. D. and Lelitha Vanajakshi (2013) Evaluation of bluetooth for stream travel time estimation under Indian conditions. *Transportation Research Board 2013*, National Research Council, Washington, D. C.
- 21 M.K. Nivedya, K. Lakshmi Roja, Veeraragavan A. and J. Murali Krishnan (2013) Rheological investigations on foamed bitumen. *The Airfield and Highway Pavement Conference* (9–12 June 2013), ASCE, Los Angeles, CA.
- 22 P. Pooja, J. Naveen and B. Narasimhan (2013) Assessment of climate change impacts on the surface water and ground water potentials of Chennai river basin. *HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering* (4–6 December 2013), Department of Ocean Engineering, IIT Madras, India.
- 23 Padmarekha A., Chockalingham K., Saravanan U., A.P. Deshpande, and J. Muralikrishnan (2013) Large amplitude oscillatory shear of unmodified and modified asphalt binders. *European Asphalt Technology Association (EATA) Conference*, Braunschweig, Germany.
- 24 Pavitra Tejaswi, Jezna Fatima, A. Padmarekha and J. Murali Krishnan (2013) Linear viscoelastic limits for determination of dynamic modulus of bituminous concrete mixture in AMPT. *Airfield and Highway Pavement, ASCE T&DI Congress*, pp. 1100–1111, 2013.
- 25 Rajeev Chandra, A. Veeraragavan and Murali Krishnan (2013) Evaluation of mix design methods for reclaimed asphalt pavement mixes with foam bitumen. *2nd Conference of Transportation Research Group of India, Procedia, Sceince Direct, Social and Behavioural Sciences*, 104 (2013), 2–11.
- 26 Rajib Mallick and A. Veeraragavan (2013) Linking materials, structural performance and quality management of asphalt pavements. *4th International Conference on Structural Engineering and Construction Management* (13–15 December 2013), Kandy, Sri Lanka.
- 27 Rao B.N. and Balu A.S. (2013) Reliability assessment of structures with mixed uncertainties. *International Conference on Integrity, Reliability & Failure (IRF'2013)* (23-27 June 2013), Funchal, Portugal.
- 28 Rao B.N. and Balu A.S. (2013) Reliability bounds using multicut-high dimensional model representation. *International Conference on Structural Safety & Reliability (ICOSSAR2013)* (16-20 June 2013), New York.
- 29 R.G. Robinson (2013) Application of vacuum in geotechnical engineering. *Proceedings of 2nd International conference on Modeling and Simulation in Civil Engineering.*, Kollam, Soosan, J.P. and Bushra, I. (Editors), pp. 10–23.
- 30 Rohit J., Shiva Nagendra S.M. (2013) Artificial neural networks based indoor air quality model for a mechanically ventilated building near an urban roadway. *Proceedings of International Conference on Advanced Engineering Optimization through Intelligent Techniques, 2013*, NIT Surat.

- 31 S. Mohanasundaram, G. Suresh Kumar and B. Narasimhan (2013) Transfer function noise modeling of dynamic groundwater level fluctuation using deseasonalized rainfall series. *AGU Fall meeting* (9–13, 2013), San Francisco.
- 32 L.S. Shankar, S. Rajthilak U. and Saravanan Numerical technique for solving truss and plane problems for a new class of elastic bodies. *14th Pan-American Congress of Applied Mechanics*, Santiago, Chile.
- 33 R. Sivanandan and S. Vasantha Kumar (2013) Predicting heterogeneous traffic congestion using public transit buses as probes. *Proceedings CD, Annual Conference on Civil Engineering and Engineering (ACCEE)* (15–17 June 2013), Beijing, China, pp. 84–92.
- 34 Subramanian M. and Rao B.N. (2013) Nonuniform corrosion profiles in reinforced concrete structures. *The European Corrosion Congress* (1-5 September 2013), Estoril Congress Center, Estoril, Portugal.
- 35 Vasantha Kumar, and Lelitha Vanajakshi (2013) Modewise travel time estimation on urban arterials using transit buses as probes. *Transportation Research Board 2013*, National Research Council, Washington, D. C.
- 36 Vasugi V. and Ramamurthy K. (2013) Properties of sintered aggregate made with pond ash of bituminous coal source. *Proceedings of the 28th International Conference on Solid Waste Technology and Management*, Philadelphia, PA U.S.A, 1319–1328.
- 37 D.G. Vernay, B. Raphael and I.F.C. Smith (2013) Evaluating modeling uncertainties in the simulation of airflow in cities. *Proceedings of the Int. Conf. Civil and Building Eng. Informatics*, (7–8 November 2013), Tokyo, Japan.
- 38 J. Yang, S.C. Sekhar, K.W. Cheong and Benny Raphael (2013) Experimental study of a personalized ventilation system coupled with a personalized exhaust system under two different background air distribution systems. CLIMA 2013, ed. Karel Kabele, Miroslav Urban, Karel Suchy, Milos Lain (2013). Prague: Society of Environmental Engineering (STP), REHVA Member Association. (CLIMA 2013 - 11th REHVA World Congress & 8th International Conference on IAQVEC, 16–19 Jun 2013, Prague Congress Centre, Prague, Czech Republic)
39. M.K. Nivedya, K.L. Roja, A. Veeraragavan and K.M. Krishnan. 2013. Rheological investigations on foamed bitumen. Airfield and Highway Pavement Conference: Sustainable and Efficient Pavements; Los Angeles, CA; United States; 9 to 12 June 2013; Code 100672, 967–976.
40. T.K. Padhy, A.M. Prasad and D. Menon (2013). Reliability based seismic performance evaluation of open ground storey buildings (Conference Paper). *11th International Conference on Structural Safety and Reliability, ICOSSAR 2013*; New York, NY; United States; (16–20 June 2013); (Code 101944).

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Sanjay Kumar Shukla, Associate Professor, ECU University, Australia	22 April 2013	Interaction with faculty members for collaborative research
2	Dr. Balaji Narasimhan Vlasta Klima Balloun, Professor of Engineering and Dr. Surya K. Mallapragada, Stanley Chair in Interdisciplinary Engineering from Iowa State University	25 July 2013.	Interaction with faculty members for collaborative research
3	Prof. Philippe Devinand and Prof. Pascal Higelin, from Polytech Orleans Engineering School, France	21 October 2013	Interaction with faculty members for collaborative research
4	Prof. Ian Smith of EPFL, Switzerland	20–23 January 2014	To deliver two seminar talks, “Technical Writing and Publishing in High Impact Journals” and “Computing in Civil Engineering Research at EPFL”
5	Barbara S. Minsker and team, University of Illinois at Urbana Campaign (UIUC)	6–8 January 2014	Interaction with the faculty and students of the department
6	Dr. Mark Alexander, University of Cape Town, South Africa	13 January to 12 March 2014	Collaborative research work
7	Dr. Anna Hol, Dr. Renu Narchal, Dr. Laurel Jackson and Ms Julia Shelley, from University of Western Sydney, Australia	4 February 2014	To discuss various areas of collaborative research and student exchange programme
8	A group of 20 civil engineering faculty members from various engineering colleges in Chennai	6 February 2014	Visit under PALS 2013 programme

9	Ms Alpa R. Sheth, INAE Distinguished Visiting Professor	10 February 2014	To deliver a talk to our students, "Issues of a Large Developing Country for Ensuring Earthquake Safety of Concrete Construction"
10	Prof. Timothy Wei, Dean of Engineering Prof. David Jones, Associate Dean of Engineering Prof. Daneiel Linzell, Chair in the Department of Civil Engineering from University of Nebraska Lincoln, USA	18 February 2014	Interaction with faculty members for collaborative research
11	Prof. Mario Attard and Prof. Nasser Kalillix Dr. Sivakumar Bellie and Dr. Vinayak Dixit, from the University of New South Wales	28 March 2014	Research collaboration

4.6.6. Other Activities of the Department

Inter disciplinary group achievements of the department

Sl. No.	Coordinator(s)	Title	Period
Conference:			
1	K. Srinivasan, V. Sundar, OEC	HYDRO 2013	4–6 December 2013
Workshop			
1			
Short term Course			
1	S.M. Shiva Nagendra, M.P. Maiya, ME	Winter School on Indoor Air Quality and Health Effects	9–14 December 2013
2	Sachin S. Gunthe, R. Ravikrishna, CH	Winter School on Atmospheric Aerosol Physics, Measurements and Sampling Techniques	13–16 January 2014

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Indo–German Partner Group on Atmospheric Sciences	1 January 2013 to 31 March 2016	Indian German Science & Technology Centre	40.50	Sachin S. Gunthe

Socially relevant activities carried out by the department

The Glass Fibre Reinforced Gypsum (GFRG) demonstration building constructed near Taramani Guest House was inaugurated by Sri T.K.A. Nair, Advisor to Hon'ble Prime Minister of India and the Director, IIT Madras on 7 June 2013.

International collaboration achievements by the department

Barbara S. Minsker and team from University of Illinois at Urbana Campaign (UIUC), USA visited the department during 6–8 January 2014 and initiated a student exchange programme between UIUC and IIT Madras.

Major infrastructure development made in the Department

- The Centre for Environment Technology Dissemination, Demonstration and R&D for Industrial Pollution Abatement has been established in the department to enhance industry–academic interactions in the various areas of environmental engineering.
- The National Centre for Safety of Heritage Structures (NCSHS) was established at IIT Madras with financial support of ₹12.115 crores from the Ministry of Human Resources Development (Government of India) in July 2013. NCSHS is envisioned as a long-term programme towards addressing the national grand challenge of ensuring the structural safety of historical monuments and other heritage structures in India with resource persons from India and abroad. The centre is mandated to (a) undertake fundamental research and technology

development, (b) build capacity in national and state-level implementing agencies, (c) provide technical solutions to challenges in conservation and (d) disseminate R&D outcomes.

NCSHS strives to create a national knowledge pool by initiating concerted research, education and outreach activities related to the safety of heritage structures and provides a much needed nationally coordinated technical forum for exchange of ideas and training of stakeholder groups, primarily from implementing agencies (e.g. Archaeological Survey of India, state archaeology departments), and faculty members of engineering and architecture institutes. The early research initiative involved setting up a state-of-the-art experimental laboratory at IIT Madras equipped with the requisite facilities for testing large-scale components, sub-assemblies and systems in order to characterize historical materials and study the structural behaviour of elements and systems under different loads. In addition, advanced computing facilities are being acquired to study structural behaviour through numerical simulations and analyses.

Some of the recent activities of NCSHS are listed below:

- (1) NCSHS is currently involved as part of the Technical Advisory Committee in the Project Coordination Team of the World Monuments Fund, New York-funded Madhya Pradesh Monuments Project (MPMP) through the Department of Archaeology, Government of Madhya Pradesh, which will see the restoration of 37 monuments/sites in Madhya Pradesh from 2013 to December 2015.
 - (2) NCSHS is assisting the Indian National Trust for Art and Cultural Heritage (INTACH), Pondicherry Chapter in the restoration of the Mairie building at Pondicherry.
 - (3) NCSHS has recently been approached by ASI for technical support in conservation and retrofitting of Sri Kedarnath Temple, Uttarakhand, damaged in the floods in June 2013.
 - (4) The first National Advisory Board of NCSHS met under the chairmanship of the Director, IIT Madras on 27 January 2014.
 - (5) NCSHS conducted the Second Annual Distinguished Lecture on Safety and Conservation of Heritage Structures, commemorating World Heritage Day with Prof. Michel Danino, Guest Professor, IIT Gandhinagar on 25 April 2014 at IIT Madras.
- The Centre for Environmental Technology Development, Demonstration and Dissemination (CETeDDD), sponsored by Tamil Nadu Pollution Control Board (TNPCB), was established in the department. In the near future, this centre will play a pivotal role in enhancing the know-how of managing the quality of water, waste and air by micro, small and medium scale industries through appropriate research, technology development, demonstration, capacity building and extension services. An MoU between IIT Madras and TNPCB was signed in the presence of the Minister for Environment, Government of Tamil Nadu on 17 April 2013.

4.7. DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

4.7.1. Introduction

Started as 'Computer Centre' in 1973, the Department of Computer Science and Engineering was established as a full-fledged department in 1983. It currently offers B.Tech., Dual Degree, M.Tech., M.S. and Ph.D. programmes. The department has the highest numbers of M.S./Ph.D. scholars among all the computer science departments of similar institutions in the country.

4.7.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	CS6842	Algorithmic Algebra
2	CS6843	Program Analysis
3	CS6868	Concurrent Programming

New labs established

Sl. No.	Title
1	M.Tech. Lab (DCF 2)

Students on roll as of September 2013 + M.S. and Ph.D. scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	29	33	29	33	—	124
Dual Degree	27	26	26	29	23	131
M.Tech.	58	58	0	0	0	116
M.S.	21	24	29	17	26	117
Ph.D.	3	17	18	6	40	84
Total	138	158	102	85	89	572

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/ in India

Sl. No.	Name of the Research Scholar	Conference/Workshop Attended	Venue	Date
1	C. Vanniarajan (Ph.D. scholar, external)	IEEE International Workshop on Local and Metropolitan Area Networks (LANMAN)	Brussels, Belgium	10–12 April 2013
2	E. Vijay (M.Tech.)	IEEE High Performance Switching and Router Conference 2013	Taipei, Taiwan.	6–13 July 2013
3	M. Karthick (M.S.)	IEEE Symposium on Computers and Communications (ISCC 2013)	Split, Croatia	7–10 July 2013
4	Suranjana Samanta (Ph.D)	International Conference on Computer Analysis of Images and Patterns (CAIP 2013)	New York, UK.	27–29 August 2013
5	Aditya Hegde	Project review meeting with participants from India and UK	University of Surrey, UK.	24–29 September 2013
6	John Jose	International Conference on Computer Design	Asheville, NC, USA	6–9 October 2013

7	Tejas Vijay Kulkarni	Ninth International Workshop on Foundations of Mobile Computing	Jerusalem, Israel	13–18 October 2013
8	Sudeepta Mishra (Ph.D.)	19th IEEE International Conference on Networks (ICON'13)	Singapore	9 December 2013
9	Sarath Chandar (M.S.)	Deep Learning Workshop NIPS 2013	Harrahs and Harveys, Lake, Tanhoe, Nevada, US	9–10 December 2014
10	C.S. Ganesh (Ph.D.)	IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS 2013)	Chennai, India	15–18 December 2013
11	M. Karthick (M.S.)	IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS 2013)	Chennai, India	15–18 December 2013
12	Sagar Joshi (M.Tech., 2012)	IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS 2013)	Chennai, India	15–18 December 2013
13	Suranjana Samanta (Ph.D.)	Fifth International Conference (LNCS) on Pattern Recognition and Machine Intelligence (PreMI-2013)	Kolkata, India	10–14 December 2013
14	Chiranjoy Chattopadhyay (Ph.D.)	Fourth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG-2013)	Jodhpur, India	19–21 December 2013
15	A. Tirumarai Selvan (B.Tech. Dual)	Fourth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG-2013)	Jodhpur, India	19–21 December 2013
16	Sudeshna Roy (M.S.)	Fourth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG-2013)	Jodhpur, India	19–21 December 2013
17	Sakshi Patni (M.Tech., 2013)	International Conference on Distributed Computing and Networking (ICDCN)	Coimbatore, India	4–7 January 2014
18	Sudeshna Roy (M.S.)	Ninth International Conference on Computer Vision, Theory and Applications (VISAPP part of VISIGRAPP)	Lisbon, Portugal	5–8 January 2014
19	Dhananjay Bhor (M.Tech., 2013)	Sixth International Conference on Communication Systems and Networks (COMSNETS)	Bangalore, India	6–10 January 2014
20	Sai Nageswar Satchidanand (M.Tech.)	6th International Conference on Communication System & Networks	Bangalore	9–10 January 2014
21	Gurukar Saket Ghansham (M.S.)	Sixth International Conference on Communication System & Networks	Bangalore	9–10 January 2014
22	T.V. Kalyan	Asia and South Pacific Design Automation Conference	Singapore	20–23 January 2014
23	Nirav Gohel (M.Tech., 2013)	National Conference on Communications (NCC)	Kanpur, India	28 February to 2 March 2014
24	Preethi Chandur (M.S., 2013)	National Conference on Communications (NCC)	Kanpur, India	28 February to 2 March 2014
25	Vishnu Sankar (M.S.)	Attended the ACM India Special Interest Group on Knowledge Discovery and Data Mining (IKDD CoDS)	Delhi, India	21–23 March 2014
26	Prasanna Parthasarthy (M.S.)	Attended the ACM India Special Interest Group on Knowledge Discovery and Data Mining (IKDD CoDS)	Delhi, India	21–23 March 2014
27	Sarath Chandra (M.S.)	Attended the ACM India Special Interest Group on Knowledge Discovery and Data Mining (IKDD CoDS)	Delhi, India	21–23 March 2014
28	Pratik Gajane (M.Tech.)	Attended the First Indian Workshop on Machine Learning (iWML-2013)	Kanpur, India	1–3 July 2013

Name of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of Prize	Name of the Student/Scholar & Roll No.
1	President of India Prize, Bharat Ratna M. Viswesvaraya Memorial Prize, B. Ravichandran Memorial Prize	M. Vijay Karthik (CS09B050)
2	Alumni Association Prize	V. Giridhari (CS08B046)
3	CMC Prize [Computer Science and Engineering]	Syama Varma R. (CS11M060)
4	H.N. Mahabala Endowment Prize [Computer Science and Engineering]	Saurav Kant Jha (CS11M050), K. Dinesh (CS11M01) [joint winners]

4.7.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Area of Specialization
Professors	
C. Chandra Sekhar (IIT Madras)	Speech recognition, neural networks, kernel methods, content-based information retrieval, computer architecture
Sukhendu Das (IIT Kharagpur)	Visual perception, computer vision, image intelligence, graphics and visualization, biometry, computational science and engineering, analogue and digital systems, soft computing
T.A. Gonsalves (on long leave) (Stanford University)	Computer networks, distributed systems, telecom software, performance evaluation
D. Janakiram (IIT Delhi)	Cloud computing, grid computing, object oriented systems, software engineering, parallel and distributed computing, distributed systems, databases
V. Kamakoti (IIT Madras)	Software aspects of VLSI design, reconfigurable systems design, computer architecture
Deepak Khemani (IIT Bombay)	Artificial intelligence, knowledge-based systems, case-based reasoning, knowledge representation, planning, logic, natural language processing
Kamala Krithivasan (University of Madras)	Theoretical computer science, computational geometry, formal languages and automata theory, unconventional models of computing, discrete tomography
P. Sreenivasa Kumar (IISc Bangalore)	Information management, semi-structured data and XML, ontologies, text summarization systems, database systems, data mining, graph algorithms, parallel computing
Hema A. Murthy (IIT Madras)	Speech processing, speech synthesis and recognition and synthesis, network traffic analysis and modeling, music information retrieval, music processing, time series modeling, pattern recognition
C. Siva Ram Murthy (IISc Bangalore)	Wireless networks, parallel and distributed computing, real-time systems, computer networks
S.V. Raghavan (on long leave) (IIT Madras)	Computer networks and protocols, security, electronic commerce, data warehousing, role of IT in education, culture and heritage
C. Pandu Rangan (IISc Bangalore)	Algorithms, parallel and VLSI algorithms, graph theory, computational geometry, randomized algorithms, computational learning theory, cryptography
Krishna M. Sivalingam (State University of New York, Buffalo)	Computer networks, wireless networks, sensor networks, optical networks, data centre/cloud networking
Associate Professors	
B. Ravindran (University of Massachusetts, Amherst)	Machine learning, reinforcement learning, social network analysis, data and text mining
Madhu Mutyam (IIT Madras)	Multi-core architecture, network-on-chip, computer architecture
N.S. Narayanaswamy (IISc Bangalore)	Theoretical computer science, graph theory and combinatorics, analysis of algorithms, complexity theory, artificial intelligence

Anurag Mittal (University of Maryland, College Park)	Computer vision, multi-camera vision systems, sensor planning, computer graphics, surveillance
Assistant Professors	
Sutanu Chakraborti (Robert Gordon University, UK)	Information retrieval, memory-based reasoning, machine learning
Shankar Balachandran (University of Texas, Dallas)	VLSI design automation, computer architecture, high performance computing, linear algebra, parallel algorithms, concurrency, combinatorial optimization
Jayalal Sarma M.N. (The Institute of Mathematical Sciences, Chennai)	Computational complexity theory, structural and circuit complexity, lower bounds and derandomization
Raghavendra Rao B.V. (The Institute of Mathematical Sciences, Chennai)	Structural aspects of arithmetic and boolean circuits, computational problems on algebraic and combinatorial structures, algebraic complexity theory, analysis of algorithms, combinatorial commutative algebra
V. Krishna Nandivada (University of California, Los Angeles)	Compiler design, program analysis applied to compiler optimizations, fault localization, large software systems, programming language design
John Augustine (University of California, Irvine)	Distributed algorithms, optimization algorithms, computational geometry, algorithmic game theory, online algorithms, algorithms for dynamic environments
Rupesh Nasre (IISc Bangalore)	Compilers, parallelization
Meghna Nasre (IISc Bangalore)	Graph algorithms, matching in graphs with preferences
Sayan Ranu (University of California, Santa Barbara)	Graph indexing, graph mining, trajectory analytics and bioinformatics

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

Sl. No.	Event Name	Date
1	Verizon India Architecture Readiness Programme (ARP)—3-year MoU signed jointly by Department of Computer Science and Engineering and Department of Management Studies. Each batch of students from Verizon will undergo a 3-month certificate course. Two installments are already over (one at IIT Madras and one at Hyderabad).	Started on 22 February, 2013
2	Shankar Balachandran and Madhu Mutyam conducted a short-term course on Java Programming and MatLab. The programme was aimed at first-year students who are moving to the second year. Theory classes were held in the morning, and lab classes were held in the afternoons. More than 40 students from IITs and NITs attended the course.	17–22 June 2013
3	International Conference on Advanced Computing and Communications (ADCOM 2013), Chennai, India Balaraman Ravindran was the Programme Chair.	August 2013
4	Krishna Sivalingam served as General Co-Chair for the Seventh Annual IEEE Conference on Advanced Telecommunication Networks and Systems (ANTS), Chennai, India.	15–18 December 2013
5	Third International Workshop on CompMusic, IIT Madras—organized by Hema Murthy	13–15 December 2013
6	Indo-Swiss workshop on algorithms and combinatorics for Ph.D. scholars and faculty members of the Computer Science Department was held in IIT Madras with speakers from EPFL and ETH, in Switzerland, TIFR, IIT Hyderabad and IIT Madras. Organized by N.S. Narayanaswamy and John Augustine.	10–11 February 2014
7	The Eighth Workshop on Algorithms and Computation 2014 (WALCOM-2014) was held at IIT Madras. The invited speakers were Prof. Kurt Mehlhron (MPI), Prof. Ian Munro (University of Waterloo) and Prof. Pavel Valtr (Charles University, Prague). N.S. Narayanaswamy was the organizing chair.	13–15 February 2014
8	Conference on Data Science (IKDD CoDS), Delhi, Balaraman Ravindran was the Programme Chair.	23–25 March 2014

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

Sl. No.	Name of the Faculty Member	Conference/Workshop Attended	Date and Venue
1	Hema A. Murthy	Trends in Signal Processing	26 April 2013, Amrita University, Bangalore
2	D. Janakiram	CDAC—Cloud Workshop	29 April 2013, Bangalore
3	C. Chandra Sekhar	Talk at a workshop on soft computing techniques for information retrieval	10 April 2013, Thiagarajar College of Engineering, Madurai
4	Balaraman Ravindran	Invited panelist on the topic “What Is Big Data Analytics?” at Xerox Research Centre India’s Open Innovation Day	14 March 2014, at Bangalore

Special lectures delivered by faculty members at other institutions

Sl. No.	Name of Faculty Member	Topic	Name of the Institution and Place	Date
1	Hema A. Murthy	Development of Text to Speech in Indian Languages	IIT Mandi	12–17 May 2013
2	Krishna M. Sivalingam	Invited talk, “Wireless Access to the Mobile Cloud”	Adiparasakthi Engineering College, Faculty Development Programme (FDP)	28 June 2013
3	Balaraman Ravindran	Invited tutorial on bandit problems, First Indian Workshop on Machine Learning	IIT Kanpur	1–3 July 2013
4	C. Chandrasekhar	Advances in Medical Imaging Using Computational Intelligence	Knowledge Institute of Technology, Salem	5 September 2013
5	N.S. Narayanaswamy	Design and Analysis of Algorithms (DAA-13)	IIITM-K, Thiruvananthapuram	6 September 2013
6	Balaraman Ravindran	Talk, “Abstraction in Reinforcement Learning”	MSR, India	12 September 2013
7	Balaraman Ravindran	Talk, “Useful Skills to Learn?”	IBM-IRL, Bangalore	13 September 2013
8	V. Kamakoti	Keynote address at VLSI Symposium	CEERI, Pilani	20–21 September 2013
9	P. Sreenivasa Kumar	Invited talk, “Semantic Web: Issues and Challenges”, at a short term training programme on web semantics and data mining	Government Engineering College, Kottayam, Kerala	27 September 2013
10	M.N. Jayalal Sarma	Lecture at Indian Association for Research in Computing Science (IARCS) workshop	Kovilpatti, Tamil Nadu	27–29 September 2013
11	Raghavendra Rao B.V.	Lecture at Indian Association for Research in Computing Science (IARCS) workshop	Kovilpatti, Tamil Nadu	27–29 September 2013
12	Balaraman Ravindran	Talk, “Useful Spatio-temporal Abstractions in RL?”	IBM Symposium on Cognitive Computing, Delhi	7 October 2013
13	N.S. Narayanswamy	Graph Partitioning	NIT, Warangal	24 October 2013
14	Krishna Sivalingam	Invited talk, “Paper Writing in Reputed Journals”, at National Workshop on R&D Issues and Challenges	ISTE Faculty Chapter, Adiparasakthi Engineering College, Melmaruvathur	20 November 2013
15	John Augustine	Invited speaker at International Conference on Recent trends in Discrete Mathematics and Its Applications to Science and Engineering (ICODIMA 2013)	Periyar Maniyammai University, Thanjavur	3 December 2013
16	Balaraman Ravindran	Talk, “Abstraction in Reinforcement Learning”	University of Texas, Austin	3 December 2013

17	Balaraman Ravindran	Invited talk, "Some Applications of Collective Learning"	PSG Tech, Coimbatore	21 December 2013
18	Balaraman Ravindran	Invited talk, "Hypergraph Based Modeling for Machine Learning", at graph theory and applications symposium, held as a part of 79th Annual Conference on Indian Mathematics Society	Cochin	30 December 2013
19	Balaraman Ravindran	Talk, "Learning with Hypergraphs", at symposium at Indo French Centre for Applied Maths	IISc	16 January 2014
20	John Augustine	Distributed Algorithms	University of Kerala and IITM-Kerala	24 January 2014
21	Krishna Sivalingam	Invited talk, "Software Defined Networks and Content Centric Networks" (workshop/lecture series on networks and distributed algorithms)	ISI Kolkata	March 2014

Visits abroad by faculty members

Sl. No.	Faculty Member	Purpose of Visit	Country Visited	Date
1	John E. Augustine	Research collaboration	HKUST, Hong Kong	20–28 May 2013
		Research collaboration	Shandong University of Technology, Zibo, China	6–13 June 2013
		Research collaboration in dynamic networks and big data	MPII, Saarbruecken, Germany	17 June to 7 July 2013
2	C. Pandu Rangan	ACM meeting	San Francisco, USA	12–15 June 2013
3	B. Ravindran	30th International Conference on Machine Learning (ICML 2013)	Atlanta, USA	16–22 June 2013
4	C. Pandu Rangan	Technical discussion with Samsung	South Korea	7–21 July 2013
5	Madhu Mutyam	Microsoft Research Summit 2013	Redmond, USA	15–16 July 2013
6	D. Janakiram	IEEE SCC 2013, 10th International Conference on Services Computing	Santa Clara Marriott, CA, USA	26 June to 5 July 2013
7	Hema A. Murthy	Eighth ISCA Speech Synthesis Workshop (SSW8) and 21st European Signal Processing Conference (EUSIPCO 2013)	Spain and Morocco	2–10 September 2013
8	Krishna Moorthy Sivalingam	Project review meeting with participants from India and UK	University of Surrey, UK	24–29 September 2013
9	Hema A. Murthy	Technical workshop	University of Surrey, UK	26–27 September 2013
10	Madhu Mutyam	International Conference on Computer Design (ICCD 2013)	Asheville, North Carolina, USA	6–10 October, 2013
11	P. Sreenivasa Kumar	Fourth Conference on Knowledge Engineering and Semantic Web (KESW-2013)	St. Petersburg, Russia	7–11 October 2013
12	C. Pandurangan	Presenting papers at International Conference on Cloud Security Management (ICCSM) 2013	Seattle, USA	16–18 October 2013
13	C. Pandurangan	International Conference on Provable Security (PROVSEC-2013)	Melaka, Malaysia	23–25 October 2013
14	Hema A. Murthy	14th International Society for Music Information Retrieval Conference	Curitiba, Brazil	4–7 November 2013
15	Kamala Krithivasan	Asian Conference on Membrane Computing	Chengdu, China	4–7 November 2013
16	C. Pandu Rangan	International Conference on Information Security and Cryptology (ICISC-2013)	Seoul, Korea	27–29 November 2013

17	V. Krishna Nandivada	Collaboration with faculty and students	Rice University, Houston, Texas	3–9 December 2013
18	John Ebenezer Augstine	Research Fellow at the Institute for Computational and Experimental Research in Mathematics (ICERM)	Brown University, USA	13 February to 15 May 2014
19	Nandivada Venkata Krishna	Presentation of a paper at Ninth International Conference on High Performance and Embedded Architecture and Compilers (HiPEAC)	Vienna, Austria	19–23 January 2014
20	Madhu Mutyam	19th Asia and South Pacific Design Automation Conference (ASP-DAC)	Singapore	20–23 January 2014
21	Sukhendu Das	DAAD Student Exchange Fellowship Programme	VIS and VISUS Institute, Stuttgart University, Germany	20–30 March 2014
22	C. Pandu Rangan	Visiting scientist	Samsung, South Korea	29 March to 5 April 2014
23	Balaraman Ravindran	Pan-IIT Meet	Houston, Texas	December 2013
24	Balaraman Ravindran	Neural Information Processing Systems Conference (NIPS)	Harrahs and Harveys, Lake Tahoe, Nevada, USA	5–8 December 2013
25	Balaraman Ravindran	Research collaboration meeting	Rice University, Houston	December 2013

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	Nitin Chandrachoodan, Shankar Balachandran, V. Sudharshan	TAU workshop, first prize in the timing contest	TAU Workshop held at Reno, Nevada, USA	“IITiMer: A Parallel Variation—Aware Timing Analyzer” by Jobin Jacob Kavalam	February 2013
2	Krishna Sivalingam	IEEE Fellowship	IEEE	Contribution to medium access control and energy-efficient protocol design in communication networks	Effective from January 2014
Awards					
1	Shankar Balachandran	IBM Faculty Award	IBM India		2013
2	Pawan Kumar, Srinivasan Murali and V. Kamakoti	IETE—Gowri Memorial Award for the Best Paper	IETE Technical review Academic year rest During the LGeneral Inteast	Network-on-Chips on 3d ICs—Past	2013
3	Madhur Amilkanthwar (CS11S015) and Shankar Balachandran	Second prize in student research competition	International Conference on Supercomputing 2013	CUPL: A Compile-Time Un-coalesced Memory Access Pattern Locator for CUDA	10–14 June 2013
4	Anik Sengupta (CS11S009), Rahul Thakur (CS11S006) and Siva Ram Murthy	Best Paper Award—the paper was selected from among 71 technical papers presented.	19th IEEE International Conference on Networks (ICON), Singapore	An Efficient Preamble Compression for Multi Clock-Rate Sampling Wireless Devices	11–13 December 2013
5	Sagar Joshi (M.Tech., 2012) and Krishna Sivalingam	“Honourable Mention” (i.e. runner-up) award in the long paper category	Conference Organizing Committee (selected by TPC Co-chairs), IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), Chennai, India	On Fault Tolerance in Data Centre Network Virtualization Architectures	December 2013

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
Books				
1	Deepak Khemani	<i>A First Course in Artificial Intelligence</i>	Tata McGraw-Hill	
2	D. Janakiram	<i>Building Large Scale Software Systems</i>	McGraw-Hill Education	Vinay Kumar and N. Suneetha
3	Kamala Krithivasan	<i>Global Adaptation of Discrete Mathematical Structures and its Applications</i> , by Kenneth Rosen (adapted edition)	McGraw-Hill Education	

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	Anurag Mittal	Area Editor	<i>Journal on Computer Vision and Image Understanding</i> (Elsevier)
2	V. Krishna Nandivada	Associate Editor	<i>Sadhana</i> , the proceedings of the Indian Academy of Sciences (2013–present)
3	Balaraman Ravindran	Associate Editor	<i>Sadhana</i> , the proceedings of the Indian Academy of Sciences (2013–present)
4	D. Janakiram	Associate Editor	<i>IEEE Transactions on Cloud Computing</i> (2013–present)
5	Kamala Krithivasan	Member, Editorial Board	<i>International Journal of Communication Networks and Distributed Systems</i> (2013–present)
6	Krishna M. Sivalingam	Editor-in-Chief	<i>Photonic Network Communication Journal</i> (2012–present)
7	Krishna M. Sivalingam	Editor-in-Chief	<i>ICST Transactions on Ubiquitous Environments</i> (2010–present)
8	Balaraman Ravindran	Secretary and Treasurer	Indian Chapter (IKDD) of the ACM special interest group on Knowledge Discovery from Databases (SIGKDD)

4.7.4. Design and Development Activities

Patents awarded

Sl. No.	Name of faculty	Topic of Patent
1	V. Krishna Nandivada, with Pankaj Dhoolia, Mangala Gowri and Diptikalyan Saha	Model, System and Program Storage Device for Automatic Incremental Learning of Programming Language Grammar (US Patent No. 8676826)
2	V. Krishna Nandivada, with Pankaj Dhoolia, Mangala Gowri and Diptikalyan Saha	System and Method for Dynamic Code Analysis in Presence of the “Table Processing” Idiom (US Patent No. 8583965)
3	V. Krishna Nandivada, with Pankaj Dhoolia, Mangala Gowri and Diptikalyan Saha	Method, System and Program Storage Device that Provide for Automatic Programming Language Grammar Partitioning (US Patent No. 8516457)

4.7.5. Research and Consultancy

DST/government funded projects (ongoing and new)

Sl. No.	Co-ordinators	Title	Funding Agency	Period	Value (₹)
1	Madhu Mutyam (PI), Shankar Balachandran (Co-PI)	Exploiting Techniques to Optimize Main Memory of Multi-core Systems	Department of Science and Technology (DST)	January 2014 to December 2016	34,61,300
2	Ashok Jhunjhunwala (IIT Madras) and Prof. Gerard Parr (University of Ulster, UK) are Lead Co-PIs for the overall project. The project has three groups, of which Group 2 (Core Network Systems) is the one for which Prof. Timothy Gonsalves (IIT Mandi) is the Lead Coordinator. Indian Co-ordinators of Group 2 are Krishna Sivalingam, Hema Murthy, Devendra Jalihal, Gaurav Raina and Krishna Jagannathan.	India-UK Advanced Technology Centre (IU-ATC) of Excellence in Next Generation Networks Systems and Services: PHASE 2	DST	October 2012 to April 2015	Value for Group 2 at IIT Madras is ₹1.28 crores; (overall project approximately ₹18 crores)

Industrial consultancy projects (ongoing and new)

Sl. No.	Co-ordinators	Title	Funding Agency	Period	Value (in lakhs of ₹)
1	Janaki Ram D.	Bio Data Analysis for Mobile Family	Intersoft Corporation	15 July 2013	2.25
2	Kamakoti V.	Power Optimization Project	LG Soft India Pvt. Ltd.	1 February 2014	17.98
3	Anurag Mittal	Consultancy for Development of Image Processing Software for Touchless Wheel Alignment	Manatec Electronics	31 December 2013	1.00

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Ravindran B.	Query-able Knowledge Base for Medical Coding Taxonomy	Claritrics Technologies Pvt. Ltd.	10.00
2	Janaki Ram D.	Health Grid on Cloud	Saxon Infotech	4.41
3	Ravindran B.	Consumer Behaviour Analysis	Ericsson India Pvt. Ltd.	30.00
4	Krishna Moorthy Sivalingam	Simulation Based Platform for Tactical Communication System	Tata Power Company Ltd.	47.38
5	Sreenivasa Kumar P.	Extensible Automotive Ontology Re-engineering	Ford Motor Company	28.00
6	Kamakoti V.	Secure Anupama Microcontroller Development	Defence Research & Development Organisation	24.21
7	Sukhendu Das	Localization and Identification of Targets in Satellite Images Using Feature Based Approaches	Defence Research & Development Organisation	44.94
8	Ravindran B.	Instruction Taking Robots	Centre for Artificial Intelligence and Robotics	19.95
9	V. Krishna Nandivada, Deepak Khemani and Sutanu Chakraborty	Model Based Testing	Airtel Engineering	10

Retainer consultancy (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Kamakoti V.	Consultancy Services for IT Related Activities of the Bank	Indian Overseas Bank	0.44
2	Krishna Moorthy Sivalingam	Service Discovery Establishment and Service Assurance	NMS Works Software Pvt. Ltd.	5.66
3	Kamakoti V.	Hardware Related Security and Performance Review	Tata Consultancy Services	2.00

Research publications of faculty members and research scholars

Number of papers published in refereed international journals: 44

Number of papers presented at national conferences: 17

Number of papers presented at international conferences: 64

(a) Papers published in refereed international journals

1. Arpita Patra, Ashish Choudhury and C. Pandu Rangan (2014) Asynchronous byzantine agreement with optimal resilience. *Distributed Computing* 27(2): 111–146.
2. Arpita Patra, Ashish Choudhury and C. Pandu Rangan (2013) Efficient asynchronous verifiable secret sharing and multiparty computation. *Journal of Cryptology* 1–61.
3. Chiranjoy Chattopadhyay and Amit Kumar Maurya (2014) Multivariate time series modeling of geometric features of spatio-temporal volumes for content based video retrieval. *International Journal of Multimedia Information Retrieval* 3(1): 15–28.

4. Chiranjoy Chattopadhyay and Amit Kumar Maurya (2013) Genre-specific modeling of visual features for efficient content based video shot classification and retrieval. *International Journal of Multimedia Information Retrieval* 2(4): 289–297.
5. V.K. Nandivada and R. Barik (2013) Improved bitwidth-aware variable packing. *ACM Transactions on Architecture and Code Optimization (TACO)* 10(3): 16(1:22).
6. V.K. Nandivada, J. Shirako, J. Zhao and V. Sarkar (2013) A transformation framework for optimizing task-parallel programs. *ACM Transactions on Programming Languages and Systems* 35(1): 3(1–48).
7. R. Krithika and N.S. Narayanaswamy (2013) Another disjoint compression algorithm for OCT. *Information Processing Letters* 113: 849–851.
8. Neeldhara Misra, N.S. Narayanaswamy, Venkatesh Raman and Bal Sri Shankar (2013) Solving minones-2-sat as fast as vertex cover. *Theoretical Computer Science* 506: 115–121.
9. R. Krithika, Rogers Mathew, N.S. Narayanaswamy and N. Sadagopan (2013) A Dirac-type characterization of k-chordal graphs. *Discrete Mathematics* 313(24): 2865–2867.
10. N.S. Narayanaswamy and G. Ramakrishna (2014) Characterization of minimum cycle basis in weighted partial 2-trees. *Discrete Applied Mathematics*.
11. Daniel Lokshantov, N.S. Narayanaswamy, Venkatesh Raman, M.S. Ramanujan and Saket Saurabh (2013) Faster parameterized algorithms using linear programming. *ACM Transactions on Algorithms*.
12. C.S. Ganesh and Krishna M. Sivalingam (2013) Report duration computation schemes in reduced buffer ONUs for passive optical networks. *Journal of Optical Communications and Networking* 11(5): 1157–1167.
13. C.S. Ganesh and Krishna M. Sivalingam (2013) ONU buffer reduction for power efficiency in passive optical networks. *Optical Switching and Networking* 10(4): 416–429.
14. Anusha Sivakumar, C.S. Ganesh and Krishna M. Sivalingam (2013) Performance analysis of ONU-wavelength grouping schemes for efficient scheduling in long reach-PONs. *Optical Switching and Networking Journal* 10(4): 465–474.
15. P. Gireesan Namboothiri and Krishna M. Sivalingam (2013) Throughput analysis of multiple channel based wireless sensor networks. *Wireless Networks* 19(4): 461–476.
16. S.A.V. Satya Murty, Baldev Raj, Krishna M. Sivalingam, S. Sridhar, Jemimah Ebenezer and Kalyan Rao Kuchipudi (2013) Wireless sensor network in fast breeder test reactor. *Journal of Nuclear Engineering & Technology* 3(1).
17. Arun Kumar, Krishna M. Sivalingam and Adithya Kumar (2013) On reducing delay in mobile data collection based wireless sensor networks. *Wireless Networks Journal* 19(3): 285–299.
18. S.A.V. Satya Murty, Baldev Raj, Krishna M. Sivalingam, S. Sridhar, Jemimah Ebenezer and Kalyan Rao Kuchipudi (2013) Wireless sensor network in fast breeder test reactor. *Journal of Nuclear Engineering & Technology* 3(1).
19. A.D. Dileep and C. Chandra Sekhar (2013) HMM based intermediate matching kernel for classification of sequential patterns of speech using support vector machines. *IEEE Transactions on Audio, Speech and Language Processing* 21(12): 2570–2582.
20. A.D. Dileep and C. Chandra Sekhar (2014) Class-specific GMM based intermediate matching kernel for classification of varying length patterns of long duration speech using support vector machines. *Speech Communication* 57: 126–143.
21. B. Venkataramana Kini and C. Chandra Sekhar (2013) Bayesian mixture of AR models for time series clustering. *Pattern Analysis and Applications* 16(2): 179–200.
22. A.D. Dileep and C. Chandra Sekhar GMM based intermediate matching kernel for classification of varying length patterns of long duration speech using support vector machines. *IEEE Transactions on Neural Networks and Learning Systems*.
23. John Augustine, Qi Han, Sachin Lodha, Philip Loden and Sasanka Roy (2013) Tight analysis of shortest path convergecast in wireless sensor networks. *International Journal of Foundations of Computer Science* 24(1): 31–50.
24. John Augustine, Sandip Das, Anil Maheswari, Subhas Nandy, Sasanka Roy and Swami Sarvattomananda (2013) Localized geometric query problems. *Computational Geometry* 46(3): 340–357.
25. John Augustine, Ioannis Caragiannis, Angelo Fanelli and Christos Kalaitzis (November 2013) Enforcing efficient equilibria in cost sharing games via subsidies. *Algorithmica*.
26. M. Sakthi Balan and Kamala Krithivasan (2013) Binding-blocking automata. *International Journal of Computer Mathematics* 90(9): 1809–1831.

27. Lakshmanan Kuppusamy, Anand Mahendran and Kamala Krithivasan (2013) On the trade-off between ambiguity and complexity in contextual languages. *Fundamenta Informaticae* 122(4): 315–326.
28. S. Raghavan and S.V. Raghavan (2013) Determining the origin of downloaded files using metadata associations. *Journal of Communications* 8(12): 902–910.
29. Arpit Joshi, Prasanna Venkatesh and Madhu Mutyam (2013) Prevention slot flow-control mechanism for low latency torus network-on-chip. *IET Computers & Digital Techniques* 7(6): 304–316.
30. Virat Gandhi, V.R. Devanathan, V. Visvanathan, Milan Patnaik and V. Kamakoti (2013) Supply and body-bias voltage assignment based technique for power and temperature control on a chip at iso-performance conditions. *Journal of Low Power Electronics* 9(2): 207–220.
31. A. Satya Trinadh, Seetal Potluri, Ch. Sohan Babu and V. Kamakoti (2013) An efficient heuristic for peak capture power minimization during scan-based test. *Journal of Low Power Electronics* 9(2): 264–274.
32. A. Satya Trinadh, Seetal Potluri, Shankar Balachandran, Ch. Sohan Babu and V. Kamakoti (2014) XStat: Statistical X-filling algorithm for peak capture power reduction in scan tests. *Journal of Low Power Electronics* 10(1): 107–115.
33. Markus Bläser, Bodo Manthey and B.V. Raghavendra Rao (2013) Smoothed analysis of partitioning algorithms for Euclidean functionals. *Algorithmica* 66(2): 397–418.
34. Meena Mahajan, B.V. Raghavendra Rao and Karteek Sreenivasaiah (2014) Monomials, multilinearity and identity testing in simple read-restricted circuits. *Theor. Comput. Sci.* 524: 90–102.
35. Maurice J. Jansen, Meena Mahajan and B.V. Raghavendra Rao (2013) Resource trade-offs in syntactically multilinear arithmetic circuits. *Computational Complexity* 22(3): 517–564.
36. Sriram Kailasam, Nathan Gnanasambandam, Janakiram Dharanipragada and Naveen Sharma (2013) Optimizing ordered throughout using autonomic cloud bursting schedulers. *IEEE Transactions on Software Engineering* 39(1): 1564–1581.
37. Dharanipragada Janakiram, Geeta Iyer and Sriram Kailasam (2014) Generate-map-reduce: An extension to map-reduce to support shared data and recursive computations. *Concurrency and Computation: Practice and Experience* 26(2): 561–585.
38. T.P. Michalak, K.V. Aadithya, P.L. Szczyptański, B. Ravindran and N.R. Jennings (2013) Efficient computation of the Shapley value for game-theoretic network centrality. *Journal of Artificial Intelligence Research* 46: 607–650.
39. B.P. Priyadharsini, V.S. Chakravarthy, B. Ravindran and A.A. Moustafa (16 April 2014) An extended reinforcement learning model of basal ganglia to understand the contributions of serotonin and dopamine in risk-based decision making, reward prediction, and punishment learning. *In the Frontiers of Computational Neuroscience* 8(47).
40. B. Yegnanarayana and Dhananjaya N. (2013) Spectro-temporal analysis of speech signals using zero-time windowing and group delay function. *Speech Communication* 55(6): 782–795.
41. V.K. Chaithanya Manam, V. Mahendran and C. Siva Ram Murthy (2014) Performance modeling of DTN routing with heterogeneous and selfish nodes'. *ACM/Springer Wireless Networks* 20(1): 25–40.
42. H. Mehta, S.J. Balaji and D. Janakiram (2013) Extending programming language to support object orientation in legacy systems. *Computer Science and Information Systems Journal* 10(4): 1661–1672.
43. Sankalp Gulati, Ashwin Bellur, Justin Salamon, Vignesh Ishwar, Hema A. Murthy and Xavier Serra. (2014) Automatic tonic identification in Indian art music: Approaches and evaluation. *Journal of New Music Research* (Taylor and Francis) 43(1): 53–71.
44. Preeti Rao, Joe Cheri Ross, Kaustuv Kanti Ganguli, Vedhas Pandit, Vignesh Ishwar, Ashwin Bellur and Hema Murthy (2014) Melodic motivic analysis of Indian music. *Journal of New Music Research* (Taylor and Francis) 43(1): 115–131.

(b) Publications in proceedings of national conferences

1. Prateek Shrivastava and Sukhendu Das (2013) Fast area of contact computation for collision detection of a deformable object using FEM. *4th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)* (19–21 December 2013), Jodhpur.
2. Chiranjoy Chattopadhyay and Sukhendu Das (2013) STAR: A content based video retrieval system for moving camera video shots. *4th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)* (19–21 December 2013), Jodhpur.
3. Sudeshna Roy and Sukhendu Das (2013) Spatial variance of color and boundary statistics for salient object detection. *4th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)* (19–21 December 2013), Jodhpur.

4. Ankit Shrivastava, Prateek Shrivastava, Sukhendu Das and Suranjana Samanta (2013) Stable biped locomotion using improved proportional derivative controller. *4th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)* (19–21 December 2013), Jodhpur.
5. Suranjana Samanta, A. Tirumarai Selvan and Sukhendu Das (2013) Cross-domain clustering performed by transfer of knowledge across domains. *4th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)* (19–21 December 2013), Jodhpur.
6. Nirav Gohel and Krishna M. Sivalingam (2014) Dynamic routing framework for OMNET++ based hardware-in-the-loop (HITL) network simulation. *National Conference on Communications (NCC)* (28 February to 2 March 2014), Kanpur.
7. Preethi Chandur and Krishna M. Sivalingam (2014) Quality of experience aware video scheduling in LTE networks. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
8. K.V.S. Dileep and Sutanu Chakraborti (2013) Towards higher order complexity measures for text classification. *Proceedings of 1st Indian Workshop on Machine Learning 2013* (1–3 July 2013), IIT Kanpur.
9. Shreya Khare, Akshay Bhandari and Hema A. Murthy (2014) Classification using non negative matrix factorization. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
10. Anusha Prakash, Machireddy Reddy, Nagarajan T. and Hema A. Murthy (2014) An approach to building language-independent text-to-speech synthesis for Indian languages. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
11. Anjana Babu, Raghava Krishnan K., Anil Kumar Sao and Hema A. Murthy (2014) A probabilistic approach to selecting units for speech synthesis based on acoustic similarity. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
12. S. Aswin Shanmugham and Hema A. Murthy (2014) Group delay based phone segmentation for HTS. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
13. N.N. Musfir Mohammed, Raghava Krishnan K. and Hema A. Murthy (2014) Analysis of fricatives, stop consonants and nasals in the automatic segmentation of speech using the group delay algorithm. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
14. Shrey Dutta and Hema A. Murthy (2014) A modified rough longest common subsequence algorithm for motif spotting in an alapana of Carnatic music. *National Conference on Communications (NCC-2014)* (28 February to 2 March 2014), Kanpur.
15. Ramani Boothalingam, V. Sherlin Solomi, Gladston, Anushiya Rachel, Christina, S. Lilly, P. Vijayalakshmi, Thangavelu, Nagarajan and Hema A. Murthy (2013) Development and evaluation of unit selection and HMM-based speech synthesis systems for Tamil. *National Conference on Communications (NCC-2013)* (15–17 February 2013), Kanpur.
16. Rajeev Rajan and Hema A. Murthy (2013) Melodic pitch extraction from music signals using modified group delay functions. *National Conference on Communications (NCC-2013)* (15–17 February 2013), Kanpur.
17. Ashwin Bellur and Hema A. Murthy (2013) A cepstrum based approach for identifying tonic pitch in Indian classical music. *National Conference on Communications (NCC-2013)* (15–17 February 2013), Kanpur.

(c) Publications in proceedings of international conferences

1. Sudeshna Roy and Sukhendu Das (2014) Saliency detection in images using graph-based rarity, spatial compactness and background prior. *9th International Conference on Computer Vision, Theory and Applications (VISAPP part of VISIGRAPP)* (5–8 January 2014), Lisbon, Portugal.
2. Suranjana Samanta and Sukhendu Das (2013) Inter-domain cluster mapping and GMCV based transformation for domain adaptation. *5th International Conference (LNCS) on Pattern Recognition and Machine Intelligence (PreMI)* (10–14 December 2013), Kolkata, India.
3. Suranjana Samanta and Sukhendu Das (2013) Domain adaptation based on eigen-analysis and clustering, for object categorization. *15th International Conference (LNCS) on Computer Analysis of Images and Patterns (CAIP)* (27–29 August 2013), York, UK.
4. Seetal Potluri, Satya Trinadh Adireddy, Chidhambaranathan Rajamanikkam and Shankar Balachandran (2013) An algorithm for supply scaling and switching activity minimization during test. *International Conference on Computer Design* (6–9 October 2013), Asheville, North Carolina, USA.

5. Madhur Amilkanthwar and Shankar Balachandran (2013) CUPL: a compile-time uncoalesced memory access pattern locator for CUDA. *International Conference on Supercomputing* (10–14 June 2013), Eugene, Oregon, USA.
6. M. Karthick and Krishna M. Sivalingam (2013) Network coding based reliable and efficient data transfer for smart grid monitoring. *IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS)* (15–18 December 2013), Chennai, India.
7. Sagar Joshi and Krishna M. Sivalingam (2013) On fault tolerance in data center network virtualization architectures. *IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS)* (15–18 December 2013), Chennai, India.
8. D. Bhor, K. Angappan and Krishna M. Sivalingam (2014) A co-simulation framework for smart grid wide-area monitoring networks. *Sixth International Conference on Communication Systems and NETWORKS (COMSNETS)* (6–10 January 2014), Bangalore, India.
9. Sakshi Patni and Krishna M. Sivalingam (2014) Dynamic gateway selection for load balancing in LTE networks. *International Conference on Distributed Computing and Networking (ICDCN)* (4–7 January 2014.), Coimbatore, India.
10. Li-Ping Tung, Ying-Dar Lin, Yu-Hsien Kuo, Yuan-Cheng Lai and Krishna M. Sivalingam (2014) Reducing power consumption in LTE data scheduling with the constraints of channel condition and QoS. *International Conference on Computing, Networking and Communications (ICNC)* (3–6 February 2014), Hawaii, USA.
11. Vijay Ekambaram and Krishna M. Sivalingam (2013) Interest flooding reduction in content centric networks. *International Conference on High Performance Switching and Routing (HPSR)* (8–11 July 2013), Taipei, Taiwan.
12. M. Karthick, Muthukumar Radhakrishnan and Krishna M. Sivalingam (2013) Reliable data transfer mechanisms for smart grid wide area monitoring networks. *Eighteenth IEEE symposium on Computers and Communications (ISCC)* (7–10 July 2013), Split, Croatia.
13. Vanniarajan Chellappan and Krishna M. Sivalingam (2013) Application of entropy of centrality measures to routing in tactical wireless networks. *International Workshop on Local and Metropolitan Area Networks (LANMAN)* (10–12 April 2013), Brussels, Belgium.
14. L. Ramachandran, B. Ravindran and E. Gehringer (2013) Determining review coverage by extracting topic sentences using a graph-based clustering approach. *Sixth International Conference on Educational Data Mining (EDM)* (6–9 July 2013), Memphis, TN, USA.
15. D. Kar, A. Kumar, S. Chakraborti, and B. Ravindran (2013) iCaseViz: Learning case similarities through interaction with a case base visualizer. *Twenty First International Conference on Case Based Reasoning (ICCBR 2013)* (8–11 July 2013), Saratoga Springs, NY, USA
16. S.S. Manimaran and B. Ravindran (2014) RRTPI: Policy iteration on continuous domains using rapidly-exploring random trees. *In the Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2014)* (31 May to 5 June 2014), Hong Kong, China. IEEE Press. (Accepted in January 2014)
17. D. Pai, B. Ravindran, S. Rajagopalan and R. Srinivasaraghavan (2013) Automated faceted reporting for web analytics. *In the Fourth International Workshop on Knowledge Representation, Retrieval and Reasoning (Web-KR) at International Conference on Information and Knowledge Management (CIKM)* (27 October to 1 November 2013), Burlingame, CA, USA.
18. B.V. Srinivasan, N. Anandhavelu, R. Sinha, V. Gupta, S. Revankar and B. Ravindran (2013) Will your Facebook post be engaging? *First Workshop on User Engagement Optimization (UEO) at International Conference on Information and Knowledge Management (CIKM)* (27 October to 1 November 2013), Burlingame, CA, USA.
19. P. Swapna Raj and B. Ravindran (2013) Incremental constrained clustering : A decision theoretic approach. *Proceedings of the PAKDD workshop on Constraint Discovery and Applications (CDA 2013)* (14 April 2013) Springer, Brisbane, Australia.
20. B. Ravindran (2013) Spectral clustering as mapping to a simplex. *Spectral Learning Workshop at International Conference on Machine Learning (ICML)* (August 2013), Atlanta.
21. Prateek Dhawalia, Sriram Kailasam, and Dharanipragada Janakiram (2013) Chisel: A resource savvy approach for handling skew in map reduce applications. *IEEE 6th International Conference on Cloud Computing (CLOUD '13)*, Santa Clara (27 June to 2 July 2013), CA, USA.
22. Rahul Thakur, Anik Sengupta, and C. Siva Ram Murthy (2013) Improving capacity and energy efficiency of femtocell based cellular network through cell biasing. *11th International Symposium on Modeling and*

- Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)* (13–17 May 2013), Tsukuba Science City, Japan.
23. Rahul Thakur, Sudeepta Mishra, and C. Siva Ram Murthy (2013) A load-conscious cell selection scheme for femto-assisted cellular networks'. *24th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)* (8–11 September 2013), London.
 24. Anik Sengupta, Rahul Thakur and C. Siva Ram Murthy (2013) An efficient preamble compression for multi clock-rate sampling wireless. *19th IEEE International Conference on Networks (ICON)* (11–13 December 2013), Singapore.
 25. John Augustine, Gopal Pandurangan and Peter Robinson (2013) Fast Byzantine agreement in dynamic networks. *ACM symposium on Principles of distributed computing (PODC)* (22–24 July 2013), Montreal, Canada
 26. John Augustine, Anisur Rahaman Molla, Ehab Morsy, Gopal Pandurangan, Peter Robinson and Eli Upfal (2013) Storage and search in dynamic peer-to-peer networks. *25th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)* (23–25 July 2013), Montreal, Canada.
 27. John Augustine, Tejas Kulkarni, Paresh Nakhe and Peter Robinson (2013) Robust leader election in a fast-changing world. *The Ninth International Workshop on Foundations of Mobile Computing (FOMC)* (17–18 October 2013),x Jerusalem, Israel.
 28. Karl Bringmann, Christian Engels, Bodo Manthey and B.V. Raghavendra Rao (2013) Random shortest paths: Non-euclidean instances for metric optimization problems. *38th International Symposium on Mathematical Foundations of Computer Science (MFCS)* (26–30 August 2013), Klosterneuburg, Austria.
 29. Gnaneswara Rao Jonna, John Jose, Rachana Radhakrishnan, and Madhu Mutyam (2014) Minimally buffered single-cycle deflection router for mesh NoCs. *International Conference on Design, Automation & Test in Europe (DATE'14)* (24–28 March 2014), Dresden, Germany.
 30. T.V. Kalyan, K. Ravi and Madhu Mutyam (2014) Scattered refresh: An alternative refresh mechanism to reduce refresh cycle time. *Asia and South Pacific Design Automation Conference (ASP-DAC'14)* (20–23 January 2014), SunTec, Singapore.
 31. Bhawna Nayak, John Jose and Madhu Mutyam (2013) SLIDER: Smart late injection deflection router for mesh NoCs. *International Conference on Computer Design (ICCD'13)* (6–9 October 2013), Asheville, NC, USA.
 32. N.S. Narayanaswamy and G. Ramakrishna (2014) On minimum average stretch spanning trees in polygonal 2-trees. *Workshop on Algorithms and Combinatorics (WALCOM 2014)* (13–15 February 2014), Chennai, India.
 33. Kamiel Cornelissen, Ruben Hoeksma, Bodo Manthey, N.S. Narayanaswamy and C.S. Rahul (2013) Approximability of connected factors. *11th Workshop on Approximation and Online Algorithms(WAOA)* (5–6 September 2013), Sophia Antipolis, France.
 34. N.S. Narayanaswamy and R. Subashini (2013) FPT algorithms for consecutive ones submatrix problems. I. *8th International Symposium on Parameterized and Exact Computation)* (4–6 September 2013), Sophia Antipolis, France.
 35. Saurabh Gupta and Sutanu Chakraborti Flexible and dynamic compromises for effective recommendations. *Proceedings of the 22nd ACM Conference on Information and Knowledge Management (CIKM 2013)* (27 October to 1 November 2013), Burlingame, CA, USA.
 36. Saurabh Gupta and Sutanu Chakraborti (2013) UtilSim: iteratively helping users discover their preferences. *Proceedings of EC-Web* (26–30 August 2013), Prague, Czech Republic.
 37. Bibekananda Kundu, Sutanu Chakraborti and Sanjay Kumar Choudhury (2013) Complexity guided active learning for Bangla grammar correction. *International Conference on Natural Language Processing (ICON 2013)* (23–26 September 2013), Annecy, French Alps.
 38. Swapnil Hingmire, Sandeep Chougule, Girish K. Palshikar and Sutanu Chakraborti Document classification by topic labelling. *Special Interest Group on Information Retrieval (SIGIR '13)* (28 July to 1 August 2013), Dublin, Ireland.
 39. Saurabh Gupta and Sutanu Chakraborti (2013) Evaluating conversational recommender systems based on preference based feedback. *Workshop on Benchmarking Adaptive Retrieval and Recommender Systems (BARS 2013, a workshop of SIGIR 2013)* (1 August 2013), Dublin.
 40. Ashish Vijay Tendulkar and Sutanu Chakraborti (2013) Parallels between linguistics and biology. *Biomedical Natural Language Processing (BioNLP 2013, a workshop of ACL 2013)* (9 August 2013), Sofia, Bulgaria.

41. Nishaanth Shanmughasundaram and Sutanu Chakraborti (2013) Question routing in collaborative question answering systems. *Workshop of Case Based Reasoning in Social Web Applications (a workshop of ICCBR 2013)* (9 July 2013), Saratoga Springs, NY, USA.
42. Bhautik Patel, Ashish V. Tendulkar and Sutanu Chakraborti (2013) Towards selective user specific query expansion. *User Engagement Optimization Workshop, International Conference on Information and Knowledge Management. ACM* (27 October to 1 November 2013), San Francisco, CA, USA.
43. Skanda Raj and Sutanu Chakraborti Mining user trails in critiquing based recommenders. *Proceedings of 5th Workshop on Social Recommender Systems (SRS 2014)*, to be co-hosted with *WWW 2014* (7–11 April 2014), Seoul, Korea. (Accepted in January–February 2014)
44. A.D. Dileep and C. Chandra Sekhar (2013) HMM based pyramid match kernel for classification of sequential patterns of speech using support vector machines. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2013)* (26–31 May 2013), Vancouver, BC, Canada.
45. S. Sharmila Deva Selvi, S. Sree Vivek, R. Layamrudha Venkatesan and C. Pandu Rangan (2013) Efficient, pairing-free, authenticated identity based key agreement. *International Conference on Provable Security (Provsec 2013)* (23–25 October 2013), Melaka, Malaysia.
46. Prateek Barapatre and Chandrasekaran Pandu Rangan (2013) Anonymous identity-based identification scheme in ad-hoc groups without pairings. *Security, Privacy, and Applied Cryptography Engineering (SPACE)* 19–23 October 2013, Kharagpur, India.
47. Prateek Barapatre and Chandrasekaran Pandu Rangan (2013) Identity-Based Identification Schemes from ID-KEMs. *Security, Privacy, and Applied Cryptography Engineering (SPACE)* (19–23 October 2013), Kharagpur, India.
48. Mrinal Kumar, Gaurav Maheshwari and Jayalal Sarma M.N. (2013) Arithmetic circuit lower bounds via MaxRank. *International Conference on Automata Languages and Programming (ICALP)* (8–12 July 2013), Riga, Latvia.
49. Abhijit Pradhan, Aswin Shanmugam S., Anusha Prakash, Kamakoti Veezhinathan and Hema A Murthy (2013) A syllable based statistical text to speech system. *Proceedings of the Europeans Signal Processing Conference (EUSIPCO)* (9–13 September 2013), Marrakech, Morocco.
50. Akshay Ananthapadmanabhan, Juan Bello, Raghava Krishnan and Hema A. Murthy (2014) Tonic independent stroke transcription of the mridangam. *Audio Engineering Society Conference: 53rd International Conference: Semantic Audio* (27–29 January 2014), London, UK.
51. H.A. Patil, T.B. Patel, N.J. Shah, H.B. Sailor, R. Krishnan, G.R. Kasthuri, T. Nagarajan, L. Christina, N. Kumar, V. Raghavendra, S.P. Kishore, S.R.M. Prasanna, N. Adiga, S.R. Singh, K. Anand, P. Kumar, B.C. Singh, S.L. Binil Kumar, T.G. Bhadrans, T. Sajini, A. Saha, T. Basu, K.S. Rao, N.P. Narendra, A.K. Sao, R. Kumar, P. Talukdar, P. Acharyaa, S. Chandra, S. Lata and H.A Murthy (2013) A syllable-based framework for unit selection synthesis in 13 Indian languages. *Oriental COCODA (International Committee for the Co-ordination and Standardization of Speech Databases and Assessment Techniques)* (25–27 November 2013), Gurgaon, India.
52. P. Kumar, G. Annamalai, T. Sajini, A. Konjengbam, M. Praveen, G.R. Kasthuri, A. Prabhakar, Shuo Qiao, S.K. Pani, V. Maral, S.L.B. Kumar, A. Gopi, E.A. Neethu, B.C. Singh, R. Singh and H.A. Murthy (2013) Seamless integration of common framework Indian language TTses in various applications. *Oriental COCODA (International Committee for the Co-ordination and Standardization of Speech Databases and Assessment Techniques)* (25–27 November 2013), Gurgaon, India.
53. Padi Sarala and Hema A. Murthy (2013) Cent filter banks and its relevance to identifying the main song in Carnatic music. *International Symposium on Computer Music Multidisciplinary Research (CMMR-2013)* (15–18 October 2013), Marseille, France.
54. Vignesh Ishwar, Shrey Dutta, Ashwin Bellur and Hema A. Murthy (2013) Motif spotting in an Alapana in Carnatic music. *International Society for Music Information Retrieval Conference (ISMIR- 2013)* (4–8 November 2013), Curitiba, PR, Brazil.
55. Padi Sarala and Hema A. Murthy (2013) Inter and intra segmentation of Carnatic music recordings for archival. *International Society for Music Information Retrieval Conference (ISMIR- 2013)* (4–8 November 2013), Curitiba, PR, Brazil.
56. B. Ramani, S. Lilly Christina, G. Anushiya Rachel, V. Sherlin Solomi, Mahesh Kumar Nandwana, Anusha Prakash, Aswin Shanmugam S., Raghava Krishnan, S.P. Kishore, K. Samudravijaya, P. Vijayalakshmi, T. Nagarajan and Hema A. Murthy (2013) A common attribute based unified HTS framework for speech synthesis in Indian languages. *8th ISCA Speech Synthesis Workshop (SSW8- 2013)* (31 August to 2 September 2013), Barcelona, Spain.

57. Naresh Kumar Elluru, Anandaswarup Vadapalli, Raghavendra Elluru, Hema Murthy and Kishore Prahallad (2013) Is word-to-phone mapping better than phone-phone mapping for handling English words? *Association for Computational Linguistics (ACL)* (4–9 August 2013), Sofia, Bulgaria.
58. Ashwin Bellur and Hema A. Murthy (2013) A novel application of group delay function for identifying tonic in Carnatic Music *European Signal Processing Conference (EUSIPCO-2013)* (9–13 September 2013), Marrakech, Morocco.
59. Golda Brunet and Hema A. Murthy (2013) Analysis of vowel deletion in continuous speech. *European Signal Processing Conference (EUSIPCO-2013)* (9–13 September 2013), Marrakech, Morocco.
60. R. Rajan and H.A. Murthy (2013) Group delay based melody monopitch extraction from music. *IEEE International Conference Acoustics, Speech and Signal Processing (ICASSP)* (26–31 May 2013), Vancouver, BC, Canada.
61. A. Anantapadmanabhan, A. Bellur and H.A. Murthy (2013) Modal analysis and transcription of strokes of the mridangam using non-negative matrix factorization. *IEEE International Conference Acoustics, Speech and Signal Processing (ICASSP)* (26–31 May 2013), Vancouver, BC, Canada.
62. Neel Gala, V.R. Devanathan, V. Visvanathan and V. Kamakoti (2013) Tunable Stochastic Computing using Layered Synthesis and Temperature Adaptive Voltage Scaling. *Proceedings of the 5th IEEE Asia Symposium on Quality Electronic Design (ASQED)* (26–28 August 2013), Malaysia, 2013.
63. Seetal Potluri, Satya Trinadh, Roopashree Baskaran, Kamakoti Veezhinathan and Nitin Chandrachoodan (2013) PinPoint: An Algorithm for Enhancing Diagnostic Resolution Using Capture-Cycle Power Information. *Proceedings of the 18th European Test Symposium (ETS)* (27–31 May 2013), Lirmm, France.
64. Ajeesh Ramanujan and Kamla Krithivasan (2013) Control Languages Associated with Tissue P Systems. *Unconventional Computation and Natural Computation Lecture Notes in Computer Science Volume* (1–5 July 2013), Milan, Italy.

Distinguished visitors

Sl. No.	Name of the Visitor and Designation	Purpose of Visit	Date of Visit
1	Ankit Sharma, PhD. scholar, CMU, USA	Seminar talk, "Welfare and Profit Maximization with Procurement Costs"	1 March 2013
2	Dr. Ramanathan Guha, Google Fellow, VP, Google	Seminar talk, "Ideas that Shaped the Web"	9 April 2013
3	Prof. Hari Balakrishnan, MIT, Cambridge, USA	Seminar talk, "Rethinking Data Transport for Truly Mobile World"	10 April 2013
4	Dr. Vineeth N. Balasubramanian, Research Asst Professor Arizona State University (ASU)	Seminar talk, "Machine Learning Methods and Applications in Assisted Living"	9 May 2013
5	Dr. Mangala Gowri Nanda, Senior Researcher, IBM Indian Research Lab, New Delhi	Seminar talks: Reuse, Recycle to De-bloat Software Detecting Java Null Dereferences—Efficiently!	12 June to 21 May 2013
6	Dr. Mangala Gowri Nanda, Senior Researcher, IBM Indian Research Lab, New Delhi	Visiting Professor	15 April to 14 June 2013
7	Dr. Jacques Pienaar, Purdue University	Seminar talk, "Heterogeneous Computing"	12 July 2013
8	Prof. Niloy Ganguly, IIT Kharagpur	Seminar talk, "Shift of Research Focus in Computer Sciences over the Last Fifty Years"	12 July 2013
9	Prof. Krishna Palem, Rice University	Seminar talk, "A Decade of Building Broken Chips"	24–25 July 2013
10	Dr. Sanjay G. Rao, Purdue University	Seminar talk, "Cloud Computing: Opportunities and Challenges"	8 August 2013
11	Dr. Sriram Rajamani, University of California, Berkeley	Seminar talk, "Research in Programming"	19 August 2013
12	Dr. Nachiappan Nagappan, Microsoft Research, Redmond, USA	Seminar talk, "Towards Achieving Better Quality Code"	20 August 2013
13	Dr. Praveen Manjunatha, LaBRI, France	Seminar talk, "Reasoning about Repeating Values: How Precisely Should We Count?"	20 August 2013
14	Mr. Anirudh Sivaraman	Seminar talk, "Stochastic Forecasts Achieve High Throughput and Low Delay over Cellular"	21 August 2013

15	Prof. Vijaykrishnan Narayanan, Penn State	Seminar talk, "Tearing Down the Power Wall: Coordinated Technology—Architecture Advances"	22 August 2013
16	Dr. Praveen Jayachandran (DD, CSE-05), IBM-IRL	Problem Determination and Diagnosis in Shared Dynamic Clouds	23 August 2013
17	Dr. Dibyendu Das, Fellow at AMD India	Seminar talk, "Atomics and Memory Consistency on Accelerated Processing Units (APUs)"	6 September 2013
18	Dr. Prakash Raghavendra, AMD Bangalore	Seminar talk, "Heterogeneous Computing at AMD"	6 September 2013
19	Dr. Gautam Kunapuli, University of Wisconsin—Madison	Advice-Giving for Inverse Reinforcement Learning	20 September 2013
20	Mr. Tijo Thomas, Manager – Software Development, Aditya Imaging Information Technologies LLP	HPC Based Machine Learning and Image Processing Approaches for Histopathology Images	24 September 2013
21	Dr. Shivaram Kalyanakrishnan, Scientist, Yahoo! Labs Bangalore	PAC Subset Selection in Stochastic Multi-armed Bandits	14 October 2013
22	Dr. Avinash Sharma, Xerox Research Centre India	Representation, Segmentation and Matching of 3D Visual Shapes Using Graph Laplac	17 October 2013
23	Dr. Srinivasan Parthasarathy, Ohio State University	Scalable Graph Clustering via Sparsification	25 October 2013
24	Dr. Sayan Bhattacharya, Post-doctoral researcher, MPI, Saarbruecken, Germany	Seminar talk, "Price of Anarchy, Auctions, and Approximations"	5 November 2013
25	Dr. Umang Bhaskar, Post-doctoral researcher, Center for Mathematics of Information, CalTech, USA	Seminar talk, "Network Improvement for Equilibrium Routing"	29 November 2013
26	Dr. Chester Rebeiro, Post-doctoral researcher, Columbia University, USA	Seminar talk, "Covert Timing Channels in Cryptography: The Case of Time-Driven Cache Attacks on Block Ciphers"	4 December 2013
27	Dr. Rajsekar Manokaran, Post-doctoral researcher, Royal Institute of Technology, Stockholm	Seminar talk, "On the Approximability of the Maximum Acyclic Subgraph Problem"	7 January 2014
28	Dr Tricha Anjali, Associate Professor, IIT Chicago, USA and IIT Mandi, India	Seminar talk, "Concurrent Multipath Routing"	16 January 2014

4.7.6. Other Activities of the Department

Faculty visits

Sl. No.	Name of the Faculty Member	Purpose of Visit	Date and Venue
1	Sukhendu Das	Initiating discussions with VISUS, University of Stuttgart, Germany, for collaborative research work in visualization and allied areas	22–30 March 2014, VISUS, University of Stuttgart, Germany

Major infrastructure development

Setting up of Department Computing Facility (extension), DCF-2, with 48 desktop systems (HP systems) meant for the use of the students of the CS1100 Computational Engineering Course and post-graduate students.

4.8. DEPARTMENT OF ELECTRICAL ENGINEERING

4.8.1. Introduction

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

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

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

EE1—Communications, Signal Processing and Communication Networks

Facilities

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

EE2—Power Systems, Power Electronics and High Voltage

Facilities

Machines and Drives Laboratory

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

High Voltage and Power System Laboratory

- HV testing transformer (800 kV, 400 kVA)
- Lightning impulse generator (1.5 MV, 37.5 kJ)
- High-frequency voltage generator
- Digital bandwidth storage oscilloscopes

- Capacitance measurement unit
- PD detector unit
- Power system simulator
- Power system analysis and application software
- Power quality monitoring and analysis unit
- FACTS and custom power devices experimental units
- DSP-based power controllers

EE3—Microelectronics, MEMS and Analogue and Digital VLSI

Facilities

Microelectronics and MEMS Lab

- Class 100/Class 1000 Clean Rooms
- Laser writer for mask making
- E-beam 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 analyser
- Multifrequency LCR meters
- Lock-in amplifier and chopper
- Device simulation

Analogue and Digital Circuits and VLSI Design Lab

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

EE4—Control Systems, Measurements and Instrumentation

Facilities

Control Laboratory

- Micro selection C development systems for VLSI-based control
- Simulation packages: MATLAB, PSPICE, MAXPLUS II
- Motor CONTROL SYSTEMS
- Speed control systems (analogue and digital)
- Benchmark vision system
- High-precision measuring instruments
- Cobra RS-23 five-axis robot
- Eshed ERIII and Eshed E&V five-axis robots
- Position control systems (AC and DC)

Measurements and Instrumentation Laboratory

- Precision indicating instruments
- Standard R, L and C components

- Virtual Instrumentation Laboratory with ELVIS
- Meter calibrator
- Pressure calibrator
- Energy meter testing desk
- Instrument transformer calibrator
- High-current AC and DC supply units
- Biomedical instrumentation (ultrasonic and optical)

EE5—Photonics, Optical Communications and RF

Facilities

- Fibre Optic Educational Kit/Laboratory
- Experimental Optics Laboratory with lightwave measurement unit, BER tester, optical spectrum analyser
- Fibre grating fabrication
- Fibre Laser Laboratory
- Integrated Optoelectronics Laboratory

4.8.2. Academic Programmes

New courses introduced/proposed

Name of Faculty Member	Course No.	Course Title
Ramakrishna Pasumathi	EE5412	Mathematical Methods in Systems Engineering
Raji Sundarajan, of Purdue University	EE6491	Advanced Topics in Biomedical Instrumentation
		1. Study of electrical manipulation of biological cells
		2. Electric field study of various biological systems
		3. Electrical modeling/simulation of biological cells/systems

Students on roll as of September 2013 + M.S. & Ph.D. research scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year	V Year and Others	Total
B.Tech.	71	72	51	51	—	11	256
Dual Degree	59	58	76	70	59	13	335
M.A.	—	—	—	—	—	—	—
M.Sc.	—	—	—	—	—	—	—
M.Tech.	63	63	—	—	—	—	126
M.B.A.	—	—	—	—	—	—	—
M.S.	62	51	47	33	1	1	195
Ph.D.	46	34	26	29	11	18	164
Total	301	278	200	183	71	43	1076

Names of students/scholars who attended conferences/seminars/symposia/workshops abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
1	Sarojkumar K.		North American Power Symposium 2013	22–24 September 2013, Kansas State University	—
2	V. Jayadev		IET International Conference on Power in Unity: A Whole System Approach to Smart Grid, Smart Metering and Power Quality	16–17 October 2013, IET headquarters, Bloomsbury, London, UK	—
3	S. Parvathi		IET International Conference on Power in Unity: A Whole System Approach to Smart Grid, Smart Metering and Power Quality	16–17 October 2013, IET headquarters, Bloomsbury, London, UK	—

4	Karthick Sekkappan	40th Western Protective Relay Conference Spokane, Washington, USA	17 October 2013, Washington State University(WSU), Spokane, Washington, USA	—
5	M.S. Veeramani	IEEE SENSORS 2013 Conference	3–6 November 2013, Baltimore, Maryland	—
6	Venkatesh K.	Innovative Smart Grid Technologies—Asia (http://www.ieee-isgt-2013.asia/)	10–13 November 2013, Bangalore, India	—
7	Yashwant K.	Innovative Smart Grid Technologies—Asia (http://www.ieee-isgt-2013.asia/)	10 November 2013, Bangalore, India	—

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	Date
1	Ankesh Jain	EE09D011	Best Student Paper, IEEE International Symposium on Circuits and Systems (ISCAS)	IEEE	May 2013
2	Vaibhav P. Singh	EE11S070	Best Paper Presentation Award	International Conference on Wireless and Optical Communications, Kuala Lumpur	May 2013
3	Mukul Mohan, Syed Sufiyan	EE08B043, EE10B041	Third place in Next Big Idea Competition	NSRCEL	May 2013
4	Vaibhav Pratap Singh	EE11S070	Bayer Young Environmental Envoy 2013 (BYEE 2013) competition	—	September 2013
5	Sandeep Kolluri	EE11S052	Best Paper Award	IEEE, Industrial Electronics Society, Vienna, Austria	November 2013
6	Sumantra Chaudhury	EE10S013	Best Poster Award	PSSI 2013, Bhubaneswar	November 2013
7	Onkar Kulkarni	EE11M034	Best Paper Award	IEEE Conference INDICON 2013, IEEE Bombay Section and IIT Bombay	13–15 December 2013

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize
1	S. Abhilash	EE11B001	Shri V. Rajagopalan Memorial Prize
2	Doshi Jainam Deepak	EE10B058	Shri Ramasarma V. Kolluri Memorial Prize
3	P. Prakruthi	EE09B019	Institute Merit Prize
4	R. Ravi Kiran	EE09B093	D. Anand Subramaniam Memorial Award
5	Ballikonda Vamshi	EE09B104	Shri Ramanan Ramamurthy Prize
6	Leena P. Markose	EE12M038	Prof. M.K. Achuthan Prize

Faculty and their activities

Sl. No.	Faculty Member	Activities
1	K.S. Swarup	The students of the course EE 5970 EMS and SCADA (EE2 group) visited Load Dispatch Centre (LDC) of Tamil Nadu Electricity Board (TNEB), accompanied by their class teacher. The visit was very beneficial to the students in supplementing their theoretical knowledge.
2	V. Jagadeesh Kumar	Served as an expert for faculty interviews of IIT Kharagpur on 10 June 2013
3	A.N. Rajagopalan	Selection Committee Member, IISc Bangalore, 25 May 2013 Selection Committee Member, IDRBT Hyderabad, 20 June 2013

Faculty

<i>Name and Qualifications</i>	<i>Major Areas of Specialization</i>
Professors	
Harishankar Ramachandran [Head]	
EE1—Communications, Signal, Speech & Image Processing, Wireless & Optical Networks	
Aravind R.	Communications, video, estimation theory
Ashok Jhunjunwala	Fibre-optic communication, communication networks, computer networking, microprocessor based systems, SAW
Bhaskar Ramamurthi	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
Rajagopalan A.N.	Image processing and computer vision
Umesh S.	Speech and signal processing
EE2—Power Systems, Power Electronics, High Voltage Machines and Drives	
Krishna Vasudevan	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
EE3—Analog and Digital Circuits, VLSI Design, Micro Electronics and MEMS	
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 DasGupta	Silicon and III–V semiconductor devices, technology and modeling, MEMS
Shanthi Pavan	Analogue and mixed-signal VLSI, RF and microwave IC Design
Vinita Vasudevan	Statistical and noise analysis of circuits, VLSI design
EE4—Control, Robotics, Measurements and Instrumentation	
Jagadeesh Kumar V.	Electrical and electronic measurements, sensors and signal conditioning, instrumentation and biomedical devices
Sridharan K.	Robotics, vision, architectures for transforms, FPGA-based system design
EE5—Photonics	
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
Associate Professors	
EE1—Communications, Signal, Speech & Image Processing, Wireless & Optical Networks	
Andrew Thangaraj	Error control coding, information theory
Ramalingam C.S.	Signal processing; speech recognition, synthesis and coding
Srikrishna B.	Wireless communications, information theory, signal processing for communication systems
EE3—Analog and Digital Circuits, and VLSI Design, Andmicro Electronics and MEMS	
Nitin Chandrachoodan	Digital systems, microprocessors, VLSI design
Nagendra Krishnapura	Analogue VLSI, RF and microwave IC
Anjan Chakravorty	Compact modeling of SiGe HBTs, LDMOS, nanoFETs, inductors
EE4—Control, Robotics, Measurements and Instrumentation	
Arun D. Mahindrakar	Nonlinear and robust control with application to underactuated systems

EE5—Photonics	
Balaji Srinivasan	Fibre lasers, distributed fibre sensors, fibre Bragg gratings
Bijoy Krishna Das	Silicon photonics, optical interconnects, integrated optics, optoelectronics devices and circuits
Shanti Bhattacharya	Fibre interferometry, diffractive optics, optical MEMS
Assistant Professors	
EE1—Communications, Signal, Speech and Image Processing, Wireless and Optical Networks	
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 modeling, computer networks, computer architecture, multimedia applications using the Java Media Framework
Krishna P. Jagannathan	Communication networks, stochastic modeling, queuing theory, wireless networks
Radha Krishna Ganti	Wireless communication and networking
Gaurav Raina	Performance modeling of communication networks, control theory and non-linear systems
Pradeep Sarvepalli	Quantum information, coding theory, quantum cryptography, algorithms
Sheetal Kalyani	Estimation theory, robust statistics, extreme value theory
EE2—Power Systems, Power Electronics, High Voltage Machines and Drives	
Krishna S.	Power system stability analysis and control
Lakshmi Narasamma	Power electronics and drives, switched mode power converters, resonant converters
Srirama Srinivas	Electrical machines, power electronics and industrial drives
Kamalesh Hatua	Power electronics and motor drives
EE3—Analog and Digital Circuits, VLSI Design, Micro Electronics and MEMS	
Aniruddhan S.	Analogue and RF integrated circuit design
Deleep R. Nair	Semiconductor devices—design, fabrication and characterization
Mathiazhagan C.	Telematics, RF communication, analogue circuits
Soumya Dutta	Printable electronic, optoelectronic, chemical sensor devices based on organic/inorganic semiconductors, hybrid structures, graphene etc.
Debdtta Ray	Organic semiconductor devices, organic solar cells
EE4—Control, Robotics, Measurements and Instrumentation	
Bharath Bhikkaji	Identification algorithms for resonant systems, vibration control of resonant and active structures, control and actuation of Mechatronic Systems
Boby George	Sensors and signal conditioning, measurements and instrumentation and biomedical devices
Mohanasankar S.	Biomedical instrumentation, implantable devices
Ramkrishna Pasumarthy	Modeling and control of physical systems
EE5—Photonics	
Ananth Krishnan	Nanophotonics, plasmonic devices, nanofabrication, material science, optical MEMS, characterization
Deepa Venkitesh	Nonlinear optics, fibre amplifiers and fiber lasers, optical components for communication, components/devices for all-optical signal processing/switching
Adjunct Faculty	
EE3—Analog and Digital Circuits, and VLSI Design, and Micro Electronics and MEMS	
Ravishankar A.	Digital VLSI, CAD
Ravikumar C.P.	Digital VLSI design and testing

EE4—Control, Robotics, Measurements and Instrumentation

Rashmin Gandhi Neuro-ophthalmology

Emeritus Professor**EE3—Analog and Digital Circuits, and VLSI Design, and Micro Electronics and MEMS**

Srinivasan S. Digital systems, computer architecture, digital signal processing, VLSI design

Scientific Officers/Instrumentation Engineer/Technical Officer**EE1—Communications, Signal, Speech & Image Processing, Wireless and Optical Networks**

Prabhakar Rao P.

EE3—Analog and Digital Circuits, VLSI Design, Micro Electronics and MEMS

Ponnuraju K. Semi-conductor devices and technology

EE2—Power Systems, Power Electronics, High Voltage Machines and Drives

Jayasudha Avudai Thangam Power electronics and drives

Departmental Computer Facility

Dhanabalan S. Electronics and communication engineering

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

<i>Sl. No.</i>	<i>Co-ordinator(s)</i>	<i>Title</i>	<i>Period</i>
Symposia			
1	H. Ramachandran	Symposium on Electromagnetics and Engineering Education	3 January 2014
Short-term courses			
1	R. Sarathi and K.S. Swarup	Organised short-term course, "Recent Trends in Condition Monitoring of Power Apparatus and Systems", for engineering college faculty members through AICTE-QIP sponsorship	14–18 October 2014
2	Boby George, S. Mohanshankar and V. Jagadeesh Kumar	"Short-Term Course on Foundations for Research in Biomedical Instrumentation," IIT Madras	6–10 January 2014
3	Bijoy Krishna Das and Soumya Dutta	Short-term course, "NEMS and Nanophotonics" Short-term course, "Foundations for Research in Biomedical Instrumentation"	24–28 February 2014

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution/Place</i>	<i>Period</i>
Workshops				
1	Ashok Jhunjunwala	Presentation, "National Task Force on Research Innovation and Entrepreneurship"	International Workshop on Industry Academia Collaboration, MHRD, New Delhi	14–15 April 2013
2	Ashok Jhunjunwala	Presentation, "Towards Nurturing Academia and Industry R&D Partnership Innovation and Incubation"	New Delhi	3 May 2013
3	Ashok Jhunjunwala	"Bridging the Last Mile in Financial Inclusion: Regulatory and Industry Challenges" at ICFI	Ahmedabad	6 July 2013
4	Ashok Jhunjunwala	workshop, "Activities and R&D Road Map for the Next Five Years of TCOEs: Achieving the Objectives of NTP 2012"	University of Surrey, United Kingdom	26–27 September 2013
5	Ashok Jhunjunwala	IU-ATC Technical Workshop	University of Surrey, United Kingdom	26–27 September 2013

6	Ashok Jhunjunwala	Presentation, "Constraints, Innovations and Growth-Drivers"	I-CARE 2013, Fifth IBM Collaborative Academia Research Exchange/ IBM, Bangalore	19 October 2013
7	Ashok Jhunjunwala	Launch event of TSDSI: India's TSDO & "Path to 5G"	New Delhi	8 November 2013
8	Ashok Jhunjunwala	R-ETC Workshop, Institute of Engineering	Nasik, Mumbai	8 December 2013
9	Ramakrishna Pasumarthy	Modelling of Nonlinear Dynamical Systems	VJTI, Mumbai	27–28 May 2013
10	A.N. Rajagopalan	Big Data Computer Vision	CVPR, Portland, Oregon	28 June 2013
11	Anjan Chakarvorthy	IIT Madras/Purdue Workshop on Joint Collaboration	Purdue University, West Lafayette, IN, USA	10 June 2013
12	S. Karmalkar	Faculty development workshop, "Pedagogical Aspects of Engineering Education", for more than 100 new teachers	NIT, Calicut	3 January 2014
Meetings				
1	Ashok Jhunjunwala	Technical Advisory Committee meeting—Securities and Exchange Board of India (SEBI)	Securities and Exchange Board of India (SEBI), Mumbai	3 April 2013
2	Ashok Jhunjunwala	Tenth meeting of the empowered task force constituted for implementation of the recommendations of the Dr. Anil Kakodkar Committee	IIT Delhi, New Delhi	14 April 2013
3	Ashok Jhunjunwala	Academic Coordinators' Meeting, Telecom Centres of Excellence India (TCOE)	Telecom Centres of Excellence India (TCOE) India, New Delhi	29 April 2013
4	Ashok Jhunjunwala	Shanti Swarup Bhatnagar Prize for Innovation—CSIR	Council for Scientific and Industrial Research	
5	Ashok Jhunjunwala	Inaugurating the Campus Day ceremony at Amrita School of Engineering	University of Amrita, Kochi, Kerala	30 April 2013
6	Ashok Jhunjunwala	First Steering Committee Meeting of Natural Resources Data Management Systems (NRDMS) Programme	NRDMS, New Delhi	3 May 2013
7	Ashok Jhunjunwala	Judging Committee Meeting for Bharat Ratna Dr. C. Subramaniam Award for Outstanding Teachers 2012—ICAR	Indian Council of Agricultural Research (ICAR), New Delhi	10 May 2013
8	Ashok Jhunjunwala	National Technology Day, IICT, Hyderabad	Indian Institute of Chemical Technology, Hyderabad	11 May 2013
9	Ashok Jhunjunwala	Silver jubilee function of (SEBI) Securities and Exchange Board of India	SEBI, Mumbai	24 May 2013
10	Ashok Jhunjunwala	MHRD committee meeting for educational reforms in 500 engineering colleges	MHRD, New Delhi	25 May 2013
11	Ashok Jhunjunwala	Eleventh meeting of the empowered task force constituted for implementation of the recommendations of the Dr. Anil Kakodkar Committee	MHRD/IIT Bombay, Mumbai	27 May 2013
12	Ashok Jhunjunwala	Geo ICT PAMC Meeting	Department of Science and Technology/NIAS, Bangalore	4 June 2013
13	Ashok Jhunjunwala	Meeting of committee constituted to review the NIT system	MHRD, New Delhi	10 June 2013
14	Ashok Jhunjunwala	Committee on Reforms in Technical Education (AICTE)	All India Council for Technical Education (AICTE)/IIT Bombay	5 July 2013

15	Ashok Jhunjunwala	Meeting of SAC to PM	CSIR, New Delhi	8 July 2013
16	Ashok Jhunjunwala	Twelfth meeting of the empowered task force constituted for implementation of the recommendations of the Dr. Anil Kakodkar Committee	MHRD, New Delhi	9 July 2013
17	Ashok Jhunjunwala	Technological Modernization of Indian Capital Goods Sector: Role of IITs	Department of Heavy Industry, New Delhi	
18	Ashok Jhunjunwala	Fourth Foundation Day of THSTI	Translational Health Science and Technology Institute (THSTI), New Delhi	12 July 2013
19	Ashok Jhunjunwala	National Apex Committee meeting at TIFAC	Technology Information, Forecasting and Assessment Council (TIFAC), New Delhi	17 July 2013
20	Ashok Jhunjunwala	CDAC meeting on Aakash	CDAC, Bangalore	
21	Ashok Jhunjunwala	Meeting of committee constituted to review the NIT system (MHRD)	MHRD, IIT Delhi	20 July 2013
22	Ashok Jhunjunwala	Finance Committee meeting	IIITDM Jabalpur/New Delhi	24 July 2013
23	Ashok Jhunjunwala	Board of Governors meeting		
24	Ashok Jhunjunwala	Policy Framework for Technology Based Education	NMEICT, New Delhi	31 July 2013
25	Ashok Jhunjunwala	Review meeting on Aakash with Kapil Sibal	New Delhi	
26	Ashok Jhunjunwala	National Apex Committee meeting	Technology Information, Forecasting and Assessment Council (TIFAC), New Delhi	8 October 2013
27	Ashok Jhunjunwala	Geo ICT PAMC meeting	DST, New Delhi	
28	Ashok Jhunjunwala	Fourteenth meeting of the empowered task force constituted for implementation of the recommendations of the Dr. Anil Kakodkar Committee Meeting	MHRD, New Delhi	9 October 2013
29	Ashok Jhunjunwala	Meeting of the Committee for Reforms in Technical Education in Institutes other than IITs and NITs	AICTE, New Delhi	12 October 2013
30	Ashok Jhunjunwala	Third meeting of the standing committee of the Council of NITs	MHRD, New Delhi	15 October 2013
31	Ashok Jhunjunwala	Expenditure Finance Committee (EFC) meeting for IITMRP with Shri R.S. Gujral, Finance Secretary	Ministry of Finance, New Delhi	
32	Ashok Jhunjunwala	Co-ordination meeting with Sara Erikson	Blekinge Institute of Technology, Sweden	25–26 November 2013
33	Ashok Jhunjunwala	Meeting of RBI's Technical Committee on Mobile Banking	IDBRT, Hyderabad	6 December 2013
34	Ashok Jhunjunwala	ATOS India Strategic Advisory Board meeting	ATOS, Mumbai	11 December 2013
35	Ashok Jhunjunwala	Meeting of the committee constituted to review the National Institutes of Technology (NITs) system	NIT/MHRD, New Delhi	
36	Ashok Jhunjunwala	Biotechnology Industry Research Assistance Council (BIRAC) Board meeting	IEEE India, Bangalore	17 December 2013
37	Ashok Jhunjunwala	Low-voltage DC standards meeting		20 December 2013
38	Ashok Jhunjunwala	Quality Enhancement in Engineering Education (QEEE) project review meeting	MHRD, New Delhi	13 March 2014

39	Ashok Jhunjhunwala	Seventh Governing Council Meeting of TCOE India	Telecom Centres of Excellence India (TCoE) / New Delhi	13 March 2014
40	Ashok Jhunjhunwala	Second Foundation Day of (BIRAC) Biotechnology Industry Research Assistance Council	BIRAC, New Delhi	20 March 2014
41	Ashok Jhunjhunwala	Forty-second meeting of the Board of Directors of the National Internet Exchange of India	National Internet Exchange of India (NIXI), New Delhi	
42	Ashok Jhunjhunwala	Meeting of the committee constituted to review the (NITs) under the chairmanship of Dr. Anil Kakodkar	NIT/IIT Delhi	29 March 2014
Conferences				
1	Boby George	IEEE International Instrumentation and Measurement Technology Conference, 2013	Minneapolis, USA	6–9 May 2013
2	A.N. Rajagopalan	Computer Vision and Pattern Recognition (CVPR)	Portland, Oregon	23–28 June 2013
3	A.N. Rajagopalan	Oceans '13	Bergen, Norway	10–13 June 2013
4	A.N. Rajagopalan	IEEE International Conference on Image Processing (ICIP 2013)	Melbourne, Australia	15–18 September 2013
5	N. Lakshminarasamma	IEEE PV Specialists' Conference (PVSC)	Florida	16–22 June 2013
6	Mahesh Kumar	Fourth IEEE International Conference on Clean Electrical Power (ICCEO) 2013	Alghero, Sardinia, Italy	11–13 June 2013
7	Mahesh Kumar	Eighth IEEE International Conference on Industrial and Information Systems (ICIIS) 2013	Kandy, Sri Lanka	17–20 December 2013
8	Krishna Vasudevan	Thirty-ninth IEEE Photovoltaic Specialists Conference	Florida	16–21 June 2013
9	Krishna Jagannathan	Eleventh International Symposium on Modelling and Optimization in Mobile Adhoc and Wireless Networks (WIOPT 2013), funded by IUATC	Japan	13–17 May 2013
10	Ashok Jhunjhunwala	Thirty-ninth Photovoltaic Specialists Conference (PVSC)	USA	16–19 June 2013
11	Ashok Jhunjhunwala	Energizing Low-income Communities: Realizing the Promise of DC Technology	Prague, Czech Republic	3–5 October 2013
12	Shanthi Pavan	Technical Program Committee meeting of the International Solid State Circuits Conference	USA	9–18 October 2013
13	Shanthi Pavan	Asian Solid State Circuits Conference	Singapore	11–13 November 2013
14	K. Shanthi Swarup	Fifth International Conference on Power and Energy Systems 2013	Kathmandu, Nepal	28–30 October 2013
15	Ravinder David Koilpillai	Fairness-Based Resource Allocation in OFDMA Downlink with Imperfect CSIT	Hangzhou, Zhejiang Province, China	23–25 October 2013
16	Enakshi Bhattacharya	7th International Conference on Sensing Technology ICST 2013	Wellington, New Zealand	3–5 December 2013
17	Srikrishna B.	National Conference on Communications	IIT Kanpur	28 February to 2 March 2014
18	Vinita Vasudevan	International Conference for Design, Automation and Test in Europe	Dresden, Germany	24–28 March 2014
Short term courses				
1	Bijoy Krishna Das and Soumya Dutta	Short-term course, "NEMS and Nanophotonics"		24–28 February 2014

Special lectures/talks delivered by faculty members at other institutions

Sl. No.	Name of Faculty	Topic of Lecture	Event/Place	Date
1	Ashok Jhunjhunwala	Special address, "Role of Innovation, Entrepreneurship and Technology in India's Development Journey"	International Training Programme on "Promoting Innovations and Entrepreneurship through Incubation" at EDI, Ahmedabad, Gujarat	5 April 2013
2	Ashok Jhunjhunwala	Innovation to Overcome Complex Problems	Seminar on Social Innovation, Ahmedabad Management Association (AMA), Ahmedabad	6 July 2013
3	Enakshi Bhattacharya	Silicon-Based Biosensors and BioMEMS	TEQIP-II Workshop on MEMS & Nano technology, Department of Mechanical Engineering, BMS College of Engineering, Bangalore	19 August 2013
4	Enakshi Bhattacharya	Biosensors and BioMEMS	University of Auckland	26 November 2013
5	Enakshi Bhattacharya	Biosensors and BioMEMS	Lincoln Agro, New Zealand	2 December 2013
6	Enakshi Bhattacharya	Invited talk, "A Miniaturised Silicon Biosensor System for the Detection of Triglycerides and Urea"	ICST, Wellington	3–6 December 2013
7	Enakshi Bhattacharya	Microstructures Based on Knudsen's Forces	IWPSD 2013, Delhi	10–13 December 2013
8	Shanti Bhattacharya	All Fibre-Based Optical Coherence Tomography System	Max Planck Institute for Intelligent Systems, Stuttgart, Germany	17 July 2013
9	Shanti Bhattacharya	Diffraction Unlimited	Max Planck Institute for Intelligent Systems, Stuttgart, Germany	24 July 2013
10	Shanti Bhattacharya	Smart Grid Energy Management Systems	Institute of Engineers (India), Mysore	20 July 2013
11	Shanti Bhattacharya	Power Grids of the Future: Micro Energy Grids	Sri Venkateswara College of Engineering (SVCE), Chennai	21 August 2013
12	Shanti Bhattacharya	"Renewable Energy Systems" at SYMPULSE13, national level technical symposium and faculty development programme	Syed Ammal Engg college, Department of Electrical Engineering, Ramanathpuram, Tamil Nadu	5 October 2013
13	Shanti Bhattacharya	"Overview of Dispersed and Distributed Renewable Energy Systems", as a part of the Faculty Development Programme on Current Trends and Future Role of Renewable Energy	Sairam Engineering College, Chennai	8 October 2013
14	Shanti Bhattacharya	"Intelligent Controllers: Applications to Power Systems", CSIR-sponsored workshop	Department of Electrical and Electronics Engineering, Veltech Engineering College, Chennai	25 October 2013
15	Bijoy Krishna Das	Silicon Photonics: Monolithic Integration of Microns to Submicron Waveguide Devices	Focused Meeting on Metamaterials and Monophotonics, IIT Kanpur	17–18 August 2013
16	Mahesh Kumar	International seminar and expert talks on power quality issues in power systems and renewable energy systems	Muscat, Oman	11–13 November 2013
17	Srikrishna B.	Almost Budget Balanced Mechanisms for Efficient Allocation of a Divisible Good	EECS, Northwestern University, Evanston, IL, USA	13 December 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Ashok Jhunjunwala	Guildford, UK	16–17 April 2013	19th European Wireless Conference (EWC 2013)	—
2	Ashok Jhunjunwala	Atlanta, USA	14 June 2013	Meeting with Chairman of EE-CS	—
3	Ashok Jhunjunwala	Tampa, USA	18 June 2013	SERIIUS PV Research Meeting IEEE PVSC	—
4	Ashok Jhunjunwala	Boston, USA	21 June 2013	Meeting at ADI and meeting at MIT	—
5	Ashok Jhunjunwala	San Diego, USA	29 June 2013	IEEE honours ceremony	—
6	Ashok Jhunjunwala	University of Surrey, UK	26–27 September 2013	IU-ATC technical workshop	—
7	Ashok Jhunjunwala	Prague, Czech Republic	4–5 October 2013	Business of Humanity® conference, “Energizing’ Low-Income Communities: Realizing the Promise of DC Technology”	—
8	Ashok Jhunjunwala	Sweden	25–26 November 2013	Project co-ordination meeting, “Transforming Healthcare Delivery: Innovative Health Technologies for Health Promotion and Better Health Outcomes”, at Blekinge Institute of Technology (BTH)	—
9	Boby George	Minneapolis, USA	6 May 2013	Technical discussion (Sensors for Intelligent Transportation)	IUSSTF
10	Balaji Srinivasan	Dublin Institute of Technology, Ireland	12 May to 11 June 2013	Part of research collaboration on polymer optical fibre sensors	—
11	Shanti Bhattacharya	Max Planck Institute for Intelligent Systems, Germany	15 July to 2 August 2013	Research	—
12	Shanti Bhattacharya	Germany	6–11 January 2014	Collaborative work	—
13	V. Jagadeesh Kumar	RWTH, Aachen, Germany	22 July to 9 August 2013	Collaborative research programme	—
14	Bhaskar Ramamurthi	Australia	23–28 September 2013	Visit various universities	—
15	Anil Prabhakar	Ukraine	17–20 September 2013	Indo–Ukraine bilateral scientific cooperation agreement on epitaxial rare earth-substituted garnet films for QKD	—
16	Devendra Jalihal	UK	23–29 September 2013	Review meeting for the Indo-UK project at University of Surrey	—
17	Devendra Jalihal	Surrey, UK	26–28 September 2013	Indo–UK project co-ordination meeting	—
18	Srikrishna B.	USA	2–4 October 2013	Fifty-First Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL	—
19	Srikrishna B.	USA	9–13 December 2013	Conference (IEEE Globecom 2013) and visit to Northwestern University	—
20	Nitin Chandrachoodan	Seoul, Korea	24–25 October 2013	To attend the Robot World 2013 exhibition	—
21	R. Sarathi	National University Corporation, Akita University, Japan	15 November to 15 December 2013	Visiting research scholar	—
22	R. Sarathi	UK	9–13 February 2014	Colloquium and to have discussion at Cardiff School of Engineering	—
23	Nagendra Krishnapura	Singapore	11–13 November 2013	Oral presentation at the 2013 IEEE conference	—

24	Enakshi Bhattacharya	New Zealand	24 November to 9 December 2013	Conference and university visits	—
25	Harishankar Ramachandran	Ireland	12—17 January 2014	A research visit focusing on collaboration with NCPST and RINCE	—
26	Shanti Pavan V.	San Francisco, USA	8—13 February 2014	International Solid State Circuits Conference (ISSCC)	—
27	Andrew Thangaraj	USA	10—14 February 2014	Attend Information Theory and Applications Workshop 2014, San Diego	—
28	Devendra Jalihal	Tokyo, Japan	13—14 March 2014	To attend the DISANET project review meeting	—
29	Shanthi Pavan	USA	26 March to 2 April 2014	To attend the IEEE Editor-in-Chief's meeting and visit University of Illinois	—

Honors and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Awards					
1	Krishna Jagannathan	Best Paper Award	WIOPT Programme Committee Tsu Kuba, Japan	Best Paper at 1st International Symposium on Modeling and Optimization in Mobile, Ad hoc and Wireless Networks	13 May 2013
2	Gaurav Raina	Finalist Award	CCDC Programme, Guiyang	Zhang Si-Ying Outstanding Youth Paper at 25th Chinese Control and Decision Conference (CCDC)	25–27 May 2013
3	Boby George	Young Faculty Recognition Award for the Year - 2013	IIT Madras	Cash Award ₹25,000/-	5 September 2013
4	Nitin Chandrachoodan and jointly Shankar Balachandran from CS	IBM Faculty Award for the year 2013.	IBM University and Collaboration	This award is to conduct research in the area of power modelling and optimization in circuits.	2013
5	A.N. Rajagopalan	(VASVIK) Award	Electrical & Electronic Sciences & Technology	'2013 Vividhlaxi Audyogik Sanshodhan Vikas Kendra (VASVIK) Award'	2013
6	Nandita DasGupta	MRSI Medal	Materials Research Society of India	Research in the area of Materials Science and Engineering	2014
7	C. Rajendran	Outstanding Service award	IIT Madras	MEMS Lab, has been recognized for his performance with the Outstanding service.	17 April 2014

Books, Monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	S. Krishna	<i>An Introduction to Modelling of Power System Components</i>	Springer	—

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Period	Journal
1	S. Karmalkar	Associate Editor	2013	<i>IEEE Transactions on Education</i>
2	Shanti Bhattacharya	Associate Editor	2013	<i>International Journal for Light and Electron Optics</i> (Elsevier)
3	Bijoy Krishna Das	Associate Editor	2013	<i>Journal of Optical Engineering</i> (SPIE)
4	Nitin Chandrachoodan	Associate Editor	2013	<i>Journal of Signal Processing Systems</i>

5	Shanti Pavan Y.	Editor-in-Chief	2013	<i>IEEE Transactions on Circuits and Systems (Regular Papers)</i>
6	Krishna S.	Associate Editor	2013	<i>Sadhana (Academy proceedings in engineering sciences)</i>
7	Harishankar Ramachandran	Chief Editor	2013	<i>International Journal of Advances in Engineering Sciences and Applied Mathematics (brought out by IIT Madras)</i>

Paper presentations/keynote talks by faculty members

Sl. No.	Name of Faculty	Title	Place	Date
1	N. Lakshminarasamma	Paper at 2013 International Conference on Renewable Energy and Environment	Phuket, Thailand	21–22 September 2013
2	Nagendra Krishnapura	Paper at Custom Integrated Circuits Conference (CICC 2013)	San Jose, USA	23–25 September 2013
3	B. Srikrishna	Paper at Gaussian Two-Way Diamond Channel	Allertone Retreat Center, Monticello, Illinois, USA	24 October 2013
4	B. Srikrishna	Papers at IEEE Global Communication Conference (GLOBECOM) 2013	Atlanta, USA	9–13 December 2013
5	T.G. Venkatesh	Papers at 2013 International Conference on Wireless Communication and Signal Processing (WCSP 2013)	Hangzhou, China	24–26 October 2013
6	Ashok Jhunjhunwala	Presentation, “Has Time Come to Switch to DC Power at Customer Premises? Managing Power in Emerging Economies Like India”	Prague, Czech Republic	4 October 2013
7	Ashok Jhunjhunwala	Presentation, “Constraints, Innovations and Growth-Drivers”	I-CARE 2013 5th IBM Collaborative Academia Research Exchange/ IBM, Bangalore	19 October 2013
8	Ashok Jhunjhunwala	Presentation, “Can We Get 50% of India’s Electricity Using Solar by 2030? Decentralized Approach: A Game Changer”	National Conference, New Delhi and IEEE INDICON 2013, Mumbai	7 November 2013 and 14 December 2013
9	Ashok Jhunjhunwala	Presentation, “Scaling Mobile Payments”	IDBRT, Hyderabad	6 December 2013
10	Ashok Jhunjhunwala	Algorithmic Trading, High-Frequency Trading and Colocation: What Does It Mean to Emerging Market?	First International Research Conference, SEBI, Mumbai	27–28 January 2014
11	Ashok Jhunjhunwala	Talk, “Technology & Innovation: Helping in Making It Possible”	Microsoft IT India extended Leadership Offsite-Nine dot Nine Media Pvt Ltd.	10 February 2014
12	Ashok Jhunjhunwala	Presentation, “Project UDC: Uninterrupted Power for Indian Homes Even When the Supply Is Constrained”	IUKAN 2014, IIT Bombay	13 February 2014
13	Ashok Jhunjhunwala	Presentation, “Leveraging ICT Towards Quality Education in India”	NCUTHE Conference, IIT Bombay	25–26 February 2014
14	V. Jagadeesh Kumar	2013 IEEE International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA 2013)	Kuala Lumpur	25–27 November 2013
15	V. Jagadeesh Kumar	7th International Conference on Sensing Technology (ICST 2013)	Wellington, New Zealand	3–5 December 2013
16	Ramakrishna Pasumarthy	Paper at IEEE Conference on Decision and Control	Italy	10–13 December 2013
17	Radhakrishna Ganti	Second International Conference on Engineering and Computational Mathematics (ECM 2013)	Hong Kong	16–18 December 2013
18	Ashok Jhunjhunwala	Attending and presenting a paper at the First Conference on Local DC Electricity: Transforming the 21st Century Energy Economy	Charleston, SC, USA	30 March to 1 April 2014

4.8.4. Design and Development Activities

Patents filed

Sl. No.	Names of Faculty Members	Topic of Patent
1	Pradeep Kiran Sarvepalli and Anjan Chakravorty	Monitoring Fuel Consumption and Predicting Residual Fuel in a Cylinder (patent status: filed October 2013)

4.8.5. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Development of Aakash Platform	16 May 2012 to 31 March 2014	Telecom Centre of Excellence	10	Ashok Jhunjunwala
2	Full-Duplex Wireless System	25 June 2012 to 24 June 2015	New Faculty Seed Grant	13	Radha Krishna Ganti
3	Indo–UK collaborative research initiative, “Development of Biomass and Concentrating Photovoltaic System for Rural and Urban Energy Bridge: BioCPV”	11 November 2011 to 10 November 2014	DST (India) and EPSRC (UK)	557	Srirama Srinivas
4	Development of Automated SPICE Parameter Extraction Tool for SiGe HBTs Using Scalable Approach	3 years	DST	31.82	Anjan Chakravorty Amitava DasGupta
5	Formation of PV Based DC Grid and Its Interaction with AC Grid	16 July 2012 to 15 July 2014	Nissan Research Support Programme	9.13	N. Lakshmi Narasamma
6	Silicon Nanophotonics: Technology Development, Novel Device Design, Fabrication and Characterization	27 July 2012 to 26 July 2015	DRDO	299	Bijoy Krishna Das
7	Centre for NEMS and Nanophotonics at IIT Madras	2011–2016	DIT	49,46.50	Enakshi Bhattacharya and Nandita Das Gupta with 15 co-investigators
8	Development of Organic Semiconductor-Based Solar Harvesting Devices to Probe Plasmonic Effects	19 July 2013 to 18 July 2016	DST	456.10	Soumya Dutta
9	Obstacle Avoidance and Formation Control of Mobile Inverted Pendulum Robots	13 December 2013 to 16 December 2013	DST	32.5	Arun D. Mahindrakar and K. Sridharan
		2013-12-20 to 2013-12-20		45.00	
10	Design of Stabilized Gimbal Assembly for Long-Range Electro-optic (LREO) System	20 December 2013 to 20 June 2014	Aeronautical Development Establishment	13.188	Arun D. Mahindrakar
11	Characterization and Simulation of Gate-Induced Drain Leakage (GIDL) Current in High-k Metal Gate PMOSFETs	20 November 2013 to 19 November 2016	New Faculty Seed Grant	15.00	Deleep R. Nair

Industrial consultancy projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	R. Sarathi	Impulse Voltage Test and Withstand Study on 16 MVA Power Transformer	SAP Industries	1.28
2	R. Sarathi	Impulse Voltage with Stand Study and Testing of 16 MkVA 33/11 kV Power Transformer	Ascott Electricals Pvt. Ltd.	1.68

3	R. Sarathi	Impulse Voltage Withstand Study and Testing of Power Transformer (10 MVA—110/33 kV)	Victory Electricals Ltd.	2.22
4	R. Sarathi	Impulse Voltage Withsand Study and Testing Of Transformer	Ascott Electricals Pvt. Ltd.	1.01
5	R. Sarathi	Impulse Voltage Test on OLTC	Common Code	0.00
6	Ashok Jhunjhunwala and V. Jagadeesh Kumar	Performance Evaluation of Power Conditioner Units for Solar PV Powered Lighting Systems	Tamil Nadu Energy Development Agency	1.35
7	Boby George	Power Transformer Load Loss and No Load Loss Testing	Common Code	1.52
8	Ashok Jhunjhunwala and Gaurav Raina	Advisory Service of IIT Madras on Retainership Basis	United India Insurance Co. Ltd.	11.24
9	Boby George and V. Jageesh Kumar	Conducting Accuracy Test on 11, 22, 33 kV CT:PT Combined Metering Unit	Ascott Electricals Pvt. Ltd.	1.35
10	Boby George and V. Jageesh Kumar	Loss Measurement in Power Transformers	Common Code	1.01
11	Mahesh Kumar and B. Kalyankumar	A Study on 25 kV Indoor Type Switchgear Vs 25 kV Outdoor Type Switchgear	Siemens India Ltd.	2.00
12	Krishna Vasudevan	Proof Checking of Transformer Sizing	Common Code	0.00
13	Andrew Thangaraj	Development of Satellite Demodulators and Modulators	Centre for Development of Telematics	2.70
14	Anil Prabhakar and Deepa Venkitesh	Common Code	Common Code	0.00

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Andrew Thangaraj, Radhakrishna Ganti	Single Carrier-Based Troposcatter Modulation and Demodulation Algorithms	DRDO	10.00
2	Kamalesh Hatua, Radhakrishna Ganti	Study of Dynamic and Static Behaviour of SiC Devices and Development of Converter Topology	Centre for Development of Advanced Group	5.00
3	Boby George, V. Jagadeesh Kumar	An Instrument for Automated Measurement and Comparison of the Parameters of an Exciter Coil used in a Quartz Movement	Titan Industries Ltd.	4.38
4	Shanti Bhattacharya, Anil Prabhakar	Integrated Fibre Based Fourier Domain OCT with Spectrometer	Appasamy Ocular Devices Pvt. Ltd.	56.18
5	R. Sarathi	Improvement in Reliability, Safety and Long Term Performance of Transformers by Improving the Quality of Transformer Oil	Central Power Research Institute	2.48
6	Shanthi Pavan Y.	High Resolution Continuous-Time Delta-Sigma Converters	Analog Devices India Pvt. Ltd.	42.14
7	A.N. Rajagopalan	Framework for Processing Videos in the Presence of Spatially Varying Motion Blur—Phase II	Asian Office of Aerospace R&D	30.96
8	Boby George, V. Jagadeesh Kumar	Contactless Battery Charger for Wristwatch	Titan Industries Ltd.	3.03
9	Arun D Mahindrakar, T. Asokan	Desgin of Stabilized Gimbal Assembly for Long Range Electro-Optic (LREO) System	Aeronautical Development Establishment	13.19
10	Gaurav Raina, Krishna Jagannathan	Network Optimization and Analytics	Saggezza India Pvt. Ltd.	19.96
11	Devendra Jalihal, Radhakrishna Ganti	Evaluation of Hitachi Polarization Technique-Based RF Transceiver	Hitachi India Pvt. Ltd.	13.48
12	Kamalesh Hatua, Krishna Vasudevan	Development of IMW IGBT-Based High-Performance Low-Voltage Variable Frequency Drive	Bharat Heavy Electricals Ltd.	26.27

13	Shanthi Pavan Y.	<i>IEEE Transaction on Circuits and Systems:</i> Editor-in-Chief	The Institute of Electrical and Electronics Engineers Incorporated	9.66
14	A.N. Rajagopalan	Support for Research Activites	KLA Tencor Software India Pvt. Ltd.	7.76
15	Krishna Vasudevan	Research Programmes for Sustainable Power Engineering	Aachen University, Germany	170.32

Retainer consultancy (ongoing and new)

Sl. No.	Name of Faculty	Title	Industry	Amount (in lakhs of ₹)
1	Kamalesh Hatua	CSI-Driven Induction Motor Drive	IE Power Technologies Pvt. Ltd.	2.02 (1 May 2013 to 30 April 2014)
2	Nitin Chandrachoodan	Digital Signal Processing and Design	Aura Semiconductor Pvt. Ltd.	3.37 (19 August 2013 to 18 May 2014)

RT & IT (testing project)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Deleep R. Nair (Principal Investigator) and Soumya Dutta (Co-ordinator) (ET1314ELE001AAAADELE)	Electrical and Optical Characterization of Thin Films and Devices	Common Code, 13 May 2013 to 12 May 2016	15
2	Deleep R. Nair (Principal Investigator) and Soumya Dutta (Co-ordinator) (IT1314ELE001AAAADELE)	Electrical and Optical Characterization of Thin Films and Devices	Common Code, 13 May 2013 to 12 May 2016	15

Faculty members participation with other Institutions under MoUs

Sl. No.	Name of Faculty Member	Participation Details	Name of University/ Institution Which Has MoU
1	Deepa Venkitesh	Collaboration under EU project with Dublin City University	Dublin City University

Research publications of faculty members and research scholars

Number of papers published in refereed journals: 43

Number of papers presented at conferences: 52

(a) Papers published in refereed journals

1. Shanti Bhattacharya and Prashanth Raghavendra Prasad (2013) Improvements in speckle tracking algorithms for vibrational analysis using optical coherence tomography. *Journal of Biomedical Optics* 18(4): 046007.
2. Shanti Bhattacharya and A. Vijayakumar (February 2013) Phase shifted Fresnel axicon: erratum *Optics Letters* 38(4): 458. (This paper was also listed in the *Virtual Journal of Biomedical Optics*.)
3. E. Bhattacharya, Shanthi Pavan, M.S. Veeramani, P. Shyam, N.P. Ratchagar and A. Chadha (2013) A miniaturized pH sensor with an embedded counter electrode and a readout circuit. *IEEE Sensors Journal*. 13(5): 1941–1948.
4. E. Bhattacharya, Shanthi Pavan, H.V.B. Achar and S. Sengupta (2013) Fabrication of ultrathin silicon nanoporous membranes and their application in filtering industrially important biomolecules. *IEEE Transactions on Nanotechnology*.
5. E. Bhattacharya, Shanthi Pavan and V. Sista (2014) Knudsen's force based MEMS structures. *Journal of Micromechanics and Microengineering* 24(4): 045003 (5 pp).
6. Balaji Srinivasan and Anish Bekal (2013) Numerical simulation of a dispersion-managed active harmonically mode-locked fiber laser using a spectral double-grid technique. *Journal of Optical Society of America B* 30: 1373–1381.
7. K. Sridharan, Sundaraiah Gurindagunta and Vikramkumar Pudi (2013) Efficient multi-ternary digit adder design in CNTFET technology. *IEEE Transactions on Nanotechnology* 12(3).

8. Deepa Venkitesh and P.A. Aravind (2013) A novel technique for the estimation of power-calibration error of an optical spectrum analyzer using four-wave mixing. *Measurement Science and Technology*.
9. Deepa Venkitesh and A.P. Anthur (2013) High resolution technique for simultaneous measurement of phase noise of 'multiwavelength optical system'. *Electronics Letters* 49(18): 1165–1167.
10. Deepa Venkitesh, Seán Ó Dúill, Sepideh T. Naimi, Aravind P. Anthur, Tam N. Huynh and Liam P. Barry (November 2013) Simulations of an OSNR-limited all-optical wavelength conversion scheme. *Photonics Technology Letters* 25(23): 2311–2314.
11. Deepa Venkitesh, Aravind P. Anthur, Regan Watts, Kai Shi, John O'Carroll and Liam Barry (July 2013) Dual correlated pumping scheme for phase noise preservation in all-optical wavelength conversion. *Optics Express* 21: 15568.
12. Deepa Venkitesh, S. Harish and B.K. Das (March 2013) Highly efficient DBR in silicon waveguides with eleventh order diffraction. *Proceeding of SPIE* 86290H.
13. Srikrishna Bhashyam, V.N. Swamy, R. Sundaresan and P. Viswanath (2013) An asymptotically optimal push-pull method for multicasting over a random network. *IEEE Transactions on Information Theory* 59(8): 5075–5087.
14. Shanti Bhattacharya and A. Vijayakumar (2013) Characterization and correction of spherical aberration due to glass substrate in the design and fabrication of Fresnel zone lens. *Applied Optics* 52(24): 5932–5940.
15. Pradeep Sarvepalli and Pawel Wocjan (2014) Quantum algorithms for one dimensional infrastructures. *Quantum Information & Computation* 14(1&2): 0056–0090.
16. Shanthi Pavan, T. Nandi and K. Boominathan (2013) Continuous time delta sigma modulators with improved linearity and reduced clock jitter sensitivity using the switched-capacitor return-to-zero DAC. *IEEE Journal of Solid State Circuits* 60(8).
17. B. George, S.S. Mohammed Ali and L. Vanajakshi (2013) An efficient multiple loop sensor configuration applicable for undisciplined traffic. *IEEE Transactions Intelligent Transportation Systems* 14(3): 1151–1161.
18. Shanti Bhattacharya and A. Vijayakumar (2014) Quasi-achromatic Fresnel zone lens with ring focus. *Applied Optics* 53(9): 1970–1974.
19. Bharath Bhikkaji, Y.K. Yong and S.O.R. Moheimani (2013) Design, modeling and FPAA-based control of a high-speed atomic force microscope nanopositioner. *IEEE/ASME Transactions on Mechatronics* 18(3): 1060–1071.
20. Bhaskar Ramamurthi, R.D. Koilpillai, S. Devar and K.S. Karthik (2013) Downlink throughput enhancement of a cellular network using two-hop user-deployable indoor relays. *IEEE Journal on Selected Areas in Communications* 31(8).
21. Bharath Bhikkaji and B. Cheekati (2013) A negative imaginary approach to the actuation of a guitar string. *Mechatronics* (accepted).
22. Amitava Das Gupta, Nandita Das Gupta, T. Sreenidhi, K. Naveen, A. Azizur Rahman and Arnab Bhattacharya (2013) Gate leakage mechanisms in AlGaIn/GaN and AlInN/GaN HEMTs: Comparison and modeling. *IEEE Transactions on Electron Devices* 60(10): 3157–3165.
23. B. Bhikkaji, Y.K. Yong and S.O.R. Moheimani (2013) Diagonal control design for atomic force microscope piezoelectric tube nanopositioners review of scientific instruments. 84(2): 023705 (8 pp.) (not mentioned in last annual report).
24. R.K. Ganti, L. Xingqin, P.J. Fleming and J.G. Andrews (2013) Towards understanding the fundamentals of mobility in cellular networks. *IEEE Trans. on Wireless Communications* (99): 1–13.
25. R.K. Ganti, H. Dhillon and J.G. Andrews (2013) Load-aware modeling and analysis of heterogeneous cellular networks. *IEEE Transactions on Wireless Communications* (99): 1–12.
26. R.K. Ganti, H. Dhillon and J.G. Andrews (2013) Modeling non-uniform UE distributions in downlink cellular networks. *IEEE Wireless Communications Letters* (99): 1–4.
27. K.M.M. Prabhu and P. Sandeep (2013) Poisson image de-noising using geometric platelets and geometric quadlets. *Signal Processing Journal* (Elsevier) 93(7): 1748–1763.
28. K.M.M. Prabhu and S.K. Sindhi (2013) Reconstruction of n-th order non-uniformly sampled band-limited signals using digital filter banks. *Digital Signal Processing* (Elsevier) 23(6): 1877–1886.
29. A.N. Rajagopalan and Sahana Prabhu (2013) Unified multi-frame super-resolution of matte, foreground and background. *Journal of the Optical Society of America A* 30(8): 1524–1534.
30. A.N. Rajagopalan, C.S. Vijay, C. Paramanand and Rama Chellappa (2013) Non-uniform deblurring in HDR image reconstruction. *IEEE Transactions on Image Processing* 22: 3739–3750.

31. A.N. Rajagopalan and Mandar Kulkarni (2013) Depth inpainting by tensor voting. *Journal of the Optical Society of America A* 30: 1155–1165.
32. A.N. Rajagopalan, I. Menache, E. Modiano and S. Mannor (2013) A state action frequency approach to throughput maximization over uncertain wireless channels. *Internet Mathematics* 9(2–3): 136–160.
33. A.N. Rajagopalan, M. Markakis, E. Madiano and J.N. Tsitsiklis (2013) Queue length asymptotics for generalized max-weight scheduling in the presence of heavy-tailed traffic. *IEEE/ACM Transactions on Networking* 20(4).
34. A.N. Rajagopalan and E. Modiano (2013) The impact of queue length information on buffer overflow in parallel queues. *IEEE Transactions on Information Theory*.
35. Bobby George, S.S. Mohammed Ali and L. Vanajakshi (2013) An efficient multiple loop sensor configuration applicable for undisciplined traffic. *IEEE Transactions on Intelligent Transportation Systems* 14(3): 1151–1161.
36. Bobby George and C.S. Anoop (2013) New signal conditioning circuit for magneto-resistive angle transducers with full-circle range. *IEEE Transactions on Instrumentation and Measurement* 62(5): 1308–1317.
37. Bijoy Krishna Das and Uppu Karthik (2013) Polarization-independent and dispersion-free integrated optical MZI in SOI substrate for DWDM applications. *Proceedings of SPIE 8629, Silicon Photonics VIII*, 862910 (not in previous report).
38. A. Prabhakar and N. Kumar (2013) Spin wave dispersion in striped magnonic waveguide. *IEEE Transactions on Magnetics* 49(3): 1024–1028 (not in previous report).
39. A. Prabhakar, Venkat G., D. Kumar, M. Franchin, O. Dmytriiev, M. Mruczkiewicz, H. Fangohr, A. Barman and M. Krawczyk. Proposal for a standard micromagnetic problem: Spin wave dispersion in a magnonic waveguide. *IEEE Transactions on Magnetics* 49(1): 524–529 (not in previous report)
40. S. Srinivas and K. Ramachandra Sekhar (2013) Theoretical and experimental analysis for current in a dual-inverter fed open-end winding induction motor drive with reduced switching PWM. *IEEE Transactions on Industrial Electronics* 60(10): 4318–4328.
41. S. Srinivas, Narsa Reddy Tummuru and Mahesh K. Mishra (2013) Multifunctional VSC controlled microgrid using instantaneous symmetrical components theory. *IEEE Transactions on Sustainable Energy* (accepted).
42. S. Srinivas and K. Ramachandra Sekhar (2013) Discontinuous decoupled PWMs for reduced current ripple in a dual two-level inverter fed open-end winding induction motor drive. *IEEE Transactions on Power Electronics* 28(5): 2493–2502.
43. S. Bhashyam, P.S. Elamvazhuthi and B.K. Dey (2014) An MMSE strategy at relays with partial CSI for a multi-layer relay network. *IEEE Transactions on Signal Processing* 62(2): 271–282.

(b) Papers presented at conferences

1. Shanti Bhattacharya, V. Pramitha and A. Vijayakumar. Fabrication of multilevel spiral phase plates by focused ion beam milling. *International Conference on Optics in Precision Engineering and Nanotechnology—icOPEN 2013*, 10 April 2013.
2. Ashok Jhunjunwala. A new personalized agriculture advisory system reality, potential and technology challenges. *19th European Wireless Conference*, 14–15 April 2013.
3. Ashok Jhunjunwala. Towards driving quality in education: Next generation interactive e-book. *Conference on Modeling Design Solutions for Technology Development & Decision Support—CSIR*, 10 May 2013
4. Bobby George and N. Philip. Dual-slope inductance-to-digital converter for differential reluctance sensors. *IEEE International Instrumentation and Measurement Technology Conference*, 6–9 May 2013, Minneapolis, USA, pp. 916–919.
5. Bobby George and C.S. Anoop. A reluctance–Hall effect based linear digital angle sensor. *IEEE International Instrumentation and Measurement Technology Conference*, 6–9 May 2013, Minneapolis, USA, pp. 1362–1366.
6. Bobby George and B. Cyril. A simple analog front-end circuit for grounded capacitive sensors with offset capacitance. *IEEE International Instrumentation and Measurement Technology Conference*, 6–9 May 2013, Minneapolis, USA, p. 1372.
7. Bobby George and R. Abhishek. A child-left-behind warning system based on capacitive sensing principle. *IEEE International Instrumentation and Measurement Technology Conference*, 6–9 May 2013, Minneapolis, USA, pp. 702–706.

8. K. Giridhar, Haseen Rahman and Gaurav Raina. Performance analysis of Compound TCP with AQM. *11th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, 13–17 May 2013, Japan.
9. Gaurav Raina, Haseen Rahman and K. Giridhar. Performance analysis of Compound TCP with AQM. *11th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, 13–17 May 2013, Japan.
10. Gaurav Raina, Nizar Malangadan and Haseen Rahman. Non-linear oscillations in TCP networks with drop-tail buffers. *25th Chinese Control and Decision Conference (CCDC)*, 25–27 May 2013, Guiyang.
11. Gaurav Raina, Anand Rao and Amit Warriar. Stability analysis of Compound TCP with adaptive virtual queues. *25th Chinese Control and Decision Conference (CCDC)*, 25–27 May 2013, Guiyang.
12. Gaurav Raina, Shankar Raman, Hanno Hildmann and Fabrice Saffre. Ant-colony based heuristics to minimize power and delay in the Internet. *IEEE International Conference on Green Computing and Communications*, 20–23 August 2013, Beijing.
13. Gaurav Raina and Santosh Chavan. Dynamics of Compound TCP with small buffer Drop-Tail queues. *IEEE Multi - Conference on Systems and Control (MSC)*, 28–30 August 2013, Hyderabad.
14. Gaurav Raina, Shankar Raman and Archith Mohan. TCP Reno and queue management: Local stability and Hopf bifurcation analysis. *52nd IEEE Conference on Decision and Control*, 10–13 October 2013, Florence.
15. Gaurav Raina, Shankar Raman, Balaji Venkateswami and Kamakoti Veezhinathan. Using timers to switch off TCAM banks in routers. *IEEE ANTS*, 15–18 December 2013, Chennai.
16. Krishna P. Jagannathan, Libin Jiang, Palthya Lakshma Naik and Eytan Modiano. Scheduling strategies to mitigate the impact of bursty traffic in wireless networks. *11th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks*, 15 May 2013.
17. Krishna P. Jagannathan, H. Ahmed and S. Bhashyam. Queue-aware optimal resource allocation for the LTE downlink. *Proceedings of IEEE GLOBECOM 2013*, 12 December 2013, Atlanta, GA, USA.
18. Shanthi Pavan and Ankesh Jain. Efficient characterization of continuous time oversampling converters using a duobinary test interface. *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, 21 May 2013.
19. Enakshi Bhattacharya, M.S. Veeramani, N.P. Ratchagar, P. Shyam and A. Chadha. Compact silicon biosensor for the clinical range estimation of blood serum triglyceride. *IEEE SENSORS Conference*, 3 November 2013, Baltimore.
20. Mahesh Kumar Mishra and Sathish Kumar Kollimalla. Novel adaptive P&O MPPT algorithm for photo-voltaic system considering sudden changes in weather condition. *International Conference on Clean Electrical Power ICCEP—2013*, 11 June 2013, Alghero, Italy.
21. Mahesh Kumar Mishra and Chandran Kumar. A modified DSTATCOM topology with reduced VSI rating, DC link voltage, and filter size. *International Conference on Clean Electrical Power ICCEP—2013*, 11 June 2013, Alghero, Italy.
22. Mahesh Kumar Mishra, Nagesh Geddada and Srinivas Bhaskar Karanki. DSTATCOM with LCL filter using synchronous reference frame based current controller. *International Conference on Clean Electrical Power ICCEP—2013*, 11 June 2013, Alghero, Italy.
23. Mahesh Kumar Mishra and Chandran Kumar. A multi functional DSTATCOM operating in voltage control mode. *IEEE International Conference on Industrial and Information Systems 2013*, 19 December 2013.
24. Mahesh Kumar Mishra and J. Suma. An AC–AC converter based topology for mitigation of voltage sag with phase jump. *IEEE International Conference on Industrial and Information Systems 2013*, 19 December 2013.
25. Mahesh Kumar Mishra and Chandran Kumar. Energy conservation and power quality improvement with voltage controlled DSTATCOM. *IEEE India Conference (INDICON)*, 15 December 2013, IIT Bombay, India.
26. Mahesh Kumar Mishra and Narasa Tummuru Reddy. Fourth order coupled inductor boost converter topology for solar PV tracking applications. *IEEE India Conference (INDICON)*, 15 December 2013, IIT Bombay, India.
27. Mahesh Kumar Mishra and Onkar Kulkarni. Power quality improvement using zig-zag transformer and DSTATCOM in three phase power distribution system. *IEEE India Conference (INDICON)*, 15 December 2013, IIT Bombay, India.
28. Mahesh Kumar Mishra and Lino Ahraham. A dual voltage source inverter scheme for power quality enhanced microgrid system. *IEEE India Conference (INDICON)*, 15 December 2013, IIT Bombay, India.

29. Deepa Venkitesh, A.P. Anthur, R.T. Watts, K. Ishi, J. O'Carroll and L.P. Barry. Dual correlated pumping scheme for phase noise preservation in all-optical wavelength conversion. *Optics Express*, 21: 15568.
30. Deepa Venkitesh, P.A. Aravind, R.T. Watts, K. Ishi, J. O'Carroll and L.P. Barry. Dual-correlated pumping scheme for phase-noise retention in FWM. *CLEO-Europe*, 12–16 May 2013, Munich.
31. A.N. Rajagopalan and C. Paramanand. Non-uniform motion deblurring for bi-layer scenes. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 23–28 June 2013, Portland.
32. A.N. Rajagopalan and Pratyush Sahay. Lost but found? Harnessing the Internet for photometric completion. *CVPR Workshop on Big Data Computer Vision*, 2013.
33. K. Sridharan and Vikramkumar Pudi. Efficient design of Baugh–Wooley multiplier in quantum-dot cellular automata. *13th IEEE International Conference on Nanotechnology (IEEE NANO 2013)*, August 2013, Beijing.
34. K. Sridharan and Vikramkumar Pudi. Efficient QCA design of single-bit and multi-bit subtractors.
35. S. Krishna Bhashyam and K. Sarojkumar. A new measure of local error in the numerical solution for online dynamic security assessment. *North American Power Symposium 2013*, 22–24 September 2013, Kansas State University.
36. S. Krishna Bhashyam, V.S. Prathyusha and A. Thangaraj. The Gaussian two-way diamond channel. *Allerton Conference on Communication, Control, and Computing*, 3 October 2013, Monticello, IL.
37. S. Krishna Bhashyam, H. Ahmed and K. Jagannathan. Queue-aware optimal resource allocation for the LTE downlink. *Proceedings of IEEE GLOBECOM 2013*, 12 December 2013, Atlanta, GA, USA.
38. K.S. Swarup and V. Jayadev. Optimization of micro grid with demand side management using genetic algorithm. *IET International Conference on Power in Unity: A Whole System Approach to Smart Grid, Smart Metering and Power Quality*, 16 October 2013, pp. 1–6.
39. K.S. Swarup and Karthick Sekkappan. A cross coupling method to detect islanding instant distributed generation 1–6. *40th Western Protective Relay Conference*, 17 October 2013, Spokane, Washington, USA.
40. K.S. Swarup and Parvathi. Novel scheme for load shedding and identification of critical tie-lines in WAMS emergency control. *IET International Conference on Power in Unity: A Whole System Approach to Smart Grid, Smart Metering and Power Quality*, 17 October 2013, 1–6.
41. K.S. Swarup and Parvathi. Optimal load or generation shedding for wide area measurements (WAMs) in emergency control. *5th Internal Conference on Power Systems (ICPS)*, 29 October 2013, Kathmandu, Nepal.
42. K.S. Swarup and Vikrant Manjrekar. Fast and simple digital fault detection algorithm for micro grid system. *5th Internal Conference on Power Systems (ICPS)*, 29 October 2013, Kathmandu, Nepal.
43. K.S. Swarup and Devika Jay. A game theoretic approach to automatic generation control under deregulation. *5th Internal Conference on Power Systems (ICPS)*, 30 October 2013, Kathmandu, Nepal.
44. K.S. Swarup and K. Venkatesh. Smart trip logic for smart grids to block distance relay maloperation: Implementation and validation. *Innovative Smart Grid Technology (ISGT)*, 22 November 2013, Bangalore, pp. 1–6.
45. K.S. Swarup, K. Yashwant and K. Venkatesh. An open source framework for IEC 61850 based protection and automation schemes. *Innovative Smart Grid Technology (ISGT)*, 22 November 2013, Bangalore, pp. 1–6.
46. Shreepad Karmalkar, A. Anvar, R. Gokul and C. Akhil. A phenomenological model for the substrate coupling resistance between coplanar rectangular contacts. *International Workshop on Physics of Semiconductor Devices*, 10–13 December 2013, New Delhi.
47. Shreepad Karmalkar. Edge effects on gate leakage in AlGaIn/GaN HEMTs. *National Workshop on III Nitride Materials and Devices*, 12–13 December 2013, Solid State Physics Laboratory, New Delhi.
48. H. Ramachandran and Sumantra Chaudhuri. Effect of an RF field on the Debye sheath around a charged protein. *PSSI 2013 conference*, 3–6 December 2013, Bhubaneswar.
49. Amitava Das Gupta, Vikrama Vamshi Pasula and Deleep R. Nair. Design of a piezoresistive MEMS resonator operating beyond 1 GHz. *International Workshop on Physics of Semiconductor Devices (IWPSD-2013)*, 10–13 December 2013, Noida.
50. Ramkrishna Pasumarthy, Gourav Saha, Faruk Kazi and Navdeep Singh. Energy and power based perspectives of memristive controllers. *IEEE Conference on Decision and Control*, 10 December 2013.
51. Ramkrishna Pasumarthy and P.S. Saikrishna. Automated control of web server performance in a cloud environment. *RAICS*, 18 December 2013, Thiruvananthapuram.
52. Arun D. Mahindrakar, Vijay Muralidharan and Anup K. Ekbote. Finite-time control of quadrotor system. *Third International Conference on Advances in Control and Optimization of Dynamical Systems*, 13 March 2014, IIT Kanpur, India.

Distinguished visitors to the department

Sl. No.	Visitor's Name and Designation	Affiliation	Purpose of Visit	Month and Date
1	N. Ranga Prasad, Ph.D. scholar	IISc, Bangalore	Research collaboration	1 September 2013
2	Rajesh Sundaresan, Associate Professor, Department of Electrical Communication Engineering	IISc, Bangalore	Research collaboration	20 September 2013
3	D. Thirumulanathan, Ph.D. scholar, Department of Electrical Communication Engineering	IISc, Bangalore	Research collaboration	20 September 2013
4	Dr. A. Paulraj, Dr. S. Karthik, Dr. Juser Easi and Sri. B. Chandrasekharan		Department Review (By Peer Review Committee Members)	31 October to 1 November 2013
5	N. Ranga Prasad, Ph.D. scholar	Department of Electrical Communication Engineering, IISc, Bangalore	Research collaboration — (8–25 November)	1 November 2013
6	Prof. Manjunath	IIT Bombay	To deliver two invited talks	5–8 November
7	Dr. Rama Divakaruni	IBM Semiconductor R&D Center, 2070 Route 52, Hopewell Junction, NY 12533	To deliver a talk “SOI CMOS technology through 7nm”	26 December 2013
8	Prof. Un-Ku Moon	Oregon State University	For discussions and to deliver a talk, “Ring Amplifiers”	7 January 2014
9	Prof. Pavan Hanumolu	University of Illinois at Urbana Champaign	For discussions and to deliver a talk, “Energy Proportional Communication Using Burst-Mode Operation”	7 January 2014
10	Dr. Jayashri Ravishankar	University of New South Wales, Australia	For discussions in the department and signing MoU	10 January 2014
11	Rahul Pandya, Ph.D. scholar	IIT Delhi	Research collaboration	24 January to 7 February 2014
12	Dr. Vijaysekhar Chellaboina	TCS, Hyderabad	To deliver a talk titled “Pricing, Hedging and Risk: A Tutorial”	24 January 2014
13	Prof. Pragasen Pillay	Concordia University, Canada	Delivering a talk, “Current Research in Renewable Energy at Concordia University in Collaboration with Hydro Quebec”	30 January 2014
14	Dr. Philip Perry	DCU, Dublin, Ireland	Delivering a talk to research students, “How to Use Literature Effectively”	1 February 2014
15	Prof. Asan Gani, Deputy Dean	IUM Malaysia	Delivering a talk, “Modelling and Control of High-Frequency Vibration Using Piezoelectric Actuators”	3 February 2014
16	Sundar, CTO	Mahindra Conviva	Talk, “Big Data and Analytics: From Causation to Correlation”	6 February 2014
17	Dr. K.V. Reddy, alumnus and donor		Discussions with Photonics Group	7 February 2014
18	Prof. J. Holtz, IEEE Life Fellow and Prof. Emeritus	at University of Wuppertal, Germany	Talk, “Predictive Control of AC Machine Drives”	14 February 2014
19	N. Ranga Prasad, Ph.D. scholar	Department of Electrical Communications Engineering, IISc, Bangalore	Research collaboration	4–28 February 2014

20	Dr. Nirmal Viswanathan	Central University, Hyderabad	Delivering a talk, "What Else Can We Do with Optical Fibres?"	28 February 2014
21	Prof. Liam Barry and Dr. Philip Perry	DCU, Ireland	Annual EU-India UP-PI Workshop (FP7 project), collaboration	28 January to 5 February 2014
22	Dr. Sean O'Duill and Dr. Tong Shao, Postdocs	DCU, Ireland	Annual EU-India UP-PI Workshop (FP7 project), secondment for the project	1-15 February 2014
23	Dr. Colm Browning, Postdoc	DCU, Ireland	Annual EU-India UP-PI Workshop (FP7 project), secondment for the project	1-28 February 2014
24	Dr. S.K. Badra	CGCRI, Kolkata	Talk, "EDFA and Nonlinear Photonic Crystal Fibre for Supercontinuum Light Source"	12 March 2014
25	Dr. Karthick Parashar, Research Associate	Imperial College	Talk, "Power Optimization in Finite Precision Arithmetic Circuits"	13 March 2014
26	Delegates	University of New South Wales, Australia	Meeting with faculty of department	28 March 2014
27	Charles Sidney Burrus		Departmental visit	15 April 2014
28	N. Ranga Prasad, Ph.D. scholar	Department of Electrical Communications Engineering, IISc, Bangalore	Research collaboration (with Srikrishna Bhashyam)	21 April 2014

Staff

<i>Designation</i>	<i>Name of Staff Member</i>
Administrative	
Junior Superintendent	Rajendiran M. Robin Kennedy
Senior Assistant	Jayasankaran V. Tamil Selvi K. Vidya N. Sethuraman A.
Senior Attendant	Jayakumar K.
Attendant	Elangovan K.V. Mallika M. Sivakumar W. Sridhar T.
Technical	
Senior Technical Superintendent	Malarvizhi M. Sathyabama M. Usha Rani N.
Technical Superintendent	Anand P. Devaki N. Janaki M. Jayachandran R. Latha S. Murugan P. Selvam K.C. Sobana S. Umaithanupillai B.

Junior Technical Superintendent	Kothandaraman K. Padmavathi T. Rajendran C. Udaya Kumar
Senior Technician	Athinarayanan B. Chandrasekaran D.S. Chandrasekaran R. Vedhachalam S.
Junior Technician	Jayavel D. Prakash J. Saranath P.

Other activities of the department

Sl. No.	Name	Activities
1	Student activity	The team of Jobin Jacob Kavalam and V. Sudharsan, under the guidance of Shankar Balachandran (CS) and Nitin Chandrachoodan (EE), placed in the top three positions in the TAU 2013 CAD Contest (Variation Aware Timing Analysis), held as a part of the TAU Workshop on Timing Analysis, Lake Tahoe, CA, USA, 27–29 March 2013
2	Dhanabalan (Technical Officer)	He was involved in running the GATE online admission process.

Socially relevant activities carried out by the department

Sl. No.	Name	Activities
1	Anil Prabhakar	<ol style="list-style-type: none"> 1. Tactograph: Making tactile graphics on demand for persons with visual impairments 2. iGest: Gesture recognition for persons with impaired mobility 3. Leaf Press to aid persons with cerebral palsy
2	Shanti Bhattacharya and Nitin Chandrachoodan	Low-vision telescope: Compensating for impaired vision through intelligent glasses
3	Ashok Jhunjhunwala and G. Venkatesh (Analogue Chair)	<p>QEEE: Aims to make a significant difference in the Quality of Engineering Education in 500 engineering colleges, by means of live classes, tutorials and virtual labs</p> <p>The programme ran between January and April 2014, and feedback was collected at the middle and end of the programme. The overall programme concept was well received, especially as the best of the best teachers at IITs were taking live classes, and it has been recommended that the program be extended.</p>
4	Devendra Jalihal and David Koilpillai	DISANET, under IIT Madras, has designed a rapidly deployable independent, low-cost, multi-way communication system using mobile cell phones to enable relief workers to communicate with relief managers using voice, images and videos. Further, it allows a relief manager to stay in continuous broadcast communication with citizen-victims. It allows citizen-victims to seek professional help and to communicate with their friends and relatives using the “I-am-alive” feature.
5	A.J. Lakshminarasamma and Krishna Vasudevan	Through Solar PV Centre: Developed scheme to deliver minimum power from the grid to enable energy-efficient appliances such as LED lights and DC motor-based fans, DC motor-based refrigerators and air-conditioners. The centre has also taken up development and deployment of solar PV-powered water pumps and air-conditioners.

International collaboration achievements by the department

Student visits

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Sarojkumar K.	EE12S015	North American Power Symposium 2013	22–24 September 2013, Kansas State University	—
2	V. Jayadev	EE12S005	IET International Conference on Power in Unity—A Whole System Approach to Smart Grid: Smart Metering and Power Supply	16–17 October 2014, IET headquarters, Bloomsbury	—
3	S. Parvathi	EE11S076	IET International Conference on Power in Unity—A Whole System Approach to Smart Grid: Smart Metering and Power Supply	16–17 October 2014, IET headquarters, Bloomsbury	—
4	Karthick Sekkappan	EE12S007	40th Western Protective Relay Conference Spokane	17 October 2013, Washington State University (WSU), Washington, USA	—
5	M.S. Veeramani	—	IEEE Sensors 2013 Conference	3–6 November 2013	—
6	Venkatesh K.	—	Innovative Smart Grid Technologies —Asia	10–13 November 2013, Bangalore (http://www. ieee-isgt-2013.asia/)	—
7	Yashwant K.	EE10S042	Innovative Smart Grid Technologies —Asia	10–13 November 2013, Bangalore, (http://www. ieee-isgt-2013.asia/)	—
8	Mr. Gourav Saha	EE13S005	Workshop, “Perspectives in Dynamics and Control”	17–21 March 2014, IIT Bombay	—

4.9. DEPARTMENT OF ENGINEERING DESIGN

4.9.1. Introduction

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

“From concept to a component that meets a desired function” aptly describes engineering design. It is a decision-making process, often iterative, in which the basic sciences and the engineering sciences are used to convert resources optimally to meet a stated objective.

Students are introduced to the design process in the first year along with fundamental mathematics, science and engineering, graphic art, design and aesthetics. They are trained not only in the mechanical aspects of design but also in electronics, control and embedded systems for all-round skill development. Courses in geometric modeling, finite elements, materials engineering, automotive engineering, robotics and biomedical device engineering are also offered.

4.9.2. Academic Programmes

New disciplines/branches introduced

M.Tech./Ph.D. dual-degree programme

New courses introduced

Sl. No.	Course No.	Title
1	ID 5060	First Principles Tools in Engineering
2	ED 3153	Principles of Form Design
3	ED 3152	Precision Processes and Systems
4	ED 5318	Biomimetic Design
5	ED 5319	Introduction to the Design of Heat Exchangers, Pressure Vessels and Piping

Students on roll

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
Dual degree	55	56	53	57	57	278
M.S.	16	9	13	2	0	40
Ph.D.	12	15	13	8	11	59
Total	83	80	79	67	68	377

Numbers are as of September 2013 and inclusive of M.S. and Ph.D. scholars admitted in January 2014.

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

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Rangaprasad, Arun Srivatsan	—	Sixth International Workshop on Computational Kinematics 2013 (CK2013)	12–15 May 2013, Barcelona, Spain	IIT Madras
2	Park. C.Y, Kim N.H.	—	World Congress on Structural and Multidisciplinary Optimization	20–24 May 2013, Orlando, Florida	Project
3	G.N. Srinivas	ED 09D011	SEM 2013	2–5 June 2013, Lombard, IL, USA	
4	N. Aparna	ED 11D020	The 10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013), Kyoto International Conference Center	30 June–4 July 2013 Kyoto, Japan	IIT Madras
5	B. Venkataramesh	ED 10S008 ED 13D017			
6	V. Sathiesh Kumar	ED 10D006			
7	K. Sulochana	ED 09D007			
8	Poojali Jayaprakash	ED 12D013	Progress In Electromagnetics Research Symposium (PIERS)	25–28 August 2014 Guangzhou, China	IIT Madras
9	V. Sathieshkumar	ED 10D006	International Conference On Laser Ablation (COLA 2013)	6–12 October 2013, Ischia, Italy	Department of Science & Technology
10	N. Nigamaa (DD)	ED 09B019	ASME IMECE 2013	15–21 November 2013, San Diego, CA, USA	
India					
1	Harish Ganapathy	—	Indian Conference on Applied Mechanics	4–6 July 2013, Department of Applied Mechanics, IIT Madras	—
2	C. Geetha	ED 11D007	National Symposium on High Power RF and Microwaves 2013	4–6 September 2013, Institute of Plasma Research, Gandhinagar	Project, IIT Madras
	Vidyalakshmi M.R.	ED 12D022			
	Ragothaman R.	ED 12S003			
	Kayatri Kalyanasundaram	ED 10S003			
3	Yugandhara Rao Yadam	ED 12S019	Asia Pacific Conference on Non Destructive Testing (APCNDT)	18–22 November 2013, Bombay	Project
4	Rachana S. Akki Ragothaman R.	ED 12D015 ED 12S003	IEEE International Microwave and RF Conference 2013	14–16 December 2013, Delhi	Project, IIT Madras
5	Divya Priya C.H.M.	ED 11S002	IEEE Second International Conference on Image Information Processing (ICIIP) 2013	9–11 December 2013, Shimla	IIT Madras
6	Y. Esther B. Vidhya	ED 12D004	Symposium On Laser Material Processing Organized by OSA, During Laser World of Photonics India 2013	12–13 November 2013, Bombay Exhibition Center, Mumbai	DST, SERB
7	Vani Damodaran	ED 11D013	International Conference On Precision, Meso, Micro And Nano Engineering (COPEN-8, 2013)	13–15 December 2013, National Institute Of Technology Calicut (NITC), Kerala	IIT Madras
8	Emmanuel P.	ED 13D017			
9	Aparna N.	ED 11D020			
10	Y. Esther Blesso Vidhya	ED 12D004	The Second International Conference On Intelligent Robotics, Automation and Manufacturing (IRAM 2013)	16–18 December 2013, IIT Indore	IIT Madras

11	Srinagalakshmi Nammi	ED 11D014	Fifth SERC School on New Developments on Microfabrication with Focus on Synchrotron Radiation Based Deep X-ray Lithography	29 October–3 November, 2013, Raja Ramanna Center for Advanced Technology (RRCAT), Indore	RRCAT
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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	Umesh N.	ED 10S007	Second prize in student poster competition	NIOT, Chennai
2	Vajravelu Sathiesh Kumar	ED 10D006	Outstanding presentation prize for the contribution titled "Evaluation of LIBS Method for Remote Detection of a Salt Deposition on a Wind Turbine Blade"	(COLA 2013), 6–11 October 2013, Ischia, Italy
3	Vidyalakshmi M.R.	ED 12D022	First prize for poster presentation at HPRFM 2013	Institute for Plasma Research, Gandhinagar, Gujarat

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Name of Donor
1	Athira Jane Jacob	ED 11B043	Ms Latha & Sampath Srinath Prize	—
2	Kavya Sudhir	ED 10B017	Institute Merit Prize	IIT Madras
3	Nayakanti Nigamaa	ED 09B019	Institute Merit Prize	IIT Madras

4.9.3. Faculty and Their Activities

Faculty

Name	Major Areas of Specialization (Only 3 Areas)
Professors	
Nilesh J. Vasa [Head]	Optomechatronics, remote sensing, laser-based sensing, MEMS
R. Krishna Kumar	Nonlinear finite elements, vehicle dynamics and tyre mechanics
Associate Professors	
T. Asokan	Robotics, mechatronics, control, electro-hydraulic servo systems
Venkatesh Balasubramanian	Human factors and ergonomics, biomedical devices and implants, innovation in manufacturing
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
C.S. Shankar Ram	Model-based control and diagnostics, automotive systems, vehicle dynamics, analysis of transportation systems
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
Assistant Professors	
Sandipan Bandyopadhyay	Robotics, dynamics of multibody systems, design
M. Ramanathan	Geometric and solid modelling, CAD, computer vision, computational geometry, computer graphics, computational biology, shape search

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
Ganapathy Krishnamurthi	X-ray computed tomography physics, ultrasound image processing, biological imaging using optical microscopy
Visiting Professors	
Soma Guhathakurta	Human anatomy, physiology and biomechanics, design of surgical devices, design of implantable devices and life support system

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

Sl. No.	Coordinator(s)	Title	Period
Workshops			
1	Nilesh J. Vasa and R. Sarathi	Workshop on Light Discharge on Wind Turbines	15 October 2013 (one day)
2	Venkatesh Balasubramanian	National workshop BISICON 2013—Frontiers in Breast Imaging	9–10 November 2013
Short term courses			
1	C.S. Shankar Ram	TOPTECH programme on Control of Automotive Systems on the invitation of SAEINDIA Southern India Section	30-31 August 2013
2	C.S. Shankar Ram	Continuing education programme on Fundamentals of Automotive Systems to Mahindra and Mahindra	September 2013, November 2013, February 2014, March 2014
3	C.S. Shankar Ram	Short-term training programme (AICTE sponsored), Application of Systems and Control Theory to Intelligent Transportation Systems	7–11 October 2013
4	Palaniappan Ramu, Sandipan Bandyopadhyay, G. Saravana Kumar	Short-term training programme (AICTE sponsored) and a continuing education programme on product design and engineering	21–25 October 2013
5	Venkatesh Balasubramanian	Continuing education programme for Anand Manufacturing Excellence—Process Engineering	2012–2017

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

Sl. No.	Name of Faculty Member	Title	Institution	Period
Workshops				
1	Sandipan Bandyopadhyay	Parallel Robots [chair of a session]	Computational Kinematics 2013 (CK2013), Barcelona, Spain	12–15 May 2013
2	Palaniappan Ramu	Design Under Uncertainties [chair of two sessions]	World Congress on Structural and Multidisciplinary Optimization, Orlando	20–24 May 2013
3	C.S. Shankar Ram	Systems and Control Theory Towards Traffic Analysis [course]	University of Nebraska, Lincoln, USA	9–18 July 2013
4	Nilesh J. Vasa	Fifth SERC School on New Developments on Microfabrication with Focus on Synchrotron Radiation Based Deep X-ray Lithography	Raja Ramanna Center for Advanced Technology (RRCAT), Indore	2–3 November 2013

Seminars				
1	Nilesh J. Vasa	Study of Pollution Performance on a Wind Turbine Blade Using the Optical Emission Technique Combined with the Laser Induced Breakdown Spectroscopy Technique	Japan–Taiwan Seminar on Lightning Protection Technology, Tokyo	5 July 2013
Symposia				
1	C.S. Shankar Ram	Model Based Control of Automotive Systems [lecture], Symposium on Sensors and Actuators in Healthcare and Automobile	IIT Hyderabad	13 March 2014
Conferences				
1	Nilesh J. Vasa	Nanostructures and Micro/Nano Processing [chair of a session]	10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013), Kyoto International Conference Center, Kyoto, Japan	30 June–4 July, 2013
2	Nilesh J. Vasa	Recent Advances in Laser Assisted Annealing and Texturing of Amorphous Silicon Thin Films for Photovoltaic Applications [keynote address] and Laser Assisted Micromachining [chair of a session]	International Conference On Precision, Meso, Micro and Nano Engineering (COPEN-2013), National Institute Of Technology Calicut (NITC), Kerala	13–15 December 2013
3	Nilesh J. Vasa	Advances in Optical Techniques for Trace Gas Sensing in Environmental Monitoring [keynote address], Advanced Manufacturing [chaired a session]	The Second International Conference On Intelligent Robotics, Automation And Manufacturing (IRAM 2013), IIT Indore, Indore	16–18 December 2013
4	C.S. Shankar Ram	Intelligent Transport Systems—Model-Based Analysis of Road Traffic [invited tutorial], with Dr. V. Lelitha Devi	Second Conference on Transportation Research Group of India, Agra	December 2013

Special lectures delivered by faculty members at other institutions

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Topic of Lecture</i>	<i>Institution</i>	<i>Date</i>
1	Sandipan Bandyopadhyay	An Introduction to Parallel Manipulators: Key Issues and Their Solutions, Design of Mechatronic Systems (short-term course, Advances in Robotics & Mechatronics—Multidisciplinary System Engineering)	College of Engineering & Management, Kolaghat	25 June 2013
2	Palaniappan Ramu	Product Design in Socially Relevant Projects	Indian Conference on Applied Mechanics, IIT Madras	4–6 July 2013
3	G. Saravana Kumar	Enablers of Rapid Product Development	IIITDM Kancheepuram	July 2013
4	G. Saravana Kumar	Finite Element Method and Its Applications in Engineering	TKM College of Engineering, Kollam	17 October 2013
5	C.S. Shankar Ram	Control of Automotive Systems, during TOPTECH programme	The Coimbatore Division Of The Southern Section of SAEINDIA (Society Of Automotive Engineers India),	22–23 November 2013
6	G. Saravana Kumar	Research Trends in Rapid Prototyping	VIT, Chennai	22 March 2014
7	G. Saravana Kumar	Advances in Additive Manufacturing and Their Applications	Vardhaman College of Engineering, Hyderabad	9 January 2014
8	C.S. Shankar Ram	Design of Automotive Brake Systems	S.A. Engineering College, Chennai	6 March 2014

9	M. Ramanathan	Inaugural address at two-day national conference, Advances in Information and Communication Technology AICT2014	Sri Venkateswara Engineering College	27 February 2014
10	Kavitha Arunachalam	Electronics Track [keynote speaker]	ANSYS Convergence Conference, Bangalore	9 May 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	T. Asokan	Australia	1–12 April 2013	For Indo Australian Science and Technology fellowship programme	Nil
2	T. Asokan	USA	20–22 March 2014	To attend international conference	Nil
3	Nilesh J. Vasa	Japan	28 June –6 July 2013	Conference on Lasers and Electro-Optics Pacific Rim	DST and Centre for International Cooperation in Science (CICS)
4	Nilesh J. Vasa	Japan	12–25 March 2014	Visiting scientist of Japan Society for Promotion of Science (Japan) and Department of Science and Technology (India) (JSPS–DST) Exploratory Exchange Program	JSPS–DST
5	Palaniappan Ramu	USA	19–24 May 2013	10th World Congress on Structural and Multidisciplinary Optimization	Project
6	Ramanathan	Singapore	7–10 October 2013	Pacific Graphics 2013 conference	Project
7	Ramanathan	Hong Kong	16–18 November 2013	CAD/Graphics 2013 conference	CPDA/project
8	Sankara J. Subramanian	USA	22–24 May 2013	SEM 2013 annual conference	CPDA
9	C.S. Shankar Ram	USA	2–23 July 2013	Indo-US Joint Centre on Intelligent Transportation Systems Technologies	Indo-US Science and Technology Forum
10	Srikanth Vedantam	USA and Canada	5 June–26 July 2013	Conference	CPDA

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Awards					
1	M. Ramanathan	Best Presentation/Best Content Award	International Conference on Recent Trends in Computer Science and Engineering	A paper titled “A qualitative approach for medial computation”	24 April 2013

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	C.S. Shankar Ram	Member (Associate Editor)	ASME Journal of Dynamic Systems, Measurement and Control

4.9.4. Design and Development Activities

New facilities added and major equipment procured

Sl. No.	Name of Equipment	Value (in Lakhs of Rs.)
1	Design for Manufacture and Assembly ,software from Boothroyd Dewhurst Inc., USA (number of licenses: 30)	7.8
2	Industrial Robot (Kuka Robot, KR-5 Arc) with Robot Controller	14.5

Patents filed

Sl. No.	Names of Faculty Members	Topic of Patent
1	C. Geetha, Kavitha Arunachalam	Improved Microwave Hyperthermia Device (1328/CHE/2014—Provisional—13 March 2014)
2	V. Sathiesh Kumar, Nilesh J. Vasa, R. Sarathi	A Device and Method for Determining the Elemental Identity and Analysis on Moving Target from a Variable Stand-off Distance (4578/CHE/2013—Provisional)
3	Balakrishna C. Rao, R. Bhinge	Development of a Pedal Powered Water Filtration System (3046/CHE/2013)
4	V.S. Anand, Venkatesh Balasubramanian	Polymeric Biomaterial for Dental Applications (2709/CHE/2013)
5	N. Nigamaa, S.J. Subramanian	Orthodontic Device and Method (4253/CHE/2012)
6	S.N. Grama, S.J. Subramanian	A Method to Compute Strains from Full-Field Data (3252/CHE/2013)
7	S.J. Subramanian, H. Murthy	A Method for Non-destructive Structural Health Monitoring (4254/CHE/2012)
8	Soma Guhathakurta, Venkatesh Balasubramanian	A Bioreactor for Tissue Engineering
9	Soma Guhathakurta, Venkatesh Balasubramanian	Engineered Pericardium and Derivatives for Uses in Medicine, Pharmaceuticals, Food and Cosmetics (138/CHE/2014)
10	Venkatesh Balasubramanian	A Seat Assembly for Monitoring and Alerting a Driver Based on His/Her Fatigue and/or Behavior (1921/CHE/2013)
11	Venkatesh Balasubramanian	A Steering Assembly for Monitoring and Alerting a Driver Based on His/Her Fatigue and/or Behavior (1920/CHE/2013)
12	Venkatesh Balasubramanian, Soma Guhathakurta, Robert Rajkumar	Electrophysiological Monitoring of the Heart Using Dry Electrodes on Non-traditional, Non-boney Regions of the Chest (940/CHE/2014)

4.9.5. Research and Consultancy

Sponsored research projects

Sl. No.	Title	Period	Funding Agency	Amount (in Lakhs of Rs.)	Co-ordinators
1	Design of a Popup Antenna for Intermittent Communication of an Observed Underwater Noise and Which Remains Submerged Otherwise	2013–2015	NRB	14.16	T. Asokan
2	Modeling and Simulation of Drive-by-Wire System for Tracked Vehicles	2013–2015	DRDO	28.71	T. Asokan
3	Design and Development of a Tele-Surgical Robot Trainer	2012–2014	DST	50.54	T. Asokan
4	Development of a Sustainable Tri-cycle for Mobile Water Filtration	2012–2013	RuTag, IIT Madras	1.00	Balakrishna C. Rao
5	An Electric Field Measurement System to Characterize Antenna Power Deposition in Tissue Phantoms	2013–2016	DST SERC Fast Track Scheme for Young Scientists	21.8	Kavitha Arunachalam
6	Wide-Band Frequency Selective Surfaces (FSS) for Quasi Optical Network	2014–2016	ISRO	25.88	Kavitha Arunachalam, C.V. Krishnamurthy
7	Evaluation of a Novel Microwave Technique for the Measurement of Calcinations Process as well as Measurement of Waste Vitrification Layers in the DAE Joule Meters for Waste Treatment	2011–2014	BRNS	95	Kavitha Arunachalam, C.V. Krishnamurthy, Krishnan Balasubramanian
8	Investigation on the Feasibility of Measuring Average Sodium Mist Concentration Using Microwaves	2012–2014	IGCAR	30.38	Kavitha Arunachalam, C.V. Krishnamurthy, Krishnan Balasubramanian

9	Effectiveness of the (S)ELANA (Sutureless Excimer Laser Assisted Non-occlusive Anastomosis) Anastomosis in Small Vessels	2013–2016	DST	26.04	R. Krishna Kumar
10	Raghupati Singhanian Center of Excellence for Tyre and Vehicle Mechanics: Phase II	2008–2013	JK Tyre	150	R. Krishna Kumar
11	Trivitron Innovation Center for Medical Technology (RBIC)	2011–2013	Trivitron Healthcare	165.45	R. Krishna Kumar, V. Kamakoti
12	Raghupati Singhanian Center of Excellence for Tyre and Vehicle Mechanics: Phase III (RBIC)	2011–2014	JK Tyre	150	R. Krishna Kumar
13	Optimization of the Thickness of Y Piece Performing Elasto-Plastic Analysis	2012–2013	BHEL	7.8	R. Krishnakumar
14	Effectiveness of the (S)ELANA (Sutureless Excimer Laser Assisted Non-occlusive Anastomosis) in Small Vessels	2013–2016	DST	51	R. Krishna Kumar
15	Development of a Laser Assisted Scribing Technique to Generate Strips of a Parabolic Antenna	2014–2016	ISRO	17.06	Nilesh Jayantilal Vasa, G. Balaganesan (Central Workshop)
16	Pollution Performance of Wind Turbine Blades Adopting Laser Induced Breakdown Spectroscopy	2011–2013	DST	53.4	Nilesh J. Vasa, R. Sarathi (EE Department)
17	Wide-Area Annealing and Texturing of Amorphous Silicon Films Using Nd ³⁺ :YAG laser for Photovoltaic Applications	2012–2014	DST	48.5	Nilesh J. Vasa, M. Singaperumal, Ananth Krishnan
18	PP-GIS Decision Support System for Farmers	2013–2014	SRP	3.00	Palaniappan Ramu, M.S. Sivakumar (Applied Mechanics)
19	PP-GIS Decision Support System for Farmers	2013–2014	SRP	3	Palaniappan Ramu, M.S. Sivakumar
20	Modular Tricycle for Mobility Disabled	2011–2014	RuTag, IIT Madras	1	M. Ramanathan
21	Research Gift for CAD-Related Infrastructure Development	2012–2013	Autodesk India Pvt. Ltd.	9	M. Ramanathan
22	Solving Distance Queries Through Exact Computations (RBIC)	2012–2013	General Motors Technical Centre India Pvt Ltd.	12.85	M. Ramanathan, Ashish Gupta (GM)
23	IIT Madras Student Satellite	2011–2013	IIT Madras	5	Sandipan Bandyopadhyay (Co-co-ordinator)
24	Development of a 3-RRR Parallel Robot for Industrial Applications (RBIC)	2012–2013	Systematics India Pvt. Ltd.	6.1	Sandipan Bandyopadhyay
25	Analysis and Design of Regulating Vane Control Mechanism (RBIC)	2012–2013	BHEL Ranipet	7.7	Sandipan Bandyopadhyay, Palaniappan Ramu
26	HuMotor: A Humane Way to Utilize Human Efforts at a Workplace	2013–2014	SRP	3	Sandipan Bandyopadhyay, G. Saravana Kumar, Palaniappan Ramu
27	Computation of Strain and Curvature from Digital Image Correlation Data	2012–2014	ISRO	13.42	Sankara J. Subramanian, G. Saravana Kumar
28	Digital Image Correlation at High Magnification	2012–2014	IIT Madras	8.90	Sankara J. Subramanian, S. Sankaran (MME)
29	Research Gift for 3D Imaging and Additive Manufacturing Related Infrastructure Development	2012–2013	Autodesk India Pvt. Ltd.	10.1	G. Saravana Kumar
30	Development of Theory of Fractal Rational Splines and Applications in Computer Aided Geometric Design	2011–2014	DST	15	A.K.B. Chand, G. Saravana Kumar

31	Bus Arrival Time Prediction Under Indian Traffic Conditions	2010-2013	MOUD (sub-project of a project funded by MOUD)	15	C.S. Shankar Ram (Co-PI)
32	Bioreactor Development for Ex-Vivo Large Scale Expansion of Human RBCs from Adult Hematopoietic Progenitor Cells	2013–2016	Department of Biotechnology	45.3	Soma Guhathakurta Venkatesh Balasubramanian
33	Phase field Study of Polycrystalline Grain Growth in Presence of Second Phase Particles	2011–2014	BRNS	11.57	Srikanth Vedantam
34	Visionary Leaders for Manufacturing	2007-2016	Joint programme with IITK and IIMC	540	T.T. Narendran, Venkatesh Balasubramanian
35	Identifying Real Time Physiological Parameters to Test Physical and Cognitive Fatigue While Driving in a Simulated Environment	2012-2015	Nissan Research Support Program	9.16	Venkatesh Balasubramanian

Industrial consultancy projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in Lakhs of Rs.)
1	Nilesh Jayantilal Vasa	Comparison of Data Projectors Used with Computers	ACER India Ltd.	0.75
2	Palaniappan Ramu	Common code project, Verification and Validation for Simulation Studies	Hexdof	0.19

RBIC projects

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in Lakhs of Rs.)
1	Palaniappan Ramu, Saravana Kumar, Sandipan Bandyopadhyay	Alternate Drying Mechanisms for Washing Machines	Whirlpool	8.00
2	Palaniappan Ramu, Sandipan Bandyopadhyay, G. Saravana Kumar	An Expanding Air Bag Concept for Drying in Vertical Axis Washing Machines	Whirlpool	7.00
3	Palaniappan Ramu, G. Saravana Kumar, Sandipan Bandyopadhyay	Innovative Bicycle Design	Ricycle N City Pvt. Ltd.	3.00
4	Palaniappan Ramu, G. Saravana Kumar, Sandipan Bandyopadhyay	Watch Case Modular Jewelry and Statically Balanced Kitchen Cabinet Designs	Titan Company Ltd.	6.00
5	M. Ramanathan	Location and Trajectory Clustering of Vehicle Data	Renault Nissan Techonology & Business Centre India Private Limited (RNTBCI)	4.04
6	Sandipan Bandyopadhyay	Design and Development of 3-DOF Motion Seat of Payload 150 kg	ARMY	26.55
7	G. Saravana Kumar, Palaniappan Ramu	Enhancing Water Proofing for Wrist Watches of Edge Watch	Titan Industries Ltd.	8.36
8	Venkatesh Balasubramanian	Innovative New Products Development and Process Improvement	Sundaram Brake Linings Ltd.	33.09
9	Venkatesh Balasubramanian	Innovative and Disruptive Products for Medical Applications	Sundaram Medical Devices Ltd.	40.2

Faculty members' participation with other institutions under MoUs

Sl. No.	Name of Faculty Member	Participation Details	Name of University/Institution
1	Nilesh J. Vasa	Member of the Green Asia Program	Kyushu University, Fukuoka, Japan

Research publications of faculty members and research scholars

Number of papers published in refereed national journals: 1

Number of papers published in refereed international journals: 17

Number of papers presented at national conferences: —

Number of papers presented at international conferences: 24

(a) Refereed national journals

1. I.A. Palani and Nilesh J. Vasa. 2013. Laser assisted nano-texturing of amorphous and multicrystalline silicon wafers for photovoltaic device applications. *Bulletin of the Indian Laser Association* 24(Special issue: Nano-texturing to Rapid Manufacturing Using Lasers) 38–42.

(b) Refereed international journals

1. A. Agarwal, S.V. Shah, S. Bandyopadhyay and S.K. Saha. 2012. Dynamics of serial kinematic chains with large number of degrees-of-freedom. *Multibody System Dynamics* (available online; Springer, 2012 impact factor 2.023).
2. V.S. Anand and Venkatesh Balasubramanian. 2014. Effect of resin chemistry on depth of cure and cytotoxicity of dental resin composites. *Material Science and Engineering: Part B* 181: 33–38.
3. R. Arun Srivatsan, Sandipan Bandyopadhyay and Ashitava Ghosal. 2013. Analysis of the degrees-of-freedom of spatial parallel manipulators in regular and singular configurations. *Mechanism and Machine Theory* (2012 impact factor 1.214) 69: 127–141.
4. R. Arun Srivatsan and Sandipan Bandyopadhyay. 2013. On the position kinematic analysis of MaPaMan, a reconfigurable three-degrees-of-freedom spatial parallel manipulator. *Mechanism and Machine Theory* 62: 150–165.
5. Bharath Ram Sundar, Abhijith Chundurur, Rajat Tiwari, Ashish Gupta and Ramanathan Muthuganapathy. 2014. Footpoint distance as a measure of distance computation between curves and surfaces *Computers and Graphics* (Elsevier) 38(February) 300–309.
6. B. Debalina, M. Kamaraj, S.R. Chakravarthi, N.J. Vasa and R. Sarathi. 2013. Understanding the mechanism of nanoparticle formation in a wire explosion process by adopting the optical emission technique. *Plasma Science & Technology* (impact factor 0.514) 15: 562–569.
7. Maboo Subhani, Ramarathnam Krishna Kumar and Komarakshi Balakrishnan. 2013. Normal aortic valves stay open much longer in systole than porcine substitutes. *Asian Cardiovascular and Thoracic Annals* 21: 275–280.
8. S. Rajalingappa, B. Ramamoorthy and M. Ramanathan. 2014. Unsupervised shape classification of convexly touching coated parts with different geometries. *Computer-Aided Design and Applications (CAD&A)* 11(3): 312–317 Published online: 9 December 2013.
9. T. Ram Prabhu, V.K. Varma and Srikanth Vedantam. 2014. Effect of reinforcement type, size, and volume fraction on the tribological behavior of Fe matrix composites at high sliding speed conditions. *Wear* 309(1–2): 247–255. doi:10.1016/j.wear.2013.10.001
10. T. Ram Prabhu, V.K. Varma and Srikanth Vedantam. 2013. Effect of SiC volume fraction and size on dry sliding wear of Fe/SiC/graphite hybrid composites for high sliding speed applications. *Wear* 308(1–2): 1–10. doi:10.1016/j.wear.2013.10.006
11. S.N. Grama and Sankara J. Subramanian. 2014. Computation of full-field strains using Principal Component Analysis. *Experimental Mechanics*.
12. N. Nigamaa and Sankara J. Subramanian. 2013. Identification of orthotropic elastic constants using the Eigen function virtual fields method. *International Journal of Solids and Structures*.
13. V. Sathiesh Kumar, Nilesh J. Vasa and R. Sarathi. 2013. Study on pollution performance on a wind turbine blade using OES technique for lightning and switching impulse voltage profiles. *Jurnal Teknologi (Sciences and Engineering)* 64: 63–68.
14. M. Suresh, Nilesh J. Vasa, V. Agarwal and J. Chandapillai. 2014. UV photo-ionization based asymmetric field differential ion mobility sensor for trace gas detection. *Sensors and Actuators B* (impact factor 3.535) 195: 44–51.

15. A.V. Vishwanath and M. Ramanathan. 2014. Determining curves in the convex hull from a set of planar closed convex curves. *Computer-Aided Design and Applications (CAD&A)* 11(1): 99–106. Published online: 24 September 2013.
16. Venkatesh Balasubramanian, M. Jagannath and K. Adalarasu. 2014. Muscle fatigue based evaluation of bicycle design. *Applied Ergonomics Part B* 45(2): 339–345.
17. Venkatesh Balasubramanian and M. Jagannath. 2014. Detecting motorcycle rider fatigue using surface electromyography and seat interface pressure. *Transportation Research Part F: Traffic Psychology and Behaviour* 22: 150–158.

(c) Proceedings of international conferences

1. Jacklin Michael, M. Ramanathan and S. Vinothkumar. 2013. A qualitative approach for medial computation. *International Conference on Recent Trends in Computer Science and Engineering*, Bangalore, April 2013.
2. N. Aparna, Nilesh J. Vasa, R. Sarathi and J. Sundara Rajan. 2013. Laser induced breakdown spectroscopy to detect copper contamination in transformer insulation. *Proceedings of the 10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013)*, July 2013 (WPF-6).
3. B. Venkataramesh, P. Emmanuel and Nilesh J. Vasa. 2013. Influence of grit-size and sintering temperature on SiC target during pulsed laser deposition. *Proceedings of the 10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013)*, July 2013, (ThE3-3).
4. Sankara J. Subramanian. 2013. Spatio-temporal Principal Component Analysis of full-field deformation data. *Society for Experimental Mechanics (SEM) 2013*.
5. Sankara J. Subramanian. 2013. The eigen function virtual fields method. *Society for Experimental Mechanics (SEM) 2013*.
6. Sankara J. Subramanian. Use of information-theoretic criteria in smoothing full-field displacement data. *ASME 2013*.
7. S.J. Subramanian. 2013. Computation of elastic constants of functionally graded materials using eigen-function virtual fields method. *ASME 2013*.
8. G. Saravana Kumar and K. Kumar. Surface roughness investigation and prediction models for poly-jet 3D printed parts. *6th International Conference on Advanced Research in Virtual and Rapid Prototyping*, Leiria, Portugal, 1–5 October 2013.
9. Jaideep Badduri Rangaprasad, Arun Srivatsan, Gurunathan Saravana Kumar and Sandipan Bandyopadhyay. 2013. Coupler-curve synthesis via multi-objective optimisation using NSGA-II. *15th National and 1st International Conference on Machines and Mechanisms*, 18–20 December 2013.
10. V. Sathiesh Kumar, N.J. Vasa, R. Sarathi, D. Nakamura and T. Okada. 2013. LIBS combined with temporal and spatial measurements for detecting a salt deposit on a GFRP material. *Proceedings of the 10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013)*, July 2013, (WPE-15).
11. K. Sulochana, K. Akashh, N. Ravi Teja, N.J. Vasa and M. Kumaravel. 2013. Super-luminescent diode based absorption spectroscopy for combustion applications. *Proceedings of the 10th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2013)*, July 2013, (ThF3-1).
12. Jiju Peethambaran, Amal Dev and Ramanathan Muthuganapathy. 2013. Volume constrained polyhedronizations of point sets in 3-space. Poster presentation at *Eurographics Symposium on Geometry Processing (SGP)*, Italy, July 2013.
13. Bharath Ram Sundar and Ramanathan Muthuganapathy. 2013. Computation of Voronoi diagram of planar freeform closed curves using touching discs. *Proceedings of CAD/Graphics 2013* (presented at Hong Kong, China), November 2013, pp. 361–368. Published by IEEE Conference Publishing Services, November 2013.
14. N. Aparna, Nilesh J. Vasa and R. Sarathi. 2013. Laser induced breakdown spectroscopy technique for depth profiling of copper contaminated transformer insulation. *Proceedings of International Conference on Precision, Meso, Micro and Nano Engineering (COPEN8-2013)* (ISBN: 978-93-82880-91-2), NIT Calicut, Kerala, December 2013, pp. 817–819.
15. B. Anilkumar, Lelitha Vanajakshi and Shankar C. Subramanian. Day-wise travel time pattern analysis under heterogeneous traffic conditions. *Procedia—Social and Behavioral Sciences* 104: 746–754, *2nd Conference of Transportation Research Group of India (CTRG)*, Agra, India, December 2013.
16. Dhruvin Savalia, Venkataramesh Bhimsingu, P. Emmanuel, Nilesh J. Vasa, A.C. Mathur and Sanjay Gupta. 2013. Pulsed Nd³⁺:YAG laser assisted micromachining of copper thin film. *Proceedings of International Conference on Precision, Meso, Micro and Nano Engineering (COPEN8-2013)* (ISBN: 978-93-82880-91-2), NIT Calicut, Kerala, December 2013, pp. 757–761.

17. Damodaran Vani and Nilesh J. Vasa. 2013. Development of an electro-optically tuned optical coherent tomography system for dental application. *Proceedings of International Conference on Precision, Meso, Micro and Nano Engineering (COPEN8-2013)* (ISBN: 978-93-82880-91-2), NIT Calicut, Kerala, December 2013, pp. 812–816.
18. Nilesh J. Vasa. 2013. Recent advances in laser assisted annealing and texturing of amorphous silicon thin films for photovoltaic application. *Proceedings of International Conference on Precision, Meso, Micro and Nano Engineering (COPEN8-2013)* (ISBN: 978-93-82880-86-8) NIT Calicut, Kerala, December 2013, pp. 70–73.
19. Vincy Verghese, Shankar C. Subramanian and Lelitha Vanajakshi. 2013. Model based traffic control in Indian conditions. *Procedia—Social and Behavioral Sciences* 104: 516–525, *2nd Conference of Transportation Research Group of India (CTRG)*, Agra, India, December 2013.
20. Rachana S. Akki and Kavitha Arunachalam. 2013. Study of factors which influence early detection of breast cancer using microwave radiometry. *Microwave and RF Conference*, December 2013. IEEE MTT-S International. *Proceedings of IEEE* 2013. doi:10.1109/IMaRC.2013.6777746
21. R. Ragothaman and Kavitha Arunachalam. 2013. Detection of dilute inclusion concentration in polymer metal composite using microwaves. *Microwave and RF Conference*, December 2013. IEEE MTT-S International. *Proceedings of IEEE* 2013. doi:10.1109/IMaRC.2013.6777746
22. C.H.M. Divya Priya, Kavitha Arunachalam, Oana Craciunescu, Paolo Maccarini, Paul Stauffer and Jaime Schloff. 2013. An imaging study to assess displacement between brachytherapy applicator and chestwall during simultaneous thermobrachytherapy of cancer. *Proceedings of 2013 IEEE ICIP*, December 2013, pp. 247–250.
23. Vivek Kumar, B. Anil Kumar, Lelitha Vanajakshi and Shankar C. Subramanian. 2014. Comparison of model based and machine learning approaches for bus arrival time prediction. *Proceedings of the 93rd Transportation Research Board Annual Meeting*, Washington, D.C., USA, January 2014.
24. B. Anil Kumar, Lelitha Vanajakshi and Shankar C. Subramanian. 2014. Pattern-based bus arrival time prediction under heterogeneous traffic conditions. *Proceedings of the 93rd Transportation Research Board Annual Meeting*, Washington, D.C., USA, January 2014.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. Sebastian Ng, Prof. Antonio Lobo, Prof. Ismat Hijazin, Mr. Lyndon Joseph and Mr. Nischint Vora, Swinburne University of Technology, Australia	22 November 2013	To explore academic and research exchange activities
2	Dr. Anna Hol ,Dr. Renu Narchal ,Dr. Laurel Jackson and Ms Julia Shelley, University of Western Sydney, Australia	4 February 2014	To explore academic and research exchange activities

4.9.6. Other Activities of the Department/Centre

Results obtained in research work (from M.S. and Ph.D theses) of scholars/faculty

Sl. No.	Name of the Scholar	Programme	Results
1	Karnam Murali Krishna	M.S.	Design and development of a robotic system for acute wound cleaning
2	K. Mythreyi	M.S.	Closed loop control of a nonlinear glucose-insulin regulatory system considering practical delays
3	S.V.S. Suresh	M.S.	Portable, low-cost five-lead wireless egg device
4	Umesh Neettiyath	M.S.	State estimation based formation control of autonomous underwater vehicles
5	A. Vijay Alagappan	M.S.	Magic Formula tyre models using a realistic friction law
6	S. Vinuchakravarthy	M.S.	Design and implementation of 3D digital image correlation code

Interdisciplinary research projects carried out in collaboration with other departments

<i>Sl. No.</i>	<i>Title</i>	<i>Department</i>
1	Research on Transportation Systems	Civil Engineering
2	Pollution Performance of Wind Turbine Blades Adopting Laser Induced Breakdown Spectroscopy	Electrical Engineering
3	Wide-Area Annealing and Texturing of Amorphous Silicon Films Using Nd ³⁺ :YAG Laser for Photovoltaic Applications	Mechanical, Electrical Engineering
4	Wide-Band Frequency Selective Surfaces (FSS) for Quasi Optical Network	Physics
5	Evaluation of a Novel Microwave Technique for the Measurement of Calcinations Process as Well as Measurement of Waste Vitrification Layers in the DAE Joule Meters for Waste Treatment	Physics, Mechanical Engineering
6	Investigation on the Feasibility of Measuring Average Sodium Mist Concentration Using Microwaves	Physics, Mechanical Engineering

Faculty visits

<i>Sl. No.</i>	<i>Name of the Faculty Member</i>	<i>Purpose of Visit</i>	<i>Date and Venue</i>
1	C.S. Shankar Ram	To establish collaborative work with Dr. Anuj Sharma, University of Nebraska, Lincoln	July 2013, University of Nebraska, Lincoln

Student visits

<i>Sl. No.</i>	<i>Name of Student</i>	<i>Purpose of Visit</i>	<i>Date and Venue</i>
1	N. Aparna	To attend Campus Asia Summer School, Green Asia Program at Interdisciplinary Graduate School of Engineering Sciences	13–29 August 2013, Kyushu University, Fukuoka, Japan
2	Saurav Chandra	To do research work for a period of 6 months	1 September 2013–28 February 2014, LRMM CRNS—Universite Montpellier 2, Sciences et Techniques, France
3	S. Pradeeba	Research visit	12 March–30 September 2014, University of Sydney, Australia

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 IIT Madras. The department is multi-disciplinary in nature and has a reputed faculty from diverse disciplines such as development studies, economics, English language and literature, environmental studies, history, international relations, gender studies, German studies, philosophy and urban studies.

4.10.2. Academic Programmes

A 5-year integrated M.A. programme was introduced in July 2006. The programme has been modified, with the new curriculum having two streams (i.e. Development Studies and English Studies) from July 2011.

New elective courses introduced

Course No.	Title of Course
HS 7002	Narrative in Literature and Cinema

Students on roll

Programme	I year	II Year	III Year	IV Year	V Year	Total
M.A.	43	43	41	44	42	213
Ph.D.	16	8	5	7	9	45
Total	59	51	46	51	51	258

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Gopika Shankar	HS10D005	Literary Criticism Conference: Presented a paper titled "Mapping the Imagined Real: A Theoretical Framework for Surveying the Urbanscapes in Literature"	18–20 November 2013	IIT Madras
India					
2	Samik Malla	HS13D020	Sixth International Seminar on the Republic in Shakespeare, Department of English, University of Jammu Title of the paper: "From Republic to Relic: The State of <i>Julius Caesar</i> "	16–18 October 2013	Self
3	Samik Malla	HS13D020	16th International Conference of the Forum on Contemporary Theory, Mysore University Title of the paper: "Binirman/Abinirman: Translating Deconstruction"	15–18 December 2013	IIT Madras
4	Samik Malla	HS13D020	31st Annual Conference of the Association of Third World Studies, Department of Humanities and Social Sciences, IIT Madras Title of the paper: "Literary Theory in India: The Case of 'Vernacular' Deconstruction"	28–30 December 2013	N/A

5	Samik Malla	HS13D020	tiNai Ecofilm Festival 2014, HSS, BITS Pilani–Goa	31 January to 1 February 2014	Self
6	Samik Malla	HS13D020	Research Writing Workshop, HSS, IIT Delhi	28–29 March 2014	IIT Delhi

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	M. Padmaja (Ph.D. scholar)	HS12D009	Best Paper Award at the Sixth Doctoral Conference (26 April to 27 March 2014), for paper titled “Trade and Economic Growth in SAARC Countries: A Panel Analysis”	IBS Hyderabad
2	Prateek Vijayavargia and Kavin Aadithiyan (M.A. IV Year students)	HS10H025 and HS10H017	Won the Regional Finals of the Celebration–Business Line Corporate Quiz 2014	

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize
1	Liza Tom	HS12H026	Institute Merit Prize
2	Apoorva Gupta	HS11H009	Institute Merit Prize
3	Vaishali V. [Economics]	HS10H039	Institute Merit Prize
4	Pranathi Diwakar [Development Studies]	HS10H024	Institute Merit Prize
5	Dhivya Jothi G. [English Studies]	HS10H009	Institute Merit Prize
6	Siddharth S. [English Studies] and T.P. Kurian [English Studies]	HS09H033 & HS09H041	Institute Merit Prize (joint winners)
7	Sneha A. [Development Studies]	HS09H034	Institute Merit Prize
8	Raisa Sherif [Economics]	HS09H028	Institute Merit Prize

4.10.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Area of Specialization
Malathy Duraisamy, Ph.D. (Head)(Madras University)	Applied economics, labour economics, economics of social sector, science and technology
Shreesh Chaudhary, Ph.D. (CIEFL, Hyderabad)	Theoretical linguistics, ELT, need based courses in English
Evangeline Manickam, Ph.D. (Madras University)	American literature, English/French
V.R. Muraleedharan, Ph.D. (IIT Madras)	Health care economics, public policy, history of healthcare in south India
Sudhir Chella Rajan Ph.D. (University of California)	Environment, energy and climate policy, political theory, development
Devaki Reddy, Ph.D. (JNU, New Delhi)	English, sociolinguistics, ELT
Srilata K., Ph.D. (University of Hyderabad)	African Literature, cultural studies, creative writing
Aysha Iqbal Viswamohan Ph.D. (Vikram University)	Drama, film studies, contemporary literature
John Bosco Lourdasamy, D.Phil. (Oxford University)	History of science; science, technology and society
Jyotirmaya Tripathy, Ph.D. (IIT Kharagpur)	Literary theory, American studies, cultural studies
Milind Brahme, Ph.D. (JNU, New Delhi)	German Studies, comparative literature and modern Marathi literature
Prema Rajagopalan, Ph.D. (IIT Kanpur)	Sociology of science and technology, development, women in science and technology
Solomon J. Benjamin, Ph.D. (Massachusetts Institute of Technology)	Antipode, urban studies, world development
Sreekumar N., Ph.D. (University of Hyderabad)	Philosophy of language, hermeneutics, Indian philosophy
Sudarsan Padmanabhan, Ph.D. (University of South Florida & Pondicherry University)	Social and political philosophy, Indian philosophy and culture

Suresh Babu M., Ph.D. (JNU, New Delhi)	Industrial economics, applied macro economics
Swarnalatha R., Ph.D. (Madras University)	Eco philosophy, American literature
Umakant Dash, Ph.D. (IIT Kanpur)	Energy economics, health care economics
Anup Kumar Bhandari, Ph.D. (Indian Statistical Institute)	Microeconomics, statistics, econometrics
Binitha V. Thampi, Ph.D. (ISEC, Bangalore)	Gender and development, decentralized planning and governance, ICTs for development
Harendra Kumar Behera, Ph.D. (University of Hyderabad)	International economics, applied macroeconomics and monetary policy, financial markets, macroeconomic modelling
Joe Thomas Karackattu, Ph.D. (Jawaharlal Nehru University)	Economic interdependence and conflict, Sino-Indian relations, China's foreign and economic policy, cross-Strait ties, democratization and economic development in Taiwan
Kalpana K., Ph.D. (MIDS)	History—economics
Mathangi Krishnamurthy, Ph.D. (University of Texas at Austin)	Anthropology of work, globalization, virtuality, affective labour, gender and work, media studies, South Asia
Merin Simi Raj, Ph.D. (IIT Bombay)	Indian fiction in English, literary historiography studies, institutionalization of literature, postcolonial studies, Dalit writing in translation, caste in popular culture
Mohan S., M.A. (Madras University)	English, science fiction, technical report writing, Indian writing in English
Rajesh Kumar, Ph.D. (University of Illinois)	Language in education, sociolinguistics, linguistic theory, language and cognition
Sabuj Kumar Mandal, Ph.D. (ISEC, University of Mysore)	Economics
Santhosh Abraham, Ph.D. (University of Hyderabad)	Legal history, courts, trials and punishment in history, police and prisons in India, colonial subjects and indigenous resistances to colonialism, social and cultural history, history of education, automobile in Indian history and culture
Santhosh R. (ISEC, University of Mysore)	Sociology
Satya Sundar Sethy, Ph.D. (Central University of Hyderabad)	Philosophy
Shireen Mirza, Ph.D. (School of Oriental & African Studies, UK)	Sociology
Sonika Gupta, Ph.D. (JNU, New Delhi)	Chinese foreign policy and politics, international relations theory, human security, nuclearization of South Asia
Subash S., Ph.D. (IIT Bombay)	Economics
Tabraz S.S., Ph.D. (JNU, New Delhi)	International relations theory, Israel–Palestinian conflict
T.N. Srinivasan (Distinguished Institute Professor) (from January 2014)	Development economics

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

Faculty Member	Programme	Venue and Date
Milind Brahme	Five day workshop, "Introduction to Modern German Literature", for students of German	English and Foreign Languages University (EFLU), Shillong, Meghalaya, 30 September to 4 October 2013
Sudhir Chella Rajan	Fourth Indian Climate Research Network Conference	IIT Madras, 3–4 November 2013
Sreekumar N.	Three day workshop, "Debating Biomedical Ethics in Global and Local Contexts", supported by the Wellcome Trust–IIT Madras Project "Medical Ideas, Tools, Ethics and Pluralism in South India"	21–23 November 2013
S.C. Chaudhary	Multi-media course in English	GLA University, Mathura, 5–7 September 2013
S.C. Chaudhary	Conducted an external STC programme at GLA University	GLA University, Mathura, 5–6 September 2013
S.C. Chaudhary	Multi-media Course in English	LNM University, Darbhanga, 10–11 January 2014
Sudarsan Padmanabhan	Celebrate Democracy	IIT Madras, 15 February 2014

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
1	Subash S.	FDI in Retail	Central University of Tamil Nadu	April 2013
2	Santhosh Abraham	Presented a research paper titled "Formal Writing, Questionnaires and Petitions: Colonial Law and Governance in Early British Malabar" at the International Conference organized by Princeton University and JNU	JNU, New Delhi	25–27 April 2013
3	Evangeline Manickam	Faculty Selection Committee	IIT Hyderabad	9–10 May 2013
4	Evangeline Manickam	Board of Studies, Faculty of Science and Humanities	Anna University	29 May 2013
5	V.R. Muraleedharan, Umakant Dash	National Conference of the Health Economics Association of India	Kattankulathur, Chennai	29–31 May 2013
6	Rajesh Kumar	A short term course taught, Language, Mind, and Society	TISS, Mumbai	13 May to 5 June 2013
7	Solomon Benjamin	Session Chair for opening session and discussant for three presentations at One Day International Workshop on Legal Issues Relating to Service Delivery in Informal Settlements	Bangalore	25 June 2013
8	Subash S.	Resource person for Workshop on Quantitative and Qualitative Research Methods	Dharwad, Karnataka	24–25 July 2013
9	Sudhir Chella Rajan	Centre for Science and Environment Workshop Series on Transport and Climate	New Delhi	24–25 July 2013
10	Sudhir Chella Rajan	Conference, "Role of Social Sciences and Technology Policy"	Bangalore	29 July 2013
11	Binitha V. Thampi	Using Community Participation to Improve the Health System in South India	CMC, Vellore	8–23 July 2013
12	Harendra Kumar Behera	Attended a seminar on monetary policy	Chennai	20 August 2013
13	K. Kalpana	Understanding Labour: Region, Caste and Gender	Co-organized by French Institute of Pondicherry and TN–Puducherry Progressive Writers Artists Association	21–23 August 2013
14	Sreekumar N.	Attended the 128th meeting of the Syndicate	Sree Sankaracharya University of Sanskrit, Kalady	27 August 2013
15	Sudhir Chella Rajan	Meeting of Fellowship Award Committee, New Delhi	Indian Institute for Advanced Studies, Shimla	13–14 September 2013
16	Sudhir Chella Rajan	Meeting of Indo-German Expert Group on Green and Inclusive Economy, GIZ	New Delhi	16 September 2013
17	Santhosh R.	Presented a paper titled "Making Sense of Islamic Public Sphere and Activism" at the International Workshop on Religious Change in Contemporary India	Department of Sociology, Pondicherry University and Gothenburg University, Sweden	27–28 September 2013
18	Rajesh Kumar	Ph.D. defence, "Complex Predicate in Magahi"	IIT Patna	28 September 2013
19	Sreekumar N.	Presented a paper titled "Voice of Dissent in Indian Philosophy" at the Chennai Philosophical Forum		28 September 2013

20	Shreesh Chaudhary	Conducted a workshop, "Teaching a Multi-media Course in English"	LNM University, Darbhanga, Bihar	7–8 October 2013
21	Subash S.	Eighth Annual Conference of the Forum for Global Knowledge Sharing	IIT Bombay	October 2013
22	Subash S.	"R&D and Financing Constraints: Evidence from Indian Manufacturing", presented at the Third India Finance Conference	IIM Ahmedabad	November 2013
23	Solomon Benjamin	Presentation, "Occupied and Possessed Cities: Territoriality, Information, and Techno-Managerial Politics" at an international workshop. "The Social and Cultural Life of Information"	Centre for the Study of Developing Societies (CSDS), Delhi	November 2013
24	Harendra Kumar Behera	Presented a paper titled "Explaining India's Current Account Deficit" at the 17th Indian Political Economy Association Conference	University of Hyderabad	9–10 November 2013
25	Sreekumar N.	Participated in the meeting of the Syndicate	Sree Sankaracharya University of Sanskrit, Kalady, Kerala	11 November 2013
26	Aysha Iqbal	Member of the committee to conduct an academic audit of the Department of English	Ethiraj College for Women, Chennai	28 November 2013
27	S. Subash	Presented a paper titled "R&D and Financing Constraints: Evidence from Indian Manufacturing Industries"	IIM Ahmedabad	18–20 December 2013
28	K. Kalpana	Gender Research in Development	Workshop on Gender Research Methodology, at M.S. Swaminathan Research Foundation (MSSRF)	19 December 2013
29	Shreesh Chaudhary	Member of the Peer Review Committee	IIT Patna	24–25 December 2013
30	K. Kalpana	Conference, "Feminist Dialogues: Tamil Nadu, Sri Lanka and Diasporic contexts"	Madras University (Tamil Department)	3–4 January 2014
31	K. Kalpana	Women in Movements/Struggles	Conference, "Feminist Dialogues: Tamil Nadu, Sri Lanka and Diasporic Contexts"	4 January 2014
32	Evangeline Manickam	Board of Studies meeting	Anna University, Chennai	7 January 2014
33	Sonika Gupta	Presented a paper titled "Self Censorship, Media and Market in China" at international conference, "Transitions in China"	East Asian Studies Department, Delhi University, New Delhi	10–11 January 2014
34	Rajesh Kumar	Delivered plenary talk at the K.M. Prabhakara Variar Memorial Seminar on Dimensions of Contemporary Linguistics at the Department of Malayalam	University of Madras	10 January 2014
35	Malathy Duraisamy	Coducted a Ph.D. viva-voce examination	DoHSS, IIT Roorkee	24 January 2014
36	K. Kalpana	"Equality, Pluralism and the State: Perspectives from the Women's Movement" at the 14th National Conference on Women's Studies, Guwahati	Indian Association of Women's Studies	4–7 February 2014
37	Suresh Babu	Attended workshop, "Industrial Trajectories in India & China"	Delhi	18–19 February 2014
38	Malathy Duraisamy	Subject expert in the Selection Committee	NIT, Tiruchirappalli	19 February 2014
39	Solomon J. Benjamin	Participated in INSERT 2014 Exhibition	Delhi	21–22 February 2014

40	Malathy D.	Chaired the Selection Committee meeting of the Tamil Nadu State Council for Scientist and Technology	Chennai	25 February 2014
41	Milind Brahme	Attended a conference, "Comparatism as an Idea", organized by the Goethe Society of India	Pune	26 February 2014
42	Santhosh R.	Exploring Best Practices in and for Undergraduate Sociology Programmes	Department of Sociology, Sree Sankaracharya University of Sanskrit, Kalady	3-4 March 2014
43	Solomon J. Benjamin	International workshop by Columbia University Global Center, "Financialization, Organizing Voice, Rescaling Boundaries: The Case of Land & Water Management in India"	Mumbai	21-22 March 2014
44	Suresh Babu	Meeting of the Kerala State Higher Education Council	Kerala	25 March 2014
45	Jyotirmaya Tripathy, Sudarsan P.	Second Steering Committee Meeting of the Interdisciplinary Bridges for Indo-European Studies (IBIES)	Pune	27-28 March 2014
46	Subash S.	Impact of Foreign Trade on Employment in Indian Manufacturing	Centre for Economic and Social Studies, Hyderabad	25-26 March 2014
47	Harendra Kumar Behera	Attended national level seminar on panel data	Hyderabad	25-26 March 2014

Special lectures delivered by faculty members at other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	Shreesh Chaudhary	Gave two lectures, "Standardisation of the English Language" and "Shakespeare's England"	Bihar	15-16 January 2014
2	Rajesh Kumar	Endowment lecture	WCC, Chennai	28 January 2014
3	Milind Brahme	Led one of the panels as a resource person at the DAAD Annual Symposium for Young Researchers	Pune	27-28 February 2014
4	Jyotirmaya Tripathy	Posco Agitation in Odisha	Aarhus University, Denmark	6 March 2014
5	Sudarsan P.	Hermeneutics in Visual Anthropology	Aarhus University, Denmark	7 March 2014
6	Jyotirmaya Tripathy	The Role of NGOs in the Protection of Niyamgiri Hills in Odisha	Stockholm University, Sweden	10 March 2014
7	Sudarsan P.	Women's Rights in India	Stockholm University, Sweden	10 March 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit
1	Malathy D.	Germany	31 May to 2 June 2013	Presented a paper, "Impact of HIV/AIDS on the Economy and Households and Households' Coping Strategies in India" at the International Conference on the Economics of Disease, Darmstadt
2	Malathy D.	Germany	3-9 June 2013	Participated in the Essen Summer School, University of Duisburg Essen
3	Binitha V. Thampi	Purdue University	7-14 June 2013	Presented a paper, "Understanding New Social Movements in India"
4	Subash S.	Thailand	19-23 June 2013	Attended 26th Biannual Research and Writing Workshop, organized by South Asia Network of Environment and Development Economics

5	Santhosh R.	Asia Research Institute, National University Singapore	27–28 August 2013	Presented a paper titled “Islamic Activism and Palliative Care: A Case Study on Religion and Politics of Development from Kerala”
6	Umakant Dash	Singapore	17–18 September 2013	Presentation of a paper, “Measuring Progress towards Universal Health Care”
7	Rajesh Kumar	Kenya	24–27 September 2013	International Conference in English Language Education at the School of Education of Moi University at Eldoret
8	Solomon J. Benjamin	Canada	28 September 2013	Paper, “Conceptualizing Land as Contested Territory in the South”, at an international conference, “Bringing the Fringe to the Centre of Global Urban Research and Practice”
9	Solomon J. Benjamin	Canada	30 September 2013	Lecture, “Occupancy Urbanism as a Way to Expand the ‘South’ of ‘Southern Cities’”, at the University of Toronto
10	Sudarsan P.	USA	16–25 October 2013	Women’s Rights in India: Failure of Morality, Governance or Democracy
11	Subash S.	Cebu City, Philippines	November 2013	“Barriers to Growth among Informal Sector Enterprises in India”, presented at the conference First Enterprise Performance in Asia
12	Joe Thomas Karackattu	SOAS, London	13 November 2013	Cross-Strait Relations since ECFA
13	Sudhir Chella Rajan	Berlin	25–27 November 2013	Indo-German Expert Group Meeting on Green and Inclusive Economy, organised by GIZ and Federal Ministry of Environment, Germany
14	Santhosh R.	St. Michael’s College, University of Toronto	27–29 November 2013	Presented a paper titled “Islamic Activism and Health Care: A Case Study on Religion and Politics of Development from Kerala”
15	Joe Thomas Karackattu	London	5 December 2013	Delivered a public lecture at SOAS, University of London, “India–Taiwan Relations in a Post-ECFA Ecosystem”
16	Sudarsan Padmanabhan, Jyotirmaya Tripathy	Sweden and Denmark	4–14 March 2014	To give guest lecture and regular consultations on Erasmus Mundus Programme, to be held at Stockholm University

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	Aysha Iqbal Viswamohan	Best Paper Award	Higher Education Society, New Mumbai, 2013	“Masculine Practices and Reception of Chinese Cinema in India”	
Awards					
1	K. Kalpana	Young Faculty Recognition Award (YFRA)	IIT Madras	Excellence in teaching and research	2013
2	Joe Thomas Karackattu	First Centenary Visiting Fellow	SOAS, University of London	Research and publications (nominated award)	October 2013

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
Books				
1	Aysha Iqbal	<i>Post-liberalization Indian Novels in English: Global Reception & Politics of Award</i>	Anthem, London	
2	Aysha Iqbal	<i>English for the Hotel Industry</i>	Pearson, Delhi	

3	K. Kalpana	<i>Haunted by Fire: Essays on Caste, Class, Exploitation and Emancipation</i>	Left Word	Co-editor
4	Joe Thomas Karackattu	<i>The Economic Partnership between India and Taiwan in a Post-ECFA Ecosystem</i>	Springer	Single author
5	Swarnalatha R.	<i>Ecoambiguity, Community, and Development: Toward a Politicized Ecocriticism</i> (editors—Scott Slovic and Swarnalatha Rangarajan)	Lexington Books (an Imprint of Rowman & Littlefield Publishing Group USA)	

Journal Editorial Boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	K. Srilata	Guest Editor	Special feature on poetry for <i>Muse India</i> , the literary on-line journal

4.10.4. Research and Consultancy

Sponsored research projects (ongoing and new)

Project No.	Start Date	Close Date	Value (in lakhs of ₹)	Title	Co-ordinators
HSS1213035AARH PSUD	16 January 2013	31 July 2016	25.29	Interdisciplinary Bridges in Indo-European Studies (IBIES)—Erasmus Mundus Partnership	Sudarsan P., Jyotirmaya Tripathy
HSS1213036DSTXSUDH	28 March 2013	27 March 2016	533.74	Building an International Research Network on Sustainability to Enhance Strategic Knowledge for Climate Change	Sudhir Chella Rajan
HSS1314037AIMSSSUA	17 April 2013	30 December 2014	8.10	Barriers to Growth among Informal Sector Enterprises in India	Subash S.
HSS1314038MHRDVSRMU	28 November 2013	27 November 2018	500.00	Centre for Technology and Policy (CTaP)	Muraleedharan V.R.
HSS1314039ICSSSATA	13 November 2013	12 November 2015	15.00	Professional Ethics for Higher Education Faculties in India: An Investigation into Its Development, Impacts and Relevance	Satya Sundar Sethy
HSS1314040ICSSBINI	13 November 2013	12 November 2015	50.00	Changing Contours of State Welfarism and Emerging Citizenship: A Comparative Study of Tamil Nadu and Kerala	Binitha V. Thampi
HSS1314041ICSSSOLO	15 December 2013	14 December 2014	8.00	Influence of Transnational Processes on the Co-production of Urban Space in Indian Cities	Solomon J. Benjamin
HSS0910027IMRFSUDH	13 January 2010	12 January 2015		Indo-German Centre for Sustainability	Sudhir Chella Rajan
HSS1011518NFSCSATA	29 September 2010	31 March 2014		Truth Conditional Semantics vs. meaning Holism: A Study in Philosophical Semantics	Satya Sundar Sethy
HSS1011519NFSCCKAL	29 September 2010	28 September 2014		Exploring Pro-poor Practice: Women and Microfinance in India	Kalpana K.
HSS1112555NFSCBINI	11 August 2011	10 August 2014	25.00	Digital Communities and the Politics of Cyber Activism	Binitha V. Thampi

HSS1112032IITMSONI	3 October 2011	30 June 2014	5.00	China Studies Centre	Sonika Gupta
HSS1112564NFSCRSAN	1 December 2011	30 November 2014	5.00	Voluntarism, Charity and Religion: A Study on the Palliative Care Movement in Kerala	Santhosh R.
HSS1112565NFSCSSUA	13 December 2011	12 December 2014	5.00	Impact of New Patent Regime on the Technology and Trade Behaviour of Indian Pharmaceutical Industry	Subash S.
HSS1112033IITMHODX	8 November 2011	30 April 2014	5.00	Effects of Soil Organic Carbon Redistribution upon Greenhouse Gas Fluxes from Terrestrial and Aquatic Ecosystems in a Small Agricultural Catchment in South-east India	Head Of the Department
HSS1112566NFSCSABU	16 January 2012	15 January 2015	5.00	Impact of Environmental Regulation on the Performance of Indian Cement Firms	Sabuj Kumar Mandal
HSS1112574NFSCSHIR	21 March 2012	20 March 2015	5.00	Circulating Ritual Geographies: Islam, Community Aspirations and Urban Space in Mumbai City	Shireen Mirza
HSS1213594NFSCSANO	29 November 2012	28 November 2015	29.55	Colonial Courts, Trials and Conflicts in Early British Malabar	Santhosh Abraham
HSS1213596NFSCMATH	4 December 2012	3 December 2015	5.00	Outsourcing Birth: Studying Kinship and Juridical and Emotional Subjectivity among Donors, Clients and Doctors in Chennai-Based Surrogacy Clinics	Mathangi Krishnamurthy
HSS1213602NFSCRAJK	31 January 2013	30 January 2016	4.90	Aspects of Tibeto-Burman Languages	Rajesh Kumar
HSS1213603NFSCANUK	31 January 2013	30 January 2016	5.00	Capital Asset Pricing Model: An Investigator into the Indian Stock Market	Anup Kumar Bhandari
HSS1314614NFSCSOLO	31 July 2013	30 July 2016	5.00	Transforming Economy and Space Making: An Exploration in Chennai and other Indian Cities and Towns	Solomon J. Benjamin
HSS1314620NFSCSHARE	9 October 2013	8 October 2016	5.00	Are Capital Inflows into India Interest Rate Sensitive?	Harendra Kumar Behera
HSS1314801NFIGJOET	1 November 2013	31 October 2016	5.00	China's Foreign and Economic Policy	Joe Thomas Karackattu
HSS1314625NFSCJOET	31 October 2013	30 October 2016	5.00	Economic Interdependence and Vulnerability in Cross-Strait Relations	Joe Thomas Karackattu
HSS1314821NFIGMERI	19 March 2014	18 March 2016	5.00	Literary Historiography Studies in India	Merin Simi Raj

Consultancy projects (ongoing and new)

<i>Project Number</i>	<i>Start Date</i>	<i>Close Date</i>	<i>Value (in lakhs of ₹)</i>	<i>Title</i>	<i>Co-ordinators</i>
RB1112HSS001LONDVRMU	1 August 2011	31 December 2016	55.97	London School of Hygiene & Tropical Medicine	Muraleedharan V.R.
RB1314HSS003MHRDMSUR	1 November 2013	31 October 2015	20.22	Ministry of Human Resource Development	Suresh Babu M.

RB1112HSS002WELOJBLO	1 March 2012	28 February 2015	80.67	Wellcome Trust UK	John Bosco Lourdusamy
RB1314HSS001NHSRVRMU	1 June 2013	15 May 2014	7.50	National Health Systems Resource Centre	Muraleedharan V.R.
RB1314HSS002MHRDMILL	12 July 2013	11 July 2015	16.18	Ministry of Human Resource Development	Brahme Milind
RB1314HSS004LONDUMAK	1 November 2013	31 December 2014	52.56	London School of Hygiene & Tropical Medicine	Umakant Dash
RB1415HSS001WELOMATH	1 April 2014	30 September 2014	5.09	Wellcome Trust UK	Mathangi Krishnamurthy
RB1415HSS002LONDVRMU	1 April 2014	30 April 2016	52.04	London School of Hygiene & Tropical Medicine	Muraleedharan V.R.
RB1415HSS003PHFIVRMU	1 March 2014	31 December 2014	9.09	Public Health Foundation of India	Muraleedharan V.R.

Exchange programmes with other universities including institutions/universities under MoUs

The following M.A. students were permitted to spend one semester, i.e. July–November 2013, undergoing courses at Hochschule Bremen, Germany under a student exchange programme.

Roll No.	Name of the Student
HS10H037	Swetha Sridhar
HS10H044	Divya Mary
HS10H030	Sahithya Venkatesan
HS10H002	Aditya Unnikrishnan

The following students were permitted to spend one semester, i.e. January–May 2014, in the universities mentioned against their names (currently having an MoU signed with IIT Madras)

Roll No.	Name of the Student	Name of University/Institution which has MoU
HS10H011	Bhakti Goyal	University of Ghent, Belgium
HS10H020	Mukesh Manjunath	Institute of Political Sciences, Paris, France

The following student was permitted to spend academic year 2013–2014 (August 2013 to June 2014) under the Erasmus Mundus Interdisciplinary Bridges in Indo-European Studies (IBIES) programme at Aarhus University, Denmark.

Roll No.	Name of the Student
HS09H033	Siddharth Srikanth

Research publications of faculty members and research scholars

1. Aysha Iqbal and Vimal John. 2013. The road and the closet: Myths and queer America. *ACJELL* 2: 8–18.
2. Aysha Iqbal. 2013. Marketing Ladlit, creating bestsellers: The importance of being Chetan Bhagat. Pp. 19–30 in *Postliberalization Indian Novels in English: Global Reception & Politics of Awards*. Anthem, London.
3. Aysha Iqbal. 2014. Arthur Miller and New York state of being. *Studies in Theatre and Performance* 34(1): 62–74.
4. R. Santhosh. 2013. Contextualising Islamic contestations; reformism, traditionalism and modernity among Muslims of Kerala. *Indian Anthropologist* 43(2).
5. Umakant Dash and V.R. Muraleedharan. 2013. Good health at low cost: What makes an effective health system? *The Lancet* (online version, 8 April 2013).
6. K. Srilata. 2013. A poem in *An Anthology of Post-independence Indian Poetry in English*. Sahitya Akademi, New Delhi.
7. Shreesh Chaudhary. 2012/2013. The Grammar of Carnatic Music : A review. *Indian Linguistics* 73(1–4): 255–258.

8. Sonika Gupta and Muger Zlotea. 2013. The Internet in China: A study of micro blogging in China leading up the 18th Party Congress. Pp. 192–220 in Rangnathan and Kumar (eds.), *China Under the Leadership of the CCP, 2002–2012*. Pentagon Press and ICWA.
9. Sonika Gupta (2013) EU weapons embargo and current Chinese foreign policy. *Strategic Analysis* 37(5): 577–591. <http://dx.doi.org/10.1080/09700161.2013.821282>
10. Binitha V. Thampi (2013) Decentralisation and the changing geographies of political marginalisation in Kerala. *Environment and Planning A* 45: 1337–1357.
11. Rajesh Kumar. Linguistic analyses: Implication for language teaching. *Language and Language Teaching* 1(Number 2 (4)): 22–26.
12. K.C. Adaina and Sudhir Chella Rajan. 2012. Rethinking rationality in the context of environmental policy. *Indian Economic Journal* 60(1): 23–38.
13. Shreesh Chaudhary (2013) Script and identity. Pp. 210–220 in S. Bagga-Gupta et al. (eds.), *Alternative Voices: (Re)searching Language, Culture, Identity*. Cambridge Scholars Press.
14. R. Veena 2013. Uighur separatism and the stability discourse in China. In D. Suba Chandran, Teslu Singh and Namrata Hasija (eds.), *Inside China: New Leadership, Social Changes and Economic Challenges*. Samskriti, New Delhi.
15. Solomon J. Benjamin. 2014. Occupancy urbanism as a political project. In Sue Parnell and Susan Owenfeild (eds.), *The Routledge Handbook on Cities of the Global South*. (in press).
16. Solomon J. Benjamin. 2014. Urbanizing land's multiple logics: Re-conceptualizing contest and resistance. Invited contribution to a special issue, Urban Land and Conflict in the Global South, of *Urban Studies* (Melanie Lombard and Carole Rakodi, eds.) (in press).
17. Solomon J. Benjamin. 2015. Peri-urban as political space(s). In Ute Lehrer and Richard Harris (eds.), *Suburbs Worldwide*. University of Toronto Press.
18. N. Sreekumar (co-author Rekha G. Menon). 2013. Fragmented modernity and the question of unity: Kant and Habermas on the role of aesthetics. *Journal of Contemporary Thought* 37.
19. Milind Brahme. Viewpoints of tribal students of Kanavu, India. *The Journal of Unschooling and Alternative Learning*. 8(15) (online).
20. Santhosh Abraham. 2013. Formal writing, questionnaires and petitions: Colonial governance and law in early British Malabar, 1792–1810. *Indian Historical Review* (Sage) 40(2): 285–305.
21. Joe Thomas Karackattu. 2013. India–China economic relations: Trends, challenges and policy options. ICS Occasional Paper # 6. Institute of Chinese Studies.
22. Shreesh Chaudhary. 2013. Rahim's *KheTakautukam*: A poetic work in code-mixed language. *Indian Linguistics* 74(1–2): 105–113.
23. S.S. Tabraz. 2014. The Arab uprisings and the question of democracy. *EPW*.
24. Merin Simi Raj. 2013. Re-drawing the postmodern lines: Rushdie and Indian English fiction in the post-1980s. *Journal of Postcolonial Cultures and Societies* 4(3).
25. R. Swarnalatha. 2014. In Andal's garden: The ecological implications of earth-based religiosity. *Ravenshaw Journal of Literary and Cultural Studies* (special issue on green studies).
26. Shreesh Chaudhary. 2013. *Bihar me praathmik shikshaa*. In *Prabhat Khabar* (Hindi) 22 November to 6 December 2013.
27. Shreesh Chaudhary. 2013. *Andmaan : Ek yaatraa writaant*. In *Prabhat Khabar* July–August 2013.
28. S. Sunitha and D. Malathy. 2013. Measuring efficiency of technical education institutions in Kerala using data envelopment analysis. In N. Siddharthan and K. Narayanan (eds.), *Human Capital and Development: The Indian Experience*. Springer.
29. Joe Thomas Karackattu. 2013. India-China trade at the borders: Challenges and opportunities. *Journal of Contemporary China* (Taylor & Francis, USA) 22(82).

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Prof. Geremie R Barmé, Director of the Australian Centre on China in the World (CIW) at the Australian National University (ANU)	17 April 2014	Lecture to students and faculty, "How China Sees Itself and Its Role in the World"
2	Anant Kumar, German writer of Indian origin	10–24 February 2014	Conducted short creative writing modules in German and English, gave a lecture and read from his poetry and prose in German as well as in English translation

3	Dr. Anandhi, MIDS	27 March 2014	Gave a lecture on the question of masculinity
4	Dr. Hemachandran Karah	5 February 2014	Mehta's <i>Continents of Blind Culture</i>
5	Prof. Ramu Manivannan	11 February 2014	Holistic Education: Education for Life & Lifelong Education
6	Dr. Srinivas Reddy	27 February 2014	Looking to the South: The Amuktamalyada of Krishnadevaraya

4.10.5. Other Activities

- John Bosco Lurdusamy: A new initiative to promote interaction and research in the domain of science and technology studies—SISTEM-SPHERE (Studies in Indian Science, Technology, Environment and Medicine: Socio-Philosophical, Historico-Economic Research Explorations)—was launched on 2 January 2014 by Prof. John Krige, Director of Graduate Studies and Kranzberg Professor at the School of History, Technology and Society, Georgia Institute of Technology, Atlanta, USA in the presence of Prof. Bhaskar Ramamurthi, Director, IIT Madras, with tele-felicitations offered by Prof. Raghavendra Gadagkar, the new President of the Indian National Science Academy, from the INSA Headquarters, Delhi.
- The department hosted Prof. Dr. Rajendra Dingle from the Centre of German Studies, JNU, between 9 and 13 April 2013.
- A Peer Review Committee meeting was held in the Department of Humanities and Social Sciences on 10 and 11 January 2014.
- Academic Conference 2014—Urban Spaces was organized by M.A. students from 7 to 9 February 2014.

Research with immediate societal impact

Project	Faculty Member
Indian Climate Research Network (with IIT Delhi, IISc and CSE) for 4 years in a row, for building capacity on climate change research among young scientists	Sudhir Chella Rajan
French CNRS funded Suburban	Solomon Benjamin
Canadian SSHRC's MCRI funded Global Suburbism	Solomon Benjamin
French CNRS funded Land Titling in India	Solomon Benjamin
ICSSR India funded Urban Markets	Solomon Benjamin
IBIES (Interdisciplinary Bridges in Indo European Studies)	Sudarsan Padmanabhan and Jyotirmaya Tripathy
ADR—Electoral and Political Reforms	Sudarsan Padmanabhan
RBIC projects (in the context of school education in Tamil Nadu)	Milind Brahme and Suresh
Good Health at Low Cost (The Success Story of Tamil Nadu)	Muraleedharan and Umakant Dash

Major funded research projects

Project	Faculty Members Involved
Monitoring SSA and MDM in Tamil Nadu—since 2008; evaluating ALM in Tamil Nadu in 2010; monitoring RMSA in Tamil Nadu since 2013	Milind Brahme and Suresh Babu
IBIES (Interdisciplinary Bridges in Indo European Studies)	P. Sudarsan and Jyotirmaya Tripathy
French CNRS funded Suburban	Solomon Benjamin
Canadian SSHRC's MCRI funded Global Suburbism	Solomon Benjamin
French CNRS funded Land Titling in India	Solomon Benjamin
ICSSR India funded Urban Markets	Solomon Benjamin
Resilient and Responsive Health System, funded by DFID UK (2012–2016)	V.R. Muraleedharan and Umakant Dash
Rockefeller Foundation, Good Health at Low Cost (2012)	V.R. Muraleedharan
Enhancing Strategic Knowledge on Climate Change through Collaborative Research	Sudhir Chella Rajan

Interdisciplinary projects

<i>Project</i>	<i>Faculty Members Involved</i>
A Multinational Comparative Study on Health Care Systems (by a consortium of 10 universities (from seven countries), supported by DFID (for 5 years, 2012–2016)	V.R. Muraleedharan and Umakant Dash
A five country comparative study, “Good Health at Low Cost”, funded by the Rockefeller Foundation, concluded in 2012	V.R. Muraleedharan and Umakant Dash
Wellcome Trust project, Medical Ideas, Tools, Ethics and Pluralism in South India (2012–2015)	John Bosco Lourdusamy, V.R. Muraleedharan and N. Sreekumar
Interdisciplinary Bridges in Indo European Studies (IBIES) (2013–2016)	P. Sudarsan, Jyotirmaya Tripathy and EU partners
French CNRS funded Suburban	Solomon Benjamin
Canadian SSHRC’s MCRI funded Global Suburbanism	Solomon Benjamin
French CNRS funded Land Titling in India	Solomon Benjamin
ICSSR India funded Urban Markets	Solomon Benjamin
Peri-urban Sustainability in Sriperumbudur	Solomon Benjamin, Sudhir Chella Rajan, Suresh Babu and Christoph Woiwode
Professional Ethics for Higher Education Faculties in India: An Investigation into Its Development, Impacts and Relevance	Satya Sundar Sethy and Santhosh Abraham

4.10.6. IIT Madras China Studies Centre: Activities Report

Events

<i>Date</i>	<i>Event</i>
25 April 2013	Dr. Lora Saalman, Associate of the Carnegie Endowment for International Peace, Beijing gave a talk, “Chinese Views on India’s Ballistic Missile Defence Programme”
28 May 2013	Jayadeva Ranade, former member, NSAB, visited China Studies Centre for discussions on possible collaboration and joint research.
19 September 2013	C.V. Ranganathan, former ambassador from India to China, gave a talk, “China—1949–2013: Relations with India and Global Politics”.
26 September 2013	Dr. Alice Ba, Associate Professor, Political Science and International Relations and Director, Asian Studies Programme, University of Delaware, gave a talk, “The U.S. Rebalance and the Politics of the South China Sea”.
31 October to 2 November 2013	Veena R., Ph.D. scholar, China Studies Centre, IIT Madras, presented a paper titled “The Harmony Discourse and China’s Management of Ethnic Difference” at the session on ethnic politics at the Seventh Annual Conference on Cultural and Social Anthropology of East Asia 2013, Palacky University, Olomouc, Czech Republic.
23 November 2013	Veena R., Ph.D. scholar, China Studies Centre, IIT Madras, presented a paper titled “Forging Partnership: Mandarin as a Bridge between Taiwan and India” at the National Tsing Hua University, Hsinchu, Taiwan.
25 November 2013	Veena R., Ph.D. scholar, China Studies Centre, IIT Madras, gave a seminar talk titled “The Construction of Ethnic Difference in China” at the Department of Ethnology, National Cheng Chi University, Taipei, Taiwan.
16 January 2014	Dr. Mumin Chen, Associate Professor at the Graduate Institute of International Politics, National Chung Hsing University, Taiwan, gave a talk titled “Sovereignty Issues in East China Sea”.

Online analysis

- Restructuring, Realignment and Austerity: Opening Moves of the New Leadership in China, P.K. Anand, Research Assistant, Institute of Chinese Studies, New Delhi, 9 April 2013
- Bird Flu in China: Domestic and International Implications, Gunjan Singh, Research Assistant, Institute for Defence Studies and Analyses, New Delhi, 3 May 2013
- Recent Violence in Xinjiang, G. Janani, Project Associate, China Studies Centre, IIT Madras, 6 May 2013

- Managing Xinjiang, Veena R., Research Scholar, China Studies Centre, IIT Madras, 7 May 2013
- Tibetan Conflict: Post Dalai Lama Scenarios, Sana Hashmi, Research Scholar, Jawaharlal Nehru University, 20 May 2013
- Environmental Concerns and China's Response, Janani Govindankutty, Project Associate, China Studies Centre, IIT Madras, 21 May 2013
- Chinese Premier Li Keqiang Visits India in Atmosphere of Distrust, Jayadeva Ranade, Distinguished Fellow, Institute of Peace and Conflict Studies, New Delhi, 22 May 2013.
- The Malacca Dilemma, Jasnea Sarma, Ph.D. Scholar/TA, National Chengchi University, Taiwan and Matthew Reinert, M.A (Asia Pacific Studies), National Chengchi University, Taiwan, 13 August 2013
- The Alliance of the East: China–Russia Military Relations, Geraldine Smith, Project Associate, IIT Madras China Studies Centre, 20 August 2013
- The Alliance of the East: China–Russia Military Relations, Geraldine Smith, Project Associate, IIT Madras China Studies Centre, 20 August 2013
- US–China Co-operation in Asia Pacific, Geraldine Smith, Project Associate, IIT Madras China Studies Centre, 7 October 2013
- Relevance of “Panchsheel” in India–China Relations, Sana Hashmi, Associate Fellow, Centre for Air Power Studies, New Delhi
- Third Plenum of the 18th Central Committee: Context and Significance, Avinash Godbole, Research Assistant, Institute for Defence Studies and Analyses, New Delhi
- China's ADIZ Over the East China Sea, Shamshad A. Khan, Research Fellow, Indian Council of World Affairs, Jawaharlal Nehru University, New Delhi

4.11. DEPARTMENT OF MANAGEMENT STUDIES

4.11.1. Introduction

The Department of Management Studies (DoMS) was formed in April 2004. The department offers a 2-year full-time M.B.A. programme (started in July 2001), research programmes leading to M.S. and Ph.D. degrees and offers an M.S. (Entrepreneurship) programme. The department also offers the Visionary Leadership in Manufacturing programme, a PG diploma jointly with IIM Calcutta and IIT Kanpur. The contributions of the faculty and research scholars have been highly acclaimed in academic circles and peer groups. The growing number of well-qualified applicants, with many having significant professional experience, both from industry and academia, is a good indication of the academic reputation of the department.

The summer and career placement offered to the students by globally and nationally reputed companies provide strong evidence of the growing stature of the programme and the attention it is receiving.

The department presently has the largest number of management research scholars in India. Its research programmes attract a very large number of applicants, including a high proportion of working professionals. The work of the research scholars is regularly published in reputed international and national journals, and it is presented in prestigious international and national conferences. In the recent past, research scholars have received international awards for their doctoral theses. The research papers of several research scholars have consistently received “Best Paper” awards and are well cited in the literature.

The alumni of the department continue to make significant contributions to the organizations and institutions they work for. Many M.B.A. alumni 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 M.B.A. programme curriculum, expanded its research activities, re-launched the M.S. (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.

The following are some major areas of research at the department:

- Production and Operations Management
- Finance
- Marketing
- Human Resource Management
- Information Systems
- Strategy
- Applied Statistics
- Technology Management
- Project Management
- Quality Management
- Services Management
- Knowledge Management
- Combinatorial Optimization
- Quantitative Models in Supply Chain Management

4.11.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	MS 5003	Basics of Probability and Statistics
2	MS 5004	Basics of Accounting and Finance
3	MS 5005	Spreadsheet Modelling
4	MS 5030	Data Analysis for Management
5	MS 5031	Data Analysis Applications

6	MS 5122	Interpersonal and Group Processes in Organisations
7	MS 5269	IT Lab
8	GN 6001	Spirituality in Work
9	MS 5211	Patents for Managers
10	MS 5230	Operations Management
11	MS 5241	Financial Management
12	MS 5242	Financial Analysis Applications Lab
13	MS 5300	Discovering How to Lead
14	MS 5341	Financial Management—II
15	MS 5410	Talent Acquisition & Management
16	MS 5612	Real Options Valuation for Strategic Investments and Decisions
17	MS 5613	Corporate Hedging
18	MS6320	Fundamentals of Experimentation for Management
19	MS 5150	Marketing Tools—Strategies and Innovation
20	MS 6020	Business and Management—Advanced Concepts and Models

Students on roll

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
M.B.A.	99	72	—	—	—	171
M.S. (by research)/M.S. (Entrepreneurship)	3	25	10	6	5	49
Ph.D.	4	15	19	13	38	89
Total	106	112	29	19	43	309

Names of students/scholars who attended conferences/seminars/symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad				
1	Gajanand M.S., Ph.D. scholar	26th EURO–INFORMS Joint International Conference (presented a paper titled “Green Distribution Planning Considering Alternative Routes: A Mathematical Model”)	1–4 July 2013, Rome, Italy	IIT Madras
2	Rajeev Ranjan Tripathi, M.S. scholar	SING 9 2013 (presented a paper titled “Stability of Coalitional Games in Partition Function Form”)	8–10 July 2013, Vigo, Spain	IIT Madras
3	John Mathew, M.S. scholar	2013 INFORMS MSOM Conference (presented a paper titled “Some Results in the Competitive Newsvendor Model”)	28–30 July 2013, Fontainebleau, France	IIT Madras
4	Vardhini Rajagopal, M.S. scholar	The Second International CSR Communication Conference (“Organizational Aspects of CSR Communication: Stakeholder Management through Stakeholder Dialogue”)	18–20 September 2013, Aarhus University, University of Amsterdam, Denmark	IIT Madras
5	Venkat Ram Reddy G., M.S. scholar	Second International Conference on Management, Leadership and Governance—ICMLG-2014 (“Dimensions of Absorptive Capacity across Multiple Generations in Organizational Context”)	20–21 March 2014, Babson College, Wellesley, Massachusetts, USA	IIT Madras
India				
1	Gajanand M.S., Ph.D. scholar	17th Annual International Conference of the Society of Operations Management (presented a paper titled “Selection and Scheduling of Vehicle-Routes with Barred Time Windows: A Mathematical Model”)	20–22 December 2013, Chennai, India	IIT Madras

2	Preethi Gothandam, M.S. scholar	Second International Conference on Managing Human Resources at the Workplace ("Identifying the Key Dimensions of Social Responsibility Practices in Healthcare Industry: An Exploratory Study)	December 2013, SDMIMD, Mysore, India	Self
3	Gajanand M. S., Ph.D. scholar	Second International Conference on Advances in Industrial Engineering Applications (presented a paper titled "A Group-Based Genetic Algorithm to Minimize the Fuel Consumption in Distribution Planning")	6–8 January 2014, Chennai, India	IIT Madras
4	Aditi Yadav, M.S. scholar	The Research Conference on Innovative Business Strategies (Do Talent Management Practices Make a Difference? A Case Study of Biotechnology Start-up Firms)	28–29 March 2014, Symbiosis Institute of Business Management (SIBM), Pune, India, March.	Self

Names of students/scholars who won outside prizes and awards

Sl. No	Name of the Student/Scholar	Name of the Prize	Prize Awarded by
1	R. Bharathi (MS11S001), M.S. scholar (Guide: Rupashree Baral)	Best Paper Award	Third National Conference on Human Resource Management (NCHRM 2013), held at India International Centre, New Delhi, on 14 April 2013
2	P.C. Narayanan (Guide: M. Thenmozhi)	2013 Emerald/EFMD Outstanding Doctoral Research Award	Emerald Publications, UK—editorial team of <i>Management Dec</i> (The award consists of a cash prize of ₹1500, a certificate and a winners' logo for correspondence.)
3	Gajanand M.S. (Ph.D. scholar (Guide: T.T. Narendran)	Best Paper Award	Anna University, Chennai (at the Second International Conference on Advances in Industrial Engineering Applications)

Names of the students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize
1	Sunishtha Singh	MS 11A050	Coka Parthasarathy Prize
2	Anuj Tiwari	MS 11A009	K.V. Arunkumar Memorial Prize
3	Tanay Tiwari	MS 12A096	Kumar Prize

4.11.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
Arun Kumar G., M.Com., Ph.D.	Market microstructure, IPOs, mergers and acquisitions, joint ventures and multinational business
Ganesh L.S., B.E. (Hons.), M.Tech, Ph.D.	Systems thinking and applications, project management, technology management, data and decision analysis, forecasting
Kamalanabhan T.J., M.A., M.Phil., Ph.D.	Organizational behaviour, human resource management, training and development
Madhumathi R., M.Com., Ph.D.	Financial management and accounting, forex research, bank management, capital market studies
Narendran T.T.B.E., M.S., Ph.D.	Operations management, supply chain management, vehicle routing problems
Prakash Sai L., B.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 C., B.E. (Hons.), M.E., Ph.D.	Operations management, production and materials management, supply chain management, scheduling
Srinivasan G., B.E. (Hons.), M.S., Ph.D. [Head]	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. (USA)	Information systems, supply chain management, e-business, computational optimization, decision support system
Thenmozhi M., M.Com., M.Phil, Ph.D.	Financial management, strategic management, computational finance
Vijayaraghavan P., B.E., M.B.A., Fellow IIM Bangalore (TTK Chair Professor)	Strategic marketing, advertising and sales promotion, brand management, industrial and services marketing
Associate Professors	
Krishna Prasanna P., M.Com., Ph.D.	Financial accounting, fixed income securities, financial risk management , market microstructure
Rahul R. Marathe, B.E., M.S., Ph.D.	Simulation, industrial engineering, TQM, operations research, operations management
Saji K. Mathew, Ph.D.	Management information systems, IT strategy, data mining and business intelligence, IT services and outsourcing, information systems development
Thillairajan A.,B.E., M.Sc., Fellow IIM Bangalore	Financial management, advanced corporate finance, venture capital and private equity, infrastructure and project finance
Usha Mohan, M.Sc., Ph.D.	Quantitative models in operations management, probability and statistics, combinatorial optimization
Assistant Professors	
Amit R.K., M.Tech., Ph.D	Game theory, operations research, decision theory, natural resources management
Arshinder Kaur, M.Tech, Ph.D.	Operations research, supply chain management, total quality management, services operations management
Ganesh M.P., M.A., M.Phil., Ph.D.	Organizational behaviour, human resources management, industrial psychology
Lata Dyaram, M.A, Ph.D.	Leadership development, corporate sustainability, cognition in organizations, organizational behaviour, organizational development, industrial and organization psychology
Richa Agrawal, M.B.A., Ph.D.	Customer relationship marketing, consumer behaviour and insight advantage
Rupashree Baral, Ph.D.	Strategic human resources management, organizational behaviour, work–life balance, employee engagement, diversity and inclusiveness, career exit and re-entry of women
V. Vijayalakshmi, M.Sc., Ph.D.	Positive organizational behaviour, social media and social design, neuro-linguistic programming
Varisha Rehman, Ph.D.	Marketing management qne research, advertising and publicity
Visiting Assistant Professors	
Feroz Ali Khader, B.A., LL.M., S.J.D.	Patent law and policy, intellectual property law, international trade law, law and technology
Nandan Sudarsanam, M.S. (Indl Engg. USA), Ph.D. (Engg Sys—MIT, USA)	Experimentation, data mining, applied statistics, algorithmic and heuristic approaches to problem solving

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

Sl. No.	Name of the Co-ordinators	Title	Period
1	Lata Dyaram and T.J. Kamalanabhan	Leadership and Managerial Effectiveness, for Caterpillar India	12–13 April 2013
2	Lata Dyaram and T.J. Kamalanabhan	Leadership and Managerial Effectiveness, for Caterpillar India	12–13 May 2013

3	A. Thillai Rajan, Ashwin Mahalingam and K.N. Satyanarayana	Training Programme on Public–Private Partnership (Project Financing Cell, Kerala State Planning Board)	12–14 June 2013
4	G. Srinivasan and Rahul R. Marathe	Manufacturing Management, for TAFE employees, Chennai	9–11 July 2013.
5	Usha Mohan, Rahul R. Marathe and R.K. Amit	Data Analytics, for Saber Technologies, Bangalore (weekend programmes)	1 July to 7 September 2013
6	Lata Dyaram, T.J. Kamalabhan and R.P. Sundarraj	Architect Readiness Programme (ARP), for Verizon India	August to October 2013
7	M. Thenmozhi and T.J. Kamalanabhan	Supervisory Development Programme, for L&T	2–7 September 2013
8	Rupashree Baral	Managerial Effectiveness Programme, for TAI-VHS	16–18 September 2013
9	M. Thenmozhi and P. Krishna Prasanna	Financial Modeling and Analytics (in collaboration with All India Council for Technical Education (AICTE) and Global Risk Management, Ford Motor Credit Company, Chennai)	5–9 November 2013
10	G. Arun Kumar (co-ordinators—Rahul Marathe and Saji Mathew)	Programme for management trainees (IMM & Finance) of HAL Academy, “Integrated Materials Management and Finance”	6 November to 2 December 2013
11	Lata Dyaram and T.J. Kamalanabhan	Leadership Development Programme–2014 (for industry associates)	2–4 December 2013
12	Lata Dyaram and T.J. Kamalanabhan	Leadership Development Programme (as part of the Continuing Education Programme for teachers)	2–4 December 2013
13	M.P. Ganesh, V. Vijayalakshmi and Rupashree Baral	Two-day management development programme, “Nurturing the Inner You”, for senior/middle level corporate executives	6–7 December 2013
14	M. Thenmozhi	Faculty development programme for faculty members of different colleges/universities, “Multivariate Data Analysis”	5–6 December 2013
15	M. Thenmozhi	Faculty development programme for faculty members of different colleges/universities, “Time Series Analysis”	7 December 2013
16	G. Arun Kumar	Programme in Accounting and Audit Aspects in Oil Industries, in association with oil and gas companies in east Asia and AIT, Bangkok	2–7 December 2014
17	M. Thenmozhi	One-day management development workshop, “Growth by Acquisitions”, for middle and senior level finance executives	8 January 2014
18	T.J. Kamalanabhan and V. Vijayalakshmi	Three-day workshop, “Talent Acquisition and Personality Assessment” for HR managers from manufacturing and service industries	23–25 January 2014
19	T.J. Kamalanabhan and Lata Dyaram (with faculty members from IIT Delhi and State University of New York)	International Conference on Excellence in School Education (the year’s theme: “Leadership and Values”)	27–28 January 2014
20	T.J. Kamalanabhan and Lata Dyaram	Faculty development programme, “Management Capacity Building”, for different colleges/universities in Tamil Nadu	29–31 January 2014
21	T.J. Kamalanabhan and Lata Dyaram	International Conference on Excellence in School Education (theme: “Leadership and Values”)	January 2014
22	M. Thenmozhi	Five-day workshop, “Improving the Quality of Research and Making Mid-course Corrections”, for faculty members, in collaboration with AICTE	25–29 March 2014
23	Nandan Sudarsanam (with faculty support from Chemical Engineering, Computer Science and Electrical Engineering departments)	One-day workshop on data analytics	29 March 2014

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
Workshops				
1	A. Thillai Rajan	Global Education Dialogue: 21st Century Universities	British Council, Dubai	28–29 November 2013

Special lectures delivered by faculty members at other institutions

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Topic of Lecture</i>	<i>Institution</i>	<i>Date</i>
1	M. Thenmozhi	Financial Modeling: Tools and Techniques (faculty development workshop)	Shri Ramakrishna Engineering College, Coimbatore	22 July 2013
2	G. Srinivasan	O.R. Applications and IPL	IIM Trichy	26 July 2013
3	Lata Dyaram	Management Imperatives for Educational Institutions (Programme for School Leaders)	EduExcellence (as guest speaker and facilitator), Bangalore	2–4 August 2013
4	Lata Dyaram	Panelist, Debating Matters India Competition, South India Regional Finals	British Council	September 2013
5	M. Thenmozhi	Innovative and Quality Research Processes and Challenges (at LIBA's annual research scholars' colloquium, RISE-2013 (Research Initiative for Scholars' Excellence))	Loyola Institute of Business Administration, Chennai	28 September 2013
6	Lata Dyaram	Academic Leadership (invited speaker and resource person at Fifth International Conference on Excellence in School Education)	IIT Delhi and MHRD, GOI, Delhi	November 2013
7	G. Arun Kumar	Current Status of Indian Economy	McKinsey Club, Chennai	22 November 2013
8	M.P. Ganesh	Emerging Psychologist Programme	National Academy of Psychology Conference 2013, held at NIT, Rourkela	13–15 December 2013
9	T.T. Narendran	Green Logistics	College of Engineering Guindy, Anna University, Chennai	7 January 2014
10	R.K. Amit	Some Results in Coalitional Game Theory	Distinguished Researcher Seminar Series, IIT Kanpur	7 March 2014

Visits abroad by faculty members

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Country Visited</i>	<i>Date</i>	<i>Purpose of Visit</i>	<i>Funding from</i>
1	M.P. Ganesh	Germany (University of Gottingen)	17 April to 22 June 2013	DAAD Fellowship for Research Stays (2013) under "Short Visit" (with no financial commitment from IIT Madras)	Self
2	Saji K. Mathew	Germany	24 June to 5 July 2013	Visiting Professor at the Faculty of Business Administration and Economics, the University of Passau	IIT Madras
3	T.J. Kamalanabhan	Fiji Islands	14 February to 8 May 2014	Adjunct Professor, Department of Management, School of Business and Economics, University of Fiji	Self

Honours and awards obtained

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
1	T.J. Kamalanabhan	Member, Editorial Board	Sage Publications	<i>Human Resource Development Review</i> journal (for 3 years)	December 2013
2	Usha Mohan	Associate Editor, <i>Sadhana</i>	Indian Academy of Sciences	—	August 2013 onwards

Books, monographs authored/co-authored

Sl. No.	Name of faculty	Title	Publisher	Author/Co-author
1	A. Thillai Rajan	Convergence of Patience, Purpose, and Profit: An Analysis of Impact Investments in India	India Venture Capital and Private Equity Report 2013 (http://indiavca.org/ivca-pevc-reports.html)	—
2	A. Thillai Rajan	Impact of Private Sector Involvement on Access and Quality of Service in Electricity, Telecom, and Water Supply Sectors: A Systematic Review of the Evidence in Developing Countries	http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3423 (September 2013)	—
3	A. Thillai Rajan	Don't Rush Power Projects	<i>The Hindu BusinessLine</i> (27 May 2013)	—

4.11.4. Research and Consultancy

Sponsored research projects (ongoing only)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Coping Strategies and Coping Costs for Accessing Safe Water in Chennai, India	Ongoing	SANDEE	11.25	R.K. Amit and S. Subash
2	Study and Evaluation of Non-performing Assets (NPA)	Ongoing	Human Settlement Management Institute, HUDCO		P. Krishna Prasanna and M. Thenmozhi
3	India VIX and Risk Management	Ongoing	National Stock Exchange of India		M. Thenmozhi
4	Financing of Small And Early State Business: Impact, Evolution, Imperatives and Opportunities	Ongoing	All India Council for Technical Education		A. Thillairajan and G. Arun Kumar
5	Improving Supply Chain Efficiency for Food Security: Socially Relevant Projects	Ongoing	IIT		Usha Mohan and R.K. Amit
6	Buyer's Time-Preferences in Electronic Procurement Interactions: Effect of Situational Involvement and Elicitation Models	Ongoing	Indian Council for Social Science Research	5.0	R.P. Sundarraj and R.K. Amit
7	PPP and PE in Infrastructure	2012–2014	Human Settlement Management Institute	24.88	A. Thillai Rajan

Industrial consultancy projects (ongoing only)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Saji Mathew (co-investigator)	Financing of Entrepreneurial and SME Companies in Energy, Environment and Technology Sectors in India	Nissan Research	
2	M. Thenmozhi	India VIX: Users Perspective	National Stock Exchange of India	0.5
3	Saji Mathew	Infrastructure	Infosys Technologies	

4	M. Thenmozhi and Abhijeet Chandra	India VIX and Risk Management	National Stock Exchange of India	0.5
5	Arun Kumar G. and Saji K. Mathew	Evaluation of 30 CCEs in Haveri District	Hand-in-Hand	
6	Prakash Sai L.	Corporate Strategy Project	Jasmin Infotech Pvt. Ltd.	
7	Rahul R. Marathe	Formulations of and Solutions to Optimization Problems for a Transportation Logistics Organization with Consideration for Production Planning, Scheduling and Facility Locations, Common Code		
8	Saji K. Mathew and Arun Kumar G.	Network Processing Infrastructure and Transaction Risk Services and Decisioning	Infosys Technologies	
9	ThillaiRajan A.	Impact and Relevance of Venture Funding for Social Innovation	Villgro Innovations Foundation	
10	Lata Dyaram	Psychometric and Behavioural Interventions	Verizon Inc.	
11	P. Krishna Prasanna	The Role of Audit Committee and Audit Quality on the Earnings Informativeness in India	National Stock Exchange of India and IGDR initiative	1.2
12	Nandan Sudarsanam	Finance in Low-Income Rural Households: Exploring the Customer Landscape and Evaluating Appropriate Advisory Frameworks	IFMR—Finance Foundation	

RBIC projects (ongoing only)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	A. Thillai Rajan	Impact and Relevance of Venture Capital Approaches for Social Innovation	Villgro	4.00
2	A. Thillai Rajan	Inclusive Urban Planning Approaches in Provisioning of Basic Services to Low Income People	DFID, Government of UK	44.94

Exchange programmes with other universities including institutions/universities under MoUs

Number of students who visited universities abroad:

M.B.A. students—MBS, Germany, 5; UoP, Passau, Germany, 5; EBS, Germany, 6; NTHU, Taiwan, 4; MCI, Austria, 7; UBC, Canada, 3

M.S./Ph.D. scholars—5

Total number of students: 35

Number of casual/foreign students who visited DoMS, IIT Madras: 39

Research publications

Total number of papers published in refereed national journals: 3

Total number of papers published in refereed international journals: 19

Total number of papers presented at national conferences: 9

Total number of papers presented at international conferences: 4

(a) Papers published in refereed national journals

1. Saji K. Mathew and K. Vinodh. Web personalization research: An information systems perspective journal. *Journal of Systems and Information Technology* 15(3)
2. M. Thenmozhi And Abhijeet Chandra. India VIX and risk management. *National Stock Exchange of India Working Paper* July 2013 (http://www.nseindia.com/research/content/res_WorkingPaper9.pdf)
3. Saranya and Krishna Prasanna. Portfolio selection and optimization with higher moments: Evidence from the Indian stock market Asia-Pacific financial markets. <http://link.springer.com/article/10.1007/s10690-014-9180>

(b) Papers published in refereed international journals

1. C. Rajendran and N. Megala. An improved ant-colony algorithm for the grouping of machine-cells and part-families in cellular manufacturing systems. *International Journal of Operational Research* 17(3): 345–373.
2. Madhuri Satsangi Malhotra, M. Thenmozhi and Arun G. Kumar. Evidence on changes in time varying volatility around bonus and rights issue announcements. *International Journal of Emerging Markets* 8(2).
3. T.J. Kamalanabhan and Neha Sharma (2014) IT employees' brand attitudes and the role of internal corporate communication: a survey of Indian IT industry. *International Journal of Business Excellence* 7(1).
4. C. Rajendran, S. Kalpakam and Sunanda Saha (2014) The Value of information sharing in a multi-stage serial supply chain with positive and deterministic lead times. *International Journal of Supply Chain Strategies, Issues and Models*, Springer-Verlag London, pp. 43–61.
5. C. Rajendran, P.V. Rajendra Sethupathi and Hans Ziegler (2014) A comparative study of periodic-review order-up-to (T,S) policy and continuous-review (s,S) policy in a serial supply chain over a finite planning horizon. *International Journal of Supply Chain Strategies, Issues and Models* (Springer-Verlag, London) 113–152.
6. T.J. Kamalanabhan and Medha Satish Kumar (2014) Initial development and validation of a measure of intercultural development scale. *Journal of Psychological Studies* (Springer) doi:10.1007/s12646-014-0238-2014
7. T.J. Kamalanabhan and P.A. Job (2014) Assessing institutions of higher learning in India using EFQM instrument. *International Journal of Management Research and Business Strategy* 3(1): 77–91.
8. R.K. Amit and P. Ramachandran (2013) Aspects of exchangeability in the Shapley value. *International Game Theory Review* 15(4).
9. A. Thillai Rajan Pawan Koserwal and S. Keerthana. The global epicentre of impact investing: An analysis of social venture investments in India. *Journal of Private Equity* 17(2): 37–50.
10. A. Thillai Rajan and Nikhil Jain. Project finance and investments in risky environments: Evidence from the infrastructure sector. *Journal of Financial Management of Property and Construction* 18(3): 251–267.
11. G.A. Devkar, A. Mahalingam A. Deep and A. Thillairajan (2013) Impact of private sector participation on access and quality in provision of electricity, telecom and water services in developing countries: A systematic review. *Utilities Policy* 27: 65–81.
12. A. Thillairajan, G. Gopinath and M. Behera. PPPs and project overruns: Evidence from road projects in India. *ASCE Journal of Construction Engineering and Management* doi:10.1061/(ASCE)CO.1943-7862.0000797
13. A. Thillai Rajan and Ankit Jain. New and nascent enterprises: Analysis of incubation support in India *Journal of Private Equity* 16(3): 69–85.
14. Surya Sudheer Meduri and A. Thillai Rajan. Unit costs of public and PPP road projects: Evidence from India. *Journal of Construction Engineering and Management* 139(1): 35–43. doi:10.1061/(ASCE)CO.1943-7862.0000546
15. Saji Mathew and A. Thillai Rajan. Sustainability as an imperative and an opportunity: the case of Infosys Limited. *Emerald Emerging Markets Case Studies* 3(2): 1–16. doi:10.1108/EEMCS-10-2012-0189
16. P. Subramanian, N. Ramkumar, T.T. Narendran and K. Ganesh (2013) PRISM: PRiority based simulated annealing for a closed loop supply chain network design problem. *Applied Soft Computing* 13(2): 1121–1135.
17. T. Godwin, Ram Gopalan and T.T. Narendran (2013) Factors influencing the design of a linear rail network for a dedicated freight corridor. *International Journal of Logistics Systems and Management* 14(1): 73–92.
18. P. Subramanian, N. Ramkumar, T.T. Narendran and K. Ganesh (2013) A bi-objective network design model for multi-period, multi-product closed-loop supply chain. *Journal of Industrial and Production Engineering* 30(4): 264–280.
19. M.S. Gajanand and T.T. Narendran (2013) Green route planning to reduce the environmental impact of distribution. *International Journal of Logistics Research and Applications* 16(5): 410–432.

(c) Publications in proceedings of national conferences

1. R. Bharathi and Rupashree Baral. Factors influencing the attitudes, behaviors and career success of re-entry women: An Indian perspective. *8th Asian Business Research Conference* (1–2 April 2013), Bangkok, Thailand.
2. R. Madhumathi (with M. Ranganatham). Relationship between foreign investment and governance practices: An empirical study. *Int'l Journal of Arts and Science Journal Conference*, (20–23 May 2013), Toronto, Canada.
3. A. Thillai Rajan. Syndication and staging as risk management strategies in PE investment: evidence from the infrastructure sector. *2013 Innovation in Public Finance (IPF) International Conference* (17–19 June 2013), Milan, Italy by Politecnico Di Milano, Milan.

4. M. Thenmozhi (with G. Sharad Chand). Do global stock market cues matter in forecasting stock returns in developed and developing markets ? *European Financial Association: 2013 Annual Conference at ICMA Centre* (26–29 June 2013), Henley Business School, University of Reading, UK (with Institute Support)
5. T.T. Narendran (with N. Ramkumar P. Subramanian and K. Ganesh). Three phase Heuristics for Inventory Routing Problem. *The Industrial and Systems Engineering Research Conference* (19–28 May 2013) San Juan, Puerto Rico, USA.
6. T.T. Narendran (with M.S. Gajanand). Green distribution planning considering alternative routes: a mathematical model. *26th EURO - INFORMS Joint International Conference* (1–4 July 2013), Rome, Italy
7. T.T. Narendran (with M.S. Gajanand). Selection and scheduling of vehicle-routes with barred time windows: a mathematical model. *17th Annual International Conference of the Society of Operations Management* (20–22 December 2013), IIT Madras, Chennai, India
8. T.T. Narendran (with M.S. Gajanand). A group-based Genetic Algorithm to minimize the fuel consumption in distribution planning. *Second International Conference on Advances in Industrial Engineering Applications* (6–8 January 2014), Anna University, Chennai, India.
9. A. Thillai Rajan. Venture funding for social innovations: Impact and relevance. *National conference on Social Entrepreneurship and Sustainable Development*, , Centre for Social Entrepreneurship (8–10 January 2014), Tata Institute of Social Sciences, Mumbai.

(d) Publications in proceedings of international conferences

1. R.P. Sundarraj (with K. Sowmya). On using prisoner dilemma model to explain bidding decision for compute resources on the cloud. *13th Meeting on Group Decision and Negotiation at Stockholm* (17–21 June 2013), Sweden.
2. R.P. Sundarraj (with K. Venkataraghavan). Incorporating intertemporal preferences in electronic negotiations for computing services: A mechanism and analysis. *13th Meeting on Group Decision and Negotiation at Stockholm* (17–21 June 2013), Sweden.
3. A. Thillai Rajan. Syndication and staging as risk management strategies in private equity investments: Evidence from the infrastructure sector. *Innovation in Public Finance (IPF) conference* (17–19 June 2013), Milan, Italy.
4. Krishna Prasanna. Determinants of non-performing loans in Indian banking system. *PSRC* (11–12 February 2014), Singapore.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Ashwini Kumar, Hon'ble Governor of Nagaland State	18 April 2013	As Member, he conducted the Comprehensive Viva of our Ph.D. student Ms Vijayanthee in our department. He also gave a special lecture for the students of the Institute in the evening.
2	Prof. Sundaresh S. Heragu, Department of Industrial Engineering, University of Louisville, Louisville, USA	4 May 2013	Gave a talk to the research scholars, "Deterministic and Stochastic Models for Manufacturing, Warehousing and Healthcare Systems"
3	Dr. Lakshman S. Thakur, Associate Professor of Operations and Information Management, Business School, University of Connecticut, USA	31 May 2013	Gave seminar talk, "Advanced Manufacturing Technology Adoption in India: The Effect of Business Strategies Interactions on AMT Implementation", for the research scholars of our department
4	Delegation from Hochschule Hof University, Germany: Prof. Dr. Jürgen Lehmann, President Mrs. Susanne Krause, Head of the International Office Prof. Dr. Frank Ficker, Vice President Mrs. Christina Fischer, Hof University of Applied Sciences Dr. Daniel Werner, Managing Director Ms. Sabitha Lorenz, Science Office, BayIND, Bangalore	19 June 2013	Interacted with the faculty members of the department for a possible MoU between HoF and IIT Madras for exchange of students between the two institutions

5	Dr. Sheik Meeran, Associate Professor, University of Bath, School of Management, Bath, UK	1 July 2013	Gave an invited talk to the research scholars
6	Dr. Suman Niranjana, Assistant Professor of Management, College of Business Administration of Savannah State University, USA	29 July 2013	Interacted with the faculty members of the department for a possible MoU between Savannah State University and IIT Madras for exchange of students between the two institutions
7	Prof. Geoff Moore, Deputy Dean and Ms Daniela Slanickova, Head of International and External Relations, Durham Business School, Durham University, UK	29 July 2013	Interacted with the faculty members of the department for a possible MoU between Durham University and IIT Madras for exchange of students between the two institutions
8	Mr. M. Ramesh, McKinsey Consulting, Chennai	30 July 2013	On invitation, gave a lecture, "Utilizing the M.B.A. Programme for a Successful Career"
9	Mr. Venkat Yerubandi, CEO, Vedicsoft, New York (M.S. (by research) 1997)	2 August 2012	On invitation, gave a talk, "Transitioning from College to Corporate World" to the research scholars
10	Mr. Rajiv D. Mittal, Managing Director, VA Tech Wabag	6 August 2013	On invitation, gave inaugural address to the new batch of M.B.A. students (2013–2015)
11	Prof. T. Ravichandran, Associate Dean for Research and Professor of Information Systems, Lally School of Management & Technology, Rensselaer Polytechnic Institute, New York, USA	13 August 2013	Interacted with faculty members of the department for possible exchange of students in both management and research areas (was invited by the Institute to give a talk, "Business Analytics: The Next Frontier in the Strategic Use of Information Technology", at IC&SR)
12	Prof. Murugappa Krishnan, Yeshiva University	19 August 2013	On invitation, gave a seminar talk, "A Simple Measure of Liquidity, with Estimates from India's National Stock Exchange" for research scholars
13	Prof. Arvind Rangaswamy, Anchel Professor of Marketing, Smeal College of Business, Penn State University, USA	2 September 2013	Interacted with faculty members and students mainly to take our MoU with Penn State forward
14	Prof. Narayanan, Write State University, USA	10 September 2013	Interacted with the faculty members and students
15	Prof. Sanjiv Erat, Associate Professor, Rady School of University of California, San Diego, USA	13 September 2013	Interacted with faculty members and research scholars and gave a lecture, "Contests"
16	Prof. Syed Islam and Prof. Vik Naidoo, from Curtin University, Australia	9 October 2013	Meeting with HoD and other faculty members for academic interaction
17	Managing Director and Vice President, Ramco Systems	18 October 2013	Meeting with HoD and other faculty members for academic collaboration between Ramco Systems and DoMS, IIT Madras
18	Prof. Antonis Simintiras, Deputy Dean for Internationalisation and Head of Marketing and Strategy Department, School of Management, Swansea University, UK	6 December 2013	Met and held discussion for a possible collaboration between two institutions on research front
19	Dr. Meera Alagaraja, Assistant Professor, Organizational Leadership & Learning Program, College of Education & Human Development, University of Louisville, USA	10 December 2013	Gave a talk, "Navigating Boundaries, Managing Complexity: The Challenges of Global Leadership" to the research scholars
20	Prof. Saif Benjaafar, Head of Pillar, Engineering Systems and Design, Singapore University of Technology and Design	18 December 2013	Met HoD and other faculty members and discussed the research front between the two universities (as part of the visit to IIT Madras)
21	Prof. Paul Griffin, Supply Chains, Analytics and Healthcare; Prof. Soundar Kumara, Big Data Analytics, Healthcare, Sensor Based Monitoring, Penn State University, USA	9 January 2014	Met faculty members and discussed exchange of students and research collaborations between the two institutions

22	Prof. Nikhil Varaiya, Director of Graduate Programs and Professor in the Finance Department, San Diego State University, San Diego, CA, USA	10 January 2014	Gave a seminar talk, “Managing Corporate Life Cycle”, for research scholars (an invited lecture by MTM)
23	Prof. Parveen P. Gupta, Professor and Chair, Department of Accounting and Prof. Ajai Singh, Bolton-Perella Chair, Perella Department of Finance, Lehigh University, PA, USA	10 January 2014	Met faculty members and discussed a joint collaboration with IIT Madras at all levels—teaching, research/scholarship, student and faculty exchanges, and curriculum development
24	Dr. Candy Dayaram, Curtin University, Australia	16 January 2014	Visited the department and had discussions with faculty members for possible collaboration between the two institutions on research
25	Dr. Anna Hol, Dr. Renu Narchal and Ms Julia Shelley, University of Western Sydney, Australia	4 February 2014	Met faculty members and discussed human resources management, woman studies, social media and impacts on life, etc. Also discussed possible student and faculty exchanges between the two institutions
26	Prof. Dr. Wolfgang Hau, Vice-President for International Relations of the University of Passau, Germany and Prof. Hans Zeigler	19 February 2014	Visited the Institute for the Joint Doctoral Programme MoU signing ceremony
27	Mr. Amey Mujumdar, Senior Manager–Brand Communication and Portfolio Management, Renault India Ltd.	20 February 2014	On invitation by MILS team, gave a lecture, “Re-launch of a Brand: Renault”, to our M.B.A. students
28	Prof. Dr. J. Schneider and Prof. Dr. M. Ringlstetter, Ingolstadt School of Management, Germany	25 February 2014	Met the faculty members for possible exchange of students between the two institutions
29	Mr. Aashish Singh, Vice President, Head of India HR, Sutherland Global Services, Chennai	27 February 2014	On invitation by MILS team, addressed M.B.A. students on HR IT trends

4.11.5. Other Activities

1. A decadal re-union was organized at Bombay on 19 April 2013. The event was well attended, with more than 30 students who had passed out. Dr. T.J. Kamalanabhan and Dr. G. Arun Kumar interacted with the students.
2. Prof. M. Thenmozhi, on invitation, was the examiner for a viva voce at Mother Teresa Women’s University, Chennai on 29 April 2013.
3. Mr. Ravinder Reddy (MS12A063), first year M.B.A. student, was the second runner-up at the ICICI Stockmind—Quest for the Best Budding Investor National Contest. He has received a trophy and will be awarded a laptop and a certificate. The contest was held in two stages, institutional and national. There were 217 participants in the national level finals. The institutional stage was coordinated by Prof. P. Krishna Prasanna, DoMS.
4. Dr. M. Thenmozhi was invited to be a member of the Expert Committee for selection of FOM candidates at IITM, Shillong on 3 and 4 June 2013.
5. Out of 66 applicants, nine students were short-listed, of whom six have joined the department, to pursue summer fellowships.
6. Students earning their degrees at the convocation to be held on 19 July 2013:
 - MBA—52
 - M.S. (by research)—7
 - Ph.D.—10
7. On invitation as an external member, Dr. MTM attended a Ph.D. viva voce examination at NIT, Kurukshetra on 19 July 2013. [Please expand ‘MTM’ in items 7 and 8.]
8. On invitation as an external member, Dr. MTM attended a Ph.D. viva voce examination at Amrita University, Coimbatore on 22 August 2013.
9. As an expert member, Prof. G. Srinivasan attended the faculty recruitment at IIM Calcutta on 12 September 2013.
10. Samanvay 2013
This year Samanvay, the annual B-school festival of DoMS, IIT Madras, took place from 17 to 20 October 2013. Samanvay 2013 was different from the earlier versions in many ways. As part of Samanvay 2013, we had our first management conclave. The topic of discussion for the conclave was “Demographic Dividend: Boon or Bane”. Samanvay 2013 took a quantum leap in terms of number of participants. A total of 6391 students participated in its various online and on-campus events, which was the highest-ever participation for Samanvay.

The chief guest of the inaugural session was Mr. Awdhesh Krishna, Managing Director—Global Head of HR, Wholesale Corporate, at Nomura, India. He shared his insights on managing uncertainties in global organizations. There were nine events covering various aspects of management such as strategy, finance, marketing, game theory, human resource, analytics and operations management. Prizes worth ₹3.45 lakhs were won during Samanvay 2013.

The chief guest at the valedictory session was Mr. Ambrish Dasgupta, partner and the Head of Management Consulting at KPMG in India.

11. The department organized a “Variety Meet” for blind women and girls from Gnanadarshan Seva Foundation, Chennai on 27 October 2013 as a corporate social responsibility activity and a support initiative.
12. Mr. Vijay Kumar successfully defended his Ph.D. thesis, titled “Impact of Innovation on Firm Performance in Global Technology Companies”, on 30 October 2013.
13. Dr. Mohandas Pai released the Fifth Annual Report on “Social Venture Capital and Private Equity—Convergence of Patience, Purpose and Profit”, prepared by Dr. A. Thillai Rajan, on 7 November 2013 and addressed the gathering. The Director, Prof. Bhaskar Ramamurthi, released the 2013 report, “Social Change and Pursuit of Profit”, prepared by Dr. A. Thillai Rajan. Later, there was a panel discussion, “The Social in the Social Venture”, chaired by Prof. L.S. Ganesh, with panel members Mr. Anil Sinha, Regional Head (Advisory), IFC (TBC); Mr. Rajesh Babu, Director, Lok Capital; Mr. K. Ramakrishnan, Executive Director, Spark Capital; and Mr. P.N. Vasudevan, Managing Director, Equitas.
14. To encourage entrepreneurship in students, TiE Chennai organized TiECON Chennai 2013, an event to interact with leading entrepreneurs of the state, on 11 November 2013 at Hotel Leela Palace, MRC Nagar, Chennai. More than 20 M.B.A. students benefitted by participating.
15. The first year M.B.A. students visited INS Adyar Naval Command and got to know about the US warship that called on the Madras Port Trust on 12 November 2013.
16. Dr. M. Thenmozhi, as an external member, attended a Ph.D. viva voce on 15 November 2013 at Biju Patnaik University, Bhubaneswar.
17. Dr. Rahul Marathe and Dr. R.K. Amit organized the 17th Annual International Conference of the Society of Operations Management between 20 and 22 November 2013 at IIT Madras Research Park. Prof. Devnath Thirupati, Director of IIM Bangalore inaugurated the conference.
18. Ms. Shameem Shagirbasha’s (Ph.D. scholar) paper titled “Exploring the Mediating Role of Emotional Labour between Nature of Interaction and Intention to Quit”, presented at the 23rd International Business Research Conference, organized by World Business Institute, in Melbourne, Australia between 18 and 20 November 2013, was chosen as the “Best Paper” in the Management Category.
19. The Ph.D. thesis titled “Cross-Border Acquisitions Involving Emerging Market Firms: A Study on the Impact of Country and Deal Characteristics on Value Creation”, by Prof. P.C. Narayanan and the guide, Prof. Thenmozhi, won the prestigious Emerald Outstanding Doctoral Research Award for 2013.
20. Recently an article was published In the *International Journal of Production Research* (2013, 51(23/24): 7470–7500), This paper, titled “The origins of Research and Patterns of the International Journal of Production Research”, surveys articles published between 1985 and 2010 in the journal and includes 77% of all the articles published in this journal since its inception, 50 years ago.
 - Prof. C. Rajendran, with 17 articles, is ranked eighth in the top 100 authored articles between 1985 and 2010, with 9 equivalent full articles.
 - Prof. T.T. Narendran is ranked 36th in this survey with 13 articles published between 1985 and 2010, with 6.33 equivalent full articles.
 - Prof. C. Rajendran also stands first in the list of prolific authors for the period from 1996 to 2000.
 - Prof. T.T. Narendran stands fifth in the list of prolific authors for the period from 1991 to 1995.
 - IIT Madras, with 104 authored articles, stands 11th in the main list and 17th in terms of research productivity in this survey.
21. An MoU for a joint doctoral degree programme was entered into between IIT Madras and the University of Passau, Germany, on 19 February 2014.
22. The department organized an Institute-sponsored workshop, “Science and Engineering Journey” for about 300 students drawn from various schools in and around Chennai on 24 and 25 February 2014.
23. Dr. A. Thillairajan’s paper, based on the 2013 Venture Capital and Private Equity Report, has appeared in the current issue of the *Journal of Private Equity*, a leading journal for private equity, published by Institutional Investor Journals.
24. The department organized an alumni meet at Mumbai on 22 March 2014. About 36 members attended this event.



The thesis titled “Cross-Border Acquisitions Involving Emerging Market Firms: A Study on the Impact of Country and Deal Characteristics on Value Creation”, by Dr. P.C. Narayan, former doctoral scholar, Department of Management Studies has been chosen by the editorial team of Management Decision as the winner of the 2013 Emerald/EFMD Outstanding Doctoral Research Award in the Management and Governance category. The award will consist of a cash prize of €1,500, a certificate and a winners’ logo for correspondence.



An MoU for a joint doctoral degree programme was entered into between IIT Madras and the University of Passau, Germany, on 19 February 2014. The photograph shows the team from the University of Passau handing over the MoU to the Dean (International Relations). Prof. K. Ramamurthy, Dean (Academic Courses) greets the members.



The Department of Management Studies organized an alumni meet at Mumbai on 22 March 2014. About 36 members attended this event.



Entrance to the Department of Management Studies building

4.12. DEPARTMENT OF MATHEMATICS

4.12.1. Introduction

The Department of Mathematics was established in 1959 along with the Institute. It offers an M.Sc. programme in mathematics, an M.Tech. programme in industrial mathematics and scientific computing [IMSC] and a 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 (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 in 2009.

The major areas of research of the department are the following:

1	Algebra and its applications	17	Mathematical logic and 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	Queueing theory
9	Differential equations	25	Special functions
10	Inverse and ill-posed problems	26	Statistical quality control
11	Fluid mechanics	27	Stochastic processes and their applications
12	Functional analysis	28	Theoretical computer science
13	Fuzzy sets and systems	29	Wavelets and their applications
14	Graph theory and combinatorics	30	Algebraic geometry
15	Harmonic analysis	31	Fractal geometry and its applications
16	Inventory and reliability	32	Commutative algebra

4.12.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	MA7830	Advanced Algebra (for Ph.D. scholars)
2	MA7840	Analysis (for Ph.D. scholars)
3	MA7850	Advanced Differential Equations (for Ph.D. scholars)
4	MA7860	Discrete Mathematics (for Ph.D. scholars)
5	MA5013	Applied Regression Analysis (for M.Sc. and M.Tech. students)
6	MA5313	Introduction to Mathematical Statistics
7	MA5014	Applied Stochastic Processes

Students on roll as of September 2013 + M.S. & Ph.D. scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
M.Sc.	44	46	4	0	0	94
M.Tech.	9	11	0	0	0	20
Ph.D.	14	10	19	3	10	56
Total	67	67	23	3	10	170

Endowment prizes instituted

Sl. No.	Endowment Prize	Purpose	To be Awarded from
1	Lakshmikutty Amma and Shri A. Krishnakutty Nair Prize—instituted by Prof. Dr. P. Achuthan (retired)	For the best Ph.D. thesis in mathematics	From the 2013 convocation

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/in India

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposium/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Shani Jose	MA08D004	On Inverse-Positivity of Sub-direct Sums of Matrices, Providence	3–7 June 2013, R.I.U.S.A.	IIT Madras
2	S.V. Bharanedhar	MA08D009	Computational Methods and Function Theory, Shantou University	10–14 June 2013, China	IIT Madras
3	A. Sairam Kaliraj	MA09D011	Computational Methods and Function Theory, Shantou University	10–14 June 2013, China	IIT Madras
4	P. Viswanathan	MA10D001	International Conference in Fractal Geometry and Stochastics, Tabarz	24–30 March 2014, Germany	IIT Madras
5	Vijender Nallapu	MA09D012	International Conference on Fractal Geometry and Stochastics, Tabarz	22–31 March 2014, Germany	IIT Madras
India					
1	A. Antony Selvan	MA09D002	Sampling and Reconstruction in Shift Invariant Spaces on R^d	19 December 2013, IMSc, Chennai	
2	Saurabh Kumar Katiyar	MA11D017	Workshop and International Conference on Fractals and Wavelets	15–16 June 2013, Kochi	
3	B.N. Subas	MA11D020	Workshop, Advance Instructional on Algebraic Curves	3–22 June 2013, Pune	
4	Surendra Kumar Sharma	MA11D003	Current Trends in Computational Methods for PDEs, IISc	24 June to 19 July 2013, Bangalore	
5	A. Sairam Kaliraj	MA09D011	Univalent Harmonic Mappings and Minimal Surfaces	4 September 2013	
6	Surendra Kumar Sharma	MA11D023	Fifth International Conference on Population Balance Modelling, IISc, Bangalore	11–13 September 2013, Karnataka	
7	A. Sairam Kaliraj	MA09D011	Some Geometric Subclasses of Univalent Harmonic Mappings	24 September 2013	
8	P. Viswanathan	MA10D001	Constrained Cubic Hermite Fractal Interpolation Functions	24 September 2013	
9	Saswata Adhikari Kaliraj	MA11D016	Real Variable Techniques: An Instructional School in Harmonic Analysis, workshop at Harish-Chandra Research Institute, Allahabad, Uttar Pradesh	23–30 September 2013	
10	K. Ramanababu Kaligatala	MA08D012	Centre for Theoretical Studies, IIT Kharagpur	30 September to 31 October, 2013	
11	Kurma Rao	MA12D003	National Workshop on Computational Methods in Engineering-Science, NIT Warangal	21–25 October 2013	
12	P. Viswanathan	MA10D001	International conference, workshop on fractals and wavelets to present paper titled "On Fractal Rational Functions"	9–16 November 2013	
13	Vijender Nallapu	MA09D012	Workshop on fractals and wavelets to present paper titled "C'-Rational Cubic Fractal Interpolation Surface Using Functional Values"	8–17 November 2013	

14	Anjalaiah	MA09D010	66th Annual Meeting of the Division of Fluid Dynamics to present paper titled "Thin Film Flow Down a Porous Substrate in the Presence of a Soluble Surfactant: Linear Stability Analysis"	22–29 November 2013
15	Asrifa Sultana	MA11D009	CIMPA School 2013 of Generalized Nash Equilibrium Problems, Bilevel Programming and MPEC	25 November to 6 December 2013
16	Sarvesh Kumar	MA13D023	Workshop and conference of Thirteen Discussion Meeting in Harmonic Analysis, IMSc, Chennai	9–19 December 2013
17	Raisa D'souza	MA13D005	Attended workshop of Annual Foundation School Part-I, Kerala School of Mathematics	2–28 December 2013
18	Saswata Adhikari	MA11D016	Workshop and conference of Thirteen Discussion Meeting in Harmonic Analysis, IMSc, Chennai	9–19 December 2013
19	A. Antony Selvan	MA09D002	Workshop and conference of Thirteen Discussion Meeting in Harmonic Analysis, IMSc, Chennai	16–19 December 2013
20	Kurma Rao Tyada	MA12D003	Workshop on Recent Advances in Mathematical Sciences and Applications (RAMSA13), Visakhapatnam	18–23 December 2013
21	Sanjeev Singh	MA12D004	Workshop and International Symposium on Complex Analysis and Conformal Geometry (ISCACG-2013), IIT Indore	26–31 December 2013
22	P. Viswanathan	MA10D001	Workshop and International Conference on Mathematics and Computing—2013, Haldia	26–31 December 2013
23	Monisha Roy	MA11D004	Workshop and International Heat and Mass Transfer Conference 2013 (ASME), IIT Kharagpur	26 December 2013 to 1 January 2014
24	A. Sairam Kaliraj	MA09D011	Workshop and International Symposium on Complex Analysis and Conformal Geometry, IIT Indore	26–31 December 2013
25	Madukant Sharma	MA11D003	Workshop and International Conference on Recent Advances in Mathematics, Nagpur	19–24 January 2014
26	Sharad Dwivedi	MA11D018	International Symposium on Complex Dynamical Systems and Applications, ISI	10–12 March 2014, Kolkata
27	Shairam Kaliraj	MA09D011	Attended National Workshop on Mathematical Analysis, ANJA College	11–15 March 2014, Sivakasi
28	Susobhan	MA10D010	ATM Workshop on Computational Algebraic Geometry, IIST	9–13 February 2014, Thiruvananthapuram
29	J. Mahipal	MA10D005	National Conference on Differential Equations and Applications, University of Mumbai	13–16 February 2014
30	Kurma Rao	MA12D003	International Conference on Industrial Mathematics and Scientific Computing, KIIT	4–5 January 2014, Bhubaneswar
31	Vijender Nallapu	MA09D012	International Conference on CAE to present paper titled "Monotonicity Preserving Rational Cubic Spline Fractal Interpolation Function"	19–22 December 2013, IIT Madras

32	Saurabh Kumar Katiyar	MA11D017	International Conference on CAE to present paper titled "A New Class of Rational Fractal Function for Curve Fitting"	19–22 December 2013, IIT Madras
33	Mahipal Reddy	MA13D003	International Conference on CAE to present paper titled "Fractal Splines Using Derivative Boundary Conditions, Interpolation Function"	19–22 December 2013, IIT Madras

Names of students/scholars who won Institute Convocation/Institute Day Prize

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Name of Donor
1	Abhishek	MA12M001	Best Academic Record	Institute Merit Prize
2	Nitin Kumar Yadav	MA12M007	Best Academic Record	Institute Merit Prize
3	Varsha Sreenivasan	MA12C049	Best Academic Record	Institute Merit Prize
4	Varsha Sreenivasan	MA12C049	Best Academic Record	L.V.K.V. Sarma Prize
5	Abhishek	MA12M001	Best Academic Record	L.V.K.V. Sarma Prize
6	Sankara Raj Kosuru	MA07D004	Best Ph.D. Thesis in Mathematics—2013	Smt. Lakshmikutty Amma and Shri A. Krishnakutty Nair Prize

4.12.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professor	
Arindama Singh, Ph.D. (IIT Kanpur)	Logic, numerical analysis
Kamath. S.G., Ph.D. (Delhi University)	Mathematical physics
Kulkarni. S.H., Ph.D. (IIT Bombay) [Head]	Functional analysis and numerical analysis
Parthasarathy P.R. Ph.D. (Annamalai)	Applied probability and stochastic models, mathematical ecology, operations research
Ponnusamy. S., Ph.D. (IIT Kanpur)	Complex analysis, function spaces, special functions and conformal geometry
Radha. R., Ph.D. (IMSc, Chennai)	Harmonic analysis, wavelets, time–frequency analysis
Rama. R., Ph.D. (Anna University)	Formal language and automata theory, molecular computing
Sanyasiraju Y.V.S.S., Ph.D. (IIT Madras)	Computational fluid dynamics
Satyajit Roy, Ph.D. (IISc. Bangalore)	Convective heat and mass transfer, computational fluid dynamics
Sivakumar K.C., Ph.D. (IIT Madras)	Functional analysis and mathematical programming
Subrahmanyam. P.V., Ph.D. (IIT Madras)	Non-linear analysis—fixed point theory and functional equations, fuzzy sets, summability theory
Sundar. S., Ph.D. (IIT Madras)	Computational fluid dynamics, numerical analysis for partial differential equations, mathematical modeling
Thamban Nair M., Ph.D. (IIT Bombay)	Applicable functional analysis—spectral approximation, operator equations, inverse and ill-posed problems
Usha R., Ph.D. (IIT Madras)	Fluid dynamics
Veeramani. P., Ph.D. (IIT Bombay)	Fixed point theorems and their applications to problems in optimization and best approximation, fuzzy set theory
Vetrivel. V., Ph.D. (IIT Madras)	Non-smooth optimization, fixed point theory, complementarity problems
Associate Professors	
Srinivasa Rao Ch., Ph.D. (IISc, Bangalore)	Non-linear differential equations

Assistant Professors	
Arijit Dey, Ph.D. (IMSc, Chennai)	Algebraic geometry
Balaji R., Ph.D. (IIT Madras)	Linear algebra and optimization
Chand A.K.B., Ph.D. (IIT Kanpur)	Fractals, approximation theory and wavelets
Jayanthan A.V., Ph.D. (IIT Bombay)	Commutative algebra and algebraic combinatorics
Kalpna Mahalingam, Ph.D. (University of South Florida, Tampa)	Theory of codes, DNA computing, combinatorics of words
Kunal Krishna Mukherjee, Ph.D. (University of Texas A&M, Texas)	Operator algebras
Manam S.R., Ph.D. (IISc Bangalore)	Applied mathematics
N. Narayanan, Ph.D. (IMSc, Chennai)	Graph theory—graph colouring, structural and extremal graph theory, probabilistic combinatorics, discrete mathematics
Neelesh S. Upadhye, Ph.D. (IIT Bombay)	Probability theory and applications
Shaiju A.J., Ph.D. (IISc, Bangalore)	Game theory, systems and control theory
Shruti Dubey, Ph.D. (IIT Kanpur)	Nonlinear analysis of functional differential equations, mathematical study of ferromagnetic systems
Sounaka Mishra, Ph.D. (ISI, Kolkata)	Discrete mathematics, approximation algorithm, combinatorial optimization
Suhas Jaykumar Pandit, Ph.D. (ISI, Bangalore)	Geometric group theory and low dimensional topology
Uma V., Ph.D. (IMSc, Chennai)	Topology and geometry of toric varieties and related spaces
Vasantha W.B., Ph.D. (RIASM Chennai)	Group theory, application of algebra, fuzzy algebra and linear algebra
Venkata Balaji T.E., Ph.D. (CMI, Chennai)	Algebraic geometry and commutative algebra
Visiting Faculty	
Xiantao Wang, Ph.D. [Hunan Normal University] (13 March 2013 to 12 March 2014)	Geometry of Banach spaces, harmonic and quasiconformal mappings
Manzi Huang, Ph.D. [Hunan Normal University] (13 March 2013 to 12 March 2014)	Geometry of Banach spaces, harmonic and quasiconformal mappings
Institute PDF	
Symphony Chakraborty Ph.D. (UPMC Paris 6, Paris) (PDF from 1 April 2013 to date)	

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

Sl. No.	Coordinator(s)	Title	Period
Workshops			
1	S. Sundar	International Workshop on Advances in PDE Modeling and Computation	21–25 October 2013
2	R. Radha and S. Thangavelu	NPTEL web course, Fourier Analysis	11 May 2013
3	T.E. Venkata Balaji	NPTEL video course, Advanced Complex Analysis	January to March 2014
Short-term courses			
1	R. Usha	Short-term course, Introduction to Tensor Analysis	17–19 January 2014
2	A.J. Shaiju and Prasad Patnaik	Modern Control Perspectives in Solid and Fluid Mechanics	18–22 January 2014

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by the faculty members in Academic institutions and Public Sector Undertakings

Sl. No.	Name of Faculty Member	Title	Institution	Period
Conferences				
1	S.H. Kulkarni	Invited talk at an international conference on semigroups and operator theory	Kerala	26–28 February 2014

2	M.T. Nair	Invited talk, Understanding Infinity	SSN College, Kalavakkam	9 August 2013
3	M.T. Nair	Invited talk, Effect of Decay of Singular Values While Solving Linear Equations	KRS College, Erode	6–7 September 2013
4	M.T. Nair	Invited talk: Multi-augmentation Method for Parameter Identification Problems in PDEs	IIT Madras	21–25 October 2013
5	M.T. Nair	Invited talk, Understanding Infinity	SN College, Kannur	24 December 2013
6	M.T. Nair	Invited talk, A Compact Operator Theoretic Approach for Parameter Identification Problems in PDE	Bharathiar University, Coimbatore	30–31 January 2014
7	M.T. Nair	Invited talk, Regularization of Nonlinear Ill-Posed Operator Equations: An Introduction	Raipur	14–16 February 2014
8	M.T. Nair	Invited talk, Role of Hilbert Scales in Regularization Theory	Kerala	26–28 February 2014
9	M.T. Nair	Invited talk, Regularization of Non-Linear Ill-Posed Operator Equations	Madras University	28 March 2014
10	A.K.B. Chand	Recent Advances in Mathematics Science & Applications	Visakhapatnam	19–22 December 2013
11	A.K.B. Chand	Industrial Mathematics and Scientific Computing (ICIMSC-2014)	KIIT Bhubaneswar	4–5 January 2014
12	A.K.B. Chand	International Conference on Fractals and Wavelets	Kochi	9–16 November 2013
Training programmes				
1	S. Sundar	DST sponsored NPDE-TCA PG level training programme, Differential Equations, Numerics and Modeling		20 May to 8 June 2013

Special lectures delivered by faculty members at other institutions

Sl. No	Name of Faculty Member	Topic of Lecture	Institution	Date
1	S.H. Kulkarni	Series of lectures on functional analysis	Kasargod	21 March 2014
2	S.H. Kulkarni	Null Space Theorem	Ramanujan Institute	28 March 2014
3	P.R. Parthasarathy	Invited talk at Hindustan Institute of Technology & Science	Kelambakkam	6 February 2014
4	P.R. Parthasarathy	Invited talk at National Institute of Technology	Chennai	25 February 2014
5	S. Ponnusamy	Univalent Harmonic Mappings	Chennai	28 March 2014
6	S. Ponnusamy	Dirichlet's Problems	Bharathiar University, Coimbatore	30–31 January 2014
7	S. Ponnusamy	Boundary Value problems and Conformal Mappings	SRM University	5 January 2014
8	S. Ponnusamy	Mathematical Problems and Geometry	SRM University	31 December 2013
9	S. Ponnusamy	Emerging Opportunities in Mathematical Science	Srinagar	7–11 September 2013
10	S. Ponnusamy	Sequences and Series	Srinagar	8 September 2013
11	S. Ponnusamy	Why Is the Concept of Convergence so Important?	Dindigul	30 August 2013
12	R. Rama	Invited talk at Periyar Maniammai University (Vallam), Thanjavur	Thanjavur	3 December 2013
13	R. Radha	Abstract Measure Spaces	Ramanujan Institute for Advanced Study in Mathematics	12–14 November 2013
14	Y.V.S.S. Sanyasiraju	Recent Advances in Mathematics and Its Applications to Science and Engineering	VNIT, Nagpur	6–10 May 2013

15	Y.V.S.S. Sanyasiraju	Invited talk at National Institute of Technology	Warangal	3 December 2013
16	Satyajit Roy	Analysis of Natural Convection Flows Within Square Cavity Using Entropy Generation Minimization Concept	Pondicherry University	27–28 January 2014
17	Satyajit Roy	Non-uniform Mass Transfer in Boundary Layer Flows, at National Conference on Emerging Trends of Fluid Mechanics	Christ University, Bangalore	14–15 March 2014
18	Satyajit Roy	Analysis of Natural and Mixed Convection Flows Within Square Cavity Using Heatlines Concept	Annamalai University, Annamalai Nagar	21–22 March 2014
19	S. Sundar	Scientific Computing Today	KIIT University, Bhubaneswar	4 July, 2013
20	S. Sundar	PDEs in Water Waves	BHU, Varanasi, Uttar Pradesh	26–27 July 2013
21	S. Sundar	Advances in Applied Mathematics	Bharathiar University, Coimbatore	12 August 2013
22	S. Sundar	International and National Scenario of Choice Based Credit System in Engineering Institutions	Gujarat	12 September 2013
23	S. Sundar	Graph Theory and Modelling.	Kerala	26 September 2013
24	S. Sundar	GPU Accelerated Finite Pointset Method for Flow Problems	Waknaghat, Solan	19 October 2013
25	S. Sundar	Invited talk at Bharathidasan University	Trichy	18 December 2013
26	S. Sundar	Invited talk at G.V.P. College of Engineering	Visakhapatnam	21 December 2013
27	S. Sundar	Invited talk at IIT	Kanpur	31 December to 2 January 2014
28	S. Sundar	Invited talk at Bharathiar University	Coimbatore	25 February 2014
29	S. Sundar	National Conference on Emerging Trends in Physics Fluids and Solids	Kolkata	6 March 2014
30	S. Sundar	School of Advanced Sciences, Fluid Dynamics Division	VIT University	4 April 2014
31	S. Sundar	National Conference on Advances in Applied Mathematics	Bharathiar University	25 February 2014
32	M.T. Nair	Linear Algebra	ISI, Chennai	17–26 May 2013
33	M.T. Nair	Measure, Integration and L2-Theory for a Post Graduate	IIT Madras	23–27 May 2013
34	M.T. Nair	Continuity and Invertibility of Operators	Bharathidasan University, Tiruchi	22–23 July 2013
35	M.T. Nair	Understanding Infinity, FORAYS-2014	IIT Madras	16 March 2014
36	M.T. Nair	Spaces and Operators, at a workshop on functional analysis	Central University of Kerala, Kasaragod	20–22 March 2014
37	M.T. Nair	Recent Advances in Mathematical Analysis and Applications	Erode	5–6 September 2013
38	M.T. Nair	Invited talk at Department of Mathematics, Bharathiar University	Coimbatore	30–31 January 2014
39	M.T. Nair	Nonlinear Analysis and Optimization	Raipur	14 February 2014
40	R. Usha	An Overview of Dynamics in Gas–Liquid Film Flows	IIT Madras	21–25 October 2013
41	R. Usha	Inverse Problem Relevant to Gravity-Driven Thin Film Flows—Steady Solution and Stability	IIT Hyderabad	26 June 2013
42	P. Veeramani	Short Term Training programme for the teachers of AICTE”	VNIT, Nagpur	9–10 May 2013

43	P. Veeramani	Invited talk at Mar Thoma College	Tiruvalla	8 January 2014
44	P. Veeramani	Invited talk at North Maharashtra University	Jalgaon	20–21 February 2014
45	P. Veeramani	Invited talk at Vivekananda College for Women	Tiruchengode	28 February 2014
46	Ch. Srinivasa Rao	Theoretical and Computational Aspects of Nonlinear Waves	IIT Bombay	29–31 May 2013
47	Arijit Dey	Invited talk at International Conference on Analytical and Algebraic geometry at KSOM	Kozhikode	24–28 March 2014
48	A.K.B. Chand	Fractal and Fractal Functions	University of Madras	13 March 2014
49	A.K.B. Chand	An Introduction to Fractal Functions	NIT Rourkela	31 March 2014
50	A.K.B. Chand	Rational Iterated Function Systems for Resolution of Univariate Constrained Interpolation	IIT Bhubaneswar	6 January 2014
51	A.K.B. Chand	Invited Talk at G.V.P. College of Engineering	Visakhapatnam	21 December 2013
52	A.K.B. Chand	Invited talk at KIIT Bhubaneswar	KIIT Bhubaneswar	5 January 2014
53	A.K.B. Chand	A New Class of Rational Quadratic Fractal Functions with Positive Shape Preservation	Rahgiri Engg. College, Kochi	9–16 November 2013
54	N. Narayanan	Graph Theory: As a Modeling Tool for Engineering Problems	Thiruvananthapuram	18–19 July 2013
55	N. Narayanan	Emerging Trends in Applied Mathematics	Kerala	7 September 2013
56	Sounaka Mishra	Algorithms for Optimization Problems, at ICCTRD'14	Tirunelveli	27 February 2014
57	T.E. VenkataBalaji	Imagine a Sky Filled with Stars You Cannot See	IMSc, Science Academies' Lecture Workshop	2 July 2013
58	T.E. Venkata Balaji	Holomorphic Functions on the Real Torus	Mysore University	21 November 2013
59	T.E. Venkata Balaji	How Many Distinct Complex Structures Can You Put on a Real Torus?	Mysore University	22 November 2013

Visits abroad by faculty members

Sl. No.	Name of faculty	Country Visited	Date	Purpose of Visit	Funding from
1	S.G. Kamath	Mexico	5–9 August 2013	QTS9	
2	S.G. Kamath	Malaysia	26–30 August 2013	IMFP2013	
3	S. Ponnusamy	The Netherlands	14–19 September 2013	Colloquium talk, Harmonic Mappings	
4	S. Ponnusamy	China	31 May to 15 June 2013	Seventh International Conference on Computational Methods and Function theory (CMFT'13)	
5	S. Sundar	Germany	5–31 May 2013	Professional visits	
6	Satyajit Roy	South Africa	6 June to 30 August 2013	Collaborative research work	Witwatersrand University, Johannesburg, South Africa
7	Y.V.S.S. Sanyasiraju	Germany	3–9 June 2013	Study and research visit under DAAD programme	
8	P.V. Subrahmanyam	Kitakyushu, Japan	10–12 November 2013	Plenary talk at the International Conference of FIM	

9	M.T. Nair	Albi, France	26–28 June 2013.	Presenting paper, A Fast Algorithm for Parameter Identification Problems in PDE Based on a Multilevel Augmentation Method
10	Arijit Dey	Japan	11–21 June 2013	International conference and workshop, Development of Moduli Theory
11	Arjit Dey	Berlin	14–25 October 2013	Research visit to Berlin Mathematical Society
12	Kunal Krishna Mukherjee	Texas, USA	25 July to 16 August 2013	International Workshop on Dynamics, Geometry and Operator Algebras
13	N. Narayanan	Hsinchu, Taiwan	18–22 November 2013	Presenting paper at the Third India–Taiwan Conference in Discrete Mathematics

Books, monographs, video courses authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher
Books			
1	T.E. Venkata Balaji	<i>Introduction to Riemann Surfaces</i> (available online from September 2013)	NPTEL, MHRD, Government of India

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	S. Ponnusamy	Editor-in-Chief	<i>Mathematics Newsletter</i>
2	S. Ponnusamy	Managing Editor	<i>Journal of Analysis</i>
3	S. Ponnusamy	Associate Editor	<i>Bulletin of Malaysian Mathematical Sciences Society</i>
4	S. Ponnusamy	Editorial member	<i>Journal of Classical Analysis</i>
5	S. Ponnusamy	Vice-President and editorial member	<i>Indian Academy of Mathematics</i>
6	S.Ponnusamy	Editorial member	<i>Mathematical Analysis (The Scientific World Journal, Hindawi)</i>
7	S. Ponnusamy	Editorial member	<i>Conference Papers in Mathematics</i> (Hindawi)
8	S. Ponnusamy	Editorial member	<i>Issues of Analysis</i> (Russian)
9	S. Ponnusamy	Editorial member	<i>Ilorin Journal of Science</i> (Nigeria)
10	Satyajit Roy	Advisory Committee member	<i>The Journal of the Indian Academy of Mathematics</i>
11	S. Sundar	Editorial Board member	<i>The Journal of the Indian Academy of Mathematics</i>

4.12.4. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Analysis and Computation of Optimal Strategies in N-Person Differential Games	8 July 2013 onwards (3 years)	DST	3.132	A.J. Shaiju (PI), and Ch. Srinivasa Rao
2	Evolutionary Games with Continuous Strategy Space	22 July 2013 (3 years)	NBHM	3.295	K.S. Mallikarjuna Rao and A.J. Shaiju (Co-PI)
3	A Network of Ferromagnetic Particles	3 years from 18 July 2011	IC&SR	5.00	Shruti Dubey
4	Development of Theory of Fractal Rational Splines and Applications in CAGD	3 years	DST	15.07	A.K.B. Chand and G. Saravana Kumar (ED)
5	Involution Codes: Application to DNA Strand Design	3 years from 7 February 2012	NFSC	5.00	Kalpana Mahalingam

6	Compound Negative Binomial Approximation as and Its Applications	3 years from 4 December 2012	NFSC	5.00	Neelesh S. Upadhye
7	Intersection Edge Colourings and Axiom.Charec. of Geodesics	3 years from 10 September 2013	NFSC	5.00	N. Narayanan

Exchange programmes with other universities including institutions/universities under MoUs

Sl. No.	Programme Name	Name of University	Guide Name
1	DAAD Sandwich M.Tech. project	Anuj Kumar Tiyagi, "Linear Methods for Mie-Theory Inversion Problems", Centre for Computational Engineering, RWTH Aachen, Germany, 2014	S. Sundar
2	DAAD Sandwich M.Tech. project	Nitin Kumar Yadav, "Illumination Optics: Optimal Transport for Optical Design", Centre for Computational Engineering, RWTH Aachen, Germany, 2014	S. Sundar

Research publications of faculty members and research scholars

Number of papers published in refereed international journals: 69

Number of papers presented in international conferences: 3

(a) Papers published in refereed international journals

1. G. Krishna Kumar and S.H. Kulkarni (2013) An analogue of the spectral mapping theorem for condition spectrum. *Operator Theory Advances and Applications* 236: 299–314.
2. K.P. Deepesh, S.H. Kulkarni and M.T. Nair (2013) Approximation numbers for relatively bounded operators. *Functional Analysis, Approximation and Computation* 5: 35–42.
3. Arindama Singh (2013) Comparing cardinalities of sets. *Mathematics News Letter* 24(2): 1–6.
4. M. Ravibabu and Arindama Singh (2014) On refined Ritz vectors and polynomial characterization. *Computers and Mathematics with Applications* 67: 1057–1064.
5. Rosihan M. Ali, M. Obradović and S. Ponnusamy (2013) Necessary and sufficient conditions for univalent functions. *Complex Var. Elliptic Equ.* 58(3): 611–620.
6. Baricz, and S. Ponnusamy (2013) On Turan type inequalities for modified Bessel functions. *Proc. Amer. Math. Soc.* 141: 523–532.
7. Baricz, and S. Ponnusamy (2013) Differential inequalities and Bessel functions. *J. Math. Anal. and Appl.* 400(2): 558–567.
8. S.V. Bharanedhar, M. Obradovic, and S. Ponnusamy (2013) Coefficient criteria for univalent and close-to-convex functions. *Interdisciplinary Information Sciences* 19(3): 157–161.
9. Sh. Chen and S. Ponnusamy (2013) Lipschitz spaces and Hardy spaces on some classes of complex valued functions. *Integral Equations and Operator Theory* 77: 261–278.
10. Sh. Chen, S. Ponnusamy, M. Vuorinen and X. Wang (2013) Lipschitz spaces and bounded mean oscillation of harmonic mappings. *Bull. Aust. Math. Soc.* 88: 143–157.
11. Sh. Chen, S. Ponnusamy and X. Wang (2013) Weighted Lipschitz continuity, Schwarz-Pick's Lemma and Landau-Bloch's theorem for hyperbolic-harmonic mappings in C^n . *Mathematical Modelling and Analysis* 18(1): 66–79.
12. Sh. Chen, S. Ponnusamy and X. Wang (2013) Area integral means, Hardy and weighted Bergman spaces of planar harmonic mappings. *Kodai Math. J.* 36: 313–324.
13. Sh. Chen, S. Ponnusamy and X. Wang (2013) On some properties of solutions of the p-harmonic equation. *Filomat* 27(4): 577–591.
14. Sh. Chen, S. Ponnusamy and X. Wang (2013) Harmonic mappings in Bergman spaces. *Monatshefte fuer Mathematik* 170(3–4): 325–342.
15. Sh. Chen, S. Ponnusamy and X. Wang (2013) Covering and distortion theorems for planar harmonic univalent mappings. *Archiv der Mathematik* 101: 283–291.
16. Liulan Li and S. Ponnusamy (2013) Convolutions of slanted half-plane harmonic mappings. *Analysis (Munich)* 33: 159–176.
17. Liulan Li and S. Ponnusamy (2013) Injectivity of sections of univalent harmonic mappings. *Nonlinear Analysis* 89: 276–283.
18. Liulan Li and S. Ponnusamy (2013) Disk of convexity of sections of univalent harmonic functions. *J. Math. Anal. and Appl.* 408: 589–596.

19. Liulan Li and S. Ponnusamy (2013) Solution to an open problem on convolutions of harmonic mappings. *Complex Var. Elliptic Equ.* 58(12): 1647–1653.
20. P. Li, S. Ponnusamy and X. Wang (2013) Some properties of planar p-harmonic and log p-harmonic mappings. *Bull. Malays. Math. Sci. Soc. (2)* 36(3): 595–609.
21. Zh. Mao, S. Ponnusamy and X. Wang (2013) Schwarzian derivative and Landau's theorem for logarithmic mappings. *Complex Var. Elliptic Equ.* 58(8): 1093–1107.
22. M. Obradovic and S. Ponnusamy (2013) Product of univalent functions. *Math. and Computer Modelling* 57: 793–799.
23. M. Obradovic and S. Ponnusamy (2013) Criteria for univalent functions in the unit disk. *Archiv der Mathematik* 100(2): 149–157.
24. M. Obradovic and S. Ponnusamy (2013) Radius of univalence of certain class of analytic functions. *Filomat* 27(6): 1085–1090.
25. M. Obradovic and S. Ponnusamy (2013) Injectivity and starlikeness of sections of a class of univalent functions. *Complex Analysis and Dynamical Systems V (Israel Mathematics Conference Proceedings (IMCP))* 591: 195–203.
26. M. Obradovic and S. Ponnusamy (2013) Coefficient inequalities for univalent starlike functions. *Math. Slovaca* 63(5): 1113–1122.
27. M. Obradovic, S. Ponnusamy and K.-J. Wirths (2013) Coefficient characterizations and sections for some univalent functions. *Siberian Mathematical Journal* 54(1): 679–696.
28. M. Obradovic, S. Ponnusamy and K.-J. Wirths (2013) A proof of Yamashita's conjecture on area integral. *Comput. Methods Funct. Theory* 13: 479–492.
29. S. Ponnusamy, and J. Qiao (2013) Polynomial approximation of certain biharmonic mappings. *Nonlinear Analysis* 81: 149–158.
30. S. Ponnusamy, H. Yamamoto and H. Yanagihara (2013) Variability regions for certain families of harmonic univalent mappings. *Complex Var. Elliptic Equ.* 58(1): 23–34.
31. Sounaka Mishra (2014) Approximation algorithms for node deletion problems on bipartite graphs with finite forbidden subgraph characterization. *Theor. Comput. Sci.* 526: 90–96.
32. A.J. Shaiju (2013) Discrete-time robust H infinity control of a class of nonlinear uncertain systems. *International Journal of Robust and Nonlinear Control* 23(14).
33. A.J. Shaiju (2013) Some remarks on the evolutionary stability in matrix games. *International Game Theory Review* 15(4).
34. S. Sundar and Tanmay Sarkar (2014) On existence and stability analysis of a nonlinear conservation law model appearing in production system. *Nonlinear Studies* 21: 305–312.
35. S. Sundar and Sudhakar Matle (2014) Computation of transmission coefficients in the plain and corrugated electro-magnetic wave guides using finite pointset method. *Applied Mathematical Modeling* 38: 1838–1845.
36. S. Sundar, M. Panchatcharam and Axel Klar (2013) GPU metrics for a linear solver. *Neural, Parallel and Scientific Computations* 21: 361–374.
37. S. Sundar, M. Panchatcharam, V. Vetrivel, Axel Klar and S. Tiwari (2013) GPU computing for meshfree particle method. *International Journal of Numerical Analysis and Modeling, Series B.* 4: 394–412.
38. S. Sundar and J. Mahipal (2013) Enforcing the discrete maximum principle for finite-difference solutions of coherence enhancing diffusion. *Journal of Indian Academy of Mathematics* 35(2): 209–215.
39. S. Sundar and Tanmay Sarkar (2013) Conservation model of serial supply chain network incorporating various velocity forms. *International Journal of Applied Mathematics.* 26: 363–377.
40. S. Sundar and G. Satyanarayana (2013) A numerical study of Hierarchical matrix (H-matrix) for finite pointset method on solving a Poisson problem. *International Journal of Applied Mathematics.* 26: 103–122.
41. P.M. Patil, E. Momoniat and S. Roy (2014) Influence of convective boundary condition on double diffusive mixed convection from a permeable vertical surface. *International Journal of Heat and Mass Transfer* 70: 313–321.
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49. K.P. Deepesh, S.H. Kulkarni and M.T. Nair (2013) Approximation numbers for relatively bounded operators. *Functional Analysis, Approximation and Computation* 5(2): 35–42.
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52. R. Usha, Anjalaiyah and Y.V.S.S. Sanyasiraju (2013) Dynamics of a pre-lens tear film after a blink: Model, evolution, and rupture. *Fluids* 25: 112111.
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54. R. Usha, Tamal Banerjee, A. Ananth Praveen Kumara and Dipankar Bandyopadhyaya (2013) Instabilities of a confined two-layer flow on a porous medium: An Orr–Sommerfeld analysis. *Chemical Engineering Science* 97: 109–125.
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56. Chandrashekar, V. Vetrivel and T. Parthasarathy (2013) Solving strongly monotone linear complementarity problems. *International Game Theory Review* 15(4).
57. V. Vetrivel, I. Jeyaraman and K.C. Sivakumar (2013) Stein linear programs over symmetric cones. *International Game Theory Review* 15(4).
58. Sultana and V. Vetrivel (2014) Fixed points of Mizoguchi-Takahashi contraction on a metric space with a graph and application. *J. Math. Anal. Appl.* Vol. 417(1): 336–344.
59. Sultana and V. Vetrivel (2014) On the existence of best proximity points for generalized contractions. *Applied General Topology* 15(1): 55–63.
60. A.K.B. Chand, Vijender Nallapu and M.A. Navascues (2013) Shape preservation of scientific data through rational fractal splines. *International Journal CALCOLO*. DOI 10.1007/s10092-013-0088-2
61. A.K.B. Chand and P. Viswanathan (2013) A constructive approach to cubic Hermite Fractal Interpolation Function and its constrained aspects. *BIT Numerical Mathematics* 4: 841–865.
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63. A.K.B. Chand, N. Vejender Nallapu and R.P. Agarwal (2014) Rational iterated function system for positive/monotonic shape preservation. *Advances in difference equations*, DOI:10.1186/1687-1847-2014-30.
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65. A.K.B. Chand, P. Viswanathan and R.P. Agarwal (2014) Preserving Convexity through rational cubic spline fractal interpolation function. *Journal of Computational and Applied Mathematics* 263: 262–276.
66. S.R. Manam and R.B. Kaligatla (2013) Structure-coupled gravity waves past a vertical porous barrier, Proceedings of the Institution of Mechanical Engineers. Part M, *Journal of Engineering for the Marine Environment* 227(3): 266–283.
67. S. Rajesh and P. Veeramani (2014) Non-convex proximal pairs on Hilbert spaces and best proximity points. *J. Nonlinear Convex Anal.* 15(3): 515–524 (MR 3183818).
68. R. Radha, S. Thangavelu and D. Venku Naidu (2013) On the images of Sobolev spaces under the heat kernel transform on the Heisenberg group. *Math. Nachr.* 286(13): 1337–1352.
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(b) Papers published in proceedings of international conferences

1. S.G. Kamath. Calculating repetitively. PoS(ICHEP2012)472.
2. A.K.B. Chand and P. Viswanathan. A New Approach to Positivity Preserving Interpolation Using Smooth α -Fractal Functions, University of Jena, 24–29 March 2014.
3. A.K.B. Chand, N. Vijender and M.A. Navascues. Convex/concave Bivariate Rational Fractal Interpolation Function, University of Jena, 24–29 March 2014.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. Yashonidhi Pandey, Indian Institute of Science, Education & Research, Mohali	22–29 May 2013	Collaborative researchwork
2	Dr. Vikram Mehta, IIT Bombay	3 June to 14 July 2013	Academic collaboration with Dr. Arijit Dey
3	Dr. Venku Naidu, IIT Hyderabad	13–28 June 2013	Academic collaboration with Dr. Radha
4	Dr. Marco Antei, Ben Gu-rion University of the Negev, Israel	30 June to 14 July 2013	Academic collaboration with Dr. Arjit Dey
5	Dr. Sukhavanam	July 2013	Academic collaboration with Dr. M.T. Nair.
6	Dr. Suhas Pandit	3–8 June 2013	Academic collaboration with Dr. T.E. Venkata Balaji
7	Dr. Mainak Poddar, ISI Kolkata	3–4 July 2013	To give special seminar talk, “A Construction of Complex Non-Kahler Manifolds”
8	Dr. H. Ananthnarayan, Department of Maths, IIT Bombay	September 2013	To give special seminar talk, “Some Constructions of Gorenstein Rings”
9	Dr. B.S. Bhatt, FIMA, The University of the West Indies	September 2013	To give special seminar talk, “Switching Effect of Predation on Prey Species in the Presence of Predator Interference”
10	Dr. A.J. Parameswaran, School of Mathematics, TIFR Mumbai	September 2013	To give special seminar talk, “Construction of Grassmanian, Flag Manifolds and Schubert Subsets”
11	Prof. M.F. Barnsley, Australia National University, Germany	4–8 November 2013	To give seminar talk, “Recent Developments in Fractal Geometry, Relevant to Engineering”
12	Prof. Andrei Tentenov, Gorno-Altai University, Russia	16–21 November 2013	To give seminar talk, “Self Similar and Self Affine Jordan Arcs”
13	Dr. Anilkumar Devarapu, Assistant Professor, Albany State University, Albany	20–27 December 2013	Research collaboration with Prof. Satyajit Roy
14	Prof. M.A. Sofi, Professor Kashmir University, Srinagar	20–27 January 2014	Give seminar talk, “Extending Hilbert Space-Valued Mappings”
15	Dr. Antony Vijesh, Assistant Professor, IIT Indore	6–10 July 2013	Research collaboration with Prof. P.V. Subrahmanyam

4.12.5. Other Activities of the Department**Other activities of the faculty**

Sl. No.	Name of the Faculty Member	Title/Member/Programme	Institution	Period
1	S.H. Kulkarni	Attended Faculty Selection Committee meeting	IIT Bhubaneswar, Odisha	30 August 2013
2	S. Ponnusamy	DST–INSPIRE	Sri Venkateswara University, Tirupati	31 March 2014
3	S. Ponnusamy	Lecture series for Master’s students and young research scholars for a selected group of top ranking students of many institutions	Ayya Nadar Janaki Ammal College, Sivakasi	10–12 March 2014

4	S. Ponnusamy	Inaugurated "Advance Training Programme in Statistics"	Puducherry	18–22 November 2013
5	S. Ponnusamy	Gave plenary and concluding talks at the International Symposium on Complex Analysis and Conformal Mappings ISCACG 2013	IIT Indore	28–30 December 2013
6	S. Ponnusamy	Attended (as a UGC nominee) the Fifth Advisory Committee Meeting of UGC-SAP (DRS II)	Gandhigram Rural University, Dindigul	30 August 2013
7	S. Ponnusamy	Gave 2-day lecture series at Bharathidasan University as a resource person in a refresher course in mathematics	Tiruchirappalli	16–17 July 2013
8	S. Ponnusamy	Gave a series of lectures at the Advance Training in Mathematics Schools in 2013	Central University of Rajasthan, Jaipur	10–14 July 2013
9	S. Ponnusamy	Participated in the RMS conference and was an Executive Committee member of the RMS	Bangalore	26–29 June 2013
10	Satyajit Roy	Attended DC meeting at National Institute of Technology	Tiruchirappalli	18 February 2014
11	Satyajit Roy	Attended DC meeting at VIT University	Vellore	27 March 2014
12	P.V. Subrahmanyam	Attended the meeting for upgrading UGC-JRF to SRF for Mr. N. Proakash	Pondicherry Central University, Pondicherry	21 October 2013
13	P.V. Subrahmanyam	Attended Faculty Selection Committee meeting of IIT Hyderabad	Hyderabad, Andhra Pradesh	20–21 February 2014
14	P.V. Subrahmanyam	Attended Ph.D. viva-voce exam at BHU	Banaras Hindu University, Varanasi	25 October 2013
15	P.V. Subrahmanyam	Attended the Advisory Committee as UGC nominee	Pondicherry Central University, Pondicherry	23 August 2013
16	S. Sundar	Attended 56th meeting of PAC-MS	IISc, Bangalore	5 June 2013
17	S. Sundar	Attended the Faculty Selection Committee meeting	NIT Patna, Bihar	6 August 2013
18	S. Sundar	Attended Ph.D. viva-voce exam.	IIT Delhi	27 September 2013
19	S. Sundar	Attended Ph.D. viva-voce exam.	NIT Warangal, Andhra Pradesh	28 September 2013
20	S. Sundar	Attended Ph.D. viva-voce exam as foreign member	IIT Kharagpur	13 January 2014
21	S. Sundar	Attended as committee member to conduct interview at LMNIT	Jaipur	9 November 2013
22	P. Veeramani	Attended committee member to conduct interview of professors	Manonmaniam Sundaranar University	20 November 2013
23	M.T. Nair	Attended as resource person for refresher course in mathematics	Bharathidasan University, Trichy	22–23 July 2013
24	M.T. Nair	Attended the BOS–Meeting at Cochin University of Science & Technology	Cochin	7–8 December 2013
25	M.T. Nair	Attended DST—INSPIRE internship meeting at Kannur	Kerala	23–24 December 2013
26	M.T. Nair	Attended selection committee meeting for faculty members in the Department of Mathematics	IIT Roorkee	26–28 January 2014
27	R. Usha	Attended board meeting of the School of Mathematics & Statistics	University of Hyderabad	22 October 2013
28	V. Vetrivel	Attended Doctoral Committee meeting	VIT University, Vellore	5 November 2013
29	V. Vetrivel	Attended Faculty Selection Committee of KIIT University	Odisha	9–11 March 2014
30	T.E. Venkata Balaji	Faculty Coordinator of FORAYS 2014	IIT Madras	15–16 March 2014

Members of DST

Sl. No.	Name	Particulars	Period
1	S. Sundar	Member of DST—Programme Advisory Committee (Mathematical Sciences)	Since October 2012

Weekly seminar talks

Sl. No.	Name of the Faculty Member	Title	Date
1	Dr. Sairam Achuthan	Learning from Data Applications to Cancer Informatics	4 April 2013
2	Prof. Arindama Singh	Infinitesimals Exists	4 April 2013
3	Prof. Murali K. Vemuri	The Brylinski Beta Function	4 April 2013
4	Dr. Kishore Kumar	Tensor Decompositions	18 April 2013
5	Dr. Debargha Banerjee	Differential Modular Forms on Shimura Curves Over Totally Real Fields	1 May 2013
6	Dr. Rathinasamy	Stochastic Ito Integral	17 May 2013
7	Dr. Suhas Jaykumar Pandit	The Group $Out(F_n)$ of Outer Automorphisms of the Free Group or Rank n and the Related Complexes	4 June 2013
8	Dr. Santosha Kumar	Projective Normality of G.I.T. Quotient Varieties Modulo Finite Solvable Groups and Weyle Groups	6 June 2013
9	Dr. Mainak Poddar	A Construction of Complex Non-Kahler Manifolds	4 July 2013
10	Dr. Marco Antei	The Fundamental Groups Scheme (a Friendly Introduction)	8–10 July 2013
11	Dr. Srikanth Tupurani	An Interesting Result about Finite Dimensional Complex Semi-simple Algebras	18 July 2013
12	Dr. Ratnasingham Shivaji	Uniqueness of Non-negative Radial Solutions for Semipositone Problems on Exterior Domains	22 July 2013
13	Dr. Srikanth Tupurani	Skein Theory for Finite Depth Subfactor Planar Algebra	8 August 2013
14	Dr. H. Ananthnarayan	Some Constructions of Gorenstein Rings	14 August 2013
15	Dr. Srikanth Tupurani	Spectral Theorem for Bounded Normal Operator on a Hilbert Space	22 August 2013
16	Dr. Anirban Mukhopadhyay	Gaps between Primes	29 August 2013
17	Dr. B.S. Bhatt	Switching Effect of Predation on Prey Species in the Presence of Predator Interference	2 September 2013
18	Dr. A.J. Parameswaran	Construction of Grassmanian, Flag Manifolds and Schubert Subsets	12 September 2013
19	Dr. Xiantao Wang	On the Quasi Symmetry of Quasi Conformal Mappings and Its Applications	19 September 2013
20	Dr. Pabitra Barik	Hitchin Pairs on a Singular Curve	19–20 September 2013
21	Prof. Satyajit Roy	Dual Similar and Non-similar Solutions in Mixed Convection Flows	26 September 2013
22	Dr. Jaffar Alishahul Hameed	What Is Common among Dengue, Electricity Production and Cancer? Reaction Diffusion Systems and Their Applications	3 October 2013
23	Dr. Symphony Chakraborty	Extreme Solitary Waves on Falling	17 October 2013
24	Dr. Habil S.B. Hazra	Numerical Methods for Flow Simulation and Optimization	23 October 2013
25	Dr. Vijay Kodyalam	Hopf Algebra Crossed Products, Recognition and the Drinfeld Double	24 October 2013
26	Dr. Vijaysekhar Chellaboina	Stochastic Control for Finance: A Tutorial	31 October 2013
27	Prof. Michael F. Barnsley	Fractal Manifolds and Recent Developments in Fractal Geometry, Relevant to Engineering	5–6 November 2013
28	Prof. Andrey Viktorovich	Self Similar and Self Affine Jordan Arcs	20 November 2013
29	Prof. M.A. Sofi	Extending Hilbert Space-Valued Mappings	26 December 2013

30	Dr. Ghurumuruhan Ganesan	Infection Spread and Stability in Random Graphs	16 January 2014
31	Dr. Ramakrishna Pasumarthy	Modeling and Control of Infinite Dimensional Systems	23 January 2014
32	Prof. T. Parthasarathy	Gale's Minimax Theorem Is Equivalent to Von Neumann's Minimax Theorem	6 February 2014
33	Dr. N.R. Aravind	The Polynomial Method	13 February 2014
34	Dr. Chamakuri Nagaiah	PDE Constrained Optimization: An Application to Cardiac Electrophysiology	17 February 2014
35	Prof. Chakravarthy Balaji	Assimilation of Multichannel Radiances in Mesoscale Models with an Ensemble Technique to Improve Track Forecasts of Tropical Cyclones	20 February 2014
36	Dr. Srikanth Tupurani	Hahn Hellinger Theorem	6 March 2014
37	Prof. M.T. Nair	Hilbert Scales and Stability Estimates	13 March 2014
38	Prof. D. Bahuguna	The Method of Linesto Nonlocal Initial Boundary Value Problems	18 March 2014
39	Dr. Saket Saurabh	Combinatorial Preprocessing of NP-Hard Problems	27 March 2014

Guest faculty

Sl. No.	Name of the Guest Faculty	Title of Course	Duration
1	Prof. Anirban Mukhopadhyay, IMSc (Matscience), Taramani, Chennai	Number Theory	January–May 2014
2	Prof. S. Ramanan, Chennai Mathematical Institute	Algebraic Geometry	January–May 2014

Ph.D. viva-voce examinations

Sl. No.	Name of the Scholar	Title of the Thesis	Date of Viva
1	Chirala Satyanarayana (MA08D013)	RBF Based Grid-Free Local Schemes with Variable (Optimal) Shape Parameter for Convection Diffusion Type Equations	25 October 2013
2	Ramanababu Kaligatla (MA08D012)	Flexural and Membrane Coupled Gravity Wave Scattering	19 November 2013
3	M. Rajesh Kannan (MA08D007)	Some Topics in Generalized Inverse Non-negativity and Intervals of Matrices	30 December 2013
4	S.V. Bharanedhar (MA08D009)	A Study on Univalent Harmonic and Biharmonic Mappings	20 January 2014
5	Shani Jose (MA08D004)	Moore–Penrose Inverses of Sums, Sub-direct Sums and Applications	18 March 2013

Socially relevant activities carried out by the department

National Symposium on Mathematical Methods and Applications. The department organized the National Symposium on Mathematical Methods and Applications on 22 December 2013, the birth anniversary of Srinivasa Ramanujan, the great Indian mathematician. The day's events were inaugurated by Prof. P.P. Vaidyanathan, Caltech, USA.

There were four invited lectures, delivered by the following speakers:

Prof. P.P. Vaidyanathan, Caltech, USA

Prof. Vekatesh Raman, Institute of Mathematical Sciences, Chennai

Prof. R. Radha, Department of Mathematics, IIT Madras

Prof. Ron Kerman, Brock University, Canada

In the afternoon, six parallel paper presentation sessions were held on the following subjects:

Algebra Analysis and Its Applications

Applied Mathematics

Nondeterministic Mathematics

Mathematics of Uncertainty (Seasons 1 and 2)

Theoretical Computer Science

There were about 75 participants, and out of them 48 presented some of their work in six parallel sessions.

FORAYS 2014. The Department of Mathematics organized its annual festival, FORAYS, on 15 and 16 March 2014. The programme was inaugurated by Prof. Bhaskar Ramamurthi, Director, IIT Madras.

Schedule of programmes (lectures, video lectures, quiz and olympiad)

Lectures

1. Dr. Pramod Kumar Saxena, Director SAG, DRDO, New Delhi
2. Prof. M. Thamban Nair, IIT Madras
3. Mr. Bhupendra Singh, Scientist, DRDO, Bangalore (M.Tech./Ph.D. student, IIT Madras)

Video lecture

Prof. David Mumford, USA

Quiz

Three quiz competitions (two for college level and one for school level)

Olympiad

Two olympiads (one for college level and one for school level)

FORAYS 2014 was attended by 150 participants from reputed schools, colleges and universities in Chennai.

4.13. DEPARTMENT OF MECHANICAL ENGINEERING

4.13.1. Introduction

The Department of Mechanical Engineering was established in 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 six laboratories, namely the Heat Transfer and Thermal Power, Hydro-Turbo Machines, I.C. Engines, Refrigeration & Air Conditioning, Thermal-Turbo Machines and Thermodynamics & Combustion laboratories.

The Design Stream consists of the Machine Design Section and the Machine Dynamics Laboratory.

The Manufacturing Engineering Stream consists of the Manufacturing Engineering Section and the Precision Engineering and Instrumentation laboratories.

4.13.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	ME5001	Prognostics and Health Management Of Machine Tools
2	ME6014	Microp Manufacturing Technology
3	—	Elastic Waves and Ultrasonics
4	—	Dynamic Modelling of Engineering Systems
5	ME7640	Fundamentals of Tribology
6	—	Foundations of Computational Materials Modelling
7	ME6008	Fundamentals of Microfluidics and Microsystems
8	—	Mechanics of Thin Films for Microsystem Design

Students on roll as of September 2013 + M.S. and Ph.D scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year & Others	Total
B.Tech.	77	84	79	73	—	313
Dual Degree	73	78	69	82	64	366
M.Tech.	106	84	0	0	0	190
M.S.	64	44	25	15	10	158
Ph.D.	77	47	42	34	29	229
Total	397	337	215	204	103	1256

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposia/ Workshop	Date and Venue	Financial Assistance from
Abroad					
1	V. Sivaraman	ME08D011	Green Asia Conference	29 November to 2 December 2013, Kyushu University	GAKU
2	KiranYelmar	ME10S014	ASME International Mechanical Engineering Congress & Exposition	15–21 November 2013, San Diego, California USA	IIT Madras

3	Geethanjali, G.	ME11M071	The 20th International Congress on Sound and Vibration	7–11 July 2013, Bangkok, Thailand	Partly guide's PCF, partly self-financed
4	Sudheesh Kumar	ME12D062	11th International Conference on Vibration Problems (ICOVP-2013)	9–12 September 2013, Lisbon, Portugal	IIT Madras
5	Gyani Shankar Sharma	ME11S029	International Congress of Sound and Vibration ICSV 20	7–11 July 2013	IIT Madras
6	Vivek Sarda	ME09B102	BEATS-2014	12–14 February 2014, Punjab University, Chandigarh	ISP project
7	S. Dhinakaran	ME09D042	International Committee on Aeronautical Fatigue (ICAF) 2013	3–4 June 2013, Jerusalem, Israel	IIT Madras
8	N.S. Kavitha	ME11D004	ASME IMECE 2013	15–21 November 2013	IIT Madras
India					
1	R. Srikanth	ME07D017	International Conference on Precision, Meso, Micro and Nano Engineering	13–15 December 2013, NIT Calicut	IIT Madras
2	Tushar Tukaram Gurav	ME11M113	International Conference on Precision, Meso, Micro and Nano Engineering	13–15 December 2013, NIT Calicut	IIT Madras
3	T. Jagadesh	ME12D007	International Conference on Advances in Manufacturing and Materials Engineering	27–29 March 2014, NITK Surathkal	IIT Madras
4	V. Rishikesan	ME14Z001	International Conference on Advances in Manufacturing and Materials Engineering	27–29 March 2014, NITK Surathkal	IIT Madras
5	C. Kalyan	ME12S030	International Conference on micro meso and nano engineering.	13–15 December 2013, NIT Calicut	IIT Madras
6	Gajanan	ME12S025	40th National Conference on Fluid Mechanics and Fluid Power	12–14 December 2013, NIT Hamirpur, Himachal Pradesh	IIT Madras
7	Gajanan	ME12S025	The IEEE National Conference on Recent Advances in Mechanical Engineering (RAME-2014)	7 February 2014, Chennai	PCF
8	Manoj Kumar Kalwan	ME11M011	International Conference on Advanced Materials, Manufacturing, Management & Thermal Sciences (AMMMT 2013)	3–4 May 2013, Tumkur, Karnataka	PCF
9	T. Sadagoapan	M.S. scholar	Indo-Russian Workshop at IIT Madras: Topical Problems in Theoretical and Applied Mechanics ("A model for a polymeric composite subjected to cyclic loading")	11–15 November 2013	IIT Madras
10	P. Srikanth	Ph.D. scholar	20th International Congress on Sound and Vibration (ICSV)	7–11 July 2013, Bangkok, Thailand	IIT Madras
11	Madhavan S.	Ph.D. scholar	ASME 2013 Gas Turbine India Conference	5–6 December 2013, Bangalore	—
12	Madhavan S.	Ph.D. scholar	International Conference on Computer Aided Engineering (CAE-13)	19–21 December 2013, IIT Madras, Chennai	—
13	Sivakumar Subramanian	Ph.D. scholar	15th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, ISROMAC-15	24–28 February 2014, Honolulu, HI, USA	IIT Madras
14	G. Sreedhar Babu	Ph.D. scholar	National Conference on Condition Monitoring (NCCM 2013),	4–5 October 2013, IISc, Bangalore.	—
15	P. Srikanth	Ph.D. scholar	National Symposium on Rotor Dynamics—NSRD	12–14 February 2014, Ambedkar Institute of Technology, Bangalore	IIT Madras
16	Sivakumar Subramanian	Ph.D. scholar	40th National Conf. on Fluid Mechanics and Fluid Power, FMFP-2013	12–14 December 2013, NIT Hamirpur, India	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	V. Sivaraman	ME08D011	Best Paper Award	IEEE, ICRDPET March 2013
2	M.V. Jairaj	ME08B024	JED-iProject Challenge 2013	Leading companies in partnership with IISc, Bangalore
3	T.S. Anand	ME12M004	Gandhian Young Technological Innovations (GYTI) appreciation	Society for Research Initiatives for Sustainable Technologies and Institutions (SRISTI)
4	Vivek Sarda	ME09B102	Best Paper Award	BEATS-2014 conference

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize	Name of Donor
1	B.V. Raghavendra	ME09B132	Sri Sagar Pushpala	
2	Sneha Abhyankar	ME09B095	Sri Rajesh Achanta Prize	Sneha Abhyankar
3	Sneha Abhyankar	ME09B095	Swati/Jayalakshmi Memorial Award	Sneha Abhyankar
4	Swostik Sourav Dash	ME08B088	Bhagyalakshmi and Krishna Ayengar Award	—
5	P.S. Satyanarayana	AT11M006	Lucas-TVS Limited Prize	—
6	Rohith Mittapalli and Sushant Veer	ME09B070 and ME09B058	Best Innovative Student Project	Chinmay Deodhar
7	Geethanjali G.	ME11M071	S. Anantharamakrishnan Merit Prize	Geethanjali G.
8	Geethanjali G.	ME11M071	Prof. Ramamohana Rao Memorial Prize	Geethanjali G.

4.13.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
Sundararajan, T.	Droplet combustion, supersonic reacting jet flows, computational fluid dynamics
Ajit Kumar Kolar	Fluidized bed combustion of coal and biomass, fuel cells, advanced power generation system analysis
Babu Viswanathan	CFD, high speed reacting flows, high performance computing
Chakravarthy Balaji	Fundamental heat transfer, optimization of thermal systems, inverse problems in heat transfer, satellite meteorology, numerical weather prediction
Chandramouli, P.	Non-linear dynamics, acoustics & noise control
Sarit Kumar Das	Heat exchangers, two phase flow, nano fluids, jet oscillations, nuclear heat transfer
Govardhan, M.	Tip clearance flows, secondary flows, CFD
Krishnan Balasubramaniam	Nondestructive evaluation, materials characterization, online measurements
Maiya, M.P.	Refrigeration and air conditioning, sorption, ventilation
Mani A.	Solar energy, refrigeration and air conditioning, cryogenic engineering, alternate working fluids, effluent treatment
Mayuram M.M.	Surface engineering, wear and wear control, thermal sprayed coatings, fatigue and fracture aspects in design and analysis
Muthuveerappan G.	Machine design, vibrations of structures in fluid environments, generation of gear teeth and fillet profiles for stress analysis and design
Pramod S. Mehta	Combustion modeling, fluid dynamics in I.C. engines, engine emission control
Prasad, B.V.S.S.S.	Blade cooling, thermal hydraulics, CFD
Raju Sethuraman	Computational solid mechanics, fatigue and fracture of materials
Ramesh A.	I.C. engine combustion and emissions, electronic engine management, alternative fuels
Ramesh Babu, N.	Non-conventional machining, process modeling, precision machine tool development

Raghu Prakash, V.	Fatigue and fracture mechanics, random load life prediction, product design
Seshadri Sekhar, A.	Rotor dynamics, condition monitoring, tribology
Shunmugam, M.S.	Metrology, manufacturing (gear, BTA machining, reaming, centreless grinding, EDM, friction welding), manufacturing automation & robotics, computer application in manufacturing (process planning, inspection planning, quality control)
Shankar Krishnapillai	Structural vibrations, design optimization, system identification
Sitaram, N.	Rotor–stator interaction, diffuser flows, boundary layers
Siva Prasad N.	Finite element analysis, computer aided design, stress analysis, machine design
Sujatha, C.	Vehicle dynamics, machinery diagnostics, signal analysis
Srinivasa Reddy, K.	Renewable energies, solar energy, energy conservation, energy environment, heat transfer in two-phase systems
Srinivasan, K.	Jet flow and noise, active and passive flow control, measurement and instrumentation
Venkatrathnam, G.	Cryogenics, mixed refrigerants
Vijayaraghavan L.	Machining, CAD, surface engineering, grinding
Associate Professors	
Arunn Narasimhan	Heat transfer and fluid flow in biological systems, heat transfer and fluid flow in porous medium, phase change materials, convection heat transfer and fluid mechanics
Dhiman Chatterjee	Fluid mechanics, turbomachines, cavitation
Krishna Kannan	Continuum mechanics, thermodynamics and constitutive modeling of polymeric materials
Mallikarjuna J.M.	Simulation of engine processes, data acquisition, design of engine components, in-cylinder flow analysis using PIV
Raghavan V.	Combustion modeling, droplet combustion, laminar flames
Samuel, G.L.	Measurement and inspection of free form surfaces evaluation of form errors, micro machining
Shaligram Tiwari	Fluid structure interaction, interfacial instability, vortex dynamics
Shamit Bakshi	CFD in I.C. engines, liquid atomization and spray systems, fuel nozzle modeling
Sujatha Srinivasan	Assistive devices, biomechanics, mechanisms
Somashekhar S. Hiremath	Micromachining, mechatronic system design, oil hydraulics, system simulation and modelling, FEM
Sathyan Subbiah	Manufacturing engineering studies
Assistant Professors	
Abhijit Sarkar	Vibration, acoustics, computational methods
Amitava Ghosh	Machining and Grinding of advanced materials, development of abrasive tools
Anand T.N.C.	CFD simulations of I.C. engines processes, laser-based diagnostics of sprays and combustion
Anand, K.	I.C. engines
Anil Kumar Meena	Manufacturing engineering studies
Arvind Pattamatta	Micro/nano scale energy transport, computational heat transfer, mesoscopic modeling, phase change heat transfer, turbulence modeling
Arunachalam N.	Manufacturing engineering studies
Ashis Kumar Sen	Microfluidics, bio-MEMS, fluid mechanics
Manivannan P.V.	Instrumentation and controls, mechatronic system design, microprocessor
Manoj Pandey	Finite element analysis, dynamics and MEMS
Narasimhan Swaminathan	Computational materials science and mechanics, radiation damage in materials, multiscale modelling of complex phenomenon in nuclear and fuel cell materials, finite element method, continuum mechanics, multiscale modeling, radiation damage in materials, computational materials science
Parag Ravindran	Viscoelastic fluids constitutive modeling
Prabhu Rajagopal	Ultrasonic waves for nondestructive evaluation, health monitoring and process control, computational methods for modeling elastic wave phenomena
Ramkumar Penchaliah	Tribology, engine tribology, condition monitoring and nanolubrication
Ratna Kumar Annabattula	Finite element analysis, granular mechanics, buckle-driven de-lamination, fusion materials, mechanics of micro-systems

Ravikiran Sangras	Experimental fluid mechanics, combustion, turbulent flows
Sateesh Gedupudi	Heat transfer studies
Sushanta Kumar Panigrahi	Friction stir processing and welding, superplasticity, advanced metal forming techniques for producing bulk nanostructured/UFG metals and alloys, thermo-mechanical processing of lightweight structural metallic materials
Soundarapandian S.	Synthesis of structural materials, fabrication of bio-implants, laser applications in medical industry, laser-aided surface engineering
Srikrishna Sahu	Thermodynamics and combustion engineering
Shyama Prasad Das	Unsteady hydrodynamics and aerodynamics, turbomachines, interfacial hydrodynamics and transport, phase change heat transfer in mini system
K. Vishwanath	Turbomachinery noise
Professors Emeriti	
Ganesan V.	Theoretical and experimental studies in fluid flow, heat transfer and combustion in I.C. engines, gas turbines, after-burners and related engineering equipment
Venkateshan S.P.	Heat transfer, instrumentation
Narayanan, S.	Random and nonlinear vibrations, smart structures and acoustics

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

Sl. No.	Coordinator(s)	Title	Period
Conferences			
1	M.P. Maiya	Third National Conference on Refrigeration and Air Conditioning, IIT Madras	12–14 December 2013
2	S. Srinivasa Murthy	Solar Absorption Refrigeration Systems Operating with Ionic Liquids, IIT Madras	21–22 February 2014
3	M.P. Maiya	Solar Absorption Refrigeration Systems Operating with Ionic Liquids, IIT Madras	21–22 February 2014
4	G. Venkatarathnam	Solar Absorption Refrigeration Systems Operating with Ionic Liquids, IIT Madras	21–22 February 2014
5	Narasimhan Swaminathan (co-organized with Siva Prasad, Ratna Kumar Annabattula and Shankat Krishna Pillai)	CAE 2013, IC&SR, IIT Madras	19–21 December 2013
Symposia			
1	K. Anand	Future Sustainable Energy Systems: Indian and German Perspectives, Indo German Centre for Sustainability (IGCS), IIT Madras	5 December 2013
Workshops			
1	Narasimhan Swaminathan (co-organized three workshops with Siva Prasad, Ratna Kumar Annabattula and Shankat Krishna Pillai)	Advanced Finite Element Method, Engineering Optimization and Advanced Computational Fluid Mechanics	22–24 December 2013
Training programmes			
1	K. Anand	Faculty Development Programme, Centre for Continuing Education, IIT Madras	11–13 December 2013
Short-term courses			
1	N. Ramesh Babu	System Thinking and Transformation Skills (Caterpillar)	3–4 February 2014
2	M.P. Maiya	Winter School on Indoor Air Quality and Health Effects	9–14 December 2013
3	Abhijit Sarkar, Parag Ravindran	Advanced Mechanics	3–7 February 2014
4	Abjit Sarkar, Parag Ravindran	AICTE-QIP short term training programme, Advanced Mechanics, IIT Madras	3–7 February 2014

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
Symposia				
1	A.S. Sekhar	National Symposium on Rotor Dynamics—NSRD	Ambetkar Institute of Technology, Bangalore	12–14 February 2014
Conferences				
1	Shaligram Tiwari	ISHMT 2013	IIT Kharagpur	28–31 December 2013
2	A. Mani	International Workshop on Design Sub Systems for Concentrated Solar Power Technologies	IIT Jodhpur	19–22 December 2013
3	N. Sitaram	Design, Fabrication and Calibration of a Multi-hole Pressure Probe with Minimum Spatial Error	SIT, Tumkur, Karnataka	3–4 May 2013
4	N. Sitaram	Measurement of Periodic Static Pressure on Diffuser Hub of a Centrifugal Compressor	SIT, Tumkur, Karnataka	3–4 May 2013
5	N. Sitaram	Effect of Configuration on Calibration of a Seven Hole Probe	NIT Hamirpur	12–14 December 2013
6	B.V.S.S.S. Prasad	40th National Conference on Fluid Mechanics and Fluid Power (NCFMFP-2013)	NIT Hamirpur	10–16 December 2013
7	B.V.S.S.S. Prasad	Advance Biomass Thermal Conversion Processes	Central Mechanical Engineering Research Institute, Durgapur	18–19 December 2013
8	B.V.S.S.S. Prasad	58th ISTAM Conference Secretariat	BESU, Shibpur, Kolkata	20–21 December 2013
9	B.V.S.S.S. Prasad	ASME 22nd National and 11th ISHMT—Heat and Mass Transfer Conference	Kharagpur	27 December 2013 to 1 January 2014
10	Ashis Kumar Sen	ISHMT 2013 ((1) Three-dimensional electro-fluid-structural simulation for design of valve-less micropump and (2) Thermal management of integrated circuits using cascade electro-osmotic micropump)	Kharagpur	28–31 December 2013
11	Ashis Kumar Sen	Fundamentals and Applications of Droplet Based Microfluidics	SELECTBIO LOAC Conference	27 September 2013
12	C. Sujatha	International Congress on Sound and Vibration (ICSV20)	International Institute of Acoustics and Vibration (IIAV) , Bangkok, Thailand	7–11 July 2013
13	C. Sujatha	International Conference on Computational & Experimental Engineering and Sciences	ICCES, Seattle, USA	24–28 May 2013

Special lectures delivered by faculty members at other institutions

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Topic of Lecture</i>	<i>Institution</i>	<i>Date</i>
1	G.L. Samuel	Advances in Non-conventional Machining Processes—EDM	Anna University	
2	G.L. Samuel	Introduction to Micromachining	T. John College	21 March 2013
3	G.L. Samuel	Experimental Research	FL Smidth	
4	G.L. Samuel	Developing a Research Plan		
5	G.L. Samuel	System Simulation with Simulink	NIT Trichy	

6	G.L. Samuel	Recent Advances in Machining	N.A.A.M. Institute of Technology	10–15 June 2013
7	G.L. Samuel	1. Recent Advances in Machining Simulation 2. Micromachining and Its Applications 3. Modelling and Simulation	Nitte University	10–11 June 2013
8	G.L. Samuel	Recent Advances in Manufacturing	Sai Ram Engineering College	4 September 2013
9	G.L. Samuel	1. Robotics, Automotion and Mechatronics 2. Advances in Manufacturing	JNTU Hyderabad	12–13 March 2014
10	G.L. Samuel	Recent Trends In Industrial Metrology and Calibration of Measuring Instruments	PSG College of Technology	20–23 April 2014
11	G.L. Samuel	Recent Advances in Manufacturing	S.A. Engineering College	3 February 2014
12	G.L. Samuel	Emerging Research and Advances in Mechanical Sciences—Advances in Manufacturing Processes	Velammal Engineering College	28 March 2014
13	G.L. Samuel	Advances in Manufacturing Processes—Micromachining	JNTU Kakinada	28 February to 1 March 2014
14	Sushanta Kumar Panigrahi	Surface Modifications by Friction Stir Processing	NIT Trichy	12 June 2013
15	Sushanta Kumar Panigrahi	Advances in Joining Processes	NIT Silchur	10 August 2013
16	N. Arunachalam	Smart Machine Tools	VIT, Vellore	15 November 2013
17	N. Arunachalam	Role of Mechatronics in Smart Machine Tools	SSN College of Engineering, Kalavakkam, Chennai	2 December 2013
18	N. Arunachalam	Prognostics and Health Management of Mechanical Systems	Anna University	29 January 2014
19	N. Arunachalam	Smart Machine Tools	Dhaanish Ahmed College of Engineering	1 February 2014
20	N. Arunachalam	Role of Prognostics in Smart Grid	P.T. Lee Chengalvaraya Naicker College of Engineering and Technology	17 March 2014
21	S. Soundarapandian	Laser-Induced Surface Texturing for Structural Metals/Ceramics/Plastics	NIT Trichy	12 June 2013
22	S. Soundarapandian	Recent Manufacturing Trends in Automobile Industry	Hyundai Motors India Ltd., Chennai	20 May 2013
23	S. Soundarapandian	Localized Laser Microprocessing	NIT Trichy	3 April 2014
24	S. Soundarapandian	Automated Laser System for Medical Applications	NIT Trichy	3 April 2014
25	M.P. Maiya	Sorption Cooling Techniques for Air Conditioning, at the National Seminar on Advances in Refrigeration and Air-Conditioning	Karunya University, Karunya Nagar, Coimbatore	9 November 2013
26	M.P. Maiya	Duct Balancing	ASHARE Student Chapter, Anna University	September 2013
27	A. Mani	Attended the selection of faculty as an Expert Member	JNT University, Kukatpally, Hyderabad	24 June 2013
28	M.P. Maiya	Solar Cooling and Adsorption System	IIT Delhi and NBA Kolkata	14–18 August 2013
29	Shaligram Tiwari	Teaching Methods in Fluid Mechanics (Faculty Development Programme)	Thiagarajar College of Engineering, Madurai	20–21 December 2013

30	A. Mani	Introduction to Solar Vapour Absorption System	IIT Jodhpur	16–18 December 2013
31	Ashis Kumar Sen	Development of Few Microfluidic Systems	C-CAMP, Bangalore	1 May 2013
32	Ashis Kumar Sen	Some Applications in Microfluidics	Achira Labs	15 February 2013
33	Ashis Kumar Sen	Microfluidics—Theory and Applications	NIT Rourkela	3 January 2014
34	Dhiman Chatterjee	Research in Microscale Flows	Malnad College of Engineering, Hassan	20 May 2013
35	Dhiman Chatterjee	Research in Cavitation	Malnad College of Engineering, Hassan	21 May 2013
36	Dhiman Chatterjee	Multiphase Flows	DRDL, Hyderabad	4 September 2013
37	Dhiman Chatterjee	Cavitation—An overview	EXCON 13, organized by CII	22 November 2013
38	C. Sujatha	Introduction to Acoustics and Sound Measurement Techniques	NITK Suratkal	29–31 January 2014
39	P. Ramkumar	Hydrodynamic Bearing Design	Omega Renk, Bhopal	9–10 December 2013
40	P. Ramkumar	Clutch Design	Caterpillar, Chennai	26 October 2013
41	Abhijit Sarkar	Dispersion Characteristics of Structural Acoustic Waveguides	TU Wien, Austria	13 September 2013
42	A.S. Sekhar	Estimation of Damping in Rotor Bearing Systems (invited talk at National Symposium on Rotor Dynamics)	NSRD, Ambedkar Institute of Technology, Bangalore	12–14 February 2014
43	A.S. Sekhar	Presented lectures at a 2-day workshop on product design	GITAM University, Visakhapatnam	21–22 February 2014
44	Narasimhan Swaminathan	Material Non-linearities in Finite Element Method	IIT Madras (part of lectures for BHEL CEP)	18–25 March 2014
45	C. Balaji	Mathematics and Its Role in Science, Engineering and Society	National Conference on Mathematics, Bharathiar University, Coimbatore	15 March 2013
46	C. Balaji	A New Ensemble Based Data Assimilation Algorithm to Improve Track Prediction of Tropical Cyclones	Department of Mechanical Engineering, IIT Kanpur	4 April 2013
47	C. Balaji	The Joy of Research	SSN College of Engineering, Chennai	19 April 2013
48	C. Balaji	The Joy of Teaching	Kendriya Vidyalaya School, Ashok Nagar, Chennai	20 April 2013
49	C. Balaji	Assimilation of Multi-channel Radiances on Mesoscale Model with Ensemble Technique to Improve Track Forecast of Tropical Cyclones	Centre for Atmospheric and Oceanic Sciences, IISc, Bangalore	16 August 2013
50	C. Balaji	The Joy of Teaching	NIT Trichy	27 August 2013
51	C. Balaji	The Joy of Teaching	PSG College of Technology, Coimbatore	26 October 2013
52	C. Balaji	The Joy of Research	Department of Engineering Design, IIT Madras	25 October 2013
53	C. Balaji	Towards Better Tracking of Storms in the Bay of Bengal	National Conference on Climate Change, IIT Madras	27 October 2013
54	C. Balaji	Experimental Investigation on Thermal Performance of Phase Change Material Based Composite Heat Sinks	Annual Convention of the Indian National Academy of Engineering, Bhubaneswar	12 and 14 December 2013
55	C. Balaji	Experimental Investigation of Thermal Performance of PCM Filled Heat Sinks with Discrete Heat Sources	22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur	28–31 December 2013

56	C. Balaji	Assimilation of Multi channel Radiances in Mesoscale Models with an Ensemble Technique to Improve Track Forecasts of Tropical Cyclones	Department of Mathematics, Indian Institute of Technology Madras	20 February 2014
57	C. Balaji	1. Introduction to Optimization 2. Simulated Annealing	Faculty Development Programme, Rajiv Gandhi Institute of Technology	28 February 2014
58	Arunn Narasimhan	Biothermofluids in Nature: Of Elephant Ears and Mushroom Canons	Biotech Seminar Hall, IIT Madras	26 April 2013
59	K.S. Reddy	Solar Thermal Systems for Power Generation—Powering the Engineering College Campuses with Renewable Energy	PSG College of Technology Coimbatore	18 March 2014
60	K.S. Reddy	1. Introduction and Overview of Solar Photovoltaic Systems 2. Modelling of Solar Photovoltaic Systems	National Seminar on Grid Connected Solar Power Systems, NSN- College of Engineering and Technology, Karur	22 February 2014
61	K.S. Reddy	Hybrid Solar Concentrating Photovoltaic System for Poly-generation	IIT Madras (Indo-Spanish Workshop on Solar Absorption Refrigeration Systems Operating with Ionic Liquids)	21 February 2014
62	K.S. Reddy	Solar Aided and Hybrid Thermal Power Plants for Sustainable Energy Supply	Saveetha Engineering College, Chennai (National Seminar on Hybrid Renewable Energy Systems)	19 February 2014
63	K.S. Reddy	1. An Integrated Solar Concentrated Photovoltaic System for Sustainable and Reliable Energy Supply 2. Performance Analysis of Solar BiPV/T	Madhav Institute of Technology and Science, Gwalior (Workshop on Hybrid Solar Photovoltaic Technologies)	15–16 January 2014
64	K.S. Reddy	Concentrating Solar Power Technologies for Sustainable Energy Production (session chair)	C.V. Raman College of Engineering, Bhubaneswar (International Conference on Emerging Trends in Renewable Energy (ICETRE-2013))	26–29 December 2013
65	K.S. Reddy	Chief guest at valedictory function of seminar, Energy Resources—Generation Next	Justice Basheer Ahmed Sayed College for Women (SIET), Chennai	13 December 2013
66	K.S. Reddy	Dispersed Renewable Power Generation for Sustainable Energy Supply	National Institute of Science and Technology, Bhubaneswar, Orissa (Conference on Dispersed Generation and Smart Grid)	30 November 2013
67	K.S. Reddy	1. Renewable Energy Technologies for Sustainable Energy Supply 2. CST and CPV Systems for Automotive Industry 3. Incubating Potential Renewable Energy Technologies for Automotive Industry	PSG College of Technology, Coimbatore	23 November 2013
68	K.S. Reddy	Research Issues in Solar Energy Conversion	PSG College of Technology, Coimbatore	5. November 2013
69	K.S. Reddy	1. Renewable Energy Conversion Technologies 2. Soft Computing Control—Applications to Renewable Energy System	Sri Venkateshwara Engineering College, Chennai	18 October 2013

70	K.S. Reddy	Research Issues in Solar Energy Conversion	S.A. Engineering College, Chennai (National Seminar on Recent Trends in Renewable Energy Conversion Technologies)	5 September 2013
71	K.S. Reddy	Design of Solar Thermal Systems	SERC–CSIR, Chennai (Workshop on Solar Thermal Systems)	21 August 2013
72	K.S. Reddy	Energy Storage in Solar Thermal Power Systems for Sustainable Development	Karunya University, Coimbatore (National Workshop on Recent Trends in Solar Thermal Systems Towards Sustainable Development)	2 August 2013
73	K.S. Reddy	Thermodynamic Analysis of Power Plant Cycles	Anna University, Chennai (training in engineering thermodynamics)	10 June 2013
74	K.S. Reddy	Two-week staff development programme, “Renewable Energy”	Pondicherry Engineering College, Pondicherry	20 May 2013
75	K.S. Reddy	Research Issues in Solar Energy Conversion	RMK College of Engineering and Technology, Gummidipoondi (National Workshop on Solar Energy— The Better Future)	8 April 2013

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	G.L. Samuel	Italy	15 June 2013	Erasmus Mundus Scholarship	European Union
2	S. Soundarapandian	USA	3–8 December 2013	PAN IIT Global Conference	IIT Madras
3	G. Venkatarathnam	Japan	September 2013	Conference	IIT Madras
4	M.P. Maiya	Spain	17 December 2013 to 15 January 2014	NARILAR	NARILAR
5	N. Sitaram	USA	30 September to 6 October 2013	For discussions regarding MoU with the Pennsylvania State University, University Park, PA, USA	OIAA and Alumni Association, IIT Madras
6	B.V.S.S.S. Prasad	Hawaii, USA	24–28 February 2014	The International Symposium on Transport Phenomena and dynamic of Rotating machinery (ISROMAC – 15)	PCF Account
7	Dhiman Chatterjee	Germany	29–31 May 2013	Fifth International Conference on Computational Methods in Marine Engineering 2013	CPDA
8	C. Sujatha	USA	17–18, 24–28 May 2013	To visit Carnegie Mellon University, PA and to present a paper at the 13th International Conference on Computational & Experimental Engineering and Sciences, Seattle	CPDA
9	C. Sujatha	Canada	21–22 May 2013	To meet faculty members of the Department of Mechanical Engineering, University of Toronto, Toronto	CPDA
10	C. Sujatha	Thailand	7–11 July 2013	To present papers at the 20th International Congress on Sound and Vibration, Bangkok	PCF

11	P. Chandramouli	Canada	June 2013	ICA 2013 Conference	CPDA
12	Abhijit Sarkar	Austria	September 2013	International conference	CPDA
13	Abhijit Sarkar	USA	October	Research collaboration with Penn State University	IAR, IIT Madras
14	Abhijit Sarkar	Austria	September 2013	International conference	CPDA
15	Raghu V. Prakash	USA	13–15 November 2013	13th ASTM/ESIS Symposium on Fatigue and Fracture Mechanics, Jacksonville	
16	Raghu V. Prakash	USA	15–21 November 2013	ASME Congress and Expo—IMECE, San Diego	
17	Raghu V. Prakash	Politecnico di Milano, Italy	December–January 2014	Fellowship	Erasmus Mundus program

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
1	Ashis Kumar Sen	IEI Young Engineer Award	Institutions of Engineers India	Contributions to Mechanical Engineering	6 September 2013
2	Ashis Kumar Sen	INAE Young Engineer Award	Indian National Academy of Engineering	Contributions to the area of microfluidics	13 December 2013

Books, monographs authored/co-authored

Sl. No.	Name of Faculty	Title	Publisher	Author/Co-author
1	C. Balaji	<i>Essentials of Radiation Heat Transfer</i>	Ane Books India Pvt. Ltd., New Delhi	—
2	Arunn Narasimhan	<i>Do Aliens Exist?</i> (Tamil)	Thamizini Publishers	—
3	Arunn Narasimhan	<i>Nano: An Introduction</i> (Tamil)	Thamizini Publishers	—
4	Arunn Narasimhan	<i>Why Do Toucans Have Big Beaks?</i> (Tamil)	Amrutha Publishers	—

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal Name
1	M.S. Shunmugam	Reviewer	<i>Precision Engineering</i>
2	M.S. Shunmugam	Reviewer	<i>International Journal of Machine Tools and Manufacture</i>
3	M.S. Shunmugam	Reviewer	<i>International Journal of Advanced Manufacturing Technology</i>
4	M.S. Shunmugam	Reviewer	<i>Journal of Intelligent Manufacturing Systems</i>
5	M.S. Shunmugam	Reviewer	<i>American Society of Mechanical Engineers</i>
6	M.S. Shunmugam	Reviewer	<i>Wear</i>
7	M.S. Shunmugam	Reviewer	<i>International Journal of Production Research</i>
8	M.S. Shunmugam	Editorial Review Board	<i>International Journal of Materials Forming and Machining Processes</i>
9	M.S. Shunmugam	Member on the Board	<i>International Journal of Machine Tools and Manufacture</i>
10	M.P. Maiya	Member	<i>International Journal of Low Carbon Technologies</i>
11	M.P. Maiya	Member	<i>International Journal of Sustainable Built Environment</i>
12	N. Sitaram	Editor	<i>Journal of Advance Research in Applied Mechanics & Computational Fluid Dynamics</i>
13	N. Sitaram	Editor	<i>Journal of Advance Research in Mechanical Engineering and Technology</i>
14	N. Sitaram	Editor	<i>STM Trends in Mechanical Engineering and Technology</i>
15	N. Sitaram	Editor	<i>Journal of Thermal Engineering and Application</i>
16	B.V.S.S.S. Prasad	Editor	<i>Gas Turbine Heat Transfer in Advance in Mechanical Engineering</i> (Guest Editor, special issue)

17	M. Govardhan	Member	<i>International Journal of Thermal Science</i>
18	Ashis Kumar Sen	Member, Editorial Board	<i>Recent Trends in Fluid Mechanics</i>
19	Ashis Kumar Sen	Member, Editorial Board	<i>Journal of Thermal Engineering and Applications</i>
20	C. Sujatha	Editor	<i>International Journal of Vehicle Performance</i> (Elsevier)
21	K.S. Reddy	Lead Guest Editor	<i>International Journal of Photoenergy—Solar Power Generation</i>

4.13.4. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Name of Equipment	Value (in lakhs of ₹)
1	Grinding machine	28.00
2	Confocal sensor based non-contact measurement system	15.00
3	CNC cylindrical grinding machine	70.00

Patents filed

Sl. No.	Name of Faculty Member	Topic of Patent
1	N. Ramesh Babu	Formation of Uniformly Distributed Abrasive Slurry for Micro Abrasive Waterjet Machining Applications
2	Sujatha Srinivasan	Swimming Pool Lift for Physically Challenged
3	Sujatha Srinivasan	A Multi-position Wheelchair
4	Sujatha Srinivasan (provisional filing)	A Semi-flexion Orthotic Knee
5	Sujatha Srinivasan and Anil Prabhakar (provisional filing)	Body Movement Based Training and Mobility Device
6	K.S. Reddy	Solar Parabolic Trough Collector with Integrated Torque Tube—Box Support Structure (2013)
7	K.S. Reddy	Passive Cooling Based Secondary Concentrator for Solar Concentrating Photovoltaic (CPV) System for Uniform Flux Distribution and Effective Cooling (2013)

4.13.5. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Development of Next Generation High Precision Grinding Machine Tool	January 2012 to December 2015	OPSA	284.9	N. Ramesh Babu
2	Development of Bi-metallic Joining Technique and Realization of Bi-metallic Adaptors for Launch Vehicles	2013–2015	ISRO, India	25.03	S.K. Panigrahi
3	Machinability and Mechanical Properties of Ultrafine Grained Automotive Aluminium Alloys	2012–2014	Renault Nissan Technology & Business Centre India Private Limited	9.13	S.K. Panigrahi
4	Development and Studies on Machinability and Mechanical Properties of Nano/Ultrafine Grained Magnesium Alloys	2012–2015	IC&SR, IIT Madras	23.00	S.K. Panigrahi
5	Passive Cooling System for Tropical Climate Concrete Are Cooling Coupled with Cooling Tower	2013–2016	DST	36.5	M.P. Maiya

6	New Working Fluids Based on Natural Refrigerant and Ionic liquids for Absorption Refrigeration—“NARILAR”	2011–2016	European Commission	22.9	M.P. Maiya
7	Optimal Thermal Design, Fabrication and Testing of Solid State Hydrogen Storage Devices	2012–2014	DST	25.0	S. Srinivasa Murthy, M. Prakash Maiya
8	Solar Cooling and Production of Potable Water with Two Stage Silica Gel–Water Adsorption System	2013–2015	DST	35.0	S. Srinivasa Murthy, M. Prakash Maiya
9	Development of Solar Tri-generation System for Cooling, Heating and Potable Water	2012–2015	DST	88.59	K.S. Reddy, M. Prakash Maiya
10	Solar Absorption Refrigeration Systems Operating with Ionic Liquids as Absorbents and Ammonia as Refrigerant	21 May 2012 to 20 May 2015	DST/Indo-Spanish	48.91	G. Venkatarathnam, S. Srinivasa Murthy
11	Thermodynamic Behaviour of IV Generation Working Fluids for Renewable Energy Technologies	18 December 2012 to 17 December 2015	DST/Indo-Ukraine	9.76	G. Venkatarathnam, S. Srinivasa Murthy
12	Conjugate Heat Transfer Experiments and Analysis for Predicting the External and Internal Heat Transfer Coefficients of Gas Turbine Vanes and Blades	April 2011 to April 2014	GATET	45.0	B.V.S.S.S. Prasad, Dhiman Chatterjee, Y.V.S.S. Sanyasiraju
13	Hot Air Calibration of Five Hole Probes	July 2009 to March 2014	BRNS	32.0	N. Sitaram, M. Govardhan
14	Investigation of Fluid–Structure Interaction through Deformable Microchannels	2014–2015	IIT Madras	5.0	Ashis Kumar Sen, Ratna Kumar Annabatula
15	Microfluidic Device for Sample Transportation and Particle Liquid Separation	2012–2015	IIT Madras	17.5	Ashis Kumar Sen
16	Development of a Plug-n-Play Microfluidic Research Platform and Novel Approaches to Mixing	2012–2015	DST	27.6	Ashis Kumar Sen
17	Domestic Water Meters and Study of Water Loss	2013–2015	MDW	27.8	Ashis Kumar Sen, P.V. Manivannan
18	Development of Electrospray Based MEMS Microthruster	2013–2016	ISRO	39.8	Ashis Kumar Sen, Mahesh Panchagnula
19	Sorting of Deformable Objects in Microchannels for Biomedical Applications	2013–2016	DBT	48.3	Ashis Kumar Sen, Mukesh Doble
20	Experimental and Numerical Investigation of Bubble Motion under Combined Hydrodynamic and Acoustic Field	2 September 2011 to 1 September 2014	Naval Research Board	72.004	Dhiman Chatterjee, Shamit Bakshi
21	Design and Development of Hydrokinetic Turbine Suited for Indian Condition	18 July 2011 to 31 March 2014	National Institute of Ocean Technology	15.612	Dhiman Chatterjee
22	Crew Seat Attenuation System	2012–2014	ISRO	11	P. Chandramouli
23	Blast Mitigation through Fluid–Structure Interaction	April 2011–April 2014	DMRL, Hyderabad	21.0	Lakshman Rao, B.S.V. Patnaik, Abhijit Sarkar
24	Above-Knee Prosthesis Design	February 2011–December 2014	SBMT	49.956	Sujatha Srinivasan

25	Development of a Standing Wheelchair	January 2013– July 2014	SRP, IIT Madras	3.0	Sujatha Srinivasan
26	Clinical Trails for Semi-flexion Orthotic Knee	November 2013– November 2014	SBMT	9.96	Sujatha Srinivasan
27	Assistive Gait Orthosis	September 2013–July 2014	ISP	2.0	Sujatha Srinivasan (faculty guide)
28	Training and Mobility Device for Children with Cerebral Palsy	September 2013–July 2014	ISP	1.2	Sujatha Srinivasan (faculty guide)
29	Strain Measurement along Two Mutually Perpendicular Directions During Creep Test on Metals	February 2014 to February 2015.	IC&SR, IIT Madras	5.0	Parag Ravindran
30	Investigation of Damage Mechanisms in Composite Material under Cyclic Loading	6 February 2012 to 5 February 2015	ARDB	75.71	H.S.N. Murthy (PI), Parag Ravindran (Co-PI), P. Sriram (Co-PI)
31	The Vibration Based Technique for Fatigue Shaft Crack Detection and Life Estimation Of Rotors		CSIR, New Delhi	22.67	A.S. Sekhar
32	Design, Development and Demonstration of High Performance Parabolic Trough Based 300 kW Thermal Power Plant	4 1/2 Years (2011–2015)	Council of Scientific and Industrial Research	314.87	K.S. Reddy
33	Development and Integration of Biomass CPV System for Rural and Urban Energy	4 Years (2012–2015)	Department of Science and Technology	276.24	K.S. Reddy
34	Development of Solar Collector Field for Solar Thermal Plant	18 Months (2012–2014)	Department of Science and Technology	289.66	K.S. Reddy
35	Design of Trigeneration System for Heating and Cooling Water	4 Years (2013–2016)	Department of Science and Technology	88.59	K.S. Reddy
36	Centre for Environmental Technology, Dissemination, Demonstration and R&D for Industrial Pollution Abatement	4 Years (2013–2016)	Council of Scientific and Industrial Research	500.00	K.S. Reddy, Indumathi M. Nambi (PI) and 11 Co-PIs from Civil, Biotechnology and Chemical Engineering departments
37	Design and Development of Solar Parabolic Trough Collector for Direct Steam Generation	4 Years (2010–2016)	Department of Science and Technology	34.00	K.S. Reddy

Industrial consultancy projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	S. Srinivasa Murthy and M. Prakash Maiya	Air Conditioning of TV Transmitter Facility	Doordarshan Kendra, Chennai	1.50
2	S. Srinivasa Murthy and M. Prakash Maiya	Air Conditioning of Studios	Doordarshan Kendra, Chennai	5.25
3	N. Sitaram	Calibration of Venturimeters	Devi Electricals (BHEL PSSR)	0.05
4	N. Sitaram	Calibration of Venturimeters	Devi Electricals (BHEL PSSR)	0.27
5	N. Sitaram	Calibration of S Type Probe	Solyvent Flakt (India) Pvt. Ltd.	0.07
6	N. Sitaram	Calibration of Pitot Static Probe	Solyvent Flakt (India) Pvt. Ltd.	0.06
7	C. Sujatha	Seismic Test on OSKF—400 kV (Live Tank) CT	Alstom T&D India, Hosur	2.13

8	C. Sujatha	Seismic Withstand Test on Isolator	GR Power Switchgear Hyderabad	2.92
9	C. Sujatha	Vibration Test on Radiator	Banco Products India Pvt. Ltd., Vadodara	1.60
10	C. Sujatha and A. Meher Prasad	Vibration Analysis of Building	TCS, Gurgaon	7.86
11	C. Sujatha and Parag Ravindran	Seismic Testing on 245 kV Circuit Breaker	ABB Ltd., Vadodara	2.35
12	C. Sujatha/SKP	Seismic Testing on 800 kV Circuit Breaker	Siemens, Aurangabad	2.24
13	C. Sujatha/KK	Seismic Test on 220 kV Isolators	Universal Isolators, M.P., India	6.40
14	C. Sujatha	Seismic Testing on Current/Potential Transformers	SCT Ltd., Ghaziabad, India	12.80
15	C. Sujatha	Seismic Testing on Current/Potential Transformer	Heptacare Power Industries Pvt. Ltd., Meerut	4.26
16	C. Sujatha	Seismic Testing on 3AP 1 FG 145 kV Siemens Make Circuit Breaker	Siemens Ltd., Aurangabad	2.13
17	C. Sujatha	Seismic Testing on 800 kV Circuit Breaker	Siemens Ltd., Aurangabad	2.58
18	C. Sujatha	Seismic Testing on 420 kV Outdoor Type Circuit Breaker	Siemens Ltd., Aurangabad	1.79
19	C. Sujatha	Seismic Test of Arresters	Crompton Greaves, Nashik	5.39
20	P. Chandramouli	Measurement Procedure for Output Only Based Natural Frequency Prediction of Large Engines	L&T IES	1.25
21	P. Chandramouli	Modal Analysis of Alternator Components and Assembly	Lucas TVS	1.13
22	P. Chandramouli and others	Seismic Testing of Electrical Components	Several industries	55.0
23	P. Ramkumar	Evaluate Exacavator Bucket Wear	Caterpillar, Chennai	2.50
24	A.S. Sekhar and Abhijit Sarkar	Vibration and Stress Analysis of LP Stage Moving Blade for 195 MW Thermal Power Plant	BHEL, Bhopal	8.0
25	C. Sujatha and Abhijit Sarkar	Seismic Analysis of Surface Condenser	BHEL, Bhopal	5.05
26	C. Sujatha and Abhijit Sarkar	Seismic Analysis of Moisture Separator and Reheater	BHEL, Bhopal	5.05
27	C. Sujatha and Parag Ravindran	Seismic Test on 245 kV Circuit Breaker	Abb Ltd., Gujarat	1.79
28	P. Chandramouli and Parag Ravindran	Seismic And Mechanical Test on 765 kV CVT	Siemens Ltd., Aurangabad	2.52
29	P. Chandramouli and Parag Ravindran	Seismic Test of 765 kV CVT	Alstom, Hosur	4.49
30	Vijayaraghavan and Parag Ravindran	Stress Analysis of a Shaker	Scigenics Biotech, Chennai	0.70
31	P. Chandramouli and Parag Ravindran	Seismic Test Of 245/145 kV Gas Circuit Breakers	Crompton Greaves Ltd., Nashik	5.39
32	P. Chandramouli and Parag Ravindran	Vibration and Shock Testing of Transformer	Tesla Transformers & Electricals Pvt. Ltd., Kolkata	1.79
33	P. Chandramouli and Parag Ravindran	Seismic Test of 145 and 245 kV Circuit Breakers	Crompton Greaves Limited, Nashik	3.59
34	P. Chandramouli and Parag Ravindran	Vibration and Shock Tests on Amalgamated Battery Charger	Ramyaa Electrogear Pvt. Ltd., Chennai	2.35

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	N. Ramesh Babu	Development of Analysis Tool for Prediction of Deformations in sheet Metal Bending and Its Integration into Existing Sheet Metal Bending Software (ongoing)	Amada Soft India Pvt. Ltd.	23.25
2	N. Ramesh Babu	Investigation on Edge Grinding Quality of Automotive Glass (ongoing)	Saint-Gobain Research India	45.68
3	N. Ramesh Babu	Design and Development of Laser Dressing Systems for Ultra-precision Grinding Machine (new)	CMTI, Bangalore, India	5.00
4	B.V.S.S.S. Prasad, N. Sitaram, Sateesh Gedupudi	Multiphase Modeling and Testing of Steam Turbine Blades	Toshiba	62.00
5	B.V.S.S.S. Prasad	Natural Convection Experimental Study	Renault–Nissan	10.00
6	Ashis Kumar Sen	Design and Fabrication of Microfluidics Chips	CCAMP	2.98
7	Dhiman Chatterjee, B.V.S.S.S. Prasad	Thermal Stress Analysis— Multiphase Steam/Water Mixing of HP Bypass Valves	BHEL Trichy	16.54
8	Mahesh Panchagnula, Dhiman Chatterjee	Investigation of Cavitation Inception in Oil Hydraulics	Eaton	8.42
9	C. Sujatha, Abhijit Sarkar	Seismic Analysis of Moisture Separator	BHEL, Bhopal	5.05
10	C. Sujatha, Abhijit Sarkar	Seismic Analysis of Condenser	BHEL, Bhopal	5.05
11	C. Sujatha, Abhijit Sarkar	Seismic Analysis of Moisture Separator	BHEL, Bhopal	5.05
12	C. Sujatha, Abhijit Sarkar	Seismic Analysis of Condenser	BHEL, Bhopal	5.05
13	A.S. Sekhar, Abhijit Sarkar	Study of Turbine Blade Vibrations	BHEL, Bhopal	8.00

Retainer consultancy (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	P. Chandramouli	Noise and Vibration of Motors and Transformers	Crompton Greaves R&D	2.0

Faculty members participation with other institutions under MoUs

Sl. No.	Name of Faculty Member	Participation Details	Name of University/Institution Which Has MoU
1	Abhijit Sarkar	Part of the delegation that visited Penn State University for 3 days and initiated research collaboration activities	Penn State University, USA

Research publications of faculty members and research scholars

Number of papers published in refereed national journals: 11
Number of papers published in refereed international journals: 85
Number of papers presented in national conferences: 27
Number of papers presented at international conferences: 77

(a) Papers published in refereed national journals

1. G.L. Samuel. State-of-the-art research in machinability of hardened steels. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*.
2. Sriram Krishnaswamy, Shubham Jain and N. Sitaram. Grid and Turbulence Model based Exhaustive Analysis of NACA 0012 Airfoil. *Journal of Advanced Research in Applied Mechanics & Computational Fluid Dynamics (in print)*.
3. Sriram Krishnaswamy, N. Sitaram and N. Jalaiah. Building an automation environment for CFD analysis of airfoils using Python. *Journal of Advanced Research in Applied Mechanics & Computational Fluid Dynamics (in print)*.

4. Ashis Kumar Sen. Particle separation and sorting in microfluidic devices: A Review. *Microfluidics Nanofluidics*.
5. Ashis Kumar Sen. Electrokinetic transport and separation of droplets in a microchannel. *Microfluidics Nanofluidics*.
6. Ashis Kumar Sen. Isotachopheresis with emulsions. *Biomicrofluidics*.
7. Ashis Kumar Sen. Theoretical and numerical investigations of an electroosmotic flow micropump with interdigitated electrodes. *J. Microsystems Technologies*.
8. Ashis Kumar Sen. Investigations into mixing of fluids in microchannels with lateral obstructions. *J. Microsystems Technologies*.
9. S.K. Das. Physics of the interaction of ultrasonic excitation with nucleate boiling. *ASME J Heat Transfer*.
10. S.P. Das. Unsteady separation and vortex shedding from a laminar separation bubble over a bluff body. *Journal of Fluids and Structures*.
11. Abhijit Sarkar (2013) Using directivity of radiated sound for noise control applications. *Journal of Acoustical Society of India* 40(1).

(b) Papers published in refereed international journals

1. M.S. Shunmugam (2013) A unified framework for tolerance analysis of planar and spatial mechanisms using screw theory. *Mechanism and Machine Theory* 69: 168–184.
2. M.S. Shunmugam (2013) Surfaces and surface metrology. *International Journal of Precision Technology* 3(4): 317–332.
3. M.S. Shunmugam (2013) Investigations into micro-orthogonal cutting and material strengthening. *International Journal of Manufacturing Research* 8(4): 394–421.
4. G.L. Samuel. Investigation into energy consumption, surface roughness and material removal rate of cylindrical components machined using wire electrical discharge turning process. *International Journal of Manufacturing Technology and Management*.
5. G.L. Samuel. Investigations into modelling and assessment of theoretical profiles using capacitive sensor. *International Journal of Mechatronics and Manufacturing Systems*.
6. G.L. Samuel Multi-objective optimization of material removal rate and surface roughness in wire electrical discharge turning. *International Journal of Advanced Manufacturing Technology*.
7. S.K. Panigrahi. Influence of strain and strain rate on microstructural evolution during superplasticity of Mg-Al-Zn sheet. *Journal of Materials Science*. (Impact Factor: 1.7)
8. S.K. Panigrahi Achieving high strength and high ductility in friction stir processed cast magnesium alloy. *Metallurgical & Materials Transaction A*. (Impact Factor: 1.7)
9. M.P. Maiya (2013) Passive alternatives to mechanical air-conditioning of building: A review. *Building and Environment* 66: 54–64.
10. Shaligram Tiwari (2013) Effect of side ratio on wake characteristics of channel-confined rectangular cylinder in cross flow. *Progress in Computational Fluid Dynamics* 13(2): 94–102.
11. G. Venkatarathnam (2013) Studies on the performance of a small reciprocating compressor with different nitrogen–hydrocarbon mixtures. *International Journal of Refrigeration* 36: 2091–2096.
12. G. Venkatarathnam (2014) Density marching method for calculating phase envelopes. *Ind. Eng. Chem. Res.* 53: 3723–3730.
13. Rajesh Kumar Panda and B.V.S.S.S. Prasad. Conjugate heat transfer from an impingement and film cooled flat plate. *AIAA Journal of Thermophysics and Heat Transfer*.
14. N. Sitaram and H.D. Kim (2014) A numerical study of the unsteady interaction effects on diffuser performance in a centrifugal compressor. *ASME Journal of Turbomachinery* 136: 011012-1–011012-10.
15. M. Govardhan (2013) Effect of axial spacing on the performance of a counter rotating turbine. *International Journal of Fluid Machinery and Systems (IJFMS)* 6(4): 170–176. doi:http://dx.doi.org/10.5293/IJFMS.2013.6.4.170
16. M. Govardhan (2013) Effect of inlet clearance on the performance of an industrial centrifugal blower with parallel wall volute. *International Journal of Fluid Machinery and Systems (IJFMS)* 6(3): 113–120. doi:http://dx.doi.org/10.5293/IJFMS.2013.6.3.113
17. M. Govardhan (2013) Study on the performance deterioration of mixed flow impeller due to change in tip clearance. *International Journal of Thermal Sciences* 22(6): 1–7.
18. M. Govardhan (2013) Studies on downstream stator with rotor re-staggering and forward sweeping in a subsonic axial compressor stage. *International Journal of Turbo and Jet Engines* 1–14. doi:10.1515/tji-2013-0027

19. M. Govardhan (February 2013) CFD analysis of flow through mixed flow compressor under various operating conditions. *International Journal of Scientific and Engineering Research* 4(2): 1–8.
20. P. Chandramouli. Sound absorption, thermal and mechanical behaviour of polyurethane foam modified with nano silica, nano clay and crumb rubber fillers. *International Journal of Scientific & Engineering Research* 123–129.
21. P. Chandramouli. Periodic response and bifurcations of a smooth and discontinuous oscillator by harmonic balance method. *Advances in Vibration Engineering* 12: 401–412.
22. Abhijit Sarkar (2013) Lumped parameter models of vortex induced vibration with application to the design of aquatic energy harvester. *Journal of Fluids and Structures* 43.
23. Sujatha Srinivasan and M.S. Shunmugam. A unified framework for tolerance analysis of planar and spatial mechanisms using screw theory. *Mechanism and Machine Theory*.
24. C. Sujatha and Narayanan (2013) Response of a quarter car model with optimal magnetorheological damper parameters. *Journal of Sound and Vibration* 332: 2191–2206.
25. C. Sujatha and S. Swarnamani (2013) Gear fault assessment based on continuous wavelet transforms. *Advances in Vibration Engineering* 12(1): 33–47.
26. C. Sujatha (2013) Study of biomechanical response of human hand-arm to random vibrations of steering wheel of tractor. *MCB: Molecular & Cellular Biomechanics* 10(4): 303–317.
27. A.S. Sekhar (2013) Modal balancing of flexible rotors with distributed unbalance and bow. *Journal of Sound and Vibration* 332(24): 6216–6233.
28. A.S. Sekhar (2014) Damping identification in rotors from run-up beat responses using Hilbert transforms. *Journal of Mechanical Science and Technology* 28(2): 419–427.
29. A.S. Sekhar. Current signature analysis for unbalance detection in a rotor supported on active magnetic bearings. *International Journal of Condition Monitoring* (in press).
30. A.S. Sekhar (2014) Swept sine testing of rotors for damping estimation. *J. of Sound and vibration* 333(2): 604–620.
31. A.S. Sekhar. Damage identification and quantification in structures using wavelet analysis. *Applied Mechanics and Materials* 471: 187–192.
32. Raghu Prakash. Extension of Ruiz criterion for evaluation of 3-D fretting fatigue damage parameter. *Procedia Engineering* 55: 655–660.
33. Raghu Prakash and M. Kamaraj. Studies towards development of laser peening technology for martensitic stainless steel and titanium alloys for steam turbine applications. *Materials Science and Engineering A* 587: 352–358.
34. V. Raghu Prakash (2014) Extension of strain-life equation for low-cycle fatigue of sheet metals using anisotropic yield criteria and distortional hardening model. *Fatigue and Fracture of Engineering Materials and Structures* (in press).
35. V. Raghu Prakash (2014) Fatigue behavior of nickel based super alloy 718 in a hot corrosive environment. *Material Performance and Characterization* 3.
36. V. Raghu Prakash (2014) Effect of low cyclic frequency on fatigue crack growth in air and 3.5% NaCl solution. *Material Science and Engineering A* 606: 204–208.
37. C. Balaji (2013) Experimental investigations on thermal performance enhancement and effect orientation on porous filled PCM based heat sink. *International Communications in Heat and Mass Transfer*
38. C. Balaji. Incorporating engineering intuition for parameter estimation in thermal sciences. *Heat and Mass Transfer*
39. C. Balaji. A new ensemble based data assimilation to improve track prediction of tropical cyclones. *Natural Hazards*.
40. C. Balaji. On the possibility of retrieving heat surface rain rate from the microwave sounder SAPHIR of the Megha-Tropiques mission. *Current Sciences*.
41. C. Balaji. Thermal performance of a PCM based plate fin heat sink matrix under constant and intermittent heat loads- An Experimental study. *International Journal of Thermal Sciences*.
42. C. Balaji. On the possibility of retrieving heat surface rain rate from the microwave sounder SAPHIR of the Megha-Tropiques mission. *Current Sciences* (accepted).
43. C. Balaji. Thermal performance of a PCM based plate fin heat sink matrix under constant and intermittent heat loads: An experimental study. *International Journal of Thermal Sciences* (accepted).
44. C. Balaji. Heat transfer enhancement with discrete heat sources in a metal foam filled vertical channel. *International Communications in Heat and Mass Transfer* (to appear).

45. C. Balaji. Numerical and experimental investigations of heat removal performance of sodium to air heat exchanger used in fast reactors. *Heat Transfer Engineering* (to appear).
46. C. Balaji. Numerical investigations of PCM based heat sinks with embedded metal foam/crossed plate fins. *Numerical Heat Transfer* (to appear).
47. C. Balaji. Joint conductance effects on estimation of effective thermal conductivities of anisotropic composites. *AIAA Journal of Thermophysics and Heat Transfer* (to appear).
48. C. Balaji. Optimal distribution of discrete heat sources under mixed convection: A heuristic approach. *ASME Journal of Heat* (to appear).
49. Sarit K. Das (2013) Electrical conductivity of ceramic and metallic nanofluids. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*.
50. Sarit K. Das (2013) Numerical indices for quantification of hydrogen mixing and deflagration potential in the nuclear reactor containment. *Nuclear Engineering and Design*.
51. Sarit K. Das. The role of percolation and sheet dynamics during heat conduction in poly-dispersed graphene nanofluids. *Appl. Phys. Lett.*
52. Sarit K. Das (2013) Anomalous subsurface thermal behavior in tissue mimics upon NIR irradiation mediated photothermal therapy. *Journal of Biomedical Nanotechnology*.
53. Sarit K. Das (2013) A numerical study of flow and temperature maldistribution in a parallel micro-channel system for heat removal in microelectronic devices. *Journal of Thermal Science and Engineering Applications, Trans ASME*.
54. Sarit K. Das (2013) Scaling features for mixing and flammability potential of stratified layer of hydrogen due to molecular diffusion. *International Communications in Heat and Mass Transfer*.
55. Sarit K. Das (2013) Super-paramagnetic nanoparticle assisted hyperthermia and cooling protocol for optimum damage of internal carcinoma using computational predictive model. *Heat and Mass Transfer*.
56. Sarit K. Das (2013) Effect of bunching of cilia and their interplay on muco-ciliary transport. *Journal of Computers in Biology and Medicine*.
57. Sarit K. Das (2013) Physics of the interaction of ultrasonic excitation with nucleate boiling. *Journal of Heat Transfer*.
58. Sarit K. Das (2012) Simulation of droplet impact on super hydrophobic surface. *Int. Journal of Micro-Nano Scale Transport*.
59. Sarit K. Das (2013) Percolation network dynamicity and sheet dynamics governed viscous behavior of poly-dispersed Graphene nano-sheet suspensions. *Journal of Nanoparticle Research*.
60. Sarit K. Das Investigation on flow maldistribution in parallel microchannel systems for integrated micro-electronic device cooling, components. *Packaging and Manufacturing Technology, IEEE Transactions*.
61. Sarit K. Das (2013) Experimental convective heat transfer studies in a turbulent flow regime using alumina-water nanofluids. *QScience Connect*.
62. Sarit K. Das (2014) Investigation of non-Fourier effects in bio-tissues during laser assisted photothermal therapy, International. *Journal of Thermal Sciences*.
63. Sarit K. Das (2015) Experimental investigation of subcooled flow boiling in a minichannels. *Heat Transfer Engineering* (accepted).
64. Sarit K. Das (2014) Colloidal graphite/graphene nanostructures using collagen showing enhanced thermal conductivity. *International Journal of Nanomedicine*.
65. Sarit K. Das (2014) Accurate solutions of Rayleigh-Bénard convection in confined two layer systems using spectral domain decomposition method. *Numerical Heat Transfer, Part A: Applications*.
66. Sarit K. Das (2014) Accurate solutions of Rayleigh-Bénard convection in confined two layer systems using spectral domain decomposition method. *Numerical Heat Transfer, Part A: Applications*.
67. Sarit K. Das (2014) Temperature evolution in tissues embedded with large blood vessels during photothermal heating. *Journal of Thermal Biology*.
68. Sarit K. Das (2014) A computational study of flow maldistribution on the thermal hydraulic performance of an intermediate heat exchanger in LMFBR. *Journal of Nuclear Science and Technology*.
69. Sarit K. Das (2014) Effect of flow maldistribution on the thermal performance of parallel microchannel cooling systems. *International Journal of Heat and Mass Transfer*.
70. Sarit K. Das. Experimental investigation of dry feed operation in a polymer electrolyte membrane fuel cell. *Journal of Power Sources*.
71. K. Anand. Modeling fuel and EGR effects under conventional and low temperature combustion. *Energy & Fuels*.

72. K. Anand. Combustion simulation of the fuels for advanced combustion engines in a homogeneous charge compression ignition engine. *International Journal of Engine Research*.
73. K. Anand. Surrogate model development for fuels for advanced combustion engines. *Energy & Fuels*.
74. K. Anand. Computationally efficient simulation of multi-component fuel combustion using a sparse analytical Jacobian chemistry solver and high-dimensional clustering. *ASME Journal of Gas Turbines and Power*.
75. K. Anand. A comprehensive approach for estimating thermo-physical properties of biodiesel fuels. *Applied Thermal Engineering*.
76. K. Anand. Experimental investigations on combustion, performance and emissions characteristics of neat Karanji biodiesel and its methanol blend in a diesel engine. *Biomass and Bioenergy*.
77. K. Anand. Predicting the density of straight and processed vegetable oils from fatty acid composition. *Energy & Fuels*.
78. K. Anand. Estimating the viscosity of vegetable oil and biodiesel fuels. *Energy & Fuels*.
79. K. Anand. Estimation of lower heating value of vegetable oil and biodiesel fuel. *Energy & Fuels*.
80. K. Anand. Experimental investigations on combustion, performance and emissions characteristics of neat biodiesel fueled turbocharged direct injection diesel engine. *Proceedings of International Journal of Mechanical Engineering, Part D: Journal of Automobile Engineering*.
81. K. Anand. Experimental investigations on combustion of jatropha methyl ester in a turbocharged direct injection diesel engine. *Proceedings of International Journal of Mechanical Engineering, Part D: Journal of Automobile Engineering*.
82. K. Anand. Experimental investigations on increase in biodiesel-NO emission and its mitigation. *Proceedings of International Journal of Mechanical Engineering, Part D: Journal of Automobile Engineering*.
83. K.S. Reddy (2014) Design and experimental analysis of a static 3-D elliptical hyperboloid concentrator for process heat applications. *International Journal of Solar Energy* 102: 257–266.
84. K.S. Reddy (2013) Opportunities and challenges in micro–nano technologies for concentrated photovoltaic cooling. *A review, Renewable and Sustainable Energy Review* 20: 595–610.
85. K.S. Reddy (2013) An optical analysis of a static 3D concentrator. *International Journal of Solar Energy* 88: 57–70.
86. K.S. Reddy (2013) Viability analysis of solar parabolic dish stand-alone power plant for Indian conditions. *International Journal of Applied Energy* 102: 908–922.
87. K.S. Reddy (2013) Performance evaluation of a solar and wind aided cross-flow evaporator for RO reject management. *International Journal on Desalination* 317: 1–10.

(c) Papers presented at national conferences

1. M.P. Maiya. Thermodynamic analysis of absorption system for simultaneous cooling and desalination. *NCRAC 2013*, 12–14 December 2013, IIT Madras.
2. M.P. Maiya. Nocturnal and evaporative cooling system for Indian climatic conditions. *NCRAC 2013*, 12–14 December 2013, IIT Madras.
3. M.P. Maiya. Numerical modeling of passive concrete core cooling system. *NCRAC 2013*, 12–14 December 2013, IIT Madras.
4. M.P. Maiya. Numerical study of evaporation of single water droplet in a quiescent environment. *NCRAC 2013*, 12–14 December 2013, IIT Madras.
5. Shaligram Tiwari. Effect of longitudinal spacing on two tandem square cylinders vibrating transversely in phase at super-synchronous frequency. *15th AeSI, CFD Symposium*, 9–10 August 2013, IISc, Bangalore.
6. Shaligram Tiwari. Numerical study on evaporation of single water droplet in quiescent air. *NCRAC 2013*, 12–14 December 2013, IIT Madras.
7. Shaligram Tiwari. Effect of vertical wall conditions and aspect ratio on Rayleigh–Benard convection in a 2-D enclosure. *NCRAME 2014*, 23 March 2014, Vizianagaram.
8. M. Govardhan. Effect of vaneless diffuser on the performance of a centrifugal blower with volute for higher width ratio. *40th National Conference on Fluid Mechanics and Fluid Power*, pp. 1429–1438, 12–14 December 2013, Hamirpur, Himachal Pradesh, Paper No. FMFP2013-265.
9. M. Govardhan. Effect of speed ratio on the performance of contra-rotating fans. *40th National Conference on Fluid Mechanics and Fluid Power*, pp. 1357–1366, 12–14 December 2013, Hamirpur, Himachal Pradesh, Paper No. FMFP2013-193.

10. A. Krishna Sumanth and M. Govardhan. Numerical flow analysis in rotating curved ducts. *40th National Conference on Fluid Mechanics and Fluid Power*, pp. 1367–1375, 12–14 December 2013, Hamirpur, Himachal Pradesh, Paper No. FMFP2013-194.
11. N. Sitaram. Effect of mounting angle of Gurney flap on airfoil aerodynamics. *National Level Industry–Institute Symposium on Turbomachines (NIST-2014)*, 5 April 2014, MNNIT, Allahabad.
12. N. Sitaram. Effect of Gurney flap height on the performance of centrifugal fan. *National Conference on Emerging Trends in Engineering & Technology NCETET 2014*, 30 March 2014, Mt. Abu, Paper No. NCETET-208.
13. N. Sitaram and Sriram Krishnaswamy. Effect of position of Gurney flap on airfoil aerodynamics. *National Conference on Emerging Trends in Engineering & Technology NCETET 2014*, 30 March 2014, Mt. Abu, Paper No. NCETET-180.
14. N. Sitaram. Grid and turbulence model based exhaustive analysis of NACA 0012 airfoil. *Proceedings of the IEEE National Conference on Recent Advances in Mechanical Engineering (RAME-2014)*, pp. 193–199, 7 February 2014, Chennai.
15. N. Sitaram and N. Jalaiah. Building an automation environment for CFD analysis of airfoils using Python. *Proceedings of the IEEE National Conference on Recent Advances in Mechanical Engineering (RAME-2014)*, pp. 189–192, 7 February 2014, Chennai.
16. N. Sitaram. Sub miniature four hole probe for three dimensional wake measurements. *Proceedings of the IEEE National Conference on Recent Advances in Mechanical Engineering (RAME-2014)*, pp. 31–40, 7 February 2014, Chennai.
17. N. Sitaram. Design, fabrication and calibration of a two-hole pressure probe for accurate three-dimensional flow measurements in shear layers. *Proceedings of the Fortieth National Conference on Fluid Mechanics and Fluid Power*, pp. 1267–1272, 12–14 December 2013, NIT Hamirpur, Paper No. FMFP2013-164.
18. N. Sitaram. Effect of configuration on calibration of a seven hole probe. *Proceedings of the Fortieth National Conference on Fluid Mechanics and Fluid Power*, pp. 1267–1272, 12–14 December 2013, NIT Hamirpur, Paper No. FMFP2013-164.
19. Sujatha Chandramohan and A.S. Sekhar. Flutter and forced response vibration characteristics of a turbo fan bladed disk. *GT INDIA-3574, Proceedings of the ASME 2013 Gas Turbine India Conference*, 5–6 December 2013, Bangalore.
20. C. Sujatha and A.S. Sekhar. Vibration behaviour of turbine rotor with directionally solidified and equiaxed materials. *Proceedings of the International Conference on Computer Aided Engineering 2013*, 19–21 December 2013, IIT Madras, Chennai, Paper No. SD-20.
21. A.S. Sekhar and B.V.S.S.S. Prasad. Leakage flow characteristics of a rotating labyrinth seal with radial growth. *40th National Conference on Fluid Mechanics and Fluid Power; FMFP-2013*, 12–14 December 2013, NIT Hamirpur, India.
22. A.S. Sekhar. Condition monitoring of electro-mechanical actuation system based on acoustic noise studies. *National Conference on Condition Monitoring (NCCM 2013)*, 4–5 October 2013, IISc, Bangalore.
23. A.S. Sekhar. Monte Carlo based vibration analysis of wind turbine drive train subjected to nonstationary wind excitation. *National Symposium on Rotor dynamics–NSRD-2014*, 12–14 February 2014, Ambedkar Institute of Technology, Bangalore.
24. A.S. Sekhar. Dynamics of nano composite tube shafts. *National Symposium on Rotor dynamics –NSRD-2014*, 12–14 February 2014, Ambedkar Institute of Technology, Bangalore.
25. Raghu V. Prakash. Evaluation of spectral fractal dimension on fatigue fracture surfaces. *Indian Conference on Applied Mechanics*, 1–4 July 2013, IIT Madras.
26. Raghu V. Prakash. Evaluation of fatigue strength of a structural steel under the influence of hydrostatic pressure. *Indian Conference on Applied Mechanics*, 1–4 July 2013, IIT Madras.
27. K. Anand. Experimental and simulation studies of biodiesel combustion in ACI engine. *XXI National Conference on IC Engines and Combustion*, 10–12 December 2009.
28. K. Anand. Biodiesel for Engines. *XXI National Conference on IC Engines and Combustion*, 10–12 December 2009.

(d) Papers presented at international conferences

1. Y.V. Srinivasa and M.S. Shunmugam. Identification of feasible regime based on analysis of cutting forces in micro end-milling. *Proceedings of the International Conference on Precision, Meso, Micro and Nano Engineering COPEN-8 2013*, NIT Calicut, India.

2. N. Ramesh Babu. A novel abrasive slurry preparation unit for micro abrasive water jet machining of materials. 13–15 December 2013, NIT, Calicut.
3. G.L. Samuel. Investigations into cutting forces and surface roughness in micro turning of titanium alloy using coated carbide tool. 27–29 March, NITK, Surathkal.
4. G.L. Samuel. Evaluation of surface profile parameters of a machined surface using confocal displacement sensor. 27–29 March 2014, NITK, Surathkal.
5. G.L. Samuel. Modeling and analysis of high speed machining of Al–Si alloy using PCD tool. 13–15 December 2013, NIT, Calicut.
6. G.L. Samuel. Finite element analysis of cutting edge radius effect in high speed micro turning of aluminium alloys using PCD tool. 25–28 March 2014, National University of Singapore.
7. Shaligram Tiwari. Numerical study of low heat flux nucleate pool boiling in pure refrigerants and their binary mixtures. 28–31 December 2013, *ISHMT 2013*, IIT Kharagpur.
8. M.P. Maiya. Optimum arrangement of SWHX and their relative importance in double effect LiBr-H₂O cogeneration systems for cooling and desalination. *International Workshop on New Working Fluids for Absorption Heat Pumps and Refrigeration Systems*, 22–23 July 2013.
9. M.P. Maiya and S. Srinivasa Murthy. Numerical study of sodium alanate based hydrogen storage device embedded within aluminium honey comb structure, pp. 22–29, *Innovative Materials for Processes in Energy Systems*, 4–6 September 2013, Kyushu University, Japan.
10. M.P. Maiya and S. Srinivasa Murthy. Simulation of effective thermal conductivity of metal hydride packed beds. *Innovative Materials for Processes in Energy Systems*, pp. 30–35, 4–6 September 2013, Kyushu University, Japan.
11. R. Subba Rao and M. Govardhan. Effect of speed ratio on the performance and flow field of a counter rotating turbine. *4th International Conference on Advances in Energy Research*, pp. 1249–1258, December 2013, IIT Bombay, Mumbai. (Paper No. 281)
12. M. Govardhan. Loss in input power due to increase in clearance between inlet duct and impeller in industrial centrifugal blower. *Fourth International Conference on Advances in Energy Research*, pp. 1198–1206, December 2013, IIT Bombay, Mumbai. (Paper No. 266).
13. M. Govardhan. Computational studies of turbulent flow in a rotating curved square channel. *The 12th Asian International Conference on Fluid Machinery (12th AICFM)*, 25–27 September 2013, Jogjakarta, Indonesia.
14. B.V.S.S.S. Prasad. Conjugate heat transfer study at coolant-mainstream interaction surface of NGV leading edge with combined shower head and impingement cooling. *12th Asian International Conference on Fluid Machinery*, 25–27 September 2013, Jogya, Indonesia.
15. B.V.S.S.S. Prasad. A heat transfer study on the pressure and suction side of a combined film and impingement cooled NGV. *15th ISROMAC*, 24–28 February 2014, Hawaii, USA.
16. A.S. Sekhar and B.V.S.S.S. Prasad. Influence of location on leakage performance of a rotating labyrinth gas turbine seal with radial growth. *15th ISROMAC*, 24–28 February 2014, Hawaii, USA.
17. B.V.S.S.S. Prasad and N. Sitaram. Conjugate heat transfer study at coolant-impingement surface of NGV leading edge with combined shower head and impingement cooling. *12th Asian International Conference on Fluid Machinery*, 25–27 September 2013, Jogya, Indonesia.
18. N. Sitaram. Effect of Gurney flap height on airfoil aerodynamics. *International Conference on Advances in Engineering Research and Applications (ICAERA)*, 25–26 March 2014, Bhopal.
19. N. Sitaram. Computational investigation of unsteady impeller diffuser interaction in a centrifugal compressor with partial vane diffuser at design flow coefficient. *International Conference on Computer Aided Engineering (CAE-2013)*, Chennai.
20. N. Sitaram. Investigation of the flow modifications inside diffuser vane at off-design conditions: A numerical study. *ISABE-2013-1117, The 21st International Symposium on Air Breathing Engines*, 9–13 September 2013, Busan, Korea.
21. N. Sitaram. Design, fabrication and calibration of a mutli-hole pressure probe with minimum spatial error. *International Conference on Advanced Materials, Manufacturing, Management & Thermal Sciences (AMMMT 2013)*, 3–4 May 2013, Tumkur, Karnataka.
22. N. Sitaram. Design and fabrication of components for calibration of five hole probes at high temperature. *International Conference on Advanced Materials, Manufacturing, Management & Thermal Sciences (AMMMT 2013)*, 3–4 May 2013, Tumkur, Karnataka.
23. N. Sitaram. Measurement of periodic static pressure on diffuser hub of a centrifugal compressor. *International Conference on Advanced Materials, Manufacturing, Management & Thermal Sciences (AMMMT 2013)*, 3–4 May 2013, Tumkur, Karnataka.

24. K. Viswanath. Computational analysis of recess vane geometry modifications in the casing treatment approach for stall margin enhancement in axial flow fans. *ASME International Mechanical Engineering Congress & Exposition*, 2013.
25. Ashis Kumar Sen. Three-dimensional electro-fluid-structural simulation for design of valve-less micro-pump. *ISHMT 2013*, 28–31 December 2013.
26. Ashis Kumar Sen. Thermal management of integrated circuits using cascade electro-osmotic micropump. *ISHMT 2013*, 28–31 December 2013.
27. Dhiman Chatterjee. Numerical Prediction of the performance of axial-flow hydrokinetic turbine. *Fifth Intl Conf Comp Methods in Marine Engg MARINE 2013*, 29–31 May 2013, Hamburg, Germany.
28. C. Sujatha. Condition monitoring of turbine rotor blade on a gas turbine engine. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand. [Q]This appears to be the same paper as the one in item 42 of this list. Please check if one of them should be deleted. Check also for other repetitions.
29. C. Sujatha. Study of biomechanical response of human hand-arm to steering wheel vibrations. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand. [Q]This appears to be the same paper as the one in item 43 of this list. Please check if one of them should be deleted. Check also for other repetitions.
30. C. Sujatha. Experimental studies on particle damping in cantilever beams. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.
31. C. Sujatha. Influence of primary suspensions on dynamics of single wheelset moving on curved tracks with single-point and two-point wheel-rail contact. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand. [Q]This appears to be the same paper as the one in item 45 of this list. Please check if one of them should be deleted. Check also for other repetitions.
32. C. Sujatha. Study of biomechanical response of human hand-arm to random vibrations of steering wheel of tractor. *13th International Conference on Computational & Experimental Engineering and Sciences*, 24–28 May 2013, Seattle, USA.
33. C. Sujatha and Shankar Krishnapillai. Vibrations of non-prismatic simply-supported beams under moving loads: Resonances and anti-resonances. *11th International Conference on Vibration Problems (ICOVP-2013)*, 9–12 September 2013, Lisbon, Portugal.
34. P. Chandramouli. Enhancing noise control in a cavity using Helmholtz resonators. *International Congress on Acoustics (ICA)*, June 2013.
35. S. Naryanan and P. Chandramouli. Nonlinear dynamics of shrouded turbine blade system with impact and friction. *International Conference on Vibration Problems (ICOVP)*, September 2013.
36. P. Chandramouli. Impedance model of de-tuned Helmholtz resonator. *International Congress on Sound and Vibration (ICSV 20)*, July 2013.
37. Abhijit Sarkar. Acoustic directivity control by point mass attachment. *International Congress on Sound and Vibration (ICSV 20)*, July 2013, Bangkok.
38. Abhijit Sarkar. Improved barrier design through lumped mass attachment. *Internoise 2013*, September 2013, Innsbruck, Austria.
39. Sujatha Srinivasan. Training and mobility device for children with cerebral palsy. *International Conference in Biomedical Engineering and Assistive Technologies (BEATS-2014)*, February 2014.
40. Parag Ravindran. A constitutive model for soft tissue and its application to a boundary value problem. *Proceedings of the ASME 2013, IMECE*, 15–21 November 2013, San Diego, USA.
41. Krishnan Balasubramaniam and Parag Ravindran. Characterization of Annealing in polycrystalline copper using harmonic generation technique. *Review of Progress in Quantitative NDE*, 21–26 July 2013, Baltimore, USA.
42. C. Sujatha. Condition monitoring of turbine rotor blade on a gas turbine engine. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.
43. C. Sujatha. Study of biomechanical response of human hand-arm to steering wheel vibrations. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.
44. C. Sujatha. Experimental studies on particle damping in cantilever beams. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.
45. C. Sujatha. Influence of primary suspensions on dynamics of single wheelset moving on curved tracks with single-point and two-point wheel-rail contact. *20th International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.

46. C. Sujatha. Study of biomechanical response of human hand-arm to random vibrations of steering wheel of tractor. *13th International Conference on Computational & Experimental Engineering and Sciences*, 24–28 May 2013, Seattle, USA.
47. C. Sujatha and Shankar Krishnapillai. Vibrations of non-prismatic simply-supported beams under moving loads: Resonances and anti-resonances. *11th International Conference on Vibration Problems (ICOVP-2013)*, 9–12 September 2013, Lisbon, Portugal.
48. A.S. Sekhar and B.V.S.S.S. Prasad. Performance analysis of a rotating labyrinth seal with radial growth. *Turbine Technical Conference and Exposition, ASME Turbo Expo 2013, GT2013-95708*, 3–7 June 2013, San Antonio, Texas, USA.
49. A.S. Sekhar. Dynamic analysis of fixed speed wind turbine drive train. *International Congress on Sound and Vibration (ICSV20)*, 7–11 July 2013, Bangkok, Thailand.
50. C. Sujatha and A.S. Sekhar. Condition monitoring of turbine rotor blade on a gas turbine engine. *Proceedings of the 20th International Congress on Sound and Vibration*, 7–11 July 2013, Bangkok, Thailand.
51. A.S. Sekhar. Damping estimation in rotor bearing systems: Comparison of conventional and time-frequency techniques. *20th International Conference on Sound and Vibration (ICSV)*, 7–11 July 2013, Bangkok, Thailand.
52. Raghu V. Prakash. Influence of frequency on hot corrosion fatigue of IN 718. *Proceedings of 27th International Committee on Aeronautical Fatigue Symposium*, S. Dhinakaran and Raghu V. Prakash (eds.).
53. Raghu V. Prakash. Thickness scaling effects on the tensile strength of moisture absorbed GFRP composite materials with and without addition of nano-clay, *Indo-Russia Workshop*, IIT Madras, N.S. Kavitha and Raghu V. Prakash (eds.).
54. Raghu V. Prakash. Effect of laser peening on steel and titanium alloy for power applications. *Proceedings of ASME, Vol. 2A: Advanced Manufacturing*, San Diego, USA, B.K. Pant, Raghu V. Prakash, and M. Kamaraj, Paper No: IMECE2013-63589.
55. Raghu V. Prakash. A study on the effect of bird hit damage on the dynamic response of aero-engine fan blade. *Proceedings of ASME, Vol. 1: Advances in Aerodynamics*, San Diego, USA, Hithesh Channegowda, Raghu V. Prakash, and K. Anandavel, Paper No. IMECE2013-654942A.
56. Raghu V. Prakash. Investigation of scaling effects on post-fatigue residual strength of nanoclay added GFRP composites. *Proceedings of ASME, Vol. 9: Mechanics of Solids, Structures and Fluids*, San Diego, USA, N.S. Kavitha and Raghu V. Prakash (eds.), Paper No. IMECE2013-62916.
57. C. Balaji. Optimal distribution of discrete heat sources under mixed convection heat transfer. *International Conference ASME Summer Heat Transfer Conference (HTC 2013)*, 14–19 July 2013, Minneapolis, MN, USA.
58. C. Balaji. Experimental investigation of thermal performance of PCM filled heat sinks with discrete heat sources. *Proceedings of the 22nd National and 11th International ISHMT–ASME Heat and Mass Transfer Conference*, 28–31 December 2013, IIT Kharagpur, India.
59. Sarit K. Das. Steady-temperature distribution of tissue embedded with large blood vessels during photothermal therapy. *22nd National and 11th International ISHMT–ASME Heat and Mass Transfer Conference*, 28–31 December 2013, IIT Kharagpur, India.
60. Sarit K. Das. Flow and thermal transport studies in microchannel flows using lattice Boltzmann method. *Proceedings of the 22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference*, 28–31 December 2013, IIT Kharagpur, India.
61. Sarit K. Das. Numerical study of hydrogen release and distribution in AERB-IITM test compartment. *Proceedings of the 22nd National and 11th International ISHMT–ASME Heat and Mass Transfer Conference*, 28–31 December 2013, IIT Kharagpur, India.
62. Sarit K. Das. Entropy generation due to natural convection of alumina/water nanofluid. *ASEA195, Asia Symposium on Engineering and Information*, 2013, Taiwan.
63. Sarit K. Das. An analytical and numerical study of flow distribution using a mixed flow distributor in proton exchange membrane fuel cells. *Fifth International Conference on Fundamentals and Development of Fuel Cells*, 16–18 April 2013, Karlsruhe, Germany.
64. Arunn Narasimhan. Convection enhanced intravitreal drug delivery. *Conference Proceedings, 21st National–11th ISHMT ASME Heat and Mass Transfer Conference*, 28–31 December 2013, IIT Kharagpur.
65. K. Anand. Experimental investigations on combustion, performance and emission characteristics of Karanja and *Jatropha* biodiesel fuels in a turbocharged direct injection diesel engine. *7th Asia-Pacific Conference on Combustion*, 24–27 May 2009, National Taiwan University, Taipei, Taiwan.

66. K. Anand. Effect of long storage stability of Karanja (*Pongamia*) derived biodiesel fuel on the performance, combustion and emission characteristics of a multi-cylinder turbo-charged direct injection diesel engine. *Proceedings of the 2009 Fall Technical Conference of the ASME Internal Combustion Engine Division, ICEF2009*, 27–30 September 2009, Lucerne, Switzerland.
67. K. Anand. Experimental investigations on combustion, performance and emission characteristics of neat *Jatropha* biodiesel and its methanol blend in a diesel engine. *Proceedings of the 2012 Fall Technical Conference of the ASME Internal Combustion Engine Division, ICEF 2012*, 23–26 September 2012, Vancouver, BC, Canada.
68. K. Anand. Surrogate diesel models for low temperature combustion. *SAE World Congress 2013*, April 2013, Detroit, USA.
69. K.S. Reddy Investigation of edge insulation of square guarded hot plate (SGHP) apparatus for thermal conductivity measurement, 28–31 December 2013, IIT Kharagpur, India.
70. K.S. Reddy. Numerical analysis of micro channel heat sink cooling system for solar concentrating photovoltaic module. *International Conference on Advances in Energy Research (ICAER)*, 10–12 December 2013, Mumbai.
71. K.S. Reddy. Optical and numerical investigation of direct steam generation in solar parabolic trough collector module. *International Conference on Advances in Energy Research (ICAER)*, 10–12 December 2013, Mumbai.
72. K.S. Reddy. Design concept and configuration of a hybrid renewable energy system for rural electrification in India through BioCPV project. *International Conference on Advances in Energy Research (ICAER)*, 10–12 December 2013, Mumbai.
73. K.S. Reddy Development of a novel 16-cell densely packed 500x CPV assembly on insulated metal substrate. *International Conference on Advances in Energy Research (ICAER)*, 10–12 December 2013, Mumbai.
74. K.S. Reddy. Heat transfer modeling and analysis of solar thermo-chemical reactor for hydrogen production from water. *ISES Solar World Congress (SWC 2013)*, 3–7 November 2013, Cancun, Mexico.
75. K.S. Reddy. Estimation of heat loss from modified cavity mono-tube boiler receiver for steam generation. *ISES Solar World Congress (SWC 2013)*, 3–7 November 2013, Cancun, Mexico.
76. K.S. Reddy. Thermal effects of micro-fins geometry on a silicon receiver for a CPV cooling purpose. *European Photovoltaic and Solar Energy Conference*, 15–17 April 2013, Paris, France.
77. K.S. Reddy. Design and optical performance analysis of a reflective-type high concentrating photovoltaic system. *International Conference on Concentrator Photovoltaic Systems (CPV-9)*, 15–17 April 2013, Miyazaki, Japan.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Kistler	28 March 2014	
2	Prof. R.S. Mishra	May 2013	Delivered a guest lecture at MES

4.13.6. Other Activities of the Department

Ph.D. theses guided

1	D. Ramesh Rajkumar and Govardhan M.	ME07D011	Aerodynamic Investigations of Flow through Mixed Flow Compressor Stage	2013
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M.S. theses guided

1	Kishorkumar Sarva and Govardhan M.	ME10S017	Experimental Studies on Pump as Turbine with Pumps of Different Specific Speeds	2013
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M.Tech/DD theses guided

1	Suraj C.K. and Govardhan M.	ME11M049	Study on Performance Characteristics of the Contra-rotating Axial-Flow Fans	2013
2	Krishna Sumanth Alwala and Govardhan M.	ME08B063	Secondary Flow Phenomenon in Rotating Ducts	2013

Results obtained in research work (from M.S. & Ph.D. thesis) of the scholar/faculty

Mr. Rajeshkumar Panda ME 09D020

Experimental and computational conjugate heat transfer are investigated on a flat plate mimicking the cooling schemes of a gas turbine blade surface. The combined impingement cum film cooled configuration is found to have superior effectiveness. The hole entrance conditions are found to be primarily responsible for the cooling effectiveness. Optimum jet plate spacing and thermal conductivity values are suggested as an outcome of the thesis.

Mr. Ramesh Rajkumar ME07 D011

Experimental and computational investigations are conducted on a mixed flow compressor to study the effect of tip clearance on the performance. Stall margin improves with a reduction in the clearance gap. Constant tip gap provides better performance in terms of pressure ratio and efficiency than variable tip gap. The isentropic efficiency of the impeller is lower for variable tip clearance gap as compared to constant tip clearance gap.

Mr. Kishore Kumar Sarva ME10S017

The present experimental investigation was aimed at studying the performance of pumps in pump and pump-as-turbine (PAT) operation and evolving a selection procedure of a PAT for given site conditions. PAT has a certain speed of operation at which it will generate maximum power, and this speed is different at different valve positions.

Faculty visits

<i>Sl. No.</i>	<i>Name of the Faculty Member</i>	<i>Purpose of Visit</i>	<i>Date and Venue</i>
1	Prof. Narendra Dahotre, University of North Texas, Denton, TX, USA	Guest lecture	1 April 2014, MES Seminar Hall
2	Prof. Manuel Matos Lopes	NARILAR Project	10 March to 9 April 2014

Student visits

<i>Sl. No.</i>	<i>Name of the Student</i>	<i>Purpose of Visit</i>	<i>Date and Venue</i>
1	Kirubakar	Visiting research scholar	16 January to 27 February 2014, UNT, Denton, TX
2	Dhruv Shivdas Meena	Visiting research scholar	28 December 2013 to 9 February 2014 (UNT, Denton, TX)
3	Shirhir Jaiswal, M.S. (ME11S048)	New Working Fluids Based on Natural Refrigerant and Ionic Liquids for Absorption Refrigeration—"NARILAR"	27 January to 21 April 2014 Universitat Rovira I Virgili, Tarragona, Spain
4	Raghav Tondon, DD (ME09B078)	NARILAR	12 March to 21 April 2014, Universitat Rovira I Virgili, Tarragona, Spain
5	Rahul Tak, DD (ME09B079)	NARILAR	12 March to 21 April 2014, Universitat Rovira I Virgili, Tarragona, Spain

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 the Department of Metallurgy at the very inception of the Institute. The department is actively engaged in research, education and industrial consultancy. It offers B.Tech., M.Tech., M.S. and Ph.D. degrees. The department's teaching, research and consultancy activities cover a broad spectrum of materials science and engineering and industrial metallurgy (metal casting, metal joining, metal forming and materials technology). The department developed a unique character at the outset owing to its strong linkages with industry and the expertise of the faculty in industrial metallurgy. Over the years, the research interests of the faculty have diversified into various new areas of materials science and engineering. The department hosts excellent research infrastructure in the broad areas of materials processing (forming, joining, casting, particulate processing, nanostructured materials), characterization (X-ray diffraction, electron microscopy, thermal analysis), mechanical testing, environmental degradation/corrosion, 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 the emerging areas of materials science and engineering while consolidating the strength in traditional areas of metallurgical engineering. The activities for the year 2013–2014 corroborate the department's progress in keeping with its vision.

4.14.2. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	MM5015	Introduction to Multiscale Modeling of Materials
2	MM5017	Electronic Materials, Properties and Devices
3	MM5001	Composite Materials

Students on roll as of September 2012 + M.S. and Ph.D scholars admitted in January 2013

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	—	32	—	31	62	125
Dual Degree	—	11	—	11	45	67
M.Tech.	—	30	—	23	1	54
M.B.A.	—					
M.S.	5	15	3	5	8	36
Ph.D.	4	13	2	13	63	95
Total	9	101	5	83	179	377

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/in India

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminar/ Symposia/Workshop	Date and Venue	Financial Assistance from
Abroad					
1	Devinder Yadav	MM10D008	5th International Conference on Recrystallization and Grain growth (ReX & GG 2013).	5–10 May 2013, Sydney, Australia	IIT Madras
2	Ekta Jain	MM11S009	6th International Light Metals Technology Conference Brunel University	24–26 July 2013, UK	IIT Madras

3	S. Sandhya	MM11S015	6th International Light Metals Technology Conference" Brunel University	24–26 July 2013, UK	IIT Madras
4	Shyam Kumar C.N.	MM11S003	The 2013 World Congress on Advances in Nano, Biomechanics, Robotics and Energy Research (ANBRE 2013)	25–26 August 2013, Seoul, Korea	IIT Madras
5	Damodaram R.	MM09D019	THERMEC' 2013, 8th International Conference on Processing & Manufacturing of Advanced Materials Processing, Fabrication, Properties, Applications.	2–6 December 2013, Las Vegas, USA	IIT Madras
6	Mangesh Lodhe	MM10D010	International Conference & Exposition on Advanced Ceramics & Composites	26–31 January 2014, Florida, USA	IIT Madras
7	Karthiselva N.S.	MM11D019	Attended 38th Int'l Conf & Expo on Advanced Ceramics & Composites (ICACC 2014) and presented two oral talks and one poster	26–31 January 2014, Daytona, FL, USA	IIT Madras
India					
1	Avinash Hariharan	MM13S010	Indo-US Workshop on ICME for the Integrated Realization of Engineered Materials and Products	18–21 December 2013	Partially from the organizers
2	Rahul R.	MM13D11	Indo-US Workshop on ICME for the Integrated Realization of Engineered Materials and Products	18–21 December 2013	Completely from the organizers
3	Logesh G.	MM12D004	International Union of Materials Research Society—International Conference in Asia (IUMRS-ICA 2013) (poster presentation)	16–20 December 2013, Bangalore	IIT Madras
4	Subash R.	MM12S014	International Corrosion Prevention Symposium (CORSYM-14) for research scholars, held at IIT Bombay	20–21 February 2014, Bombay	IIT Madras
5	Viswanathan R.	MM12D028	International Corrosion Prevention Symposium (CORSYM-14) for research scholars, held at IIT Bombay	20–21 February 2014, Bombay	IIT Madras
6	Balakrishnan M.	MM13D003	International Corrosion Prevention Symposium (CORSYM-14) for Research Scholars, held at IIT Bombay	20–21 February 2014	IIT Madras
7	Damodaram R.	MM09D019	Advances in Welding Science and Technology (ADWEST) held at Pondicherry	3–4 May 2013, Pondicherry	Self
8	Preethi M.	MM06D019	International Exhibition on Heat Treatment and Surface Engineering (HT&SE-2013) held at Chennai	16–18 May 2013, Chennai	Tube Investments
9	B. Ratna Sunil, P. Jojibabu	MM10D004	Interfinish-SERIA 2013	7–9 August 2013, Chennai	Institute
10	Madhumathi K.	MM12D005	National Conference on Challenges in Biomaterials, Vellore Institute of Technology, Vellore	23–24 December 2013, Vellore	IIT Madras
11	G. Keerthi Soujanya	MM09B031	International Workshop on Coating and Surfaces for Biomedical Engineering (IWCSB) 2014, IIT Madras	16–19 February 2014, IIT Madras	IIT Madras
12	B. Ratna Sunil	MM10D004	AICTE-sponsored national seminar, Advances in Biomaterials for Medical Applications (ABMA-2014)	14–15 March 2014, R.V.R. & J.C. College of Engineering, Guntur	Completely from the organizers

13	Hanas T.	MM13D009	International Conference on Advances in Manufacturing and Materials Engineering, (ICAMME 2014)	27–29 March 2014, NIT Suratkal	NIT Calicut
14	Karthiselva N.S.	MM11D019	International Union of Materials Research Society—International Conference in Asia—2013 (IUMRS-ICA 2013)	16–20 December 2013,	IIT Madras IISc, Bangalore
15	K. Vasanthakumar	MM12D013	International Union of Materials Research Society—International Conference in Asia—2013 (IUMRS-ICA 2013)	16–20 December 2013,	IIT Madras IISc, Bangalore
16	S.L. Pramod	MM11D011	IIM Annual Meeting and National Metallurgists Day Conference	12–15 November 2013,	IIT Madras IITBHU, Varanasi
17	Karthiselva N.S.	MM11D019	IIM Annual Meeting and National Metallurgists Day Conference	12–15 November 2013,	IIT Madras IITBHU, Varanasi
18	K. Vasanthakumar	MM12D013	IIM Annual Meeting and National Metallurgists Day Conference	12–15 November 2013,	IIT Madras IIT BHU, Varanasi
19	G.M. Karthik	MM11D021	Heat Treatment and Surface Engineering (HT&SE-2013), ASM International	16–18 May 2013,	IIT Madras Chennai
20	Abhinav Kumar and Ninad Sahane	MM10B001 and MM10B030	Poster, “Flow Sheet Based Modeling Approach to Control Iron and Steel Making Supply Chain” at NMD-ATM 2013	13 November 2013,	IIT BHU, Varanasi
21	Sudagar Jothi	MM13IPF01	51st National Metallurgist Day—NMD-ATM (poster presentation)	12–15 November 2013,	BHU, Varanasi
22	Sudagar Jothi	MM13IPF01	International Union of Materials Research Society—International Conference in Asia (IUMRS-ICA 2013) (poster presentation)	16–20 December 2013,	IISc, Bagalore.
23	Johnson Jacob	MM11S011	Union of Materials Research Society—International Conference in Asia (IUMRS-ICA 2013)	16–20 December 2013,	IISc, Bangalore
24	Rajesh Chaudhari	MM09D021	International Conference on Powder Metallurgy & Particulate Materials, 2014 (PM14)	23–25 January 2014,	Chennai.

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. Bindu	MM07B025	Vishwakarma Prize 2012-13	IIT Madras Alumni Association
2	Pratik Kothari	MM11B018	Third prize in “A Voice in Social Change” symposium competition for their B-plan	A Leadership Programme in Social Change. Manila, Philippines. August 1 to 7, 2013
3	Subash R.	M12S014	Best Paper Award	International Corrosion Prevention Symposium (CORSYM-14) for Research Scholars, held at IITB
4	B. Ratna Sunil	MM10D004	First Runner up	Pan IIT Research Expo, Shastra 2014, IIT Madras
5	Sudagar Jothi	MM13IPF01	Best poster award	International Union of Materials Research Society-International Conference in Asia (IUMRS-ICA 2013) Poster Presentation

Names of students/scholars who won Institute Convocation/Institute Day prizes

S No	Name of the Student/Scholar	Roll No.	Name of Prize	Name of Donor
1	G. Sai Gautam	MM08B033	V. Srinivasan Memorial Prize	Sri S. Gopal,
2	G. Sai Gautam	MM08B033	S. Anantharamkrishnan Memorial Prize	Ms. Mallika Srinivasan

3	G. Sai Gautam	MM08B033	Prof. V. Sundaresan Prize	Prof. V. Sundaresan
3	R. Parthiban	MM11M013	Sudharshan Bhat Memorial Prize	M/s Goud Saraswat Braham Scholarship League
	R. Parthiban	MM11M013	Institute Merit Prize	IIT Madras
4	S. Anand Kumar	MM09D011	Sudharshan Bhat Memorial Prize	M/s Goud Saraswat Braham Scholarship League
5	A. Karthik	MM10B021	Sri Sathish Pai Prize	Sri. Satish Pai
6	Pranav Vrat	MM09B017	Ratna Award	Dr. Srinivas T Rao

4.14.3. Faculty and Their Activities

Faculty

Name and Qualifications	Major Area of Specialization
Professors	
M. Kamaraj [Head], Ph.D. (IIT Madras)	High temperature deformation studies on superalloys (with corrosion environment) and welded joints, development of wear surfacing materials; tribological tests on weld deposits (plasma transferred arc, plasma spray, HVOF processes etc.), surface engineering, nanocomposites
M. Balasubramanian, Ph.D. (IIT Madras)	Advanced ceramics and composites, nanocomposites processing, materials characterization
S.S. Bhattacharya, Ph.D. (IIT Madras)	Nanocrystalline materials – synthesis, consolidation, characterisation and property evaluation; superplasticity of materials (analytical and experimental); superplastic forming; metal forming; high temperature deformation behaviour of materials; advanced materials testing
S. Ganesh Sundara Raman, Ph.D. (IIT Madras)	Fatigue and fracture of metallic materials and their weldments, fretting fatigue, fretting wear, high temperature deformation, coatings, thermal spray processing and surface engineering
B.S. Murty, Ph.D. (IISc Bangalore)	Nanocrystalline materials, bulk metallic glasses, high entropy alloys, composites, phase transformations, electron microscopy, atom probe tomography.
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
K.C. Hari Kumar, Ph.D. (IIT Delhi)	Computational thermodynamics and kinetics, ab initio calculations of thermochemical and thermophysical properties
Prathap Haridoss, Ph.D. (U. Wisconsin–Madison)	Production and characterization of carbon nanotubes, synthesis of CdS nanocrystals, CO tolerant PEM fuel cell catalysts
V. Sampath, Ph.D. (IISc Bangalore)	Shape memory alloys and smart materials, composite materials, powder metallurgy, sol–gel processing, physical metallurgy, structure-property correlations
T.S. Sampath Kumar, Ph.D. (IISc Bangalore)	Biomaterials, microwave processing, surface science, intermetallics, high Tc superconductors, analytical instrumentation
Uday Chakkingal, Ph.D. (Rensselaer Polytechnic Institute)	Metal forming and materials processing, severe plastic deformation processes, aluminium alloys, fatigue
G. Sundararajan, Ph.D. (Ohio State University)	Tribological behavior of materials, Indentation behavior of materials, Coatings on materials, Deformation and fracture behavior of materials
Associate Professors	
R. Bauri, Ph.D. (IISc Bangalore)	Metal matrix composites, aluminium alloys, solid oxide fuel cells
A.S. Gandhi, 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 oxide
G. Phanikumar, Ph.D. (IISc Bangalore)	Solidification using electromagnetic levitation and melt spinning, transport phenomena in manufacturing processes, microstructure simulation and characterization.

N.V. Ravi Kumar, 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
S. Sankaran, Ph.D. (IIT Kanpur)	Mechanical behaviour of materials, electron microscopy, structure property correlations
V. Subramanya Sarma, Ph.D. (IIT Madras)	Materials processing, development, characterization and microstructure-mechanical properties correlations in engineering materials
G.D. Janaki Ram, Ph.D. (IIT Madras)	Welding, additive manufacturing, failure analysis
Assistant Professors	
Ajay Kumar Shukla, Ph.D. (IIT Kanpur)	Process modeling, control and optimization of iron and steel making, Computational thermodynamics and its application to high temperature metallurgical processes, application of artificial intelligence (ANN, GA) to metallurgical processes, heat and mass transfer
Anand K. Kanjarla, Ph.D. (Katholieke Universiteit Leuven (KUL), Belgium)	Microstructural approach to mechanics of materials, finite element method and fast Fourier transform approach to crystal plasticity CPFEM & CPFPT, plastic anisotropy and crystallographic texture, microstructure evolution in irradiated systems
Lakshman Neelakantan, Ph.D. (MPIE Düsseldorf & RUB, Bochum, Germany)	Corrosion characteristics, Smart coatings for corrosion protection, electro-dissolution, -planarization and -deposition
Manas Mukherjee, Ph.D. (Technical University Berlin, Germany)	Metal foams—production and characterization, physics of foaming, X-ray tomography, Solidification
Parasuraman Swaminathan, PhD (University of Illinois at Urbana- Champaign, USA, joined July 2013)	Electronic materials, drying mediated assembly of nanoparticles and thin films, MEMS device fabrication, phase transformations in nanoparticles and metallic multilayer thin film systems
K. Ravi Sankar, Ph.D. (IISc Bangalore)	High temperature deformation, super plasticity, nanocrystalline materials, size effects in plastic deformation
Sabita Sarkar, Ph.D. (IISc Bangalore)	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.
Srinivasa Rao Bakshi, Ph.D. (Florida International University, Miami, USA)	Thermal spraying, carbon nanotube reinforced composites, microstructure property correlations at different length scales, nuclear materials
Visiting Faculty	
Pulickel M. Ajayan (Visiting Faculty from 20 December 2013 to 19 June 2014)	Nanotechnology enabled energy storage devices (battery, supercapacitor and hybrid devices), nanocomposites, layered materials, 3D nanostructured materials, and smart material systems
Seetharaman Seshadri (Visiting Faculty from 19 January to 20 February 2014)	Experimental measurements and modelling of the thermo-chemical and thermo-physical properties of high temperature systems, investigations of the reaction kinetics of high temperature reactions that include, heat and mass transfer, property-structure relationships, micro phenomena at high temperatures
Professors Emeriti	
S.K. Seshadri, Ph.D. (Imperial College London)	Electroless deposition of nickel and its composites, evaluation of wear and corrosion characteristics of electro and electroless composite coatings, high temperature oxidation studies of composite coatings, stress corrosion behaviour of maraging steel weldments
P. Venugopal, 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

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

Sl. No.	Co-ordinator(s)	Title	Period
Conferences			
1	B.S. Murty, Co-Convener	International Conference on Heat Treatment and Surface Engineering, Chennai Trade Centre, Chennai	16–18 May 2013
Seminars			
1	M. Kamaraj & B.S. Murty	E.G. Ramachandran Distinguished Lecture- First in the annual series	17 April 2013, IIT Madras
Symposia			
1	Srinivasa Rao Bakshi	Symposium called Advances in Surface Engineering: Alloyed and Composite Coatings III was organized by Sandip P. Harimkar, Jeff T.H. De Hosson, Roger J. Narayan, Efsthios (Stathis) I. Meletis, Virendra Singh, Srinivasa R. Bakshi, Mathieu Brochu, Arvind Agarwal, Jian Luo, Nancy L. Michael, Nuggehalli M. Ravindra, Adele Carradò, Choong-un Kim and Amit Pandey at the 2014 TMS Annual Meeting and Exhibition	16–20 February 2014, San Diego, USA
Workshops			
1	Uday Chakkingal and Anand Kanjarla	Sheet Metal Forming (organised for Mahindra & Mahindra, Chennai)	28 March 2014
2	M. Kamaraj, N.V. Ravikumar and Srinivasa Rao Bakshi	National workshop on Advanced X-Ray Techniques & Applications (AXTA - 2013)	27 April 2013, IIT Madras
3	Srinivasa Rao Bakshi and Kamaraj	Thermal Spraying and Cladding	8 October 2013
4	G.D. Janakiram	Conducted a national workshop on “Titanium Matrix Composites”.	30 August 2013, IIT Madras
5	B.S. Murty (Convener)	Two-day workshop on “Metallurgy and Materials for Practicing Engineers & Researchers”	21–22 September 2013, IIT Madras
6	T.S. Sampath Kumar	A one day workshop, Harnessing Nanotechnology to Combat Infectious Diseases: From Bench to Beside, jointly with departments of Chemical Engineering and Biotechnology	9 November 2013, IIT Madras
7	B.S. Murty, Convener	Two-day workshop, Quantitative Microscopy, Chennai	December 2013
8	B.S. Murty	Convener, One-Day Workshop on Refractory Metals, ASM-IIM programme	11 February 2014, IIT Madras
9	B.S. Murty	Convener, One-Day Workshop on Refractory Metals, ASM-IIM programme	11 February 2014, IIT Madras
Short-term courses			
1	M. Kamaraj	One day short-term course, “Steel and Mechanical Testing”, through Centre for Continuing Education, for Sri Energy Valves Pvt. Ltd., Viralimalai, Tamil Nadu	22 June 2013, IIT Madras

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

Sl. No.	Name of Faculty Member	Title	Institution	Period
Workshops				
1	T.S. Sampath Kumar	A one day workshop on Harnessing Nanotechnology to Combat Infectious Diseases: From Bench to Beside.	IIT Madras Jointly with Department of Chemical Engineering and Biotechnology	9 November 2013
2	Anand Krishna Kanjarla	Attended Indo-US Workshop for the Integrated Realization of Engineered Materials and Products.	TRDDC, Pune	18–21, December 2013
4	Ashutosh S. Gandhi	Discussion Meeting on Advanced Thermal Spray Processing and Reclamation Technologies	ARCI Hyderabad	20 January 2014

5	Srinivasa Rao Bakshi	Discussion Meeting on Advanced Thermal Spray Processing and Reclamation Technologies	ARCI Hyderabad	20 January 2014
6	Ravi Kumar	Invited to attend the workshop on the Science, Technology and Innovation Policy 2013 (STI)	Building R & D and Innovation Systems in context of India's new Science, Technology and Innovation Policy"	9 April 2013
Seminars				
Symposia				
1	Anand Kanjarla	Two Day Seminar On Microstructure -- Diffraction (Microstructure-2013)	IIT Bombay	19–20 April 2013
2	V. Subramanya Sarma	Two Day Seminar On Microstructure -- Diffraction (Microstructure-2013)	IIT Bombay	19–20 April 2013
3	V. Subramanya Sarma	Advanced X-ray Techniques and Applications (AXTA-2013)	IIT Madras	27 April 2013
Conferences				
1	Ashutosh S. Gandhi	Congregation of Ceramic Technologists (ConCerT 2014)	Anna University	12–14 March 2014
2	S. Sankaran	Two Day Seminar On Microstructure -- Diffraction (Microstructure-2013)	IIT Bombay	19–20 April 2013
3	B.S. Murty	Nanotechnology and its applications	Key Note Lecture at ICEMAP-2013, Chennai	23 May 2013
4	T.S. Sampath Kumar	Int. Conf. on Materials for Energy & NanoConvergence	Hindustan University, Chennai	4–6 July 2013
5	Ashutosh S. Gandhi	Recent Trends in Materials Chemistry (RTMC-2013)	VIT University	25–27 July 2013
6	T.S. Sampath Kumar, Biomaterials session chair with Bikram Basu of IISc	IIM-NMD-ATM 2013		12–15 November 2013
7	T.S. Sampath Kumar	Annual Technical Meeting of Indian Institute of Metals	IIT BHU	12–15 November 2013
8	B.S. Murty	Convener and Chairman of Nano-Technology Session	NMD, ATM 2013, IIT BHU, Varanasi	12–15 November 2013
9	G. Phanikumar	Chaired a session on "Non-equilibrium processing of materials"	NMD, ATM 2013, IIT BHU, Varanasi	12–13 November 2013
10	Uday Chakkingal	Chaired session on "Severe Plastic Deformation" at the Annual Technical Meeting of the Indian Institute of Metals	NMD, ATM 2013, IIT BHU, Varanasi	12–13 November 2013
11	Srinivasa Rao Bakshi	Presented a talk "Thermal spray synthesis of multi-component high entropy alloy coatings"	NMD, ATM 2013, IIT BHU, Varanasi	12–13 November 2013
12	Ajay Kumar Shukla	Presented a Technical paper in "International Conference on Science and Technology of Ironmaking and Steel making (STIS 2013) organized by Tata Steel and NML Jamshedpur	Jamshedpur	16–18 December 2013
13	T.S. Sampath Kumar	National conference on challenges in biomaterials research	VIT, Vellore	23–24 December 2013
14	S. Sankaran	Workshop on Imaging and Spectroscopy in Advanced TEM (WISAT-2014)	BARC	28–31 January 2014
15	Srinivasa Rao Bakshi	Symposium called Advances in Surface Engineering: Alloyed and Composite Coatings III at the 2014 TMS Annual Meeting and Exhibition	San Diego, USA	16–20 February 2014
16	T.S. Sampath Kumar	International Conference On Emerging Materials And Processes	CSIR - IMMT, Bhubaneswar	26–28 February 2014

Training programmes				
1	N.V. Ravi Kumar	Participated in Indo-German Workshop on Alternative Energy Solution and Sustainable Growth		16–17 September 2013
Short-term courses				
1	M. Kamaraj	One day short term course on “Steel and Mechanical Testing” through Centre for Continuing Education, for M/s. Sri Energy Valves Pvt. Ltd., Viralmalai, Tamilnadu	IIT Madras	22 June 2013
2	S. Sankaran/ B.S. Murty	Certificate Course on Materials Characterization	IIT Madras	16–19 December 2013

Special lectures delivered by faculty members at other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	B.S. Murty	Nanocrystalline High Entropy alloys	MNIT, Jaipur	5 April 2013
2	B.S. Murty	Towards Excellence and Relevance in Science Education, Research & Development	Invited talk at Workshop on Building R & D and Innovation Systems in context of India's new Science, Technology and Innovation Policy, IIT Madras	9 April 2013
3	G.D. Janaki Ram	Delivered an invited talk on research opportunities in materials joining	RMK College of Engineering and Technology, Pudukkottai, Chennai.	15 April 2013
4	B.S. Murty	Excitement in Nano Science and technology	GMR Institute of Technology, Vizag	19 April 2013
5	B.S. Murty	Invited talk Industrial applications of Nanotechnology	Dr AIT, Bangalore	26 April 2013
6	B.S. Murty	Transmission Electron Microscopy of Nanomaterials	PSG Tech, Coimbatore	4 May 2013
7	B.S. Murty	Industrial applications of Nanotechnology	Ordinance Factory, Kolkata	7 May 2013
8	B.S. Murty	Nanotechnology and its applications	Key Note Lecture at ICEMAP-2013, Chennai	23 May 2013
9	M. Balasubramanian	Polymer Nanocomposites during the National level workshop on Advances and Analysis of Composites	VIT University (Chennai Campus)	31 May 2013
10	B.S. Murty	Atom Probe tomography of Nano Materials	Invited talk at EMSI, Hyderabad	4 July 2013
11	B.S. Murty	Excitement in Nano Science and Technology	Invited talk at IIST, Trivandrum	11 July 2013
12	T.S. Sampath Kumar	To give a special lecture on “CaP NANOCARRIERS & FIBROUS COMPOSITES FOR MEDICAL APPLICATIONS” at the Materials Chemistry Division, School of Advanced Sciences”	VIT, Vellore	17 July 2013
13	Ajay Kumar Shukla	Delivered an invited talk on “Process modeling of Iron and Steel making using flow sheet based approach employing MESIM software”	JSW Steel Plant, Karnataka	19–20 July 2013
14	K.C. Hari Kumar	Five lectures on “Computational Thermodynamics in the context of ICME”	Tata Research Development Design Centre, Pune	22–26 July 2013
15	K.C. Hari Kumar	Delivered an invited talk on “Topology of Phase Diagrams”.	IIM Pune, Chapter	25 July 2013

16	V. Sampath	Delivered an invited talk on "Piezoelectric Materials: Principles, Mechanisms and Applications".	Dr. M.G.R University	26 July 2013
17	B.S. Murty	"Excitements in Materials Science" Inspire lecture for school children	SSN College, Chennai	6 August 2013
18	B.S. Murty	"Excitements in Nano world" Inspire lecture for school children	Madras University, Chennai	9 August 2013
19	B.S. Murty	Exciting Engineering Applications of Nano Materials Developed by High Energy Ball Milling	R.A. Mashelkar Distinguished Lecture , NCL, Pune	19 August 2013
20	Ranjit Bauri	Delivered an Invited Talk on "Development of Ti-TiB compo-site by In situ Processing"	IIT Madras	30 August 2013
21	B.S. Murty	In-Situ crystallization of Zr based BMG	Invited talk at 6th Int. Conf. on Solidification and Gravity, Miskolc, Hungary	2-5 September 2013
22	Srinivasa Rao Bakshi	Delivered an invited talk on "Cold Metal Transfer technique and its application for overlay coatings"	CIT, Coimbatore	20 & 21 September 2013
23	Lakshman Neelakantan	Delivered a lecture on "Corrosion and its Prevention" in Two-Day Workshop on Metallurgy and Materials for Practicing Engineers & Researchers organized by Indian Institute of Metals Chennai Chapter	IIT Madras	21-22 September 2013
24	Srinivasa Rao Bakshi	Delivered a lecture on "Surface Engineering" in Two-Day Workshop on Metallurgy and Materials for Practicing Engineers & Researchers organized by Indian Institute of Metals Chennai Chapter	IIT Madras	21-22 September 2013
25	N.V. Ravikumar	Invited as Chief Guest for the inauguration of the symposium KRYSTA'13 organized by the Society of Materials Science & Engineering (SMSE),	Anna University	3 October 2013
26	B.S. Murty	Excitements in Materials Science	Inspire lecture for school children, Madras University, Chennai	4 October 2013
27	M. Balasubramanian	Delivered an invited talk on "Properties and Applications of Fibre Reinforced Plastics"	Thiagarajar College of Engineering, Madurai	25 October 2013
28	M. Balasubramanian	Delivered an invited talk on "Fibres and Polymer Matrices for Composites".	Thiagarajar College of Engineering, Madurai	25 October 2013
29	B.S. Murty	NRB Materials Panel Meeting	Conducted as Head of the Panel	28-29 October 2013
30	G. Phanikumar	Delivered an invited talk on "Phase field modeling of solidification microstructures" at NMD, ATM 2013	IIT BHU, Varanasi	12-15 November 2013
31	B.S. Murty	Delivered a Plenary Lecture at NMD, ATM 2013	IIT BHU, Varanasi	12-15 November 2013
32	Uday Chakkingal	Presented an invited talk "Improvement in the drawability of aluminium alloys by groove pressing" NMD, ATM 2013	IIT BHU, Varanasi	12-15 November 2013
33	Uday Chakkingal	Chaired session on "Severe Plastic Deformation" at NMD, ATM 2013	IIT BHU, Varanasi	12-15 November 2013
34	Srinivasa Rao Bakshi	Delivered a Lecture at Chennai Petroleum Corporation Ltd.	Chennai	13 December 2013
35	Srinivasa Rao Bakshi	Delivered a Lecture at 4-Day Workshop organized by	IIM Chennai Chapter	19 December 2013

36	T.S. Sampath Kumar	Delivered a Lecture at the International Conference on Medical Materials, Devices and Regenerative Medicine (MMDRM) 2014	Kathmandu, Nepal	11–13 January 2014
37	V. Sampath	Smart Materials- principles, mechanisms and applications	Invited Speaker, IITDM, Kancheepuram	24 January 2014
38	B.S. Murty	Excitements in Materials Science	Inspire lecture for school children, Madras University, Chennai	7 February 2014
39	B.S. Murty	Applications of Nano Technology	RMK Engineering College, Chennai	21 February 2014
40	T.S. Sampath Kumar	Micro/nanofeaturing of Biodegradable Metallic Implants: New opportunities at the International Conference on emerging materials and processes.	Institute of Minerals and Materials Technology (IMMT), Bhubaneswar	26–28 February 2014
41	M. Balasubramanian	Invited talk on “Polymer Nanocomposites” during the national seminar on “Application of nanotechnology in composite materials and structures”	Rajalakshmi Engineering College, Chennai	27 and 28 February 2014
42	B.S. Murty	Excitements in Nano world	Chief Guest at the Science Day Function, RGUKT, RK Valley	28 February 2014
43	V.S. Sarma	Delivered a lecture on the Principles of Optical and Electron Microscopy as part of the short term course on Colloids and Interfaces with Polymers and Surfactants”organized by the Chemical Engineering Department of IIT Madras	IIT Madras Chennai	5–7 March 2014
44	Ashutosh S. Gandhi	High Temperature Coatings for Aerospace Applications”, Congregation of Ceramic Technologists (ConCerT 2014), Chennai.	Anna University	12 March 2014
45	G.D. Janaki Ram	“Welding of Light Alloys” delivered in Two-day workshop “Alloys for Light Weighting Application”	IIT Madras	15–16 March 2014
46	B.S. Murty	Nano Materials by Top Down Approach	Plenary lecture, JC College, Mysore	22 March 2014
47	M. Balasubramanian	Processing and Applications of Metal Matrix Composites” during the national conference on “Micro and Nanocomposites	Thiagarajar College of Engineering Madurai	23 March 2014
48	B.S. Murty	Nanocrystalline High entropy alloys	Plenary lecture, NIT Surathkal	28 March 2014
49	V. Sampath	One-day national seminar on characterization and application of composite materials	Chief Guest and Invited Speaker, NSN College of Enng., Karur	10 March 2014

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	Anand Kanjarla	Belgium	14–16 May 2013	To participate in the symposium “Textures, microstructures and plastic anisotropy”	Organizers of the symposium
2	Ravi Kumar	Germany	28 May 2013	Visited the Max Planck Institut fuer Eisenforschung, Duesseldorf, Germany	
3	Ravi Kumar	Germany	29 May 2013	Delivered an invited talk at Institute for Zoology, University of Bonn, Germany	

4	K.C. Hari Kumar	Spain	26–31 May 2013	Invited to deliver a lecture on “Thermodynamic Modelling of LiCl-KCl-UCl ₃ System”, Calphad XLII, San Sebastian, Spain	
5	Ravi Kumar	Germany	3–7 June 2013	Invited as Guest Professor at the Hof University of Applied Sciences, Germany	
6	Ravi Kumar	Serbia	8 June 2013	Invited to deliver a lecture during the 2nd Serbian Ceramic Society Conference, Belgrade, Serbia.	
7	Ranjit Bauri	United Kingdom	21–25 July 2013	MAAD-SOFC Indo-UK project visit	
8	Sabita Sarkar	Finland	16–19 June 2013	Presented one paper in “7th International Conference on Physical and Numerical Simulation of Materials Processing”	CPDA
9	S. Sankaran	Julich/Aachen	9 July–5 August 2014	Study tour in ERC- Julich DAAD Fellowship for a research stay visit at RWTH Aachen, Germany	DAAD
10	B.S. Murty	Hungary	2–5 September 2013	Invited talk at 6th Int. Conf. on Solidification and Gravity, Miskolc, Hungary	
11	B.S. Murty	Melbourne, Australia	23–30 November 2013	Invited by Prof. Christopher Berndt, Swinburne University of Technology for collaboration	
12	Ravi Sankar Kottada	Melbourne, Australia	23–30 November 2013	Invited by Prof. Christopher Berndt, Swinburne University of Technology for collaboration	
13	M. Kamaraj	Fukuoka, Japan	29–2 December 2013	Invited to attend 3rd International Advisory Board Meeting at Kyushu University, Japan	
14	T.S. Sampath Kumar	Kathmandu, Nepal	11–13 January 2014	Invited lecture at the 11nd International Conference on Medical Materials, Devices & Regenerative Medicine	
15	M. Kamaraj	Nagaoka, Japan	24–28 March 2014	Visited the Nagaoka University of Technology (NUT) Japan for a Technical Meeting.	
16	Ajay Kumar Shukla	San-Diego, USA	16 & 20 February 2014	A paper was presented a paper at the 2014 TMS Annual Meeting & Exhibition titled “Flow Sheet Based Approach Coupled with Application of Thermodynamics for the Modelling of Various Iron and Steelmaking Processes“ during an EPD Symposium in Honor of David G.C. Robertson	
17	Ajay Kumar Shukla	San-Diego, USA	16 & 20 February 2014	A paper was presented in 2014 TMS Annual Meeting & Exhibition at San-Diego. The title of the paper was “Lean Operations Strategy to Combat Uncertainties in Temperature at BOF Endpoint, Tapping, Deoxidation, Alloy Addition and Thermal History”. The paper was presented during an EPD Symposium in Honor of David G.C.Robertson.	
18	Ajay Kumar Shukla	Germany	22–28 February 2014	Visited Ferrous Metallurgy Department, RWTH Aachen University, Germany from 22–28 February 2014 on invitation of German Exchange Service (DAAD).	DAAD
19	Ajay Kumar Shukla	Germany	27 February 2014	Visited Steelmaking Division of Thyssen Krupp Steel Plant, Duisburg, Germany on 27 February 2014. Had discussions and meetings with Scientists of Steel Research Division.	
20	Srinivasa Rao Bakshi	San Diego, CA, USA	16–20 February 2014	Presented 3 oral talks and 2 posters in 2014 TMS Annual Meeting and Exhibition	

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	S. Ganesh Sundara Raman	Expert member		Expert member for Temp. Faculty recruitment interviews of NIT Trichy	
2	B.S. Murty	Expert member		Expert member for Faculty recruitment interviews of NIT Warangal	
3	B.S. Murty	Expert member		Expert member for the meeting of CSIR Technology Award Selection Committee	
4	V. Subramanya Sarma	Key Reader		Key Reader of the Journal Metallurgical and Materials Transactions A	For a period of 3 years (till 31 December 2016)
5	B.S. Murty	Chairman		Chairman of a Session at Invited talk at 6th Int. Conf. on Solidification and Gravity, Hungary	
6	Uday Chakkingal	Expert Member		Expert Member in the selection committee for recruiting Assistant Professor for IIST Trivandrum	
7	B.S. Murty	Expert member		Faculty recruitment at School of Engineering Science Technology, University of Hyderabad	22 April 2013
8	B.S. Murty	Chairman		The Indian Institute of Metals Chennai Chapter	2013–2014
9	B.S. Murty	Expert member		Expert member, Faculty recruitment at Materials Engineering, IIT Patna	6 May 2013
10	T.S. Sampath Kumar	Judge for Mini project Contest		Organised by SRM University & Tamilnadu Science and Technology Centre	17 September 2013
11	B.S. Murty	Expert member		Expert member for Faculty recruitment, IIT Bhubaneswar	January 2014
12	B.S. Murty	Expert member		Expert member on the panel for Faculty recognition Awards, IIT Bombay	25 February 2014
13	B.S. Murty	Chief Guest		Chief Guest at the Science Day Function, RGUKT, RK Valley	28 February 2014
14	B.S. Murty	Expert member		Expert member on the monitoring committee for establishing facilities for atomic level characterization at DMRL Hyderabad	
15	B.S. Murty	Expert member		Expert member for faculty selection at IIT Hyderabad	14 March 2014
16	B.S. Murty	Member		Member, Research Council, AMPRI, CSIR	2013–2016
17	B.S. Murty	Coordinator		Committee for AICTE-INAE Travel Grant Scheme for Eng. Students	since 2013
18	B.S. Murty	Adjunct Professor		Ryerson University, Toronto, Canada	2014–2017
Awards					
1	Srinivasa Rao Bakshi	MPMD Young Leader Professional Development Award	TMS		16–20 February 2014

2	Srinivasa Rao Bakshi	Travel Award	Science and Engineering Research Board (SERB) of DST	Attending 2014 TMS Annual Meeting and Exhibition	16–20 February 2014
3	G. Sundararajan	National Metallurgist Award	Indian Institute of Metals (IIM) on during NMD-ATM 2013 at Varanasi		14 November 2013
4	Srinivasa Rao Bakshi	The Young Professional Award for 2013	ASM International Chennai Chapter		2013
5	B.S. Murty	Fellow of Asia Pacific Academy of Materials			
6	B.S. Murty	Binani Gold Medal	Transaction of Indian Institute of Metals	Best Paper	2012
7	Ravi Kumar	Certificate of distinction for excellence in teaching	Prof. Dr. Juergen Lehmann, President of Hof University	A 6 hours course was offered to 200 students on “Materials for Extreme Environments”	
8	B.S. Murty	Fellow of Indian National Science Academy (FNA)			
9	G. Sundararajan	Padma Shri Award	Government of India		

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	S. Sarkar	“Process Concept for Scaling-Up and Plant Studies” in “Treatise on Process Metallurgy: Industrial Processes”, Volume 3: Industrial Processes	Elsevier	Govind S. Gupta, A. Chyckko, L.D. Teng, M. Nzotta, S. Seetharaman
2	M. Balasubramanian	Composite Materials and Processing	CRC Press	M. Balasubramanian

Fellowships of academies and professional societies

Sl. No.	Name of Faculty Member	Year of Admission
1	B.S. Murty, Fellow of Asia Pacific Academy of Materials (FAPAM)	
2	B.S. Murty, Fellow of Indian National Science Academy (FNA)	

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	V. Subramanya Sarma	Key Reader	<i>Metallurgical and Materials Transactions A</i>

4.14.4. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Name of Equipment	Value (in lakhs of ₹)
1	Leica Image Analysis System	11
2	1000 kN double action hydraulic press	14
3	Thermo mechanical simulator (GLEEBLE)	700 (funded by DST-FIST)
4	Upgrading of friction stir welding machine	

Patents filed

Sl. No.	Name of Faculty Member	Topic of Patent
1	S.Sankaran, V. Subramanya Sarma	Processing of the bimodal ultrafine grained microalloyed dual phase steel sheets
2	T.S. Sampath Kumar, Bindu Vundru, Madhumathi K.	A Composition for Dental Remineralization
3	T.S. Sampath Kumar, Madhumathi K.	Bioceramic Nanocarrier Formulation Based Bone Filler With Multi-Drug Delivery Mechanism

4.14.5. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹)	Co-ordinators
1	Rare-earth Silicate Environmental Barrier Coatings for SiC Based High Temperature Materials	18 March 2013 to 17 March 2016	ISRO	23.844	Ashutosh S. Gandhi R. Suresh Kumar (ISRO)
2	Fatigue Behaviour of an Ultra Fine Grained Aluminium Alloy Processed by Equal Channel Angular Pressing	2 November 2011 to 1 November 2014	DST	40.8	Uday Chakkingal S. Ganesh Sundara Raman
3	Oxidation and Hot Corrosion Studies on Gas Turbine Alloys		CARS-GTRE Bangalore	9.576	M. Kamaraj Lakshman Neelakantan
4	Synthesis and thermo-mechanical processing effects on the microstructure and mechanical properties of Ti-Al-Ni-Cr-Co-Fe based multi-component/high-entropy alloys		ISRO	28.28	Srinivasa Rao Bakshi G. Phanikumar
5	Synthesis of Photo-catalytic Porous Silicon- Containing Nitride and Oxynitride Nanocompo-sites		Scientific Council of Indo-French Centre for the Promotion of Advanced Research (CEFIPRA/IFCPAR)	149.73	N.V. Ravi Kumar (PI-Indian) K.C. Hari Kumar (Indian) Samuel Bernard (PI-French) Phillippe Miele (French) Umit B. Demirci(French)
6	Consultancy for Development of Auto Part by Shrink Plate Forming & Extrusion		M/s. Tube Investments of India	6.0	P. Venugopal (Emeritus Professor)

Industrial consultancy projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	V. Sampath & M. Balasubramanian	Failure analysis of ceramic insulators	Modest Infrastructure Pvt. Ltd.	2.96

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	Anand Kanjarla	Strengthening mechanisms in supplementary creep	GE – India	9
2	V. Subramanya Sarma	Study of texture and microstructure during superplastic deformation of Al alloys	Boeing Inc.	10
3	V. Subramanya Sarma	Texture properties correlations in electrical steel	Tube Investments	3.9
4	S. Sankaran and M. Kamaraj	TEM studies on high strain rate tested T64 alloy	GTRE	10

Faculty members' participation with other institutions under MoUs

Sl. No.	Name of Faculty Member	Participation Details	Name of University/Institution Which Has MoU
1	Ajay Kumar Shukla	<ol style="list-style-type: none"> 1. Development of mathematical model for RH degassing process. (value 2.02 lakh) 2. Development of Static and Dynamic control model for BOF process optimization (value 2.02 lakh). 3. Development of optimization model for Hot metal pretreatment (value 2.02 lakh). 	JSW Steel Limited signed MOU to work on following three projects in Steel-Making area. These projects will be executed in RBIC mode

Research publications of faculty members and research scholars

Number of papers published in refereed international journals: 89

Number of papers presented at national conferences: 2

Number of papers presented at international conferences: 2

(a) Papers published in refereed international journals

1. Sandip P. Harimkar, Srinivasa Rao Bakshi and Arvind Agarwal (2013) Recent developments in surface engineering of materials. *JOM* 65: 739–740.
2. Debrupa Lahiri, Virendra Singh, Giovani Ritta Rodrigues, Tania Maria Haas Costa, Marcia R. Gallas, Srinivasa Rao Bakshi, Sudipta Seal and Arvind Agarwal (2013) Ultra high-pressure consolidation and deformation of tantalum carbide at ambient and high temperatures. *Acta Materialia* 61: 4001–4009.
3. Ranjit Bauri (2013) Optimization of process parameters for Friction stir processing (FSP) of Al-TiC in situ composite. *Bulletin of Materials Science* (Accepted).
4. Surendra Babu Anatharaman and Ranjit Bauri (2013) Effect of sintering atmosphere on densification, redox chemistry and conduction behavior of nanocrystalline Gd-doped CeO₂ electrolytes. *Ceramics International* 39(8): 9421–9428.
5. Ajay Kumar Shukla, Brahma Deo and D.G.C. Robertson (2013) Role of air gap in scrap dissolution process. *Metallurgical and Materials Transactions B* 44(6): 1398–1406.
6. N.S. Reddy, A.K. Prasada Rao, J. Krishnaiah, M. Chakraborty and B.S. Murty (2013) Design of an ideal grain refiner alloy for Al-7Si alloy using artificial neural networks. *J. Mater. Eng. Performance* 22: 696–699.
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10. K.G. Pradeep, N. Wanderka, P. Choi, J. Banhart, B.S. Murty and D. Raabe (2013) Atomic-scale compositional characterization of a nanocrystalline AlCrCuFeNiZn high-entropy alloy using atom probe tomography. *Acta Mater.* 61: 4696–4706.
11. L. Balogh, S.R. Niezgoda, A.K. Kanjarla, D.W. Brown, B. Clausen, W. Liu and C. Tomé (2013) Spatially resolved in situ strain measurements from an interior twinned grain in bulk polycrystalline AZ31 alloy. *Acta Mater.* 61: 3612–3620.
12. I. Duarte, M. Oliveira, F. Garcia-Moreno, M. Mukherjee and J. Banhart (2013) Foaming of aluminium alloys using multiple precursors. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 438: 47–55.
13. R. Sujith and Ravi Kumar (2013) Small-scale deformation of pulsed electric current sintered silicon oxycarbide polymer derived ceramics. *Advanced Engineering Materials* 15(11): 1040–1045.
14. R. Sujith and Ravikumar (November 2013) Experimental investigation on the indentation hardness of precursor derived Si–B–C–N ceramics. *Journal of the European Ceramic Society* 33(13–14): 2399–2405.
15. K.S. Virdi and K.C. Hari Kumar (2013) First-principle investigation of lithium intercalation behavior of a (3, 3) carbon nanotube. *Materials Science Forum* 736: 27–31.

16. A. Kauffmann, J. Freudenberger, H. Klauss, V. Klemm, W. Schillinger, V. Subramanya Sarma and L. Schultz (2013) Properties of cryo-drawn Cu with severely twinned microstructure. *Materials Science and Engineering A* 588: 132–141.
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18. N.V. Devaraj, Ravi Kumar and S. Sankaran (2013) Influence of spark plasma sintering temperature on the densification, microstructure and mechanical properties of a Al-4.5 wt.% Cu alloy. *Acta Metallurgical Sinica* 26(6): 761–771.
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21. Niraj Chawake, Paleti Sri Harish Kumar, B.S. Murty and Ravi S. Kottada. Synthesis and characterization of spark plasma sintered Fe-Al and in-situ FeAl-Al₂O₃ composite. *Trans. Ind. Inst. Metals* 66: 419–424.
22. Rajesh Chaudhari and Ranjit Bauri (2013) Reaction mechanism, microstructure and properties of Ti-TiB in situ composite processed by spark plasma sintering. *Materials Science & Engineering A* 587: 161–167.
23. Ekta Jain and Uday Chakkingal (2013) Influence of groove pressing process on the drawability (R value) of aluminium alloy AA 5052 sheet. *Materials Science Forum* 765: 363–367.
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25. Nadimpalli Raghukiran, Aslam Kunhi Mohamed and N.V. Ravi Kumar (January 2014) Study of the influence of silicon phase morphology on the microstructural stress distribution in Al-Si alloys using object oriented finite element modeling. *Advanced Engineering Materials* 16(1): 112–121.
26. A.K. Shukla, Niraj Nayan, S.V.S.N. Murty, K. Mondal, S.C. Sharma, Koshy M. George and Srinivasa R. Bakshi (2013) Processing copper-carbon nanotube composite powders by high energy milling. *Materials Characterization* 84: 58–66.
27. S. Praveen, Aamey Anupam, Teja Sirasani, B.S. Murty and Ravi S. Kottada (2013) Characterization of oxide dispersed AlCoCrFe high entropy alloy synthesized by mechanical alloying and spark plasma sintering. *Trans. Ind. Inst. Metals* 66: 369–373.
28. V.R. Mudinepalli, S. Song and B.S. Murty (2013) Microwave sintering effect on structural and dielectrical properties of Ba_{1-x}(Sr/Pb)_xTiO₃ (x = 0.2 for Sr and Pb) ceramics. *J. Mater. Sci.: Mater. Electronics* 24 2141–2150.
29. Roopas Kiran Sirugudu, Rama Krishna Murthy Vemuri and B.S. Murty (2013) Microwave sintering studies on low dielectric loss (Zn,Mg)TiO₃ dielectric resonator materials. *J Microw Power Electromagn Energy* 47: 262–269.
30. V.R. Mudinepalli, S. Song, J. Li and B.S. Murty (2013) A comparative study of structural and electrical properties of Ba_{0.8}Pb_{0.2}TiO₃ nanocrystalline ceramics prepared by microwave and spark plasma sintering. *Mater. Chem. Phys.* 142: 686–691.
31. Karthikeyan Rajan, Shanmugasundram Thangaraju, V. Subrahmanya Sarma and B.S. Murty (2013) Effect of Y₂O₃ on spark plasma sintering kinetics of nanocrystalline 9Cr-1Mo ferritic oxide dispersion strengthened steels. *Metall. Mater. Trans. A* 44: 4037–4041.
32. V. Udhayabanu, K.R. Ravi and B.S. Murty (2013) Ultrafine grained-high strength NiAl with dispersion of Al₂O₃ and Al₄C₃ nano-sized particles by mechanical alloying in toluene and spark plasma sintering. *Mater. Sci. Eng. A*. 585: 379–386.
33. S. Vincent, B.S. Murty and Jatin Bhatt (2013) Corrosion characterization on melt spun Cu₆₀Zr₂₀Ti₂₀ metallic glass: an experimental case study. *J. Non-Cryst. Sol.* 379: 48–53.
34. R. Sriharitha, B.S. Murty and Ravi S. Kottada (2013) Thermal stability and strengthening in spark plasma sintered Al_xCoCrCuFeNi high entropy alloys. *J. Alloys Comp.* 583: 419–426.
35. Nagamalleswara Rao Alluri, S.K.S Parashar, Kajal Parashar, P.S. Mukherjee and B.S. Murty (2013) Investigation of structural and diffuse phase transition of new nano lead free system xBAO–yBZT–(1–x–y)BCT. *Metall. Mater. Trans. A* 44: 5241–5250.
36. C.R. Das, S.K. Albert, J. Swaminathan, A.K. Bhaduri and B.S. Murty (2013) Effect of boron on creep behaviour of inter-critically annealed modified 9Cr-1Mo steel. *Procedia Eng.* 55: 402–407.

37. J.J.S. Dilip and G.D. Janaki Ram (December 2013) Microstructure evolution in aluminum alloy AA 2014 during multi-layer friction deposition. *Materials Characterization* 86: 146–151.
38. Vamsi Krishna Balla, Mitun Das, Sreyashree Bose, G.D. Janaki Ram, and Indranil Manna (2013) Laser surface modification of 316 L stainless steel with bioactive hydroxyapatite. *Materials Science and Engineering C* 33(8): 4594–4598.
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40. Alexander Rack, Francisco Garcia-Moreno, Lukas Helfen, Manas Mukherjee, Catalina Jimenez, Tatjana Rack, Peter Cloetens and John Banhart (2013) Hierarchical radioscopy using polychromatic and partially coherent synchrotron radiation. *Applied Optics* 52: 8122–8127.
41. Prathap Chandran, T. Sirimuvva, Niraj Nayan, A.K. Shukla, S.V.S. Narayana Murty, S.L. Pramod, S.C. Sharma and Srinivasa Rao Bakshi (2014) Effect of carbon nanotube dispersion on mechanical properties of aluminum-silicon alloy matrix composites. *Journal of Materials Engineering and Performance* 23(3): 1028–1037.
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43. S. Praveen, B.S. Murty and Ravi S. Kottada (2013) Densification and alloying behavior of nanocrystalline multicomponent high entropy alloys during spark plasma sintering. *JOM* 65: 1797–1804.
44. Dipti Samantaray, Sumantra Mandal, M. Jayalakshmi, C.N. Athreya, A.K. Bhaduri and V. Subramanya Sarma (2014) New insights into the relationship between dynamic softening phenomena and efficiency of hot working domains of a nitrogen enhanced 316L(N) stainless steel. *Materials Science and Engineering A* 598: 368–375.
45. Karthikeyan Rajan, Nandani Rai, V. Subramanya Sarma and B.S. Murty (2014) Isothermal grain growth studies on nanostructured 9Cr-1Mo and 9Cr-1W ferritic steels containing nano sized oxide dispersoids. *Metall. Mater. Trans.* 45A: 1684–1688.
46. Rajesh Chaudhari and Ranjit Bauri (February 2014) Microstructure and mechanical properties of titanium processed by spark plasma sintering (SPS). *Metallography, Microstructure, and Analysis* 3(1): 30–35.
47. C.N. Shyam Kumar and Ranjit Bauri (2014) Enhancing the phase stability and ionic conductivity of yttrium-stabilized zirconia by rare earth co-doping. *J. Phys. Chem. Solids* 74: 642–650.
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53. R.A. Mondal, B.S. Murty and V.R.K. Murthy (2014) Temperature and frequency dependent electrical properties of NiCuZn ferrite with CuO-rich grain boundary segregation. *J. Alloys Comp.* 595: 206–212.
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60. Anand Kanjarla. Spatially resolved in situ strain measurements from an interior twinned grain in bulk polycrystalline AZ31 alloy. *Acta Materialia* 61, 10: 3612–3620.
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86. S. Anand Kumar, S. Ganesh Sundara Raman and T.S.N. Sankara Narayanan (2014) Influence of surface mechanical attrition treatment on fatigue lives of Ti-6Al-4V. *Trans. IIM* 67: 137–141.
87. R. Damodaram, S. Ganesh Sundara Raman and K. Prasad Rao (2014) Effect of post-weld heat treatments on microstructure and mechanical properties of friction welded alloy 718 joints. *Mater. Design* 53: 954–961.
88. S. Anand Kumar, Sritam Pradhan, S. Ganesh Sundara Raman and R. Gnanamoorthy (2014) Performance of alumina coatings prepared by hard anodizing, micro arc oxidation and detonation spray processes on Al-Mg-Si alloy under fretting wear loading. *J Engg. Tribology (Proc. I Mech. Eng., Part J)* 228: 454–462.
89. F. Garcia-Moreno, S. Tobin, M. Mukherjee, C. Jiménez, E. Solórzano, G.S. Vinod Kumar, S. Hutzler and J. Banhart (2014) Analysis of liquid metal foams through X-ray radiography and microgravity experiments. *Soft Matter* (accepted 2014). doi: 10.1039/C4SM00467A

(b) Papers presented at national conferences

1. Prasanna Kumar Iyengar and V. Sampath. Studies on the effect of silver addition on the transformation temperatures of binary NiTi shape memory alloy. *NMD-ATM 2013*, November 2013, Varanasi (Conference Abstracts, p.83).
2. Rajesh Kumar Dora and V. Sampath. Influence of concentration of valence electrons on the transformation temperatures of Cu-based shape memory alloys. *NMD-ATM 2013*, November 2013, Varanasi (Conference Abstracts, p.90).

(c) Papers presented at international conferences

1. N.S. Karthiselva, B.S. Murty and Srinivasa Rao Bakshi. Densification and Mechanical properties of ZrB₂-TiB₂ Ultra High Temperature Ceramic Composites. *Proceedings of 38th Int'l Conf & Expo on Advanced Ceramics & Composites (ICACC 2014)*.
2. B. Ratna Sunil, T.S. Sampath Kumar and Uday Chakkingal. Micro/nanofeaturing of biodegradable metallic implants: new opportunities. *Proceedings of International Conference on Engineering Materials and Processes (ICEMP2014)*, p 50-54 (CSIR-Institute of Minerals and Materials Technology), 26–28 February 2014, Bhubaneswar, India.

Distinguished visitors to the department

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Dr. S.H. Lau, Vice-President, Business Development, XradialInc, USA	1 August 2013	IIM Seminar Talk
2	Dr. A.J. Pinkerton, Sr. Lecturer, Dept. of Engg., Lancaster Univ., UK	9 August 2013	IIM Seminar Talk
3	V. Ananthanarayanan (Anthony), President and Chief Technical Officer, Innovative Weld Solutions Ltd., Ohio, USA	5 August 2013	IIM Seminar Talk
4	Dr. Joseph Buhagiar, University of Malta, Malta	8 August 2013	IIM Seminar Talk
5	Dr. A.J. Pinkerton, Lancaster University, UK	8 August 2013	IIM Seminar Talk
6	Dr. Sanjay Sondhi & Dr. Venkataraman Ravikumar, GE Global Research, Bangalore	23 August 2013	IIM Seminar Talk
7	Dr. Arjun Dey, ISRO, Bangalore	29 August 2013	IIM Seminar Talk
8	Dr. Sharmila M. Mukhopadhyay, Wright State University, Dayton, USA	5 September 2013	IIM Seminar Talk

9	Dr. Dheepa Srinivasan, GE Power & Water Bangalore	11 September 2013	IIM Seminar Talk
10	Dr. Karthikeyan (Karthik) Nagarathnam, ULTRON Kinetics LLC, Manassas, Virginia, USA	8 October 2013	IIM Seminar Talk
11	Dr. Tiju Thomas, IISc, Bangalore	28 October 2013	IIM Seminar Talk
12	Dr. Kazuhiro Hono, NIMS Fellow, Univ of Tsukuba, Japan	12 November 2013	IIM Seminar Talk
13	Dr. K.A. Padmanabhan, University of Hyderabad	27 November 2013	IIM Seminar Talk
14	Dr. Ralph Wilken, IFAM, Germany	2 December 2013	IIM Seminar Talk
15	Dr. Kumar Srinivasan, Western Digital, San Jose, USA	30 December 2013	IIM Seminar Talk
16	Dr. Christopher C. Berndt, Swinburne Univ. of Tech., Australia	13 January 2014	IIM Seminar Talk
17	Dr. N. Ranganathan, Univ. Francois Rabelais de Tours, France	16 January 2014	IIM Seminar Talk
18	Dr. (Mrs.) Mita Tarafder, CSIR-NML, Jamshedpur	24 January 2014	IIM Seminar Talk
19	Dr. Peter Hodgson, Australian Laureate Fellow, Deakin University, Australia	30 January 2014	IIM Seminar Talk
20	Dr. Suresh Neelakantan, Cambridge CB2 1PZ, UK.	5 February 2014	IIM Seminar Talk
21	Dr. K. Linga (KL) Murty, North Carolina State University, USA	14 February 2014	IIM Seminar Talk
22	Dr. SeshadriSeetharaman, Professor Emeritus, Royal Institute of Technology, Sweden	18 February 2014	IIM Seminar Talk
23	Dr. Tiju Thomas, Materials Research Centre, Bangalore 560012	20 February 2014	IIM Seminar Talk
24	Dr. Chiristian Thaulow, Norwegian University of Science and Technology	10 March 2014	IIM Seminar Talk
25	Prof. Subbu Venkatraman, Chair, Materials Science and Engineering and Director, Nanomedicine Institute @ NTU, Singapore	17 March 2014	Materials Advantage Talk and discussion on research collaboration in nanomedicine
26	Dr. Holger Fricke, Technical processes and Automation, Germany.	27 March 2014	IIM Seminar Talk

4.14.6. Other Activities of the Department

AMALGAM 2013, the annual techfest, organized by the MetSA and Department of Metallurgy and Materials Engineering, 27–29 September 2013

Faculty visits

Sl. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	G.D. Janaki Ram	Advise on Oblique Y-Groove Testing procedures for their Cr-Mo steel welding consumables.	2 April 2013, Ador Welding, Chennai
2	G.D. Janaki Ram	To visited and discuss on indigenization of turbocharger for T91 tank. Also visited Heavy Vehicles to advise on their problems in CO ₂ welding of armor steels.	5 April 2013, Engine Factory, Avadi
3	G.D. Janaki Ram	Visited Engine Factory, Avadi, to advise them on selection of materials for an indigenous turbo-charger engine. Also visited Heavy Vehicle Factory, Avadi, to discuss their problems in robotic MIG welding of armor steels.	5 April 2013, HVF, Avadi.
4	Ravi Kumar	Invited to serve as external expert member for a special committee constituted by the chairman, ISRO/secretary, DOS to assess the suitability of candidates for the position Scientist SD.	5 April 2013, VSSC
5	G.D. Janaki Ram	To attend a progress review meeting	9 April 2013, IISc, Bangalore.
6	S. Ganesh Sundara Raman	Examiner in the final Viva-Voce Examination of a Ph.D. scholar.	27 May 2013, PES Institute of Technology, Bangalore.
7	V. Sampath	To attend a Project Proposal Presentation	9 July 2013, DMRL, Hyderabad
8	T.S. Sampath Kumar	To conduct the Ph.D. Viva-Voce Examination	17 July 2013, VIT, Vellore

9	M. Kamaraj	To conduct the Public Viva-Voce Examination.	14 June 2013, PSG Tech. Coimbatore 29 July 2013, IIT Mumbai
10	S. Ganesh Sundara Raman	To attend DC Meeting.	7 June 2013, IIT D & M
11	Ravi Sankar Kottada	NRB Project Review Meeting	13 June 2013, IIT Roorkee
12	M. Kamaraj	To conduct the Public Viva-Voce Examination	14 June 2013, IIT Roorkee
13	Ganesh Sundara Raman	To attend Ph.D. Thesis Synopsis Meeting.	21 June 2013, NIT Trichy
14	T.S. Sampath Kumar	To conduct Ph.D. Viva-voce Examination.	16 August 2013, North Orissa University
15	G.D. Janaki Ram	To conduct the Public Viva-Voce Examination	21 August 2013, Homi Bhabha National Institute, IGCAR, Kalpakkam
16	Uday Chakkingal	To conduct the Public Viva-voce Examination	12 September 2013, Anna University
17	Ashutosh S. Gandhi	To attend a plant visit at GE Power & Water	16 & 17 September 2013, Vijayawada
18	B.S. Murty	Conducted NRB Materials Panel Meeting as Head of the Panel	28–29 October 2013
19	Ajay Kumar Shukla	Visited Industrial Microwave and Research Centre	3 October 2012–4 October 2013, Mumbai
20	Ashutosh S. Gandhi	Visited–Titan Industries to explore potential project work	28 & 29 October 2013, Hosur
21	M. Kamaraj	Attended Board of Studies Meeting	28 October 2013, Vel Tech Univ. Chennai
22	M. Kamaraj	Conducted Ph.D. Viva-voce Exams in various Colleges	11, 13 & 15 November 2013, Coimbatore
23	V. Sampath	Attended India-France Technology Summit	23 & 24 October 2013, New Delhi
24	M. Balasubramanian	Conducted a Ph.D. Viva	7 October 2013, MIT, Chrompet, Chennai
25	Ajay Kumar Shukla	Visited to Hospet Steel and JSW Steel for Technical discussion	11–13 December 2013, Hospet
26	Ajay Kumar Shukla	Steel Melting Shop, Durgapur Steel Plant, Durgapur, Steel Authority of India Limited	20 December 2013
27	Ajay Kumar Shukla	Research and Development and Scientific Services, JSW Steel Ltd.	13 December 2013
28	Ajay Kumar Shukla	Participated an International Conference on Science and Technology of Ironmaking and Steelmaking (STIS-2013) for a paper presentation at CSIR-NML	16–20 December 2013, Jamshedpur
29	Ajay Kumar Shukla	Chaired a session on “Metallurgical and Materials Process, Products and Applications (ICMMPPA 2014)	8–10 January 2014, OPJIT, Raigarh
30	Ajay Kumar Shukla	Visited NMDC R & D for a discussion and presentation	20 January 2014, Hyderabad
31	S. Ganesh Sundara Raman	Attended a Selection Committee Meeting	6 December 2013, IGCAR, Kalpakkam
32	K.C. Hari Kumar	Attended a Selection Committee meeting as an expert member	20 January 2014, IGKAR, Kalpakkam
33	M. Kamaraj	Attended a Selection Committee Meeting	6 December 2013, IGCAR, Kalpakkam
34	M. Kamaraj	Visited Dr. Venugopalan for a technical discussion	6–7 January 2014, Tata Steel, Jamshedpur

Student visits

Sl. No	Name of the Student	Purpose of Visit	Date and Venue
1	2nd Year B.Tech. Students JSW	Industrial visit	25 January 2014, SALEMOM

Major infrastructure development made in the Department

Gleeble 3800—Thermomechanical Simulator, funded by DST-FIST, was inaugurated on 21 September 2013.



Inauguration of Gleeble 3800 Thermomechanical Simulator: On 21 September 2013, Dr. T. Ramaswamy, Secretary, DST, GOI inaugurated the thermomechanical physical simulation facility setup obtained through the DST-FIST programme. Prof. Bhaskar Ramamurthi, Director, IIT Madras, presided over the inauguration function.



Inauguration of IIT Madras-ARCI Transmission Electron Microscopy Facility in the Department of Metallurgical and Materials Engineering, 23 December 2013, HSB 135, IIT Madras: Prof. Bhaskar Ramamurthi, Director, IIT Madras was the chief guest, and Prof. G. Sundararajan, Director, ARCI, Hyderabad, was the guest of honour.



As part of the peer review of the Metallurgical and Materials Engineering Department, the expert committee members, Prof. Dipankar Banerjee and Prof. Horst Hahn, visited the department on 18 and 19 November 2013. They held discussions with the faculty members and students and visited the laboratories.



Prof. E.G. Ramachandran (former faculty and first Head of the Department) visited the Metallurgical and Materials Engineering Department and interacted with the faculty members of the department on 27 August 2013.

4.15. DEPARTMENT OF OCEAN ENGINEERING

4.15.1. Academic Programmes

New courses introduced

Sl. No.	Course No.	Title
1	ID 6XXX	Interface Tracking and Capturing Methods in Multiphase Flows

New lab(s) established

Jitendra Sangwai developed a research lab for gas hydrate and flow assurance.

Students on roll as of September 2013 + M.S. & Ph.D. scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	32	33	30	31	6	132
Dual Degree	17	14	18	18	20	87
M.A.	—	—	—	—	—	—
M.Sc.	—	—	—	—	—	—
M.Tech.	56	37	—	—	—	93
M.B.A.	—	—	—	—	—	—
M.S.	16	16	21	9	10	72
Ph.D.	18	24	22	18	29	111
Total	139	124	91	76	65	495

Names of students/scholars who attended conferences/workshops/seminars/symposia abroad/in India

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/Seminar/Symposium/Workshop	Date and Venue	Financial Assistance from
1	Narendran K., Ph.D.		Fifth Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	IIT Madras
2	Saravanan G., Ph.D.		Fifth Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	
3	E. Dinesh Kumar, Ph.D.		Fifth Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	Project funds
4	John Ashlin, M.S.		Fifth Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	Project funds
5	Arthi Simon	OE11D012	Indian Society of Geomatics (ISG)	Andhra University	Project
6	Pravin Jaba Dev	OE12D007	ISG	Andhra University	Project
7	M. Tholkapiyan	OE11D005	ISG	Andhra University	Project
8	Rakesh Kumar Singh	OE12D028	ISG	Andhra University	Project
9	Sayed Ahmed Imran Bellary		ASME Gas Turbine India Conference	5–6 December 2013, Bangalore	IIT Madras
10	Rohit Adhav		Fortieth National Conference on Fluid Mechanics and Fluid Power	12–14 December 2013, NIT Hamirpur, Himachal Pradesh	IIT Madras

11	Rameez Badhurshah	Fifth Indian National Conference on Harbour and Ocean Engineering	5–7 February 2014, Goa	IIT Madras
12	Paresh Halder	ANSYS Conference,	17 May 2013, Pune	IIT Madras
13	S.K.A. Ahmed	Fifth Indian National Conference on Harbour and Ocean Engineering	5–7 February 2014, Goa	IIT Madras
14	T. Karthikeyan	IEEE International Conference on Renewable Energy and Sustainable Energy	5–6 December 2013, Coimbatore	Project
15	Rameez Badhurshah	1st International Conference on Automation, Control, Energy and Systems	1–2 February 2014, Hoogly, West Bengal	IIT Madras
16	Narendran K., Ph.D.	5th Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	IIT Madras
17	K. Vinay Kumar, Ph.D.	5th Indian National Conference on Harbour and Ocean Engineering, INCHOE 2014	5–7 February 2014, NIO, Goa	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	Paresh Halder	OE12D006	Best Poster Award	ANSYS Conference

Names of students/scholars who won Institute Convocation/Institute Day prizes

Sl. No.	Name of the Student/Scholar	Roll No.	Name of Prize
1	Bhavik Shah	PE12M001	M.S. Ananth Prize
2	Vishal Devgun	PE12M012	M.S. Ananth Prize

4.15.2. Faculty and their activities

Faculty

Name and Qualifications	Major Areas of Specialization
Professors	
V. Anantha Subramanian, Ph.D. (IIT Madras) [Head]	Computer-aided ship design, ship hydrodynamics and CFD applications
S.K. Bhattacharyya, Ph.D. (IIT Madras)	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
J.S. Mani, Ph.D. (IIT Madras)	Coastal engineering, wave hydrodynamics
V. Sundar, Ph.D. (IIT Madras)	Wave–structure interaction, coastal protection, port and harbour structures, fluid flow problems
R. Sundaravadivelu, Ph.D. (IIT Madras)	Computer-aided analysis, design and experimental studies of coastal and offshore structures, port and harbour structures
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
K. Murali (IIT Madras)	Numerical modelling of coastal hydrodynamics, sediment transport and pollutant transport, CFD modelling for pollutant transport, CFD application to ship and underwater hydrodynamics
S. Surendran, Ph.D. (Yokohama National University, Japan)	Naval architecture, ship motion control and ship structures
P. Krishnankutty, Ph.D. (IIT Madras)	Numerical marine hydrodynamics, ship motions, wave wash and passenger comfort
S. Nallayarasu, Ph.D.	Analysis and design of offshore structures, wave–structure interaction, reliability in offshore structural design

Associate Professors	
R. Panneer Selvam, Ph.D. (IIT Madras)	System identification, nonlinear dynamics
P. Shanmugam, Ph.D. (Anna University)	Satellite oceanography, ocean optics
S. Chandrasekaran, Ph.D. (IIT Delhi)	Nonlinear dynamic analysis of offshore compliant structures, earthquake-resistant analysis and design of structures, modal pushover analysis of framed structures, base-isolated structures, semi-active damping devices for response control of structures, seismic analysis of offshore structures, shell structures under shock and impact loads
G. Suresh Kumar, Ph.D. (IISc, Bangalore)	Reservoir simulation enhanced oil recovery, hydrogeology
Rajesh R. Nair, Ph.D. (Osmania University)	Geophysics, seismic AVA inversion and interpretation
Assistant Professors	
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
Abdus Samad, Ph.D. (Inha University Korea)	Turbomachinery, heat transfer, computational fluid dynamics multi-disciplinary optimization, artificial lift
Nilanjan Saha, Ph.D. (IISc, Bangalore)	Offshore structures, stochastic analysis, offshore renewable energy
Deepak Kumar, Ph.D. (IIT Delhi)	Structural dynamics, random vibration, stochastic control and stability, time–frequency domain analysis
V. Sriram	Structural dynamics
Professors Emeriti	
	Hydro-elasticity, violent wave current–structure interactions, numerical modelling, computational hydrodynamics, mesh-free methods, experimental wave generation and extreme wave interactions
C.P. Vendhan, Ph.D. (IIT Kanpur)	Structural dynamics, offshore structures, finite element method, ocean acoustics
V.G. Idichandy, Ph.D. (IIT Madras)	Experimental techniques, instrumentation, analysis and testing of structural models and prototypes
Consultant Professors	
S.P. Subramanian, Ph.D. (Madras University)	Geological oceanography, engineering geology

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

Sl. No.	Co-ordinator(s)	Title	Period
Conferences			
1	V. Sundar and K. Murali	Hydro 2013 International Conference	4–6 December 2013
2	K. Murali and V. Sundar	Hydro 2013 International Conference	4–6 December 2013
Workshops			
1	V. Sundar and S.A. Sannasiraj	International Workshop on Ocean Wave Energy	2–3 December 2013
2	V. Anantha Subramanian, K. Murali and Krishnankutty P.	Experimental and Computational Fluid Dynamics for Ship Design (NIRDESH WORKSHOP)	12–14 August 2013
3	K. Murali and S. Sannasiraj	Coastal Engineering Workshop	
Short-term courses			
1	S.A. Sannasiraj and K. Murali	Short Course on Ocean Science and Technology	17–18 September 2013
2	S. Nallayarasu	Analysis of Offshore Structures Using SACS	
3	S. Nallayarasu	Analysis and Design of Offshore Platform Structures	
4	K. Murali, V. Sundar and R. Sundaravadivelu	Seawater Intake and Outfall Planning, Design and Recent Trends	3–5 April 2013

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

<i>Sl. No.</i>	<i>Name of Faculty Member</i>	<i>Title</i>	<i>Institution</i>	<i>Period</i>
Workshops				
1	V. Sundar	International Workshop on Ocean Wave energy	IIT Madras	2–3 December 2013
2	Abdus Samad	Workshop and Finishing School on Computational Fluid Dynamics	Aligarh Muslim University	31 August to 4 September 2013
3	V. Anantha Subramanian	Supergen Wind Energy	Durham University, UK	20 March 2014
4	Jitendra Sangwai	A–Z of Natural Gas and LNG, Dahej	Organized by Petronet LNG Ltd.	13–15 March 2014
5	K. Murali	International Workshop on Ocean Wave Energy	IIT Madras	2–3 December 2013
Symposia				
1	Sakthipriya N., Doble B. and Sangwai J.S.	“Microbial Treatment of Hydrocarbons”, Indo-German symposium, “Future Sustainable Energy Challenges: Indian and German Perspectives”	IIT Madras	5 December 2013
Conferences				
1	V. Sundar	Seventh International Conference on the Asian and Pacific Coasts, APAC 2013	Bali, Indonesia	24–26 September 2013
2	V. Sundar	Hydro 2013 International Conference	IIT Madras	4–6 December 2013
3	Abdus Samad	ASME Gas Turbine India Conference	Hindustan Aeronautics Ltd., Bangalore	5–6 December 2013
4	Abdus Samad	Fifth Indian National Conference on Harbour and Ocean Engineering	NIO, Goa	5–7 February 2014
5	Abdus Samad	11th International Oil and Gas Conference and Exhibition	Petrotech, Noida, Delhi	12–15 January 2014
6	Abdus Samad	International Symposium on Fusion Technology in Oil and Gas Development	Inha University, Incheon, South Korea	9 January 2014
7	S. Surendran	The 9th IFAC Conference on Applications in Marine Systems	Osaka University	17–20 September 2013
8	Avula V.R., Gardas R.L., and Sangwai J.S.	The 24th (2014) International Ocean and Polar Engineering Conference Modeling of Methane Hydrate Inhibition in the Presence of Green Solvent for Offshore Oil and Gas Pipeline	Busan, Korea	15–20 June 2014
9	Mekala P. and Sangwai J.S.	“Accurate Phase Equilibria Predictions for Hydrates of Multi-component Natural Gases”, OTC-24674-MS, 2014 Offshore Technology Conference Asia (OTC Asia)	Kuala Lumpur, Malaysia	25–28 March 2014
10	Badhurshah R., Samad A. and Sangwai J.	“Analysis of Flow through Ocean Energy Harvesting Bidirectional Impulse Turbine”, Fifth Indian National Conference on Harbour and Ocean Engineering (INCHOE2014)	Goa, India.	5–7 February 2014
11	Ponmani S., William J.K.M., Nagarajan R. and Sangwai J.S.	“High Pressure Rheological Studies of Nanofluid Treated Water Based Drilling Fluids”, Eleventh International Oil and Gas Conference and Exhibition	PetroTech	12–15 January 2014
12	Sharma T., Kumar G.S. and Sangwai J.S.	“Effect of Nanoparticles on Interfacial Tension and Temperature Stability of Surfactant Stabilized Oil in Water Emulsions”, Eleventh International Oil and Gas Conference and Exhibition	PetroTech	12–15 January 2014

13	Mekala P., Babu P., Sangwai J.S. and Linga P.	“Experimental Investigations on Natural Gas Recovery from Gas Hydrates Using Thermal Stimulation”, International Symposium on Energy Resources Fusion Technology	Inha University, Republic of South Korea	9 January 2014
14	Ponmani S., Karen J.K.M., Samuel R., Nagarajan R. and Sangwai J.S.	“Effect of Stabilized Nanofluids on Water Based Drilling Fluids for Deepwater HPHT Wells”, International Symposium on Energy Resources Fusion Technology	Inha University, Republic of South Korea	9 January 2014
15	Sangwai J.S. and Mekala P.	“Desalination of Water Using Gas Hydrate Technology: Current Status and Future Direction”, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2013	IIT Madras	4–6 December 2013
16	Mekala P. and Sangwai J.S.	“Accurate Prediction of Dissociation Pressures of Natural Gas Hydrates Containing Carbon Dioxide and Hydrogen Sulfide for Efficient Flow Assurance Phenomena”, SPE North Africa Technical Conference & Exhibition	Cairo, Egypt	15–17 April 2013
17	K. Murali	35th IAHR World Congress	Chengdu	8–13 September 2013
18	K. Murali	Hydro 2013 International Conference	IIT Madras	4–6 December 2013

Special lectures delivered by faculty members at other institutions

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	S.A. Sannasiraj	Coastal Protection Structures	M.S. Swaminathan Foundation	July 2013
2	Abdus Samad	Recent Development of Turbines for Wave Energy Extraction	International Conference on Nonconventional Energy (ICONCE 2014), Kalyani, India	16–17 January 2014
3	Abdus Samad	Turbines for Oscillating Water Column Wave Energy Systems	International Workshop on Ocean Wave Energy, IIT Madras	2–3 December 2013
4	Abdus Samad	CFD for Turbomachinery Design	Workshop and Finishing School on Computational Fluid Dynamics, Department of Mechanical Engineering, AMU, Aligarh, India	31 August to 4 September 2013
5	S. Surendran	Motion Control of Moored Ship Using Thrusters	Pusan National University, Busan	19 August 2013
6	K. Murali	Latest development in Tidal and Wave Energy Resources	Vel-Tech Engineering College, Chennai	
7	K. Murali	Vortex Induced Oscillations of an Elastically Supported Cylinder at Higher Re	University of Edinburgh	
8	K. Murali	Wave and VIV Energy: Status and Present Research Directions	Indo–French Workshop	
9	K. Murali	Introduction to Fluid Model and Fundamental Concepts in CFD	IIT Madras	
10	K. Murali	Hydrodynamic Design of Ships and Underwater Bodies	Rajalakshmi Engineering College, Chennai	
11	K. Murali	VIO Energy: Possibilities and Challenges	IIT Madras	
12	K. Murali	Latest Development in Tidal and Wave Energy Resources	Vel-Tech Engineering College, Chennai	

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit	Funding from
1	V. Sundar	Bali, Indonesia	24–26 September 2013	Present papers at conference	Project
2	V. Sundar	Tohoku University, Japan	March to October 2013	JSPS Fellow	Sabbatical
3	V. Sundar	Seoul, South Korea	22–23 July 2013	To participate in JHER Editors Forum meeting	Project
4	V. Sundar	Singapore	20–26 December 2013	To carry out evaluation of our methodology for coastal zone monitoring and risk mapping including site visits	Projects
5	V. Sundar	Singapore	13–15 January 2014.	An expert panel member for First IPE Workshop for Coastal Adaptation Study (CAS)	Project
6	R. Sundaravadivelu	Finland, Vienna and Austria	22 March to 5 April 2013	Fourth International Conference on Marine Structures	PCF
7	R. Sundaravadivelu	Busan, Korea	12– 20 October 2013	Seventh meeting of PUL Conference	PCF
8	R. Sundaravadivelu	Kuala Lumpur, Malaysia	24–28 March 2014	OTC Asia, meeting	Project
9	S.A. Sannasiraj	China	8–13 September 2013	Conference	CPDA
10	S.A. Sannasiraj	UK	24–26 October 2013	PIANC Working Group meeting	Project
11	S.A. Sannasiraj	Greece	9–10 December 2013	Joint research project	Project
12	S. Nallayarsu	Malaysia	5–6 December 2013, 20–21 January 2014, 20–21 March 2014	Meeting with client	The client
13	Rajesh R. Nair	USA	27 September to 4 October 2013	SPE meeting at New Orleans and MoU discussion with Penn State University	Alumni Affairs, IIT Madras
14	Abdus Samad	South Korea	6–12 January 2014	Invited lecture	Inha University, Korea
15	S. Surendran	South Korea	3 June 2013 to 30 May 2014	Sabbatical leave	South Korean government
16	S. Surendran	Japan	16–20 September 2013	To attend IFAC conference at Osaka	South Korean government and partly from self
17	V. Anantha Subramanian	USA	2013	Conference	University of Texas A&M, USA
18	V. Anantha Subramanian	UK	2014	Conference	Durham University Strathclyde, Glasgow, UK
19	Jitendra Sangwai	South Korea	5–10 January 2014	Conference	Inha University
20	K. Murali	Chengdu	8–13 September 2013	Invited lecture	Project
21	K. Murali	Edinburgh	May to June 2013	Visit	Project
22	K. Murali	Mauritius	20 May 2014	Invited lecture	Project

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
Honours					
1	V.Sundar	Expert member	International Panel of Experts (IPE)	The study titled "Coastal Adaptation Study (CAS)" for Building & Construction Authority, Singapore	Mid-2013 to mid-2016
2	V. Sundar	Member of Executive Council	Indian Society of Hydraulics		2012–2014
3	Rajesh R. Nair	Letter of appreciation	Board of Governors, IIT Madras	Being elected a Member of the Society of Petroleum Engineers International Research and Development Committee for a period of 3 years	30 September 2013
4	Jitendra Sangwai	YFRA	IIT Madras	Young Faculty Recognition Award	2013
Awards					
1	V. Sundar	JSPS Fellow	Japan Society for the Promotion Of Science		March–October 2013
2	Rajesh R. Nair	SPE Student Chapter Faculty Advisor Award	Society of Petroleum Engineering International	Serving exceptionally well as Faculty Advisor for IIT Madras Student Chapter	June 2013
3	Abdus Samad	Er M.P. Baya National Award	Institute of Mechanical Engineers—India	Technology advancement in mechanical engineering	September 2013
4	Jitendra Sangwai	Inventional Award	Intellectual Ventures	Invention	November 2013

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	R. Sundaravadivelu	<i>Mini Encyclopedia of Petroleum Engineering</i>	International Institute of Tamil Studies, Taramani	Ramasamy, S.P. Subramanian and P. Shanmugam

Fellowships of academies and professional societies

Sl. No.	Name of Faculty Member	Year of Admission
Member, International Association of Hydraulic Research (IAHR)		
1	Anantha Subramanian	2010
Fellow, Royal Institute of Naval Architects (RINA)		
1	Anantha Subramanian	2010

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	V. Sundar	Member	<i>Journal of Applied Water Engineering and Research</i>
2	V. Sundar	Associate Editor	<i>Journal of Hydro-environment Research</i> (Elsevier)
3	V. Sundar	Associate Editor	<i>Ocean Engineering journal</i> (Elsevier)
4	V. Sundar	Member	<i>Institution of Mechanical Engineers, Part M: Journal of Engineering for the Maritime Environment</i>
5	V. Sundar	Associate Editor	<i>Indian Society of Hydraulics Journal</i>
6	V. Sundar	Member	<i>Fourth Editorial Board of China Ocean Engineering</i>
7	G. Suresh Kumar	Editorial Board Member	<i>Journal of Petroleum and Gas Engineering</i>

8	G. Suresh Kumar	Associate Editor	<i>Journal of Groundwater Research</i>
9	G. Suresh Kumar	Editorial Board Member	<i>AMET Maritime Journal</i>
10	Rajesh R. Nair	Guest Editor	<i>Journal of Unconventional Oil and Gas resources</i> , (Elsevier, June issue, 2014)
11	P. Shanmugam	Editorial Member	<i>Dataset Papers in Geosciences</i> (Oceanography Section)
12	P. Shanmugam	Editor	<i>International Journal of Geophysics and Remote Sensing</i> (Remote Sensing of Coastal Ecosystems)
13	P. Shanmugam	Editorial Member	<i>International Journal of BioSciences and Technology</i>
14	S. Surendran	Editorial Member and Publicity Director	<i>Ships and Offshore Structures</i>
15	S. Surendran	Member, Editorial Board	<i>International Journal of Shipping and Ocean Engineering</i>
16	S. Surendran	Member, Editorial Board	<i>International Journal of Ship Building Engineering Research</i>
17	V. Anantha Subramanian	Member Editorial Board	<i>Journal of Ship Technology</i> (Delhi)
18	V. Anantha Subramanian	Editor	<i>International Journal of Ocean and Climate Systems</i> (UK) (special issue, Vol. 1, nos. 3 and 4, 2010)

4.15.3. Design and Development Activities

New facilities added or major equipment procured

Sl. No.	Faculty Member	Name of Equipment	Value (in lakhs of ₹)
1	Rajesh R. Nair	Hydrofracking setup	10
2	Rajesh R. Nair	Power amplifier	15
3	Rajesh R. Nair	Piezoelectric transducers	5
4	Rajesh R. Nair	GPR 400 MHz antenna	5
5	P. Shanmugam	New "Ocean Optics and Imaging Laboratory"	210
6	Abdus Samad	Ocean energy turbine testing facility	25
7	Abdus Samad	Multiphase pump testing facility	10
8	V. Anantha Subramanian	Motion reference unit	6.04
9	V. Anantha Subramanian	Leica 3D DISTO	4.27

Patents filed

Sl. No.	Name of Faculty Member	Topic of Patent
1	Abdus Samad	Mechanical Energy Harvesting Devices and Methods (PCT filed)
2	Abdus Samad	Progressive Cavity Pump (PCT filed)
3	Sangwai J.S. and Khalde C.	Apparatus for Measuring Rheological Parameters and Methods for Its Operation (PCT Application No. PCT/IB2014/060545; 9/04/2014)
4	Sangwai J.S. and Khalde C.	Apparatus for Measuring Rheological Parameters and Methods for Its Operation (Patent Application No. 1610/CHE/2013, 9 April 2013)
5	Khalde C. and Sangwai J.S.	Methods and Apparatus for Measuring Rheological Properties of Multi-phase Fluids (Patent Application No. 3777/CHE/2013, 26 August 2013)
6	Sangwai J.S.	Gas Hydrates Slurry Formation System and Methods (Patent Application No. 5724/CHE/2013, 12 December 2013)
7	Sangwai J.S., Gardas R., Sivabalan S., Veluswamy S., Raju S. and Dhodapkar P.	Formulations for Dissolution of Petroleum Sludge or Waxes and Method for Evaluation Thereof (Patent Application No. 5300/CHE/2013, 18 November 2013, IIT Madras–Oil India Ltd. joint patent)
8	Sangwai J.S., Gardas R., Sivabalan S., Veluswamy S., Raju S. and Dhodapkar P.	Method of Screening Solvents for Dissolving Tank Bottom Sludge (Patent Application No. 5805/CHE/2013, 13 December 2013, IIT Madras–Oil India Ltd. joint patent)
9	Sangwai J.S., Deepjyoti Mech, Patel R., Haldar S., Chugh P. and Someswarudu M.V.R.	Methods and Apparatus to Store and Transport Gaseous Hydrocarbons in Porous Media (Patent Application No. 6199/CHE/2013, 31 December 2013, IIT Madras–GAIL India Ltd. joint patent)

10	Sangwai J.S.	Methods and Systems for Hydrocarbon Material Recovery (Patent Application No. 1033/CHE/2014, 28 February 2014)
11	Sangwai J.S., Doble M. and Sakthipriya N.	Methods and Compositions for Degrading Oil Sludge by Microbes (Patent Application No. 1150/CHE/2014, 6 March 2014)

4.15.4. Research and Consultancy

Sponsored research projects (ongoing and new)

Sl. No.	Title	Period	Funding Agency	Amount (in lakhs of ₹ unless specified)	Co-ordinators
1	Coastal Inundation Risk Map Study for Singapore	November.2011 to March 2015	National University of Singapore	S\$14000	S.A. Sannasiraj
2	OWC Wave Energy Converters for Combined Clean Energy and Coastal Protection	August 2012 to August 2015	Research Council, Norway	€93,000	V. Sundar and S.A. Sannasiraj
3	Reuse of Waste Water for Irrigation for Kancheepuram Municipality	October 2012 to September 2014	Public Works Department (PWD)	20.17	I.M. Nambi, G. Suresh Kumar and K.P. Sudheer
4	CHANGING RISKS POSED by Petroleum Hydrocarbons in Groundwater Environments: Multiphase Fluid Dynamics Coupled to Multispecies Biodegradation	November 2011 to November 2014	Department of Science and Technology (DST)	39.26	I.M. Nambi, G. Suresh Kumar and Ravi Krishna
5	Decentralized Wastewater Management: Benchmarking of Public Utilities and PPP	May 2009 to December 2014	Ministry of Urban Development (MoUD)	379.6	Ligy, Murthy, Srinivasan, Sudheer, G. Suresh Kumar, I.M. Nambi, Balaji and Shiva Nagendra
6	Characterization of Subsurface Ground Water Flow at Digha, West Bengal	2014–2016	MOES	8	Along with IIT Kharagpur faculties
7	Development of Atmospheric Correction Algorithm for OCM Sensor	January. 2014 to December 2017	IIT Madras–ISRO Cell	20.5	P. Shanmugam
8	Observations, Algorithms and Analysis of HABs in Oceanic Waters around India	April 2013 to March 2018	INCOIS, Hyderabad	68	P. Shanmugam
9	Development of satellite-based operational algorithm for studying CDOM distributions in coastal oceanic waters	April 2013 to March 2017	Space Application Centre (ISRO), Ahmedabad	24.5	P. Shanmugam
10	Measuring and monitoring of 3D characteristics of underwater light field in coastal waters	September 2011 to August 2014	Naval Research Board, New Delhi	105.6	P. Shanmugam and S.K. Bhattacharyya
11	Design and Optimization of Bi-directional Flow Impulse Turbine	2013–2014	Ministry of Earth Science	25.2	Abdus Samad/ Purnima Jalihal (NIOT)
12	Multiphase Downhole Pump Design and Optimization for Oil and Gas Field Application	2011–2014	IIT Madras.	10	Abdus Samad
13	A Novel Progressive Cavity Pump Design and Analysis	2012–2015	Department of Science and Technology	17	Abdus Samad

14	Wake Adapted Analysis and Optimization of Propellers and Control Surfaces of High-Speed Applications	27 March 2013 to 26 March 2016	Naval Research Board	65	V. Anantha Subramanian
15	Construction of Providing Geo-tube Embankment in Pentha Village to Protect against Coastal Erosion	19 September 2011 to 18 September 2015	INTO	58.47	R. Sundaravadivelu
16	Appointment of Advisor for JICA Assisted Kerala Water Supply Project—Kozhikode Scheme Package Construction of Intake Well Cup Pump House in Peruvannmuzhy	24 May 2012 to 23 May 2014	KWAX	6.50	R. Sundaravadivelu
17	Tunnel Repair at Paradip Port	23 May 2012 to 22 June 2014	PPTX	5.40	R. Sundaravadivelu
18	Preparing Feasibility Study Report and Detailed Project Report for Optimization of Inner Harbour at V.O. Chidambaranar Port Trust, Tuticorin (Phase II)	15 June 2012 to 14 June 2014	CHID	57.00	R. Sundaravadivelu
19	Consultancy Services for Provision of Coast Guard Jetty at Mayabunder	27 September 2012 to 26 September 2014	GARR	49.63	R. Sundaravadivelu
20	TANGEDCO – Consultancy Work for Preparation of Environmental Impact Assessment/Environmental Impact Management Plan Report for the North Chennai Thermal Power Station Complex	25 September 2012 to 24 May 2014	TNEB	59.31	R. Sundaravadivelu
21	TANGEDCO—Consultancy Work for Preparation of Environmental Impact Assessment/Environmental Impact Management Plan Report Establishment of UPPUR Thermal Power Project (2 × 800 MW)	25 September 2012 to 24 May 2014	TNEB	53.93	R. Sundaravadivelu
22	Consultancy Proposal for Pre and Post Dredging Survey in Chilika Lake for the Desilation Work	5 October 2012 to 4 October 2015	CDAX	75.00	R. Sundaravadivelu
23	Appointment of Independent Engineer for the Work of “Development of 16th Multipurpose Cargo (Other than Liquid/Container Cargo)”	8 October 2012 to 7 October 2014	KAND	90.00	R. Sundaravadivelu
24	Consultancy and PMC Services for repairing of Mooring Dolphin at Jetty-6 at Kandla	1 March 2013 to 28 February 2015	IOCL	23.03	R. Sundaravadivelu
25	Moderisation of Fishing Harbour—Dredging Pre and Post Levels Using Echo Sounder Quantity Calculation at Chinnamuttam Fishing Harbour in Kanyakumari District	1 September 2013 to 31 August 2014	TSUN	4.00	R. Sundaravadivelu

26	Project Management Consultancy (PMC) Services for the Project "Development of West Quay North (WQ7-WQ8) in the Inner Harbour of Visakhapatnam Port"	3 October 2013 to 2 October 2015	VISA	101.12	R. Sundaravadivelu
27	Consultancy Services for Structural Design for Provision of Three Lane Shipway, 500 Ton Capacity, for CG Ships at CG Jetty, Port Blair	22 October 2013 to 21 October 2014	GARR	82.72	R. Sundaravadivelu
28	Appointment of Consultant for Certification of Structural Drawings and Tsunami Wave Propagation Studies, Vivanta by Taj, Havlock Island, Andaman	2 December 2013 to 1 December 2014	INHO	10.11	R. Sundaravadivelu
29	Proof Checking the Design and Engineering of Construction of New Mooring Dolphin in place of Damaged Mooring at IOCL Jetty No. 6 at Kandla FST	1 January 2014 to 30 June 2014	VCOC	1.12	R. Sundaravadivelu
30	Conducting Investigation and Studies for Constructing a 200 m RCC Wharf at Beypore Port	30 January 2014 to 28 July 2014	DIRE	60.67	R. Sundaravadivelu
31	Vetting of Structural Designs and Drawings Pertaining to the Proposed Jetty of Inland River Port at Ashuganj, Bangladesh	25 February 2014 to 25 February 2015	WAPC	2.80	R. Sundaravadivelu
32	Proof Checking the Jetty Design at Kochi	19 March 2014 to 14 September 2014	WAPC	2.50	R. Sundaravadivelu
33	Proof Check of Form Work	19 March 2014 to 14 September 2014	URCC	2.24	R. Sundaravadivelu
34	Fish Landing Centres in Ramanathapuram District	19 March 2014 to 14 September 2014	FISE	84.27	R. Sundaravadivelu
35	Breakwater Quantity for Uvari Fishing Harbour S.A. Sannasiraj and V. Sundar.	19 March 2014 to 14 September 2014	FISI	2.50	R. Sundaravadivelu
36	Design of Diaphragm Wall at Mudasalodai	20 March 2014 to 19 September 2014	FISI	3.37	R. Sundaravadivelu
37	Design of Chennai Fishing Harbour	4 April 2014 to 3 October 2014	FISI	33.70	R. Sundaravadivelu
38	Stability of Pulicat Mouth	4 April 2014 to 3 October 2014	FISI	22.47	R. Sundaravadivelu
39	Dredging for Berths	4 April 2014 to 30 September 2014	FISI	1.79	R. Sundaravadivelu
40	PMC for Satapada Jetty	4 April 2014 to 30 September 2015	DPIW	50.56	R. Sundaravadivelu
41	Investigations on Functional Performance of Coastal Structures through Numerical Modelling		NIOT, Chennai	46.34	V. Sundar and K. Murali
42	Investigations into Vortex-Induced Oscillations of a Spring-Mass System Under Waves and Currents		NRB	42	K. Murali and V. Sundar
43	Large Multipurpose Platforms for Exploiting Renewable Energy in Open Seas		EU	70	K. Murali, V. Sundar and S.A. Sannasiraj

Industrial consultancy projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	R. Sundaravadivelu and P. Shanmugam	Construction of Geo-tube Embankment for Coastal Erosion Protection at Pentha Village, Odisha	Integrated Coastal Zone Management Project[ICZMP], Odisha	36
2	R. Sundaravadivelu	Structural Design and E/M Consultancy Services for Extension of Coast Guard Jetty at Port Blair	Garrison Engineer (I) (P) North, Military Engineer services, Minniebay, Junglignat (Po) Port Blair—744103	14.73
3	Nallayarasu	Review of Temporary Living Quarters for Yetagun Platform	Duraisamy, Petro 6 E& C, Chennai	8
4	V. Anantha Subramanian	Design Development of Maritime Weld Simulator for Training	C. Subramaniam Strand Roofings, No. 252, Nehru Nagar 1st Cross Street, Chennai—600096	5
5	V. Anantha Subramanian and P. Krishnakutty	Veneer Resin Impregnated Technology Development for Marine Crafts	Emanuele Spadaro UCINA Confindustria Nautica Piazzale Kennedy	7.14
6	R. Sundaravadivelu	Structural Design of Jetties at Katchal, Teressa and Chowra	The Deputy Chief Engineer III, Andaman Lakshawep Harbour Works, Ministry of Shipping, Campbell Bay—744302	15
7	K. Murali	Preparation of Report to Delineate Specific Features of Bay vis-à-vis Sea, More Specific to Mahim Bay and Back Bay	T.G.H. Ashok Kumar, Amba Recycler Pvt. Ltd., B-3 RM Towers, I Floor 108, Chamiers Road, Chennai—18	2.8
8	S. Nallayarasu	Feasibility Study for the Chemical Handling Terminal at El Gammel, Port Said, Egypt	V. Ramesh, Managing Director, Sanmar Engineering Services Ltd., Chennai—86	3
9	R. Sundaravadivelu	Consultancy Services for Conducting Bathymetry Survey and Topographic Survey for the Construction of Fishing Harbour at Poompohar in Nagapattinam District	Sambandam, Fisheries Department, The Executive Engineer, Tsunami Project Divisional Implementation Unit, Fisheries Department, Nagapattinam—6000001	7.86
10	Srinivasan Chandrasekaran and S.K. Bhattacharyya	Seismic Qualification of 6.6 kV Switchgear Package—Additional Study	J. Britto Sahayam, Asst. Vice President (Projects), BGR Energy System Ltd., 443 Anna Salai, Teynampet, Chennai	3.37
11	S. Surendran and S.K. Bhattacharyya	Approval of Drawings for 60-Seater FRP Motor Launch	Sangram Misra, Manging Director, Mechem Pvt. Ltd., Mancheswar Industrial Estate, Bhubaneswar—751010	0.8
12	S. Nallayarasu	Development of Basic Concept and Drawing for Nigeria Berthing Facility	Suresh N. Amirapu, Managing Director, Portman India Pvt Ltd., Chennai—34	2.5
13	V. Anantha Subramanian and P. Krishnakutty	Code Based Design of Crafts	S. Jeevan Samudra Shipyard Pvt. Ltd., Chemical Industrial Estate, Alapuzha Aroor, Kerala—688534	4.49
14	S. Nallayarasu	Engineering Services for Design of Fabrication Yard within Hazar Harbour, Turkmenistan	S. Anandh, Saipem India Projects Ltd., Fourth Lane, Nungampakkam High Road, Chennai—34	44.05
15	R. Sundaravadivelu	Proof Checking of Design & Drawings for the Work “Construction of Dry Dock No. 3 at Piplav, Gujarat”	K. Jagadiswara Rao, Director, Navayuga Engineering Company Ltd., 1259 Lakshmi Towers, Road #36, Jubilee Hills, Hyderabad—500033	5.61
16	Srinivasan Chandrasekaran and R. Sundaravadivelu	Feasibility Study of Construction of Additional Staircase at Karanja Boat Pool Jetty at Naval Station, Karanja, Mumbai	Commander V. Shivraya, Naval Station, Karanja, Mumbai	6.74

17	S. Nallayarasu	Revision of Detailed Project Report for Thiruchopuram Marine Terminal	M. Muralidhar, Chief Executive Officer, Cuddalore Port Company Pvt. Ltd., 5th Floor, Prince Towers, College Road, Nungambakkam, Chennai—600006	7.5
18	S. Nallayarasu	Feasibility Study for the Offshore Platform Terminal for Loading/Unloading at El Gameel, Port Said, Egypt	K. Kumeresan, Sanmar Eng. Services Ltd., 9 Cathedral Road, Chennai—600086	5
19	R. Sundaravadivelu	Consultancy Services for Assessing Dredging Quantity of River Kurunit, Luna and Narendra Tank at Puri	Executive Engineer, Drainage Division, Unit-8, Delta Square, Bhubaneswar—12	0.5
20	Nallayarasu	Padeye Design Verification Using FEM	Renukadevi, ABS Consulting, 438, Alexandria Road	9.6
21	Nallayarasu	Consultancy for Offshore Structural Analysis Using SACS for L&T	Tarun Rewari, Director Aryatech Marine & Offshore Services Pvt. Ltd., B-1 Hauz Khas, New Delhi—110016	6
22	R. Sundaravadivelu	Consultancy Proposal for the Construction of Fish Landing Centre at Seruthur Near Velankanni in Nagapattinam District	The Executive Engineer, Tsunami Project, Divisional Implementation Unit, Fisheries Department, Nagapattinam	84.27
23	R. Sundaravadivelu	Consultancy Proposal for Providing Remedial Measures to the Damaged Portion of Diaphragm Wall Constructed in Nagapattinam Fishing Harbour	M. Sambandam, Executive Engineer, TPDIU, Fisheries Department, Nagapattinam	2.24
24	R. Sundaravadivelu	Consultancy Proposal for the Construction of Fishing Harbour at Poompuhar in Nagapattinam District under CSS	M. Sambandam, Executive Engineer, TPDIU, Fisheries Department, Nagapattinam	24.71
25	S. Nallayarasu and S.A. Sannasiraj	GAIL (India) Ltd, 16, Bhikaiji Cama Place R.K. Puram, New Delhi—110066	Sanjib Datta, 16, Bhikaiji Cama Place, R.K. Puram, New Delhi—110066	30
26	Srinivasan Chandrasekaran and R. Sundaravadivelu	Consultation for Design Review of Lambda Gate for Director General, Naval Projects (DGNP), Mumbai	S.C. Mittal, Deputy Director General, Naval Projects, Lion Gate, Mumbai	14.6
27	R. Sundaravadivelu	Proof Checking of Retaining Kundapur–Suratkal Section, NH–17	President (Technical), Navayuga Engineering Company Ltd., Hyderabad—500033	2.24
28	R. Sundaravadivelu	Development of Additional Facilities in Second Container Terminal in the Partially Reclaimed Area in Chennai Port Trust	M. Shanmugam, Deputy Chief Engineer, Chennai Port Trust, Chennai—600001	12.58
29	S.A. Sannasiraj and V. Sundar	Construction of Seawall at TERLS, VSSA, Thumba, Thiruvananthapuram	K.S. Mohanbabu, Group Head, Construction & Maintenance Group, Vikaram Sarabhai Space Centre Construction & Maintenance Group	10.67
30	R. Sundaravadivelu	Consultancy Proposal for Verifying Design Calculation of Foundation of Proposed Structures, Diaphragm Wall, Finger Jetty, etc. at Fish Landing Centre at Tharuvaikulam	R. Kamaraj, B.E., Executive Engineer, TPDIU, Fisheries Department, Thoothukudi	7.19
31	Nallayarasu	Construction of Second Chemical Berth off Pir Pau—Vetting of Design	Keshav Sundar, Deputy Chief Engineer, Mumbai Port Trust, Port House, 3rd Floor, Shoorji Vallabhadas Marg, Ballard Estate, Mumbai—400001	16
32	R. Sundaravadivelu	Design Engineering and Preparation of Estimate for Construction of Mooring Dolphin at Liquid Cargo Jetty in J.N. Port	R.A. Mhatre, Deputy Manager, Engineering In Charge, J.N. Port Trust, Navi Mumbai—400707	16.85

33	V.G. Idichandy	Advice for Proof Pressure Testing of Titanium Air Bottles and Stress Analysis by Measured Strains	Jayakumar, Director, Titanium Equipment and Anode Manufacturing Company Ltd.	2.5
34	Nallayarasu	Consultancy Services for Detailed Design and Development of CB-III Berth, Ennore Port	Suresh N. Amirapu, Managing Director Portman, India Pvt. Ltd., 72, Josier Street, 1st Floor, Thirumurthy Nagar, Nungambakkam, Chennai—600034	18.25
35	R. Sundaravadivelu	Validation of Report Prepared for Feasibility Study on Berthing of a Capital Naval Vessel Rendered by Shrikande Consultants Pvt Ltd., Mumbai	Sunil Karra, Commander, Chief Manager (Hull), Naval Ship Repair Yard, Naval Phase, C/o Navy Office, Karwar—581308	5.61
36	R. Sundaravadivelu	Modernization of Fishing Harbour Dredging Pre and Post Levels Using Echo Sounder Quantity Calculation at Chinnamuttam Fishing Harbour in Kanyakumari District	R. Kamaraj, B.E., Executive Engineer, TPDIU, Fisheries Department, Thoothukudi	5.61
37	R. Sundaravadivelu	Proof Checking of Design and Drawings for the Bridge across River Deopani at Arunachal Pradesh	P.V. Chandramohan, President, Plot No. 379, Road No. 10, Navayuga Engineering Company Ltd., Hyderabad—33	5.61
38	Nallayarasu	Design of Moving Roof Over Dry Dock No. 3	Pipavav, Defence of Offshore Engineering Company Ltd., Pipavav Port Post, Ucchaiya Rajula, Amreli District—365560, Gujarat	36
39	R. Sundaravadivelu	Design Consultancy for Provision of Hangar and Associated Buildings for Mr. Aircraft SQN at INS Utkrosh, Port Blair	Brigadier K.K. Repswal, CE, A&N Zone Headquarters, Junglighat PO, Birchgunj, Port Blair—744103	33.7
40	S.A. Sannasiraj and V. Sundar	Feasibility Study on the Development of Fish Landing Facility in Kanyakumari District	M. Malayarasan, Executive Engineer, Fishing Harbour Project Division, Nagercoil	5.61
41	Srinivasan Chandrasekaran and R. Sundaravadivelu	Extension of 180 ton EOT Crane at Matsya Dock, Visakhapatnam	Office of the Director, General Naval Project, Naval Base Post, Visakhapatnam, Andhra Pradesh—530014	9.88
42	Srinivasan Chandrasekaran and R. Sundaravadivelu	Preparation of Design Basis Report (DBR) for Demolition and Re-construction of N-1 and N-3 Jetties at Naval Base, Visakhapatnam	Office of the Director General, Naval Project, Naval Base Post, Visakhapatnam, Andhra Pradesh—530014	9.88
43	R. Sundaravadivelu	Consultancy Service for Carrying Out Rationalization of 13 Minor Ports Limit along Odisha Coastline	Director, Ports & IWT, South Division, Berhampur, Bhubaneswar—9, Odisha	16.85
44	R. Sundaravadivelu	Project Management Consultancy (PMC) Services for the Project Development of Quay North (wq7-wq8) in the Inner Harbour of Visakhapatnam Port	Chief Engineer, Visakhapatnam Port Trust, Viskhapatnam	101.12
45	Nallayarasu and S.A. Sannasiraj	Feasibility Study for Setting Up of a FSRU in Mumbai Harbour Area	Keshav Sundar, Deputy Chief Engineer, Mumbai Port Trust, 3rd Floor, Shoorji Vallabhadas Marg, Ballard Estate, Mumbai—400001	36
46	Nallayarasu	Redesign of Damaged Unloading Platform and Related Services	Keshav Sundar, Deputy Chief Engineer, Mumbai Port Trust, 3rd Floor, Shoorji Vallabhadas Marg, Ballard Estate, Mumbai—400001	10
47	Nallayarasu	Ultimate Strength Analysis of Jacket Structure using USFOS Software	Prem Kumar, ONGC Complex Phase-II, Panvel—410221, Navi Mumbai, Maharashtra	15

48	R. Sundaravadivelu	Consultancy Services for Structural Design for Provision of Three Lane Slipway, 500 ton Capacity, for CG ships at CG Jetty, Port Blair	Anand Shukla, Garrison Engineer (I) (P) North, Military Engineer Services, Minnie Bay, Junglighat PO, Port Blair—744103	82.72
49	K. Ganesh Babu	Development of Concrete for Jaigarh Port	M.S.R. Patrudu, JSW Jaigarh Port Ltd.	12.5
50	R. Sundaravadivelu	Consultancy Charges for Provision of Fire Fighting Pump Room Transformer Room and Overhead Freshwater Tank at Madhusudan Jetty, Chennai	Deputy Inspector General, Chief Staff Officer (P&A), Coast Guard Region (East), Chennai—600009	2.24
51	J.S. Mani and S.A Sannasiraj	Estimation of Design IGCAR	Basis floodl VL, Kalpakkam	22.27
52	J.S. Mani	Siltation in the MARG	Karaikal Port Channel	1.5
53	S. Nallayarasu	Preparation of detailed project report for CB - 3 & CB - 4	V. Krishnaswamy, Deputy General Manager (Project), Ennore Port Trust	10
54	S. Nallayarasu	Verification of Existing CB-1 against Deeper Dredge Depth (-15 m)	V. Krishnaswamy, Deputy General Manager (Project), Ennore Port Trust	6
55	S. Nallayarasu	Verification of Capacity Upgrading of Jawahar Dweep Port No. 4	Er. Keshav Sundar, Deputy Chief Engineer (Project II), Mumbai Port	20
56	S.K. Bhattacharyya and Dhiman Chatterjee	Conistes Flooding Dynamics	R. Krishna Mohan Rao, Scientist, DOAD/DRDL, Hyderabad	20
57	V. Anantha Subramanian	Powering for Planing Crafts	Albwardy Marine Engineering, LLC, PO Box 6515, Dubai, UAE	4
58	S.A. Sannasiraj, V. Sundar and R. Sundaravadivelu	Tranquility Siltation and Stopping Distance of Large Vessel	P.K. Panigrahi, Director, Gopalpur Port Ltd., Odisha	5.61
59	S.A. Sannasiraj	Physical Model Studies for the Met Ocean Buoy	Deputy Manager, NIOT Campus, Velachery—Tambaram Main Road, Pallikaranai, Chennai—600100	8.98
60	Nallayarasu	Review the Bench Making Report of Structure Seating IEDT	A.R. Ghatake International Certification Services, Mumbai	1
61	S.A. Sannasiraj, V. Sundar and J.S. Mani	DPR for Creating a Protected Zone for Pilgrim Safety in the Ocean off Velankanni Church	Velankanni Tower Panchayat, Nagapattinam—611111	7.86
62	R. Sundaravadivelu	Clarification of Structural Drawings and Tsunami Wave Propagation Studies, Vivanta by Taj, Harbour Island, Andaman	The Indian Hotels Company Ltd., Mumbai—400001	10.11
63	Nallayarasu	Design Verification of Breasting dophin at Cuddalore Marine Terminal	K. Kumeresan, General Manager, Chemplast Sanmar Ltd., 9 Cathedral Road, Chennai—600 086	7
64	Nallayarasu	Structural Analysis for Bergading CPP and WHP Preliminary Detailed Design Report	Aker Engineering Malaysia Sdn Bhd., Level 16, Integra Tower, Kuala Lumpur, Malaysia	36
65	Nallayarasu	Structural Design of Skid Shoe and Connections for Gina Krog Topside project	Aker Engineering Malaysia Sdn Bhd., Level 16, Integra Tower, Kuala Lumpur, Malaysia	39.6
67	V. Anantha Subramanian	Hydrodynamic Tests for 72 m General Cargo Vessel	Mallikarjun Vali, Modest Infrastructure Ltd., Solitaire Corporate Park, Unit No. 251 & 252, Andheri, Mumbai—400093	15
68	V. Sundar and S.A. Sannasiraj	Construction of Groynes at Periyathalai in Trichendur Taluk of Thoothukudi District	S. Sheik Abdul Kadir Oliyudeen, Executive Engineer, PWD/WRO, Korampallam Aru Basin Division, Sivan Kovil St., Thoothukudi—02	12.92
69	V. Sundar and S.A. Sannasiraj	Construction of Groynes at Kallamozhi in Trichendur Taluk of Thoothukudi District	S. Sheik Abdul Kadir Oliyudeen, Executive Engineer, PWD/ WRO, Korampallam Aru Basin Division, Sivan Kovil St., Thoothukudi—02	12.92

70	V. Sundar and S.A. Sannasiraj	Construction of Groynes at Veerapandiapattinam in Trichendur Taluk of Thoothukudi District	S. Sheik Abdul Kadir Oliyudeen, Executive Engineer, PWD/WRO, Korampallam Aru Basin Division, Sivan Kovil St., Thoothukudi—02	16.29
71	R. Sundaravadivelu	Proof Checking the Design and Engineering of Construction of New Mooring Dolphin (in Place of Damaged Mooring) at IOCL Jetty No. 6 at Kandla FST	S. Sakthivel, Managing Director, VC Ocean Engineering and Consultancy Pvt. Ltd., J5, Level-2, Rohini Gardens, Raja Annamalai Puram, Chennai—600028	1.12
72	Rajesh R. Nair	Improvement and Characterization of Marginal nesaary by integatary	Oil India Ltd., Assam	49.92
73	S. Nallayarasu	KNDP—A Brownfield Structural Reanalysis	T. Ramakrishnan, Project Manager, Aker Engineering, Malaysia	27
74	S. Nallayarasu	Klaipedos Jetty - Independent Analysis	Renukadevi, ABS Consulting, 438, Alexandria Road, Singapore	18
75	V. Sundar and S.A. Sannasiraj	Stability of Section Built Using Geosystems for Coastal Protection along the Coast of Kerala	Minimol Korulla, Vice President—TMD, Maccagerri Environmental Solutions Pvt. Ltd., 402, 4th Floor, Salcon Aurum, Plot No. 4, New Delhi	5.61
76	Rajesh R. Nair	Denbreation of Buried Surface Hard Lignite	Neyveli Ltd. Corporation	141.68
77	R. Sundaravadivelu	Conducting investigation and studies for constructing a 200 m RCC wharf at beypore port	Directorate of Posts, Valiyathura, Vallakadavu PO, Thiruvananthapuram—695008	60.67
78	S. Nallayarasu	Detailed Engineering for Decommissioning of <i>Niko Hazira</i> Offshore Platform	S.N. Jha, Adsun Offshore Diving Contractors	25
79	V. Sundar and S.A. Sannasiraj	Design of Suitable Coastal Protection Scheme for the Coastal Stretches of Alappad Centre and Azheekal, Kerala	Water Resources Department, Thiruvananthapuram	11.99
80	V. Sundar and S.A. Sannasiraj	Design of Suitable Coastal Protection Scheme for the Coastal Stretches of Kollam District, Kerala	Water Resources Department, Thiruvananthapuram	16.85
81	R. Sundaravadivelu	Design Check for Ashuganj Port Bangaladesh	J. Kumar, Chief Engineering, Wapcos Ltd., 76 C Sector 18, Institutional Area, Gurgaon, New Delhi—122015	2.8
82	V. Sundar and S.A. Sannasiraj	DPR for the Creation of Safe Beach Landing Facilities at Kadiyapattinam	L. Selvaraj Parish, Council St. Peter & St. Paul, Kadiyapattinam	8.5
83	V. Sundar and S.A. Sannasiraj	Collection of Field Particulars Evolution of Design for Construction of Groyne at Keelavaippar in Vilathikulam Taluk of Thoothukudi		16.29
84	S.A. Sannasiraj	Field Visits and Consultants to Various Coastal Project	Various agencies	5
85	V. Sundar and S.A. Sannasiraj	Design of Suitable Coastal Protection Scheme for the Coastal Stretch of Alapuzha District, Kerala	Executive Engineer, Irrigation Department, Alapuzha—695033	35.22

RBIC projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount
1	Jitendra Sangwai	Evaluation of Semiclathrate Hydrate for Natural Gas Storage and Transportation	GAIL India Ltd.	5.25 million—Principal Investigator.
2	Jitendra Sangwai/R. Gardas	Investigations on the Dissolution of Tank Bottom Sludge Using Environment Friendly Ionic Liquids (Green Solvent)	Oil India Limited, Assam	4.15 million—Principal Investigator

Exchange programmes with other universities including institutions/universities under MOUs

S.A. Sannasiraj

Under the DAAD-sponsored exchange programme, “New Passage to India”, three research students from Leibniz Universität Hannover, Franzius-Institut für Wasserbau und Küsteningenieurwesen, Hannover visited DOE, IIT Madras during October–December 2013 (2 months):

- 1) Nils Kerpen, Ph.D. scholar
- 2) Nannina Horstmann, Ph.D. scholar
- 3) Jennifer Lenner, Master’s student

Similarly, three students from DOE, IIT Madras visited Leibniz Universität Hannover during October–December 2013 (2 months):

1. K.V. Anand, Ph.D. scholar
2. Jermie Stephen, Ph.D. scholar
3. Sivagamasundari, Ph.D. scholar

Faculty members’ participation with other institutions under MoUs

Sl. No.	Name of Faculty Member	Participation Details	Name of University/ Institution Which Has MoU
1	S.A. Sannasiraj & V. Sundar	Joint research project	NTNU, Norway
2	S.A. Sannasiraj	Joint research project	NUS, Singapore
3	Rajesh R. Nair	Shankar Krisna, who completed 1 year M.Tech. (Petroleum Engineering), is pursuing an International Master’s in Exploration Geophysics at Institut de Physique de Globe de Paris (IPGP)	IPGP
4	Jitendra Sangwai	Exchange of Prathyusha Mekela, Ph.D. student (May–August 2013)	NUS, Singapore

Research publications of faculty members and research scholars

Number of papers published in refereed national journals: 3

Number of papers published in refereed international journals: 52

Number of papers presented at national conferences: 16

Number of papers presented at international conferences: 26

(a) Papers published in refereed national journals

1. G. Suresh Kumar. Mathematical modeling of groundwater flow and solute transport in a saturated fractured rock using dual-porosity approach. *Journal of Hydrologic Engineering (ASCE)*. doi:10.1061/(ASCE)HE.1943-5584.0000986
2. T. Sharma, J.S. Sangwai and G. Suresh Kumar (2013) Oil-water emulsion IFT alteration under rotational effect in enhanced oil recovery process. *Journal of Petrotech VIII* (8): 59–65.
3. N.A. Sami, J.S. Sangwai and N. Balasubramanian (2013) Gas hydrate applications and problems in oil and gas industry. *International Journal of Scientific & Engineering Research* (ISSN 2229-5518) 4(8): 1–5.

(b) Papers published in refereed international journals

1. V. Sundar. Pressures on the crown wall of breakwater formed by new armor blocks ‘kolos’ due to regular waves. *ASCE’s Journal of Waterway, Port, Coastal, and Ocean Engineering*.
2. V. Sundar. A numerical study: Liquid sloshing dynamics in a tank due to uncoupled sway, heave and roll ship motions. *Journal of Naval Architecture and Marine Engineering*.
3. V. Sundar. Wave power absorption capability of a multi-resonant double chamber oscillating water column device. *Journal Teknologi*.
4. V. Sundar. Sensitivity analysis of relationship between tsunami disaster and coastal embankment structure. *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*.
5. S.A. Sannasiraj and V. Sundar. Pressures on the crown wall of breakwater formed by new armor block ‘kolos’ due to regular waves. *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*.

6. S.A. Sannasiraj Laboratory measurements of breaking wave impact pressures on a slender cylinder. *International Journal of Ocean and Climate Systems*.
7. S.A. Sannasiraj and V. Sundar. A numerical study: Liquid sloshing dynamics in a tank due to uncoupled sway, heave and roll ship motions. *Journal of Naval Architecture and Marine Engineering*
8. S.A. Sannasiraj and V. Sundar. Wave Power Absorption Capability of a Multi-Resonant Double Chamber Oscillating Water Column Device. *Jurnal Teknologi (Science and Engineering)*.
9. S.A. Sannasiraj and V. Sundar. Asymmetry effect on hydrodynamic characteristics of double chamber oscillating water column device. *Journal of Ocean, Mechanical and Aerospace-Science and Engineering-(JOMase)*.
10. S.A. Sannasiraj and V. Sundar. Pressures on the crown wall of breakwater formed by new armor block 'kolos' due to regular waves. *Journal of Waterway, Port, Coastal and Ocean Engineering, ASCE*.
11. S. Nallayarasu (December 2013) Experimental and numerical investigation on hydrodynamic response of spar with wind turbine under regular waves. *International Journal of Ocean and Climate Systems* (Multi-Science Publications, UK).
12. S. Nallayarasu (December 2013) Experimental and numerical investigation on hydrodynamic response of spar with wind turbine under random waves. *International Journal of Ocean and Climate Systems* (Multi-Science Publications, UK).
13. S. Nallayarasu (November 2013) Hydrodynamic Response of spar with single and double Heave Plates in Regular Waves. *International Journal of Ocean System Engineering*.
14. S. Nallayarasu (February 2014) Hydrodynamic Response of spar with single and double Heave Plates in Random Waves. *International Journal of Ocean System Engineering*.
15. S. Nallayarasu (2013) Hydrodynamic response of spar hulls with heave damping plate using simplified approach. *Ships and Offshore Structures*. (Available online)
16. S. Nallayarasu (2013) Experimental investigation and CFD simulation of heave damping effects due to circular plates attached to spar hull. *Ships and Offshore Structures*. (Available online)
17. S. Nallayarasu (2014) Effect of hull geometry on the hydrodynamic response of spar in regular waves, special issue on coupled dynamic analysis of floating structures with concept technologies. *Ships and Offshore Structures*.
18. S. Nallayarasu (2013) Experimental Investigation of Wave Slam and Slap coefficients for array of non-circular section of offshore platforms. *Ships and Offshore Structures*.
19. M. Berlin, G. Suresh Kumar and I.M. Nambi. Numerical modeling on transport of nitrogen from wastewater and fertilizer applied on paddy fields. *Ecological Modeling* (Elsevier Publications) 278: 85–99.
20. M. Berlin, G. Suresh Kumar and I.M. Nambi Numerical modeling on the effect of dissolved oxygen on nitrogen transformation and transport in an unsaturated porous system. *Environmental Modeling & Assessment* (Springer Publications) 1–17. doi: 10.1007/s10666-014-9399-1
21. Mohanasundaram, S.G. Suresh Kumar and B. Narasimhan. Numerical modeling of fluid flow through unsaturated zone using dual porosity approach. *ISH Journal of Hydraulic Engineering* (Taylor & Francis) 19:(2): 97–110.
22. Rajesh R. Nair. Developing unconventional oil and gas resources in South Asia. *Journal of Unconventional oil and gas resources* (Elsevier) 6: 1–3.
23. Rajesh R. Nair. Assessment of earthquake early warning potential from KiK-Net seismograms of 2000–2011 North and East Japan events. *Arabian Journal of Geosciences* (Springer). (In Press)
24. J.D. Pravin and P. Shanmugam. A new theory and its application to mitigate the effect of surface-reflected light in above-surface radiance data from clear, turbid and eutrophic waters. *Journal of Quantitative Spectroscopy and Radiative Transfer*. <http://www.sciencedirect.com/science/article/pii/S002240731400137X>.
25. J.D. Pravin and P. Shanmugam. A new model for the irradiance reflectance for clear and turbid waters. *Optics Express* 22: 9548–9566.
26. Nashiha, P. Shanmugam and V.G. Hariharasundan. A new inversion model to estimate bulk refractive index of particles in coastal oceanic waters. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6762872>.
27. S. Rakesh Kumar and P. Shanmugam. A novel method for estimating aerosol radiance and its extrapolation in the atmospheric correction of satellite ocean colour imagery over optically complex waters. *Remote Sensing of Environment* 142: 188–206.

28. M. Tholkapiyan, P. Shanmugam and T. Suresh. Monitoring of ocean surface algal blooms in coastal and oceanic waters around India. *Journal of Environmental Monitoring and Assessment*. doi: 10.1007/s10661-014-3685-x
29. S. Arthi and P. Shanmugam. A new model for the vertical spectral diffuse attenuation light fields in turbid coastal waters. *Optics Express* 21: 30082–30106.
30. S.P. Tiwari and P. Shanmugam. A robust algorithm to estimate $K_d(490)$ in coastal and oceanic waters. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=6624123.
31. V.B. Sundarabalan and P. Shanmugam. Radiative transfer modeling of upwelling light fields in coastal waters. *Journal of Quantitative Spectroscopy and Radiative Transfer* 121: 30–44.
32. S.P. Tiwari and P. Shanmugam. An evaluation of inversion models for retrieving phytoplankton absorption coefficients in coastal waters. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6497075&queryText%3Dshamugam>.
33. P. Shanmugam, M. Suresh, and V.B. Sundarabalan. OSABT: An innovative algorithm for characterization of ocean surface algal blooms in oceanic waters around India. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 6(4): 1879–1892.
34. S.P. Tiwari and P. Shanmugam. An optical model for deriving the particulate backscattering coefficients in oceanic waters. *Ocean Sciences*. <http://www.ocean-sci-discuss.net/10/261/2013/osd-10-261-2013.html>.
35. P. Shanmugam, H-C. Kim, Y-H. Ahn, J-E. Moon and T. Surya Prakash. Evaluation of MODIS-Aqua bio-optical algorithms in Arctic waters. *Environmental Engineering and Management Journal* 12: 2219–2232.
36. Abdus Samad. Flow analysis of jet pump used for oil wells. *IJFMS*.
37. Abdus Samad. Vortex trapping by different cavities on an airfoil. *Wind Engineering*.
38. P. Mekala, P. Babu, J.S. Sangwai and P. Linga (2014) Formation and dissociation kinetics of methane hydrates in seawater and silica sand. *Energy and Fuels* 28(4): 2708–2716.
39. J.K.M. William, S. Ponmani, R. Samuel, R. Nagarajan and J.S. Sangwai (2014) Effect of CuO and ZnO nanofluids in xanthan gum on thermal, electrical and high pressure rheology of water-based drilling fluids. *Journal of Petroleum Science and Engineering* 117: 15–27.
40. T. Barmavath, P. Mekala and J.S. Sangwai (2014) Modeling phase equilibrium of clathrate hydrates of methane and carbon dioxide in porous media. *Journal of Natural Gas Science and Engineering* 18: 254–262.
41. P. Mekala and J.S. Sangwai (2014) Prediction of phase equilibrium of clathrate hydrates of multicomponent natural gases containing CO₂ and H₂S. *Journal of Petroleum Science and Engineering* 116: 81–89.
42. J.S. Sangwai and R. Oellrich (2014) Phase equilibrium of semiclathrate hydrates of methane in aqueous solutions of tetra-n-butyl ammonium bromide (TBAB) and TBAB-NaCl. *Fluid Phase Equilibria* 367: 95–102.
43. S. Ponmani, J.K.M. Karen, R. Samuel, R. Nagarajan and J.S. Sangwai (2014) Formation and characterization of thermal and electrical properties of CuO and ZnO nanofluids in xanthan gum. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 443: 37–43.
44. J. Bhatia, J.P. Srivastava, A. Sharma and J.S. Sangwai (2014) Production performance of water alternate gas injection techniques for enhanced oil recovery: Effect of WAG ratio, number of wag cycles and the type of injection gas. *International Journal of Oil, Gas and Coal Technology (IJOGCT)* 7(2): 132–151.
45. S. Ponmani, R. Nagarajan and J.S. Sangwai (2013) Applications of nanotechnology for upstream oil and gas industry. *Journal of Nano-Research* 24: 7–15.
46. N.A. Sami, K. Das, J.S. Sangwai and N. Balasubramanian (2013) Phase equilibria of methane and carbon dioxide clathrate hydrates in the presence of (Methanol+MgCl₂) and (Ethylene Glycol+MgCl₂) aqueous solutions. *Journal of Chemical Thermodynamics* 65: 198–203.
47. K.K. Godishala, J.S. Sangwai, N. Amer and K. Das (2013) Phase stability of semiclathrate hydrates of carbon dioxide in synthetic sea water. *Journal of Chemical and Engineering Data (ACS Publication)* 58(4): 1062–1067.
48. A. Joshi, J.S. Sangwai, K. Das and A. Nagham (2013) Experimental investigations on the phase equilibrium of semiclathrate hydrates of carbon dioxide in TBAB with small amount of surfactant. *International Journal of Energy and Environmental Engineering* 4(11): 1–11.
49. K. Murali and V. Sundar. Manning's 'N' for staggered flexible emergent vegetation. *Eark quake and Tsunami*.

50. K. Murali and V. Sundar. Empirical equation for the prediction of run-up due to random waves on beaches 51 fronted by vegetation". *Marine Deodesty*.
51. K. Murali and V. Sundar. Forces due to long waves on structures fronted by flexible vegetation. *Geo Sciences*.
52. K. Murali and V. Sundar. Effect of flexible vegetation on the force's on structures due to long waves. *Coastal Management*.

(c) Papers presented at national conferences

1. V. Sundar. Studies for fishing harbor layout and sediment transport along west coast of India. 5–7 February 2014, NIO, Goa.
2. V. Sundar. Effect of discharge excitation in energy conversion capacity of double chamber oscillating water column. 5–7 February 2014, NIO, Goa.
3. V. Sundar. Inter comparison of wave height observations from buoy and altimeter with numerical prediction. 5–7 February 2014, NIO, Goa.
4. V. Sundar. Study of seasonal variation in sediment transport along the SW Coast of India. 5–7 February 2014, NIO, Goa.
5. V. Sundar. Proposed coastal protection measures along a few stretches along Kerala Coast. 5–7 February 2014, NIO, Goa.
6. V. Sundar. Experimental and numerical investigations of an elastically mounted cylinder undergoing VIV. 5–7 February 2014, NIO, Goa.
7. Abdus Samad. Numerical simulation of film cooling turbine blade. *ANSYS Conference*, 17 May 2013.
8. Abdus Samad. Exit blade angle and roughness effect on centrifugal pump performance. *Proceedings of ASME Gas Turbine India Conference 2013*, 5–6 December 2013.
9. Abdus Samad. Analysis of flow through ocean energy harvesting bidirectional impulse turbine. *Fifth Indian National Conference on Harbour and Ocean Engineering*, 5–7 February 2014.
10. Abdus Samad. Breakwater wave energy converters—A review. *Fifth Indian National Conference on Harbour and Ocean Engineering*, 5–7 February 2014.
11. Abdus Samad. Multiphase flow pumps—A review. 12–14 December 2013, NIT Hamirpur.
12. J.S. Sangwai and P. Mekala. Desalination of water using gas hydrate technology – Current status and future direction. *18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2013*, 4–6 December 2013, IIT Madras, Chennai.
13. P. Mekala and J.S. Sangwai. Accurate prediction of dissociation pressures of natural gas hydrates containing carbon dioxide and hydrogen sulfide for efficient flow assurance phenomena. *SPE North Africa Technical Conference & Exhibition*, 15–17 April 2013, Cairo, Egypt. (SPE 164578)
14. R. Badhurshah, A. Samad and J. Sangwai. Analysis of flow through ocean energy harvesting bidirectional impulse turbine. *Fifth Indian National Conference on Harbour and Ocean Engineering (INCHOE2014)*, 5–7 February 2014, Goa, India.
15. K. Murali and V. Sundar. Experimental and numerical investigations of an elastically mounted cylinder undergoing VIV. 5–7 February 2014, NIO, Goa.
16. K. Murali. Experimental investigations in prediction of strumming for tow cable undergoing VIV using fairings. 5–7 February 2014 NIO, Goa.

(d) Papers presented at international conferences

1. V. Sundar. Hydrodynamic performance characteristics of double chamber oscillating water column device. *35th IAHR World Congress*, 8–13 September, Chengdu.
2. S.A. Sannasiraj and V. Sundar. Comparison of the seastate during thane and nilam cyclones along south east coast of India—using WAM. *APAC 2013*, 24–26 September 2013, Bali, Indonesia.
3. S.A. Sannasiraj and V. Sundar. Experimental investigation on the wave energy conversion capability of a double chamber oscillating water column. *IAHR*, 8–13 September 2013.
5. S. Nallayarasu Wind energy: Indian perspective. *Indo-French Technology*, 2013, New Delhi.
6. G. Suresh Kumar, M. Berlin and Indumathi M. Nambi. Understanding nitrogen species transport in an unsaturated porous media for effective wastewater reuse. *Eighth IAHS International Groundwater Quality Conference*, 21–26 April 2013, University of Florida, USA.
7. I.M. Nambi, G. Suresh Kumar and M. Vasudevan. Multi-component dissolution from residually trapped petroleum hydrocarbons. *Eighth IAHS International Groundwater Quality Conference*, 21–26 April 2013, University of Florida, USA.

8. Mohanasundaram, S.G. Suresh Kumar and Balaji Narasimhan. Transfer function noise (TFN) modeling of dynamic groundwater level fluctuation using deseasonalized rainfall series. *AGU Fall Meeting* (Control ID, 1806040; Final ID, H11H-1253), 9–13 December 2013, Moscone Convention Center, San Francisco, California.
9. S.D. Patwardhan and G. Suresh Kumar. Reservoir simulation of permeability changes in stimulated shale reservoirs. *Energy System Modeling and Optimization Conference (ESMOC 2013)* (Track 1, S. No. 28), 9–11 December 2013, NIT Durgapur.
10. S.D. Patwardhan and G. Suresh Kumar. Effect of stress-dependent permeability on fracture-completed wells in shale gas reservoirs. *Eleventh International Oil & Gas Conference and Exhibition (PETROTECH 2014)* (ID No. A-1556), 12–15 January 2014, New Delhi.
11. Tushar Sharma, Jitendra, S. Sangwai and G. Suresh Kumar. Effect of nano-particle on interfacial tension and temperature stability of surfactant stabilized oil in water emulsions. *Eleventh International Oil & Gas Conference and Exhibition (PETROTECH 2014)* (ID No: A-2111), 12–15 January 2014, New Delhi.
12. Abdus Samad. Surface roughness effect on centrifugal pump performance. 1–3 March 2013, IIT Madras.
13. Abdus Samad. Pressure rheological studies of nanofluid treated water based drilling fluids. *Petrotech-2014*, 12–15 January 2014.
14. Abdus Samad. Review of air turbines for wave energy conversion. *IEEE International Conference on Renewable Energy and Sustainable Energy*, 5–6 December 2013.
15. Abdus Samad. Water column wave energy system—A prospective. *1st International Conference on Automation, Control, Energy and Systems*, 1–2 February 2014, Hoogly, West Bengal.
16. Abdus Samad. Flare gas recovery using ejector, 9 January 2014, Inha University, Incheon, South Korea.
17. V. Anantha Subramanian and N.N.V. Rakesh. Hydrodynamic performance optimization of a wake-adapted propeller, December 2013, IIT Kharagpur.
18. V. Anantha Subramanian and P.G. Edke. Experimental studies on performance of surface piercing propellers, December 2013, IIT Kharagpur.
19. V. Anantha Subramanian. Development of carbon fiber reinforced propeller for marine screw propulsion. *The International conference on Advance Polymer materials (APM)*, February 2014, Bhubaneswar, Odisha.
20. V.R. Avula, R.L. Gardas and J.S. Sangwai. Modeling of methane hydrate inhibition in the presence of green solvent for offshore oil and gas pipeline. *The 24th (2014) International Ocean and Polar Engineering Conference*, 15–20 June 2014, Busan, Korea.
21. P. Mekala and J.S. Sangwai. Accurate phase equilibria predictions for hydrates of multi-component natural gases. *OTC-24674-MS. 2014 Offshore Technology Conference Asia (OTC Asia)*, 25–28 March 2014, Kuala Lumpur, Malaysia.
22. S. Ponmani, J.K.M. William, R. Nagarajan and J.S. Sangwai. High pressure rheological studies of nanofluid treated water based drilling fluids. *11th International Oil and Gas Conference and Exhibition (PetroTech-2014)*, 12–15 January 2014.
23. T. Sharma, G.S. Kumar and J.S. Sangwai. Effect of nanoparticle on interfacial tension and temperature stability of surfactant stabilized oil in water emulsions. *11th International Oil and Gas Conference and Exhibition (PetroTech-2014)*, 12–15 January 2014.
24. S. Ponmani, J.K.M. Karen, R. Samuel, R. Nagarajan and J.S. Sangwai. Effect of stabilized nanofluids on water based drilling fluids for deepwater HPHT wells. *International Symposium on Energy Resources Fusion Technology*, pp. 9–17, 9 January 2014, Inha University, Republic of South Korea.
25. N. Sakthipriya, B. Doble and J.S. Sangwai. Microbial treatment of hydrocarbons. *Indo-German Symposium on Future Sustainable Energy Challenges: Indian and German Perspectives*, 5 December 2013, IIT Madras.
26. A. Nagham, J.S. Sangwai and N. Balasubramanian. Applications of gas hydrates and their problems in oil and gas industry. *International Conference on Global Innovation in Technology and Sciences*, 4–6 April 2013, Kottayam, Kerala, India.

4.15.5. Other Activities of the Department

P. Shanmugam, Chief Scientist and Program Co-ordinator, carried out ship-borne cruise measurements in the Bay of Bengal every month (2 days) and season (8 days).

Student visits

Sl. No	Names of Students	Purpose of Visit	Date and Venue
1	K.V. Anand, Jermie Stephen and Sivagamasundari	DAAD student exchange under New Passage to India programme	20 October to 20 December 2013, Leibniz University, Germany
2	Swapnadip De Chowdhury	Student exchange	20 November to 3 December 2013, Swinburne University, Australia

Major infrastructure development made in the department

Rajesh R. Nair established a liason with the Engineering Section and Dean Planning to install the Petroleum Engineering Laboratory. The laboratory is located on the ground floor of the Ocean Engineering Centre and comprises the Petroleum Geomechanics, Reservoir Engineering and Drilling Engineering laboratories.

P. Shanmugam established the Ocean Optics and Imaging Laboratory.



Ocean Optics and Imaging Laboratory

4.16. DEPARTMENT OF PHYSICS

4.16.1. Introduction

The Department of Physics was established in 1959 and now has Ph.D., M.Tech. (Solid State Technology), M.Sc., Dual Degree (B.S. and M.S.) in Physics and B.Tech (Engineering Physics) programmes. In addition, the department teaches various core or elective courses in physics to B.Tech. students. The Physics Department also undertakes a large number of sponsored research and consultancy projects.

4.16.2. Academic Programmes

List of Students on roll as of September 2013 + M.S. & Ph.D. scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	30	25	25	29	—	109
Dual Degree	10	09	08	08	06	41
M.Sc.	42	39	—	—	—	81
M.Tech.	06	06	—	—	—	12
Ph.D.	41	37	19	23	19	139
Total	129	116	52	60	25	382

Students on roll as of September 2013 + M.S. & Ph.D. scholars admitted in January 2014

Programme	I Year	II Year	III Year	IV Year	V Year and Others	Total
B.Tech.	25	29	22	21	6	103
Dual Degree	8	8	6	10	—	32
M.Sc.	38	39	—	—	—	77
M.Tech.	11	9	—	—	—	20
Ph.D.	10	44	14	28	41	137
Total	92	129	42	59	47	369

Endowment prizes instituted

1. Ms Lakshmi Ravikumar Memorial Prize
2. Ms Latha and Sampath Srinath Prize
3. Prof. J. Sobhanadri Prize
4. Sri Krishnamurthy Sundarambal Prize

Names of students/scholars who attended conferences/seminars/symposia in India/abroad

Sl. No.	Name of the Student/ Scholar	Roll No.	Name of the Conference/Seminars/ Symposium/Workshop	Date and Venue	Financial Assistance from
1	Deepak Bhat	PH10D022	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore	
2	Jemseena V.	PH10D027	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore	
3	Madhusmita Tripathy	PH10D029	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore	

4	Prasanna R.S.	PH10D031	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore
5	Raj Kumar Manna	PH12D017	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore
6	Pritha Dolai	PH12D044	Fourth School of Statistical Physics—2013	1–14 April 2013, Raman Research Institute, Bangalore
7	Madhumita Sahoo	PH11D017	National Conference on Advanced Materials and Applications (NCAMA-2013)	3–6 April 2013, NIT Trichy
8	Fabitha K.	PH11D013	National workshop on Advanced X-ray Techniques and Applications (AXTA 2013)	27 April 2013, IIT Madras, Chennai
9	Rajib Mondal	PH10D035	To carry out Neutron Diffraction experiments at Bhabha Atomic Research Centre (BARC)	16–21 September 2013, Mumbai
10	Ganga B.G.	PH09D009	Research work at IISER	17 September to 27 October 2013, Thiruvananthapuram
11	Abhilash T.	PH10D015	Performing THz spectroscopy experiments	9–17 October 2013, TIFR, Mumbai
12	Balasubrahmaniam M.	PH10D019	Performing THz spectroscopy experiments	9–17 October 2013, TIFR, Mumbai
13	HariPriya G.R.	PH13D004	Thematic Workshop on Physics of Phase Transitions	24–25 October 2013, Indore
14	Laxshman Dhal	PH12D037	Thematic Workshop on Physics of Phase Transitions	24–25 October 2013, Indore
15	Rajivgandhi R.	PH12D047	Thematic Workshop on Physics of Phase Transitions	24–25 October 2013, Indore
16	Sharannia M.P.	PH12D053	Thematic Workshop on Physics of Phase Transitions	24–25 October 2013, Indore
17	Nandana Nandakumar M.	PH13D007	Thematic Workshop on Physics of Phase Transitions	24–25 October 2013, Indore
18	Ramanjaneyulu M.	PH10D005	Poster presentation at DAE-BRNS 7th National symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD 2013)	14–16 November 2013, IIT Kharagpur
19	Dinesh Kumar	PH12D005	Poster presentation at DAE-BRNS 7th National symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD 2013)	14–16 November 2013, IIT Kharagpur
20	Martando Rath M.	PH12D040	Poster presentation at DAE-BRNS 7th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD 2013)	14–16 November 2013, IIT Kharagpur
21	Santhosh Kumar Singh	PH11D007	International Conference on Structural and Physical properties of Solids 2013 (SPPS 2013) (to make poster presentation)	18–19 November 2013, Indian School of Mines, Dhanbad
22	Lakshman Dhal	PH12D037	International Conference on Magnetic Materials and Applications (MagMA 2013), to present a poster titled “Bulk and Nanocrystalline Electron Doped $Gd_{0.15}Ca_{0.85}MnO_3$: Synthesis and Magnetic Characterization”	5–7 December 2013, IIT Guwahati

23	Rajib Mondal	PH10D035	International Conference on Magnetic Materials and Applications (MagMA 2013), to present a poster titled "Low Field Magnetic Properties of $\text{HoCo}_{2-x}\text{Ni}_x$ (0.5 ≤ x ≤ 1.75) Compounds"	5–7 December 2013, IIT Guwahati
24	R. Rajivgandhi	PH12D047	International Union of Materials Research Society—International Conference in Asia (IUMRS-ICA 2013) to present a poster titled "Magnetic and Magnetocaloric Properties of RNi (R = Gd, Ho) Intermetallic Compounds and Their Melt-Spun Ribbons"	16–20 December 2013, IISc, Bangalore
25	Lakshman Dhal	PH12D037	Physics of Materials—Research Scholars' Symposium, held at UGC-DAE Consortium for Scientific Research, to present a paper	24–25 December 2013, Indore, India
Abroad				
1	Sudhakara Reddy Bongu	PH11D010	Visiting National Centre for Plasma Science and Technology	6 August to 30 October 2013, Dublin, Ireland
2	Jayachandra Bingi	PH11D004	JSAP–OSA joint symposium	16–20 September 2013, Kyoto, Japan
3	Anita R. Warriar	PH11IPF02	JSAP–OSA joint symposium	16–20 September 2013, Kyoto, Japan
4	Deepak Bhat	PH10D022	Multiscale Motility of Molecular Motors, for poster presentation	23–25 September 2013, Potsdam-Golm, Germany
5	Vidhya G. Nair	PH08D019	Fifty-Eighth annual Conference on MMM", to present poster titled "Structural Magnetic and Magnetodielectric Studies of Metamagnetic $\text{DyFe}_{0.5}\text{O}_3$ "	4–8 November 2013, USA
6	Subhendu Kumar Manna	PH11D009	Fifty-Eighth Annual Conference on MMM, to present poster titled "Magnetic and Magnetoimpedance Studies on Controlled Joule Annealed Amorphous Co Fe Ni Mn Nb Si B Alloy"	4–8 November 2013, USA

4.16.3. Faculty and Their Activities

Faculty

Sl. No.	Name	Designation	Major area of specialization(only 3 areas)
1	Aravind G.	Assistant Professor	Photoelectron spectroscopy, photoabsorption studies on biomolecules and reactions involving trapped ions to study the constituents and dynamics of the inter-stellar medium (ISM)
2	Balakrishnan V.	Professor	Dynamical systems, quantum dynamics and stochasticity
3	Bisht, P.B.	Professor	Ultrafast lasers and fluorescence microscopy, fluorescence up-conversion, ultrafast laser spectroscopy and fluorescence microscopy
4	Dawood Kothawala	Assistant Professor	Semi-classical gravity, quantum mechanics of black holes, QFT with minimal length scale
5	Deshmukh P.C.	Professor	Atomic and molecular physics, photoabsorption processes in free/confined atoms, molecules and ions
6	Dillip K. Satapathy	Assistant Professor	Complex fluids in confinement, physics of complex oxide heterostructures, X-ray and neutron scattering characterization of materials
7	Ganesan A.R.	Associate Professor	Adaptive optics, vision science, laser instrumentation, interferometry, holography and optical metrology

8	Gopalakrishnan, Manoj	Assistant Professor	Theoretical biophysics, stochastic processes, nonequilibrium statistical physics
9	Govindarajan, Suresh	Professor	Dynamical systems, statistical physics and field theory quantum field theory, string theory, black holes
10	Gupte N.M.	Professor	Non-linear dynamics, chaos, statistical physics
11	Hariharan K.	Professor	Solid-state ionics/electronics
12	Harish Kumar N.	Associate Professor	Superconductivity, novel magnetic materials, instrumentation and automation
13	Jain M.K.	Associate Professor	Semiconductor physics semiconductor, photovoltaics, chemical sensors
14	Kasiviswanathan S.	Professor	Interface and surface science of thin films, tunneling spectroscopy, surface plasmon resonance and SPR microscopy, DMS and MCD, DSP based physical measurements
15	Kothiyal M.P.	Professor	Applied optics, interferometry, optical instrumentation and testing
16	Krishnamurthy C.V.	Associate Professor	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
17	Lakshmi Bala S.	Professor	Classical and quantum dynamical systems, nonlinear dynamics and chaos, chaos in gauge theories, quantum information theory
18	Lakshminarayan, Arul	Professor	Quantum chaos, quantum information theory, chaos and transport, mathematical physics
19	Libby, James	Associate Professor	Experimental particle physics, CP-violation and flavour physics
20	Manu Jaiswal	Assistant Professor	Condensed matter physics
21	Markandeyulu G.	Professor	Magnetism and magnetic materials
22	Murugavel P.	Assistant Professor	Physics of dielectric, ferroelectric and magnetoelectric oxide materials in bulk, film and nanocrystalline forms
23	Murthy V.R.K.	Professor	Microwave physics and materials
24	Nanda, Ranjit Kumar	Assistant Professor	Condensed matter theory (electronic structure)
25	Narayanan, Rajesh	Associate Professor	Condensed matter theory: quantum field theories applied to condensed matter systems, quantum phase transitions, strong disorder physics
26	Natarajan T.S.	Professor	Conducting polymers, molecular electronics, instrumentation
27	Nirmala R.	Associate Professor	Rare earth intermetallics
28	Padhan, Prahallad	Assistant Professor	Experimental condensed matter physics
29	Pattabiraman M.	Associate Professor	Experimental atomic physics, quantum optics and magnetometry
30	Prafulla Kumar Behera	Associate Professor	Experimental particle physics
31	Ramachandrao Rao M.S.	Professor	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, spintronics
32	Ramaprabhu S.	Professor	Synthesis of CNTs, CNCs, graphene, nano composites, metal oxide nano structures, alloys and their applications in hydrogen production, hydrogen storage, hydrogen sensors, chemical and bio sensors, PEMFC, micro fuel cells, DMFC, DEFC, alkaline fuel cells, Li-ion battery, super capacitors, field emission, photovoltaics, nano fluids, switchable mirrors and optical shutters, filter for water purification, carbon dioxide capture and bio medical applications

33	Sankaranarayanan V.	Professor	Low-temperature physics, superconductivity
34	Santhosh P.N.	Associate Professor	Magnetism in condensed matter physics, electroceramics, magnetic materials, low-temperature characterization of advanced materials
35	Satyanarayana M.V.	Professor	Quantum optics, laser physics, photonics
36	Sethupathi K.	Professor	Low-temperature physics, superconductivity
37	Simha, Aditi	Assistant Professor	Non-equilibrium statistical physics: heat conduction, drifting flux lattices, sedimental suspensions, sheared complex fluids, 'active' matter, transition rates in some nonequilibrium steady states
38	Somnath Chanda Roy	Assistant Professor	Thin films, materials science, TiO ₂ nanotubes and photocatalysis
39	Srinivas V.	Professor	Experimental condensed matter physics, low temperature electronic properties, magnetic properties of intermetallic alloys and low-dimensional and disordered materials
40	Sriram Kumar L.	Associate Professor	Semi-classical gravity and cosmology
41	Subramanian V.	Professor	Microwave and dielectrics, semiconductors
42	Subrahmanyam A.	Professor	Semiconductor devices, photovoltaics
43	Sudakar Chandran	Assistant Professor	Oxides and nitrides, magnetic materials, spectroscopic techniques (such as Raman, XPS, UV-Vis, IR), defect-structure property correlations, experimental condensed matter physics, materials for memory and energy applications
44	Snethra Ramanan	Assistant Professor	Nuclear structure, renormalization group approaches, cold atomic gases in traps and lattices, computational many-body physics
45	Sunil Kumar P.B.	Professor	Complex fluids, biological physics and statistical mechanics
46	Tripathy, Prasanth	Associate Professor	String theory
47	Vijayan C.	Professor	Non-linear optics, optical processes and materials such as semiconductor quantum dots (nanostructures), porphyrins and dyes

Visits abroad by faculty members

Sl. No.	Name of Faculty Member	Country Visited	Date	Purpose of Visit
1	Prahallad Padhan	France	1 May to 30 June 2013	To take up project collaborative research work at CRISMAT Laboratory, Caen
2	P.B. Sunil Kumar	Ljubljana Slovenia	14-18 May 2013	To attend the Physics of Complex Colloids Complids 2013
3	P.B. Sunil Kumar	University of Southern Denmark	19-31 May 2013	Research collaboration
4	Neelima M. Gupte	Brazil	9-12 May 2013 and 19 May 2013 to 15 June 2013	To visit universities
5	Neelima M. Gupte	Peru	13-17 May 2013	To attend the International Workshop in Advanced Computational and Experimental Techniques in Nonlinear Dynamics
6	Suresh Govindarajan	Portland, USA	17 May to 3 June 2013	Private visit
7	Sudakar Chandran	Singapore	30 June to 5 July 2013	To attend and present paper at the 7th International Conference on Materials for Advanced Technologies (ICMAT 2013).
8	Sudakar Chandran	Germany	8 July to 2 August 2013	To take up DAAD Fellowship for a research stay and study visit
9	Dillip Kumar Satapathy	Germany	21 June to 3 July 2013	To take up collaborative research work

10	S. Ramaprabhu	London	9–17 June 2013	To discuss progress of research and plan future work of the project at Imperial College
11	S. Ramaprabhu	UK	11–12 June 2013	To present paper at International Hypothesis Hydrogen and Fuel Cell Conference at Herriot Watt University, Edinburgh
12	R. Nirmala	South Korea	17 June to 16 July 2013	To take up collaborative research including the joint project on CuAl_2O_4 at Seoul National University, Seoul
13	P.B. Sunil Kumar	USA	27 June to 10 July 2013	To visit Research Laboratory of Computational Soft Matter and Biological Physics at the University of Memphis, Tennessee
14	Prem B. Bisht	Ireland	4–18 July 2013	To undertake a research visit focusing on laser spectroscopy within the National Centre from Plasma Science and Technology at Dublin City University, Glasnevin
15	Mahaveer Kumar Jain	Hungary	25 July to 7 August 2013	To visit MTA–TTK at Budapest, for project work
16	Mahaveer Kumar Jain	Hungary	3–20 August 2013	To attend Indo-Hungarian joint project
17	Suresh Govindarajan	New York, USA	24 August to 1 September 2013	To attend Workshop on Mock Modular Forms, Moonshine and String
18	Rajesh Narayanan	Taiwan	24 August 2013 to 7 September 2013	To attend conference, Quantum Condensation 13
19	A. Subrahmanyam	Germany	30 September to 11 October 2013	To attend a meeting at Institute for New Materials
20	A. Subrahmanyam	France	30 September to 11 October 2013	To attend a meeting of EU-India Science, Technology and Innovation Cooperation Days 2013
21	Prem B. Bisht	Japan	24–25 October 2013	To attend the IRAGO Conference 2013—Interdisciplinary Research and Global Outlook
22	Arul Lakshminarayan	Japan	27 October 2013 to 1 November 2013	To attend the Workshop on Random Matrix Theory—Fluctuation in Complex Systems (RMT2013)
23	M.S. Ramachandra Rao	Institute of Physics, London, UK	14 March 2014	To attend annual board meeting as an editorial board member (from India) of <i>J. Phys. D. Appl. Phys.</i>
24	M.S. Ramachandra Rao	University of Montpellier, France	15–31 March 2014	Research visit
25	A. Subrahmanyam	Braunschweig, Germany	17–21 March 2014	To select invited talks and contributory papers for the International Conference on Plasma and Surface Engineering (PSE) 2014

Visits of faculty members in India

Sl. No.	Name of Faculty Member	Institution Visited	Date	Purpose of Visit
1	V.R.K. Murthy	K.L. University, Vijayawada	4–5 April 2013	To participate as a resource person in the 2-day national conference “Nano Science and Technology for Device Applications”
2	Prafulla Kumar Behera	TIFR, Mumbai	4 May to 2 June 2013	To participate in a software workshop on “INO”
3	R. Nirmala	NIT, Trichy	4–5 April 2013	To give a talk, “The World of Rare Earth Intermetallics—Past, Present and the Future?” at the National Conference on Advanced Materials and Applications NCAMA’13
4	M. Dhanabalan, Technical Officer Gr. I	Jaipur	25–27 September 2013	To present paper at the Ninth International Conference on Intelligent Unmanned Systems
5	S. Ramaprabhu	Delhi	11–12 November 2013	Project meet

6	S. Ramaprabhu	Delhi	17–18 November 2013	Indo–UK meet
7	S. Ramaprabhu	Hyderabad	2–4 December 2013	To attend project meeting
8	V. Balakrishnan	Bharathiar University, Coimbatore	9–10 December 2013	To organize state-level “Workshop on Theoretical Physics”
9	C. Thiagarajan, Sr. Technician	TIFR, Mumbai	7–11 January 2014	DAE-BRN workshop, “Cryogenic Facility Management”

Honours and awards obtained by faculty members

Sl. No.	Name of Faculty Member	Name of Award	Awarded by	Awarded for	Date of Award
1	Prafulla Kumar Behera	“Bharat Jyothi Award”, along with Certificate of Excellence	India International Friendship Society, New Delhi	For most coveted institutional and globally reputed presentation	15 April 2013

Books, monographs authored/co-authored

Sl. No.	Name of Faculty Member	Title	Publisher	Author/Co-author
1	S. Ramaprabhu	Graphene: The Wonder Material	SAMS Publishers	S. Ramaprabhu/Rupali Nagar

Fellowships of academies and professional societies

Sl. No.	Name of the Society	Name of Faculty Member	Year of Admission
1	Optical Society of India (OSI)	Prem B. Bisht	2013

Journal editorial boards

Sl. No.	Name of Faculty Member	Position (Editor/Member)	Journal
1	S. Ramaprabhu	Member	<i>Journal of Nanofluids</i> (American Scientific Publishers)
2	S. Ramaprabhu	Editor-in-Chief	<i>Graphene</i> (American Scientific Publishers)
3	Nandigana Krishna Mohan, Senior Scientific Officer Gr. I	Nominated as an Associate Editor for 2012–2013, appreciated by the Board of Governors of the Institute	<i>Optics and Lasers in Engineering</i>

4.16.4. Design and Development Activities

Research publications of faculty members

1. Ryan Davis, P.B. Sunil Kumar, Maria Sperotto and Mohamed Laradji (2013) Predictions of phase separation in three component lipid membranes by the MARTINI force field. *J. Phys. Chem. B* 117: 4072–4080.
2. V. Hari Babu, J. Rajeswari, S. Venkatesh and G. Markandeyulu (2013) Effect of thickness on structural and magnetic properties in nanocrystalline Fe-thin films. *J. Magn. Magn. Mater.* 339: 1–5.
3. Arul Lakshminarayan. On the number of real eigen values of products of random matrices and an application to quantum entanglement. *J. Phys. A: Math. Theor.* 46: 152003. doi:10.1088/1751-8113/46/15/152003
4. D. Liventsev et al. (Belle Collaboration). Search for heavy neutrinos at Belle. *Phys. Rev. D* 87: 071102 (James Frederick Libby was a member of the collaboration.)
5. Rajib Mondal, R. Nirmala, J. Arout Chelvane and A.K. Nigam (2013) Magnetocaloric effect in the rare earth intermetallic compounds RCoNi (R = Gd, Tb, Dy and Ho). *Journal of Applied Physics* 113: 17A930.
6. M. Aich, D.K. Hazra, L. Sriramkumar and T. Souradeep (2013) Oscillations in the inflation potential: Complete numerical treatment and comparison with the recent and forthcoming CMB datasets. *Physical Review D* 87: 083526.
7. Brajesh Tiwari, M. Krishna Surendra and M.S. Ramachandra Rao (2013) HoCrO₃ and YCrO₃: A comparative study. *J. Phys.: Condens. Matter* 25: 216004 (7pp). doi:10.1088/0953-8984/25/21/216004
8. Abhrajit Laskar, Rajeev Singh, Somdeb Ghose, Gayathri Jayaraman, P.B. Sunil Kumar and R. Adhikari (2013) Hydrodynamic instabilities provide a generic route to spontaneous biomimetic oscillations in chemomechanically active filaments. *Nature Scientific Reports* 3: 1964. doi:10.1038/srep01964

9. J. Balakrishnan, G. Koon, Manu Jaiswal, A.H. Castro Neto and B. Ozyilmaz (2013) Colossal enhancement of spin-orbit coupling in weakly hydrogenated graphene. *Nature Physics* 9: 284.
10. Udaysinh T. Bhosale, K.V. Shuddhodan and Arul Lakshminarayan (2013) Using partial transpose and realignment to generate local unitary invariants. *Phys. Rev. A*. 87: 052311.
11. Trilochan Sahoo, B. Majumdar, V. Srinivas, M. Srinivas, T.K. Nath, G. Agarwal (2013) Improved magnetoimpedance and mechanical properties on nanocrystallization of amorphous $\text{Fe}_{68.5}\text{Si}_{18.5}\text{Cu}_1\text{Nb}_3\text{B}_9$ ribbons. *Journal of Magnetism and Magnetic Materials* 343: 13–20.
12. Jayachandra Bingi, Anita R. Warriar, and C. Vijayan (2013) Raman mode random lasing in ZnS- β -carotene random gain media. *Appl. Phys. Lett.* 102: 221105. doi:10.1063/1.4807668
13. Eswaraiah Varrla, Krishnan Balasubramanian and S. Ramaprabhu. Graphene functionalized carbon nanotubes for conducting polymer nanocomposites and their improved strain sensing properties. *Macromolecular Chemistry and Physics*. (accepted 2013)
14. P. Tamilarasan, T.S. Remya and S. Ramaprabhu. Ionic liquid functionalized graphene for carbon dioxide capture. *Graphene*. (accepted 2013)
15. Pranati Nayak, P.N. Santosh and S. Ramaprabhu. Electrochemical sensor for dopamine based on ZnO decorated graphene nanosheets as the transducer matrix. *Graphene* (accepted 2013)
16. P. Divya, Tessy Theres Baby, B.P. Vinayan, N. Rajalakshmi and S. Ramaprabhu (2013) Carbon nanostructure grown using bi-metal oxide as electrocatalyst support for proton exchange membrane fuel cell. *International Journal of Hydrogen Energy* 38: 6460–6468.
17. Z.Q. Liu et al. (Belle Collaboration). Study of $e^+e^- \rightarrow \pi^+\pi^-J/\psi$ and observation of a charged charmonium-like state at Belle. *Phys. Rev. Lett.* 110: 252002. (published 17 June 2013) (James Frederick Libby was a member of the collaboration.)
18. B.H. Kim et al. (Belle Collaboration) Search for an H -dibaryon with a mass near $2m_\Lambda$ in $\Upsilon(1S)$ and $\Upsilon(2S)$ decays. *Phys. Rev. Lett.* 110: 222002. (published 31 May 2013) (James Frederick Libby was a member of the collaboration.)
19. S. Akbar Ali, P.B. Bisht*, B.S. Kalanoor, A. Patra, and S. Kasiviswanathan (2013) Enhanced SWIR third order nonlinearity of gold nanoparticle embedded ZnO thin films. *J. Opt. Soc. Am. B* 30: 2226–2232.
20. C.K.R. Namboodiri, P.B. Bisht, Ramesh, Mukkamala, B. Chandra and I.S. Aidhen (2013) Solvatochromism, multiphoton fluorescence, and resonance energy transfer in a new octupolar dye-pair. *Chemical Physics* 415: 190–195.
21. Susma, Anbarasan, S. Ramaprabhu et al. Synthesis and characterization of surface enhanced Raman scattered gold nano particles. *International Journal of Nanomedicine*. (accepted July 2013)
22. Ch. Venkatesh, V. Srinivas, V.V. Rao, S.K. Srivastava, P. Sudheer Babu (2013) Effect of site disorder on the electronic properties of Fe_2VAl Heusler alloy. *Journal of Alloys and Compounds* 577: 417–425.
23. C.P. Shen et al. (Belle Collaboration). Measurement of exclusive $\Upsilon(1S)$ and $\Upsilon(2S)$ decays into vector-pseudoscalar final states. *Phys. Rev. D* 88: 011102 (James Frederick Libby was a member of the collaboration.)
24. Sushma Kalmodia, S. Ramaprabhu et al. (2013) Synthesis and characterization of surface-enhanced Raman-scattered gold nanoparticles. *International Journal of Nanomedicine*.
25. Tessy Theres Baby, Adarsh Kaniyoor, Puthusseri Divya and S. Ramaprabhu (2013) Synthesis of carbon nanohelices using Sn based bi-metal oxide catalysts. *Journal of Nanoscience and Nanotechnology*.
26. P.U.E. Onyisi et al. (CLEO Collaboration). Improved measurement of absolute hadronic branching fractions of the D_s^+ meson. *Phys. Rev. D* 88: 032009 (James Frederick Libby was a member of the collaboration.)
27. Sibidanov et al. (Belle Collaboration). Study of exclusive $B \rightarrow X_u \ell \nu$ decays and extraction of $|V_{ub}|$ using full reconstruction tagging at the Belle experiment. *Phys. Rev. D* 88: 032005 (James Frederick Libby was a member of the collaboration.)
28. S. Padmaja, S. Jayakumar, R. Balaji, C. Sudakar, M. Kumaravel, V. Rajendran, M. Rajkumar and A.V. Radhamani. (2013) Structural and optical properties of CdS/PEO nanocomposite solid films. *Materials Science in Semiconductor Processing* 16(6): 1502–1507.
29. P.S.V. Mocherla, C. Karthik, R. Ubic, M.S. Ramachandra Rao and C. Sudakar (2013) Tunable bandgap in BiFeO_3 nanoparticles: The role of microstrain and oxygen defects. *Applied Physics Letters* 103(2): 022910.
30. G. Ramesh, V. Subramanian and V. Sivasubramanian (2013) Dielectric and piezoelectric properties of $(0.90-x)\text{PIN}-x\text{PT}-0.10\text{PZ}$ ternary system near morphotropic phase boundary. *Journal of Electroceramics* 30. doi:10.1007/s10832-013-9841-9
31. J. Magesh, P. Murugavel, R.V.K. Mangalam, K. Singh, Ch. Simon and W. Prellier (2013) Role of rare earth on the Mn^{3+} spin reorientation in multiferroic $\text{Ho}_{1-x}\text{Lu}_x\text{MnO}_3$. *J. Appl. Phys.* 114: 094102.

32. Lorenzo Mino, Diego Gianolio, Fabrizio Bardelli, Carmelo Prestipino, E. Senthil Kumar, F. Bellarmine, M. Ramanjaneyulu, Carlo Lamberti and M.S. Ramachandra Rao. (2013) EXAFS and XANES investigation of (Li, Ni) codoped ZnO thin films grown by pulsed laser deposition. *J. Phys. Condens. Matter* 25: 385402.
33. Kapil Gupta, Shubra Singh, Monica Ceretti, M.S. Ramachandra Rao and Werner Paulus. (2013) Scaling of extended defects in nano-sized Brownmillerite $\text{CaFeO}_{2.5}$. *Phys. Stat. Solidi A* 210: 1771.
34. B. Aubert, et al. [BABAR Collaboration]. The BaBar detector: Upgrades, operation and performance. *Nuclear Instruments and Methods In Physics Research* 729: 615–701 (P.K. Behera was a member of the collaboration.)
35. G. Aad, et al. [ATLAS Collaboration]. Measurement of the inclusive jet cross-section in pp collisions at $\sqrt{s} = 2.76$ TeV and comparison to the inclusive jet cross-section at $\sqrt{s} = 7$ TeV using the ATLAS detector. *European Physical Journal C* 73(8): 1–56 (P.K. Behera was a member of the collaboration.)
36. G. Aad, et al. [ATLAS Collaboration]. Improved luminosity determination in pp collisions at $\sqrt{s} = 7$ TeV using the ATLAS detector at the LHC. *European Physical Journal C* 73(8): 1–39 (P.K. Behera was a member of the collaboration.)
37. K.R. Prathyusha, Abhijit P. Deshpande, Mohamed Laradji and P.B. Sunil Kumar (2013) Shear-thinning and isotropic-lamellar-columnar transition in a model for living polymers. *Soft Matter* 9(42): 9983–9990. (cover article)
38. Brajesh Tiwari, A. Dixit, R. Naik, G. Lawes, and M.S. Ramachandra Rao (2013) Dielectric and optical phonon anomalies near antiferromagnetic ordering in LaCrO_3 : A possible near room temperature magnetodielectric system. *Appl. Phys. Lett.* 103: 52906. doi: 10.1063/1.4824919
39. R. Radhika, N. Kumar, K.J. Sankaran, Ravikumar Dumpala, S. Dash, M.S. Ramachandra Rao, D. Arivuoli, A.K. Tyagi, N.H. Tai and I-Nan Lin (2013) Extremely high wear resistance and ultra-low friction behaviour of oxygen-plasma-treated nanocrystalline diamond films. *J. Phys. D: Appl. Phys.* 46: 425304 (10 pp.). doi:10.1088/0022-3727/46/42/425304
40. K. Chilikin et al. (Belle Collaboration). Experimental constraints on the spin and parity of the $Z(4430)^+$. *Phys. Rev. D* 88: 074026 (James Frederick Libby was a member of the collaboration.)
41. M. Prim et al. (Belle Collaboration). Angular analysis of $B^0 \rightarrow \phi K^*$ decays and search for CP violation. *Phys. Rev. D* 88: 072004 (James Frederick Libby was a member of the collaboration.)
42. Chistov et al. (Belle Collaboration). First observation of Cabibbo-suppressed Ξ_c^0 decays. *Phys. Rev. D* 88: 071103 (James Frederick Libby was a member of the collaboration.)
43. E. White et al. (Belle Collaboration). Measurement of the wrong-sign decay $D^0 \rightarrow K^+ \pi^- \pi^+ \pi^-$. *Phys. Rev. D* 88: 051101 (James Frederick Libby was a member of the collaboration.)
44. C.P. Shen et al. (Belle Collaboration). Measurement of $e^+e^- \rightarrow \omega \pi^0$, $K^*(892)K^-$ and $K_2^*(1430)K^-$ at \sqrt{s} near 10.6 GeV. *Phys. Rev. D* 88: 052019 (James Frederick Libby was a member of the collaboration.)
45. A. Zupanc et al. (Belle Collaboration). Measurements of branching fractions of leptonic and hadronic $D_s^+ \pi^-$ meson decays and extraction of the $D_s^+ \pi^-$ meson decay constant. *JHEP* 1309: 139 (James Frederick Libby was a member of the collaboration.)
46. A.V. Morozkin, A.V. Knotko, V.O. Yapaskurt, F. Yuan, Y. Mozharivskiy and R. Nirmala (2013) New orthorhombic derivative of CaCu_5 -type structure: RNi_4Si compounds (R=Y,La, Ce, Sm,Gd–Ho), crystal structure and magnetic properties. *Journal of Solid State Chemistry* 208: 9–13.
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49. J. Dalseno et al. (Belle Collaboration). Measurement of the CP violation parameters in $B^0 \rightarrow \pi^+ \pi^-$ decays. *Phys. Rev. D* 88: 092003 (James Frederick Libby was a member of the collaboration.)
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62. Tessy Theres Baby, Adarsh Kaniyoor, Puthusseri Divya, and Sundara Ramaprabhu (2014) Synthesis of carbon nanohelices using Sn based bi-metal oxide catalysts. *Journal of Nanoscience and Nanotechnology* 14: 1–10.
63. B. Manmadha Rao and Somnath C. Roy (2014) Solvothermal processing of amorphous TiO_2 nanotube arrays: Achieving crystallinity at a lower thermal budget. *The Journal of Physical Chemistry C* 118(2): 1198–1205.
64. B. Renganathan and A.R. Ganesan (2014) Fiber optic gas sensor with nanocrystalline ZnO. *Opt. Fiber Technol.* 20: 48–52.
65. B. Renganathan, D. Sastikumar, A. Chandra Bose, R. Srinivasan and A.R. Ganesan (2014) Nanocrystalline cerium oxide coated fiber optic gas sensor. *Cur. Appl. Phys.* 14: 467–471.
66. K. Belous et al. (Belle Collaboration). Measurement of the τ -lepton lifetime at Belle. *Phys. Rev. Lett.* 112: 031801 (James Frederick Libby was a member of the collaboration.)
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69. Jayachandra Bingi, Anita R. Warriar, and C. Vijayan (2014) Enhancement of photoluminescence from defect states in ZnS random photonic crystal: An effect of electronic and photonic mode coupling. *Journal of Applied Physics* 115(4): 043105.
70. Sunil K. Mishra and Arul Lakshminarayan. Resonance and generation of random states in a quenched Ising model. *Euro Phys. Lett.* 105: 10002. (published online 27 January 2014).
71. Sudhakara Reddy Bongu, Prem B. Bisht, Tran V. Thu and Adarsh Sandhu (2014) Charge transfer in graphene oxide–dye system for photonic applications. *AIP Conf. Proc.* 1585: 21.
72. Subhendu Kumar Manna and V. Srinivas (2014) Magnetic and magnetoimpedance studies on controlled Joule annealed amorphous $Co_{73}Fe_{4.5}Ni_{0.5}Mn_{0.5}Nb_{0.5}Si_{4.2}B_{16.8}$ alloy. *J. Appl. Phys* 115: 17A324.
73. X.H. He et al. (Belle Collaboration). Search for the process $e^+e^- \rightarrow J/\psi X(1835)$ at \sqrt{s} approximately equal 10.6 GeV. *Phys. Rev. D* 89: 032003. (published 24 February) (James Frederick Libby was a member of the collaboration.)
74. Chiranjib Nayek, A. Tamilselvan, Ch. Thirimal, P. Murugavel and S. Balakumar (2014) Origin of enhanced magnetization in rare earth doped multiferroic bismuth ferrite. *J. Appl. Phys.* 115: 073902. doi:10.1063/1.4865958
75. A. Tamilselvan, S. Balakumar, M. Sakar, Chiranjib Nayek, P. Murugavel and A.K. Saravana Kumar (2014) Role of oxygen vacancy and Fe–O–Fe bond angle in compositional, magnetic, and dielectric relaxation on Eu-substituted $BiFeO_3$ nanoparticles. *Dalton Trans.* doi:10.1039/c3dt52260a
76. Ch. Thirimal, P. Murugavel and V. Subramanian (2014) Impedance spectroscopic analysis of the organic ferroelectric—diisopropylammonium bromide (DIPAB). *Current Applied Physics* 14: 688–690.
77. Pranati Nayak, P.N. Santhosh and S. Ramaprabhu. Enhanced electron field emission of one-dimensional highly protruded graphene wrapped carbon nanotube composites. *J. Phys. Chem. C.* (accepted 2014)

Distinguished visitors to the department

Sl. No.	Name and Designation of Visitor	Purpose of Visit	Period
1	Dr. K. Vijay Kumar, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany	Invited seminar, "Active Mechanochemical Patterning of the PAR system in <i>C. elegans</i> "	9 April 2013
2	Prof. R.R. Puri, IIT Bombay	Physics colloquium, "Non-Classical States of Light and Qubits in Precision Measurements and Quantum Information Processing"	10 April 2013
3	Dr. Junaid Masud Laskar, Max Planck Institute for Dynamics and Self Organization, Goettingen, Germany	Invited seminar, "Structural Transitions of Colloids under Magnetic Field and Compressive Stress"	18 April 2013
4	Dr. Paul Ramesh Thangaraj, Senior Consultant, Cardiothoracic and Transplant Surgeon, Apollo Hospitals, Chennai Adjunct Faculty, Department of Physics, IIT Madras	Invited seminar, "Concept to Experiment: Our Experience with Lung Assist Device"	25 April 2013
5	Dr. R. Rajesh, IMSc, Chennai	Invited Seminar on "Isotropic–Nematic–Disorder Transitions in a System of Long Rods on a Lattice"	26 April 2013
6	Dr. Hemachander Subramanian, Moffitt Cancer Center, Tampa, Florida, USA	Invited seminar, "Uniaxial Magnetic Anisotropy in a Crystal of Cubic Symmetry: The Mystery of Lowered Symmetry"	1 May 2013
7	Prof. Harshawardhan Wanare, Department of Physics, IIT Kanpur	Invited seminar, "Nonlinear Dynamical Phenomena in All-Optical Bistable Systems"	31 May 2013
8	Dr. Debasish Choudhuri, IIT Hyderabad	Invited seminar, "Fluctuating Thermodynamics of Active Brownian Particles"	12 June 2013
9	Prof. J.K. Rath, Utrecht University, The Netherlands	Invited seminar, "Nanocrystalline Silicon: Past, Present And Future"	9 July 2013
10	Dr. Soumen Basak, Service d'Astrophysique (Sap), Centre d'Etudes de Saclay, France	Invited Seminar, "A Needlet ILC Analysis of WMAP 9-Year Data"	16 July 2013
11	Dr. H.S. Jeevan, University of Goettingen, Germany	Invited seminar, "Novel States at Magnetic Instability"	30 July 2013
12	Prof. Henning Flaecher, HH Wills Physics Lab, University of Bristol	Invited seminar, "Recent SUSY Results from CMS"	2 August 2013
13	Dr. Rudra Sekhar Manna, Goethe University, Frankfurt, Germany	Invited seminar, "Low-Dimensional Frustrated Quantum Magnets"	6 August 2013
14	Dr. R. Parthasarathy, Hyderabad Central University	Invited seminar, "Parallels in Interplay between Superconductivity and Ferromagnetism: From Bulk Systems to Heterostructures"	8 August 2013
15	Prof. Paul Keyes, Wayne State University, USA	Invited seminar, "Generalizing the Nematic Order Parameter"	13 August 2013
16	Prof. Naba K. Mondal, Tata Institute of Fundamental Research, Mumbai	Invited Seminar, "Neutrinos: A New Window to the Universe"	14 August 2013
17	Mr. Kanhaiya Lal Pandey, Raman Research Institute, Bangalore	Invited seminar, "Primordial Magnetic Fields and Early Structure Formation in the Universe"	20 August 2012
18	Dr. Ayan Mukhopadhyay, Ecole Polytechnique, France	Invited seminar "Generalized Landau-Silin Theory and Boltzmann-Vlasov Equations for Non-Fermi Liquids"	22 August 2013
19	Dr. P. Mohanapriya, Anna University	Invited seminar, "Electrospun Ce-Doped SnO ₂ Hollow Nanofibers for Gas Sensing Application"	22 August 2013
20	Prof. Sulabha Kulkarni, IISER, Pune	Invited seminar, "Nanocomposites and Their Applications"	23 August 2013
21	Dr. Bharathwaj Muthuswamy, Milwaukee School of Engineering, Milwaukee, WI, USA	Invited seminar "Chaotic Dynamics of the Muthuswamy–Chua System"	23 August 2013
22	Dr. Venkata Ramanaiah Dantham, Polytechnic Institute of New York University, Brooklyn, New York	Invited seminar, "Hybrid Photonic Atoms as Biosensors: Fulfilling the Promise of Single Protein Detection Without Labels"	4 September 2013

23	Dr. Ranjith Padinhateeri, Biosciences and Bioengineering, IIT Bombay	Invited seminar, "Collective Force Generated by Multiple Biofilaments Can Exceed the Sum of Forces Due to Individual Ones"	10 September 2013
24	Prof. G. Srinivasan, Department of Physics, Oakland University, Rochester, Michigan	Invited seminar, "Self-assembly and Field-Directed Assembly of Multiferroic Nanostructures and Studies on Electro-magnetic Interactions"	27 September 2013
25	Dr. Siddharth Parameswaran, University of California, Berkeley	Invited seminar, "A Typology for Topological Liquids"	27 September 2013
26	Dr. Rukmini Kumar, Principal Scientist, Vantage Research, Chennai	Invited seminar, "Mathematical Modeling in Pharmaceutical R&D"	27 September 2013
27	Prof. Harish C. Pant, National Institute of Neurological Disorders and Stroke National Institutes of Health, USA	Invited seminar, "Prevention of Neurodegeneration by Novel Peptides Derived from Neuron Specific Kinase (Cdk5) Activator Protein"	30 September 2013
28	Dr. Auditya Sharma, International Institute of Physics, UFRN, Natal, RN, Brazil	Invited seminar, "Memory as Order-Parameter on a Cayley Tree"	4 October 2013
29	Prof. G. Ravindra Kumar, Tata Institute of Fundamental Research, Mumbai	Physics colloquium, "Scaling the Light Intensity Frontier"	9 October 2013
30	Dr. Ujjwal Sen, HRI, Allahabad	Invited seminar, "Beyond Quantum Correlations"	21 October 2013
31	Dr. V. Jayalakshmi, Georgia Institute of Technology, Atlanta, USA	Invited seminar, "Nematic Tori– Breakup, Stabilization And Textures"	5 November 2013
32	Prof. Sriram Ramaswamy, TIFR Centre for Interdisciplinary Science, Hyderabad	Physics colloquium, "Collective Motility and its Imitations: Flows in the Cell, Active Grains, Chemotactic Colloids"	6 November 2013
33	Dr. Jayeeta Bhattacharyya, Helmholtz Zentrum Dresden Rossendorf, Germany	Invited seminar, "Intraband Carrier Dynamics in Quantum Dots and Quantum Wells"	13 November 2013
34	Dr. Sivarama Krishnan, IBM's Semiconductor R&D Center, Bangalore	Invited seminar, "Ultrafast Meets Ultrasmall: Emergent Collective Dynamics in Nanoscale Atomic Systems"	29 November 2013
35	Dr. Miha Fosnarich, Department of Electrical Engineering, University of Ljubljana, Slovenia	For research collaboration	10–24 November 2013
36	Dr. Colm Fallon, National Centre for Science Plasma & Technology, Dublin City University, Ireland	To join a research group of Dr. P B Bisht as PDF under IRSES project "Ultrafast Photonic Processes and Interactions"	4 months w.e.f 15 November 2013
37	Dr. V. Balakrishnan, Professor Emeritus, IIT Madras	Delivered special lecture, "50 Years of CHAOS", at open day programme at IIT Madras	23 November 2013
38	Dr. Sayantari Ghosh, Bose Institute, Kolkata	Invited seminar, "Bistable Gene Circuits: Signature, Origin and Consequences"	2 December 2013
39	Dr. Rudolf Gross, Technische Universitat Munchen, Germany	Invited seminar, "Physics with Pure Spin Currents"	10 December 2013
40	Dr. Julia Ann Kornfield, California Institute of Technology, Pasadena, USA	Invited seminar, "New Elastomers for Optimal Vision: The Light-Adjustable Intraocular Lens"	10 December 2013
41	Dr. Werner Paulus, University of Montpellier-2, Montpellier	Invited seminar, "Scaling of Structural and Electronic Ordering in Non-stoichiometric Oxides: Where Are the Limits?"	12 December 2013
42	Dr. Somnath Bharadwaj, IIT Kharagpur	Invited seminar, "Probing the Universe with Redshifted HI 21-cm Radiation"	12 December 2013
43	Prof. Je-Geun Park, Seoul National University, Seoul, Korea	Invited seminar, "Neutron Scattering Studies for Strongly Correlated Materials: Few Examples"	13 December 2013
44	Prof. Michael Lorenz, Linnestr.5, D-0410 Leipzig, Germany	Invited seminar, "Crytallization of Fresnoite Scintillator Thin films by Laser Direct Writing and by In-Situ CO ₂ Laser Heating"	13 December 2013
45	Dr. Nirmal Raj, University of Oregon	Invited seminar, "Supersymmetry and Dark Matter at the LHC"	19 December 2013
46	Dr. Vikram S. Vijayaraghavan, University of California, Davis, USA	Invited Seminar on "Growth Dominates Choice in Network Percolation"	24 December 2013

47	Prof. T. Venkatesan, Director, Nano Core, National University of Singapore	Invited seminar, "PLD-History and Some of the Nuances of the Technique" Invited seminar, "Magnetism, Exchange and Magnetic Scattering in Oxides"	3 January 2014
48	Dr. Srinidhi Tirupattur, UIUC, USA	Invited seminar, "Patterns of Electromagnetic Response in Topological Semimetals"	3 January 2014
49	Dr. Tissa C. Gunaratne, Clark-MXR Inc., USA	Invited seminar, "Shapeshifter: Reconfigurable Tool for Ultrafast Spectroscopic Studies"	6 January 2014
50	Dr. Zahera Jabeen, University of Michigan, Ann Arbor, Michigan, USA	Invited seminar, "Patterning of Cone Mosaic Array in Zebrafish Retina"	9 January 2014
51	Dr. Allan Hansen, University of Southern Denmark	Research collaboration	15 January to 15 February 2014
52	Prof. Subhendra Mohanty, Physical Research Laboratory, Ahmedabad	Invited seminar, "Curvature Coupling in Inflation Models"	16 January 2014
53	Dr. Arjun Menon, University of Oregon	Invited seminar, "SUSY in Light of the 8 TeV LHC"	28 January 2014
54	Prof. Ajit Srivastava, Institute of Physics, Bhubaneswar	Physics colloquium, "Investigating Cosmic String Theories with Liquid Crystal Experiments"	29 January 2014
55	Dr. Suratna Das, TIFR, Mumbai	Invited seminar, "CSL as a Plausible Mechanism for Quantum to Classical Transition of Primordial Perturbations"	30 January 2014
56	Dr. Sudhakar Yarlagadda, Saha Institute of Nuclear Physics (SINP), Kolkata	Invited seminar, "Polaron Dynamics and Decoherence in an Interacting Two-Spin System Coupled to Optical Phonon Environment"	30 January 2014
57	Dr. Arijit Saha, University of Basel, Switzerland	Invited seminar, "Novel Transport Phenomena in Hybrid Junctions of Nanowires"	4 February 2014
58	Dr. Prabha Mandayam, IMSc, Tharamani, Chennai	Invited seminar, "Incompatibility and Complementarity in Quantum Information Theory"	5 February 2014
59	Dr. M.H. Modi, RRCAT, Indore	Invited seminar, "Recent Scientific Activities and Possibilities for External Users at INDUS Synchrotron X-ray Source"	10 February 2014
60	Dr. Mridupawan Deka, Joint Institute of Nuclear Research, Russia	Invited seminar, "Proton Spin Crisis and Quark & Gluon Angular Momenta Contributions"	13 February 2014
61	Dr. Sandipan Sengupta, RRI, Bangalore	Invited seminar, "Topological Parameters in Gravity"	27 February 2014
62	Dr. Yuu Hirose, Toyohashi University of Technology, Japan	Invited seminar, "Discovery of Unique Phytochrome-Related Photoreceptors in Cyanobacteria"	27 February 2014
63	Dr. Kalpataru Pradhan, University of Augsburg, Germany	Invited seminar, "Magnetically Disorder Interfaces in Magnetic Tunnel Junctions"	6 March 2014
64	Prof. Ronny Thomale, University of Wuerzburg, Germany	Invited seminar, "Wire Deconstructionism and Classification of Topological Phases"	18 March 2014
65	Dr. Debarati Chatterjee, Max-Planck Institute for Polymer Research, Mainz, Germany	Invited seminar, "Theoretical Studies of the Thermodynamics and Kinetics of Selected Single Molecule Systems"	27 March 2014
66	Dr. Jayakumar Balakrishnan, National University of Singapore	Invited seminar, "Spin Transport Studies in Graphene and Other 2D Materials"	28 March 2014
67	Prof. B.P. Das, Indian Institute of Astrophysics, Bangalore	Physics colloquium, "Present and Future Atomic Clocks"	26 February 2014
68	Prof. Ravin Bhatt, Princeton University and the Institute for Advanced Study, Princeton	Physics colloquium, "Electrons in Flatland: Recent Developments and New Vistas"	5 March 2014
69	Prof. Murukeshan Vadakke Matham, Nanyang Technological University, Singapore	Physics colloquium, "Multi Modality Imaging: A Nanoscale Perspective for Diagnostic Biomedical Imaging and Sensing"	14 March 2014
70	Prof. Narayanan Menon, Tata Institute for Fundamental Research for Interdisciplinary Sciences, Hyderabad	Physics colloquium, "Flexibility and Form: Wrinkles, Folds, and Crumples in Elastic Sheets"	26 March 2014

5.1 SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY

5.1.1 Introduction

The Sophisticated Analytical Instrument Facility (SAIF), established with financial support from the Department of Science and Technology, provides sophisticated instrument and equipment facilities to students, scientists, researchers and faculty members from IIT Madras as well as academia, educational institutions, national laboratories, R&D establishments and industries from all over India in general and south India in particular. The primary purpose is to enable the scientific community to collect data using extremely sophisticated analytical equipment for their advanced research at very nominal rates.

SAIF also undertakes, on specific request, servicing of sophisticated analytical instruments at other institutions and provides training for operation and maintenance of such equipment.

Periodically, SAIF conducts workshops, seminars and conferences to disseminate information on new trends in sophisticated instrumentation and methods in addition to providing training and hands-on experience. Students from educational institutions, colleges and schools visit SAIF regularly to be given exposure to sophisticated instruments for analysis.

5.1.2. Faculty Members and Their Activities

Faculty and Staff

Name	Major Areas of Specialization (Only 3 Areas)
Professor	
S.S. Bhattacharya (Head)	Nanocrystalline materials—synthesis and characterisation, superplasticity— theoretical and experimental, metal forming
Scientific Officers	
R. Murugesan	Mass spectroscopy, chromatography
Technical Staff	
C. Baby	Nuclear magnetic resonance spectroscopy
K.V. Rama	Thermal imaging and analysis
N. Sivaramakrishnan	Magnetometry
G.R. Kamalnab	Electronics and instrumentation

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

Sl. No.	Coordinators	Title	Period and Venue
1	R. Murugesan	FT-IR & FT-Raman Techniques in Structure, Bonding and Chemical Property Studies (national workshop)	17–18 July 2013, SAIF, IIT Madras
2	C. Baby and N. Sivaramakrishnan	Theory and Applications of ESR (EPR) Spectroscopy (workshop)	10–11 December 2013, SAIF, IIT Madras

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

Sl. No.	Name of Faculty Member	Title	Period	Venue
1	R. Murugesan	Types of Microalgae for Biofuel Extraction	10 February 2014	HKRH College, Uthamapalayam, Theni

Special lectures delivered at other Institutions by faculty members

Sl. No.	Name of Faculty Member	Topic of Lecture	Institution	Date
1	R. Murugesan	GC-MS and Its Applications	Hindustan University, Chennai	10 March 2014
2	Babu Varghese	Green Chemistry: Frontiers and Challenges	NIT Calicut, Kerala	19 June 2013
3	Babu Varghese	Imaging the Molecule Using X-Ray Diffraction	Calicut University	20 June 2013
4	Babu Varghese	X-ray Crystallography and Its Applications	Bharathiar University, Coimbatore	5–6 March 2014
5	Babu Varghese	Single Crystal Diffraction	Cochin University of Science and Technology (CUSAT), Cochin, Kerala	24–26 March 2014

Industrial consultancy projects (ongoing and new)

Sl. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of ₹)
1	R. Murugesan	GC-MS Analysis	Chemical Industries	5.0
2	N. Sivaramakrishnan	Material Characterization	Renault Nissan Technology (P) Ltd, IIT Madras Research Park, Chennai	8.0
3	C. Baby	Structural Investigations on Seaweeds	CMFRI, Kochi	4.14

5.1.3. Research and Consultancy

Research publications

Number of papers published in refereed international journals: 15

Papers published in refereed international journals

1. P. Nagapandiselvi, C. Baby and R. Gopalakrishnan (2014) A new Schiff base, (*E*)-4-((4-chlorophenylimino)methyl)-2-methoxyphenol: Crystal structure, thermal behaviour, solid state fluorescence, DFT calculations and FT NMR spectral analysis. *Journal of Molecular Structure* 1056–1057: 110–120.
2. R. Balasubramanian, H. Iqbal, R.V. Gopal and C. Baby (2013) Synthesis and preliminary evaluation of a focused chalcone library for anti-inflammatory activity. *Indian Journal of Pharmaceutical Education and Research* 47: 31–37.
3. R.S. Anju, Dipak Kumar Roy, Bijan Mondal, K. Yuvaraj, C. Arivazhagan, Koushik Saha, Babu Varghese and Sundargopal Ghosh (2014) Reactivity of diruthenium and dirhodium analogues of pentaborane(9): Agostic versus boratrane complexes. *Angewandte Chemie International Edition* 53(11): 2873–2877.
4. Amrita Srivastava, Manoharan Mathiselvam, Babu Varghese and Duraikkannu Loganathan (2014) Examination of the influence of C5-hydroxymethyl group and configurations of hydroxyl groups at C2, C3, and C4 stereocentres on the N-glycosidic torsion: Synthesis and X-ray crystallographic investigation of N-(D-ribosepyranosyl)alkanamides as N-glycoprotein linkage region analogs. *Carbohydrate Research* 384: 37–45.
5. Balasubramanian Sridhar, Krishnan Ravikumar and Babu Varghese (2014) Tetra- and hexahydrates of bis(adeninium) zoledronate *Acta Crystallographica, Section C: Structural Chemistry* 70(1): 67–74.
6. Dipak Kumar Roy, Subrat Kumar Barik, Bijan Mondal, Babu Varghese and Sundargopal Ghosh (2014) A novel heterometallic μ_3 -boride cluster: Synthesis and structural characterization of $[(\eta^5\text{-C}_5\text{Me}_5\text{Rh})_2\{\text{Co}_6(\text{CO})_{12}\}(\mu\text{-H})(\text{BH})\text{B}]$. *Inorganic Chemistry* 53(2): 667–669.
7. Kiran Kumarvarma Chakrahari, Dudekula Sharmila, Subrat Kumar Barik, Bijan Mondal, Babu Varghese and Sundargopal Ghosh (2014) Hypoelectronic metallaboranes: Synthesis, structural characterization and electronic structures of metal-rich cobaltaboranes. *Journal of Organometallic Chemistry* 749: 188–196.
8. Amrita Srivastava, Babu Varghese and Duraikkannu Loganathan (2013) Exploring the effect of bioisosteric replacement of carboxamide by a sulfonamide moiety on N-glycosidic torsions and molecular assembly: Synthesis and X-ray crystallographic investigation of N-(β -D-glycosyl)sulfonamides as N-glycoprotein linkage region analogs. *Chemistry: A European Journal* 19(52): 17720–17732.
9. N. Sivakumar, N. Kanagathara, Babu Varghese, G. Bhagavannarayana, S. Gunasekaran and G. Anbalagan (2014) Structure, crystal growth, optical and mechanical studies of poly bis (thiourea) silver (I) nitrate

- single crystal: A new semi organic NLO material. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 118: 603–613.
10. Manoharan Mathiselvam, Duraikkannu Loganathan and Babu Varghese (2013) Synthesis and characterization of thiourea- and urea-linked glycolipids as low-molecular-weight hydrogelators *RSC Advances* 3(34): 14528–14542.
 11. Dudekula Sharmila, L. Yuvaraj, Subrat Kumar Barik, Dipak Kumar Roy, Kiran Kumarvarma Chakrahari, Rongala Ramalakshmi, Bijan Mondal, Babu Varghese and Sundargopal Ghosh (2013) New heteronuclear bridged borylene complexes that were derived from [$\{Cp^*CoCl\}_2$] and mono-metal-carbonyl fragments. *Chemistry: A European Journal* 19(45): 15219–15225.
 12. Elumalai Sundaravadivel, Kandaswamy Muthusamy and Babu Varghese (2013) Synthesis, characterization and electrochemical behavior of new acyclic mono and binuclear copper (II) complexes: DNA binding and cleavage studies. *Polyhedron* 61: 33–44.
 13. Jeelani Basha Shaik, Ramkumar Venkatachalam, Babu Varghese and Sethuraman Sankararaman (2013) Synthesis and structure of trans-bis(1,4-dimesityl-3-methyl-1,2,3-triazol-5-ylidene)palladium(II) dichloride and diacetate: Suzuki-Miyaura coupling of polybromoarenes with high catalytic turnover efficiencies. *Journal of Organic Chemistry* 9: 698–704.
 14. Dipak Kumar Roy, R.S. Anju, Babu Varghese and Sundargopal Ghosh (2013) Reactivity of dirhodium analogues of octaborane-12 and decaborane-14 towards transition-metal moieties. *Organometallics* 32(6): 1964–1970.
 15. Anadi Singhamahapatra, Laxminarayan Sahoo, Babu Varghese and Duraikkannu Loganathan (2014) Synthesis of glycopeptoid sulfonamides diversifying *N*-glycopeptide linkage region mimics. *RSC Advances* doi:10.1039/C4RA01009D (accepted).

6.1. CENTRE FOR CONTINUING EDUCATION

6.1.1. Introduction

The Centre for Continuing Education (CCE) at IIT Madras was established in June 1986. The centre facilitates the meeting of the following objectives of IIT Madras by the faculty members:

- Providing knowledge-based technological services to satisfy the needs of society and industry
- Helping build national capabilities in science, technology, humanities, management, education and research.

The new Centre for Teaching Learning was been established in 2011 under the auspices of the Centre for Continuing Education with the following objectives:

- To be a centre of excellence and innovation in the teaching learning processes (TLPs) 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.

The Institute faculty effectively participate and contribute to the Institute's commitment of providing a broad base of learning opportunities through the following major activities:

- Academic programmes (M.Tech. and Ph.D.) under the Quality Improvement Programme (QIP) (AICTE sponsored)
- Short-term courses (STCs) under the QIP (AICTE sponsored)
- Curriculum development activities under the Curriculum Development Cell
- Book Writing Scheme (BWS) under the Curriculum Development Cell
- Continuing Education Programmes (CEPs) for industry professionals.
- User Oriented Programmes (UOPs) for specific industries for their engineers to acquire a higher degree (M.Tech.)
- National Programme on Technology Enhanced Learning (NPTEL)
- Educational Technology Cell (ETC)
- Central Photographic Section
- Activities related to M.B.A. budget
- Conference/seminar/workshop/symposium facilitation
- Allotment of ISBN numbers for text books and other faculty publications
- Facilitating enhancement of the TLPs through the Centre for Teaching Learning.

6.1.2. Quality Improvement Programme (QIP)

The faculty development activities of AICTE, funded by the 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. and Ph.D., facilitates the development of the careers of faculty members of AICTE-approved technical institutions in the country.

Since the inception, 604 faculty members from other institutions have obtained Ph.D. degrees, and 567 faculty members have obtained M.Tech. degrees under this programme up to 2012–2013. The following table provides data relating to the numbers of engineering college teachers who have benefited from the QIP:

Items	Ph.D.			M.Tech.		
	Admitted	On Roll	Awarded	Admitted	On Roll	Awarded
2012–2013	15	68	7	17	28	13
Since inception	619	—	498	636	—	580

6.1.3. Short-Term Training Programmes under QIP (AICTE-STC)

The organisation of short-term courses under the QIP for faculty members of engineering institutions is supported by the AICTE, and it opens up avenues for sharing the expertise of our faculty, with rich experience in new and upcoming areas. Fifteen courses with a total duration of 16 weeks were conducted under this programme during 2013–2014, and 406 teachers of engineering institutions participated in these programmes. From 1970–1971 to 2013–2014, 341 programmes have been held, and 8199 teachers from various engineering colleges have participated in and benefited from these courses.

Programmes held during 2013–14 under AICTE-STC

Sl. No.	Department(s)	Coordinator(s)	Title	Date	Participants
1	Civil Engineering Engineering Design	Lelitha Devi V. C.S. Shankar Ram	Application of Systems and Control Theory to Intelligent Transportation Systems	7–11 October 2013	14
2	Electrical Engineering	R. Sarathi Shanthi Swarup	Recent Trends in Condition Monitoring of Power Apparatus and System	14–18 October 2013	32
3	Engineering Design	Palaniappan Ramu Sandipan Bandyopadhyay Sarvana Kumar G.	Product Design and Engineering	21–25 October 2013	29
4	Management Studies	Thenmozhi M. Krishna Prasana P.	Financial Modeling and Analytics 2013	5–9 November 2013	36
5	Civil Engineering	Soumendra Nath Kuiry Venu Chandra S.M. Shiva Nagendra	Modelling Approaches for Free Surface Flow Dynamics and Water Quality Management	18–23 November 2013	33
6	Applied Mechanics	Shaikh Faruque Ali A. Arokiarajan	Introduction to Smart Systems	25–29 November 2013	32
7	Electrical Engineering	Boby George Mohanasankar S. Jagadeesh Kumar V.	Foundation for Research in Biomedical Instrumentation	6–10 January 2014	25
8	Mathematics Applied Mechanics	A.J. Shaiju Prasad Patnaik B.S.V	Modern Control Perspectives in Solid and Fluid Mechanics	18–22 January 2014	32
9	Civil Engineering	Ligy Philip Ashwin Mahalingam	Environment, Disasters and Risk Reduction	27–31 January 2014	34
10	Electrical Engineering	Deepa Venkitesh Anil Prabhakar	Advances in Optical Fibre Communication	27–31 January 2014	20
11	Mechanical Engineering	Abhijit Sarkar Parag Ravindran	Advanced Mechanics	3–7 February 2014	21
12	Aerospace Engineering	R. Velmurugan Nagendra Gopal K.V.	Recent Trends in Composites Manufacturing	10–14 February 2014	28
13	Chemical Engineering	Basavaraj M. Gurappa Abhijit P. Deshpande	Colloids and Interfaces with Polymers and Surfactants	3–7 March 2014	20
14	Management Studies	Thenmozhi M.	Improving the Quality of Research and Making Mid-course Correction	25–29 March 2014	30
15	Chemical Engineering	Kannan A. Ravi Krishna R.	Statistics for Experimentalists	17–29 March 2014	20
Total					406

6.1.4. Curriculum Development Cell (CDC) Activities

Support is available under the CDC, funded by AICTE, for activities such as course structuring, preparation of instructional and resource materials (such as monographs and laboratory manuals), conducting workshops and development of computer-aided instruction packages to explore interesting avenues of innovation in design and delivery of courses. The materials developed under these activity can be made available for use by the various engineering institutes in the country. During the year under review, 11 CDC Activities, including workshops, were organized.

Sl. No.	Department	Coordinator(s)	Title of CD Cell Activity	Date of the Workshop	Sponsoring Agency
1	Management Studies Civil Engineering	V. Vijayalakshmi Arun Menon	Self Awareness and Higher Goals in Education 2013 (SAHGE)	17–21 June 2013	AICTE
2	Ocean Engineering	Srinivasan Chandrasekaran	Dynamic Analysis and Design of Offshore Structures	1 October 2013 to 31 March 2014	AICTE
3	Electrical Engineering	Anil Prabhakar	Classroom Clicker	9 months	AICTE
4	Management Studies	V. Vijayalakshmi	Faculty Ego States and Learner Evaluation of Teaching Effectiveness	1 October 2013 to 31 March 2014	AICTE
5	Chemical Engineering	A. Kannan	Manual for CH3520 Heat and Mass Transfer Laboratory	1 October 2013 to 31 March 2014	AICTE
6	Management Studies	M.P. Ganesh	Predictors of Effective Learning among Undergraduate Engineering Students: Role of Learning Styles and Teacher Effectiveness	1 October 2013 to 31 March 2014	AICTE
7	Physics	C. Vijayan	Winter Workshop on Physics Education	16–21 December 2013	AICTE
8	Electrical Engineering	H. Ramachandran	Symposium on Electromagnetics and Engineering Education	3 January 2014	AICTE
9	Electrical Engineering	R. Sarathi	Research Themes of High Voltage Technology	8 February 2014	AICTE
10	Civil Engineering Chemical Engineering	Sachin S. Gunthe R. Ravikrishna	Atmospheric Aerosol Physics, Measurements and Sampling Techniques	13–17 January 2014	AICTE
11	Management Studies	Lata Dyaram T. J Kamalanabhan	International Conference on Excellence in School Education	27–28 January 2014	AICTE

6.1.5. Book Writing Scheme (BWS)

The BWS is designed to encourage writing of textbooks and monographs by teachers. Fifty-four books have so far been published under this scheme by our faculty members. In addition, under the Golden Jubilee Book Writing Scheme, about 24 books were published. During the year under review, the following books were in different stage of progress:

Sl. No.	Author	Department	Title of Book
1	Mahesh Kumar	Electrical Engineering	<i>Power Quality in Power Distribution Systems</i>
2	Evangeline Manickam	Humanities and Social Sciences	<i>The Great Gatsby</i> (Orient Black Swan Study Texts Series)
3	Suresh Chaudhury	Humanities and Social Sciences	Hindi version of the book <i>Foreigners and Foreign Languages in India: A Sociolinguistic History</i>

6.1.6. Continuing Education Programme (CEP)

Several short-term courses were organized under the CEP for professionals from industry and R&D establishments on a need-basis. The programmes were tailor-made to suit the requirements of industries. CEP courses are divided into two categories i.e. Internal CEP and External CEP courses. From the date of inception, i.e., between 1980 and 2013, 1298 short-term courses have been conducted, which have benefited 41,346 participants. Approximately 80–85 such programmes are organized every year. During 2013–2014, 81 short-term courses were conducted, and 11,790 participants attended these programmes. The following short-term courses were conducted under the CEP during 2013–2014:

Internal CEP for the year 2013–2014

Sl. No.	Department	Coordinator(s)	Title of the Proceedings	Duration	No. of Participants
1	Humanities and Social Sciences	Sudarsan padmanabhan	Workshop on Corporate Social Responsibility	18 January 2013	50

2	Mechanical Engineering	K. Srinivasa Reddy	Design and Simulation of Solar Thermal Power Plants	24–26 June 2013	20
3	Civil Engineering	Manu Santhanam	Training Programme for Engineers from SPCL	7–9 March 2013	18
4	Biotechnology	Mukesh Doble Sathyanarayana Gummadi	Summer Workshop on Bioprocess Engineering	8–13 July 2013	30
5	Central Library	Mahendra N. Jadhav Harish Chandra	NMICET Koha Workshop at Central Library, IIT Madras	12–15 July 2013	35
6	Civil Engineering	K.N. Satyanarayana Koshy Varghese Ashwin Mahalingam	Awareness Programme on Lean Construction and Virtual Modelling for URC Ltd.	24 May 2013	20
7	Civil Engineering	K.N. Satyanarayana Raghavan N. Koshy Varghese	Lean Construction Training and Implementation Programme	6 June to 15 December 2013	30
8	Metallurgical and Materials Engineering	M. Kamaraj	Steel and Mechanical Testing	22 June 2013	11
9	Electrical Engineering	R. Pasumarthy A.D. Mahindrakar N.P. Bhatt	Training Programme for Faculty from VJTI in Systems and Control	12–16 July 2013	4
10	Management Studies	Rahul R. Marathe	Modern Manufacturing Systems	12–13 July 2013	25
11	Electrical Engineering	Ashok Jhunjhunwala	Digital Signal Processor and Applications	5–22 August 2013	55
12	Civil Engineering & Chemical Engineering	Sachin S. Gunthe R. Ravikrishna	Atmospheric Aerosol Physics, Measurements and Sampling Techniques	13–17 January 2014	20
13	Management Studies	M. Thenmozhi T.J. Kamalanabhan	Workshop on Fundamentals of Research in Engineering and Management	24–31 August 2013 and 7–14 September 2013	20
14	Management Studies	T.J. Kamalanabhan M. Thenmozhi	Supervisory Development Programme	2–7 September 2013	25
15	Management Studies & Computer Science and Engineering	T.J. Kamalanabhan Lata Dyaram R.P. Sundarraj	Architect Readiness Programme (ARP) for Verizon India	30 August to 8 November 2013	20
16	Electrical Engineering	S. Karmalkar	Introduction to Research Methodologies	30–31 August 2013	29
17	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	25–26 September 2013	20
18	Management Studies	Rupashree Baral T.J. Kamalanabhan	Managerial Effectiveness Programme	16–18 September 2013	20
19	Ocean Engineering	Sannasiraj K. Murali	Short-Term Course on Ocean Science and Technology	17–18 September 2013	7
20	Management Studies	M.P. Ganesh	Teacher Leadership: Extending the Role of a Teacher within and beyond the Classroom	8–9 November 2013	30
21	Civil Engineering	Ravindra Gettu K.N. Satyanarayana	Short Course for Fourth Batch (Year 1) of ALDEP Engineers of Shapoorji Pallonji	3–9 October 2013	14
22	Engineering Design	Palaniappan Ramu Sandipan Bandyopadhyay G. Saravana Kumar	Product Design and Engineering	21–25 October 2013	10
23	Management Studies	V. Vijayalakshmi Rupashree Baral M.P. Ganesh	Nurturing the Inner You: For Personal, Group and Organizational Excellence	22–23 November 2013	30

24	Civil Engineering	J. Murali Krishnan	Bituminous Characterization and Pavement Construction	26–28 September 2013	20
25	Electrical Engineering	Ashok Jhunjunwala	Digital Signal Processor and Applications	30–14 September 2013	45
26	Metallurgical and Materials Engineering	Kamaraj Ranjith Bauri	E-Foundry: Casting Design and Simulation	4–5 October 2013	40
27	Civil Engineering	Ashwin Mahalingam	Training Programme on Construction Technology and Management for SPCL Engineers	21–25 October 2013	14
28	Management Studies	M. Thenmozhi	FDP on Multivariate Data Analysis	5–6 December 2013	25
29	Management Studies	M. Thenmozhi	FDP on Time Series Analysis	7 December 2013	25
30	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	28–29 November 2013	20
31	Civil Engineering	R.G. Robinson T. Thyagaraj	Laboratory Testing of Soils	25–29 November 2013	15
32	Management Studies	Lata Dyaram Prof. T.J. Kamalanabhan	Leadership Development Programme (LDP-2013)	2–4 December 2013	25
33	Civil Engineering & Mechanical Engineering	S.M. Shiva Nagendra M.P. Maiya	Winter School on Indoor Air Quality and Health Effects	9–14 December 2013	50
34	Metallurgical and Materials Engineering	M. Kamaraj	Steel Casting	9 November 2013	20
35	Electrical Engineering	V. Jagadeesh Kumar	Short-Term Training programme for Laboratory Staff Members	2–13 December 2013	4
36	Civil Engineering	Balaji Narasimhan	Internal CEP on Introductory and Advanced SWAT Workshops	30 December 2013 to 3 January 2014	20
37	Management Studies	G. Arun Kumar Rahul R. Marathe Saji Mathew	Programme for Management Trainees (IMM and Finance) of HAL	6 November to 2 December 2013	22
38	Electrical Engineering	Ashok Jhunjunwala	Digital Signal Processor and Applications	9–24 December 2013	50
39	Civil Engineering	Shiva Nagendra Soumendra Nath Kuiry Venu Chandra	Modelling Approaches for Free Surface-Flow and Water Quality Management	18–23 November 2013	2
40	Aerospace Engineering	Nandan Kumar Sinha	Short Course on Elementary Flight Dynamics	16–20 December 2013	-
41	Applied Mechanics & Mathematics	Prasad Patnaik B.S.V. A.J. Shaiju	Modern Control Perspectives in Solid and Fluid Mechanics	18–22 January 2014	15
42	Metallurgical & Materials Engineering	K.C. Hari Kumar	Advanced Thermodynamics Course	January–March 2014	35
43	Management Studies	M. Thenmozhi	MDP on Growth by Acquisitions	8 January 2014	20
44	Civil Engineering Mechanical Engineering	S.M. Shiva Nagendra M.P. Maiya	Winter School on Indoor Air Quality and Health Effects (DST)	9–13 December 2013	-
45	Civil Engineering	S.M. Shiva Nagendra M.P. Maiya	Winter School on Indoor Air Quality and Health Effects (DST)	9–13 December 2013	-
46	Electrical Engineering	Srirama Srinivas	Variable Frequency Drives and Machine Control	13–18 January 2014	15
47	Management Studies	T.J. Kamalanabhan V. Vijayalakshmi	Talent Acquisition Strategies and Personality Assessment	9–11 January 2014	22

48	Electrical Engineering	N. Lakshmi Narasamma	Control of Permanent Magnet AC Machines	3–5 April 2014	26
49	Civil Engineering	Radhakrishna G. Pillai	Advanced Concrete Technology	23–28 February 2014	50
50	Computer Science and Engineering	Narayanaswamy John Augustine	Algorithms and Computation	13–15 February 2014	60
51	Management Studies	T.J. Kamalanabhan Lata Dyaram	Management Capacity Building for HODs	29–31 January 2014	30
52	Civil Engineering	K. Anantha Narayanan	Training Programme for Engineers from Shapoorji Pallonji Co. Ltd.	10–14 March 2014	30
53	Management Studies	G. Arun Kumar L. Prakash Sai	Career Development Programme for Amazon	3–7 March 2014	22
54	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	27–28 February 2014	25
55	Civil Engineering	Manu Santhanam	Training Programme for SPCL Engineers	6–8 March 2014	21
56	Mechanical Engineering	N. Siva Prasad	Advanced Finite Element Methods	18–27 March 2014	30
57	Civil Engineering	Basavaraj M. Gurappa Abhijit P. Deshpande	Colloids and Interfaces with Polymers and Surfactants	3–7 March 2014	4
58	Mechanical Engineering	N. Siva Prasad Ratna Kumar Annabattula	Mechanical Engineering Design	22 March to 12 July 2014	-
59	Management Studies	M. Thenmozhi	Workshop on Improving the Quality of Research	25–29 March 2014	20
60	Metallurgical and Materials Engineering	Uday Chakkingal Anand Krishna Kanjarla	Sheet Metal Forming	28 March 2014	-
61	Civil Engineering	Indumati M. Nambi	MSW Dumpsite Fires: Environmental Monitoring, Mitigation and Control	16 April 2014	100
62	Management Studies	L.S. Ganesh	Creativity and Innovation for Organizational Excellence	31 August 2013	46
63	Management Studies	L.S. Ganesh G. Arun Kumar	Management Center Innsbruck (MCI)	31 March to 11 April 2014	21
64	Biotechnology	Mukesh Doble Sathyanarayana Gummadi	Summer Workshop on Problem Solving Skills in Bioprocess Engineering	16–20 June 2014	-
65	Engineering Design	Venkatesh Balasubramanian	Out Bound Training	28 March 2014	23
Total					1555

External CEP for the year 2013–2014

Sl. No.	Department	Coordinator	Title of the Proceedings	Duration	No. of Participants
1	Ocean Engineering	S. Nallayarasu	Training Programme on Analysis and Design of Offshore Platform Structures	24–28 June 2013	20
2	Civil Engineering	Ashwin Mahalingam Thillai Rajan K.N. Satyanarayana	Basic Training Programme on Public Private Partnership	12–14 June 2013	26
3	Management Studies	Rahul R. Marathe Usha Mohan	Univariate and Multivariate Analytics	10 July to 13 September 2013	20

4	Humanities and Social Sciences	Shreesh Chaudhary	Teacher Training in Teaching Multimedia Course in English	5–7 September 2013	—
5	Electrical Engineering	Shanthi Pavan	Advanced Analogue Circuit Design	2–6 December 2013	20
6	Chemical Engineering	R. Raghunathan Shankar Narasimhan	Nonlinear State Estimation	6–10 January 2014	—
7	Electrical Engineering	S. Aniruddhan	CMOS Oscillator Based Fractional-N PLL Design	25–26 November 2013	—
8	Applied Mechanics Engineering Design	Sivakumar M. Srinivasan Srikanth Vedantam	Plasting and Viscoplasticity: Foundations and Modelling	16–17 December 2013	10
9	Computer Science and Engineering	D. Janakiram	Building Large Scale Software Systems	13–20 December 2013	40
10	Mechanical Engineering	N. Ramesh Babu	Transformational Skills and Systems Thinking Training Programme	February–July 2014	40
12	NPTEL	Andrew Thangaraj	Online Certification Programme	March–July 2014	10,000
14	Engineering Design	C.S. Shankar Ram	Fundamentals of Automotive Systems	27–28 March 2014	—
15	Engineering Design	Venkatesh Balasubramanian	Process Engineering Training Programme—AMX Module 4	1 January to 31 March 2014	11
16	Applied Mechanics	K. Arul Prakash	Basics of CFD	29 March 2014	23
Total					10,235

6.1.7. User-Oriented Programme (UOP)

UOPs are designed to suit the requirements of industrial organizations. Two-year M.Tech. programmes are being organized to meet the specific needs of associated industries. The following programmes are being offered:

- M.Tech. in Construction Technology and Management in the Civil Engineering Department (for while industry and L&T since...)
- M.Tech. in Automotive Technology in the Mechanical Engineering Department (auto Industry, since...)
- M.Tech. in Ocean Technology and Management in the Ocean Engineering Department
- M.Tech. in Offshore Structural Engineering
- Postgraduate Diploma Programme in Metro Rail Technology and Management

Sl. No.	Department	Coordinator	Course Number	Title
1	Civil Engineering	K.N. Satyanarayana Koshy Varghese K. Ananthanarayanan	CCE/CEP/UoP/02/CE/ KNS/KV/06-07	M.Tech. (Construction Technology and Management) (eighth batch)
			CCE/CEP/UoP/03/CE/ KNS/KV/06-07	M.Tech. (Construction Technology and Management)
			CCE/CEP/UoP/14/CE/ KV&KNS & KA/11-12	M.Tech. (Construction Technology and Management) (14th batch)
			CCE/CEP/UoP/15/ KA&KV/CE/12-13	M.Tech. (Construction Technology and Management) (15th batch)
			CCE/CEP/UoP/16/ KA&KV/CE/13-14	M.Tech. (Construction Technology and Management) (16th batch)
2	Mechanical Engineering	M.S. Shunmugam Ramesh Babu	CCE/CEP/UoP/04/ME/ MSS/NRB/06-07	Automotive Technology
3	Ocean Engineering	S.K. Bhattacharyya	CCE/CEP/UoP/05/OE/ SKB/06-07	Ocean Technology and Management
4	Ocean Engineering	S. Nallayarasu S.K. Bhattacharyya	CCE/CEP/UoP/12/OE/ SN-SKB/11-12	M.Tech. (Offshore Structural Engineering)
5	Civil Engineering	R.G. Robinson	CCE/CEP/UoP/13/CE/ RGR/11-12	Postgraduate Diploma Programme in Metro Rail Technology and Management

6.1.8. National Programme on Technology-Enhanced Learning (NPTEL): A Joint Initiative of the IITs and IISc, Funded by MHRD

NPTEL is India's largest technical dissemination (through information and communication technology (ICT)) programme in the higher education sector. Its main objective is to increase the reach of high-quality engineering and sciences education across our country to transform India into a strong and vibrant knowledge economy.

NPTEL-Phase I is a pioneering joint initiative of seven IITs and IISc, Bangalore in developing 136 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 at our website (<http://npTEL.iitm.ac.in>) and through YouTube (<http://www.youtube.com/iit>).

NPTEL—Phases II and III: Currently more than 314 courses (web + videos) developed under Phase II are also available at the NPTEL web site and YouTube. Preparations are under way for adding more than 500 new courses. These courses cover various disciplines, including technology, engineering, management, sciences and humanities, and are expected to be completed by 2013. IIT Madras is the coordinating institute for this project.

Accessing NPTEL Courses

All courses developed under NPTEL Phases I and II and the list of courses (along with the syllabi) for the various courses developed under NPTEL Phase II are available to everyone free of cost and without any formal registration at the NPTEL website at www.npTEL.iitm.ac.in.

For the benefit of students and faculty members, free and easy downloads of web and video-based courses are available from the NPTEL web site in three formats, namely MPEG4, FLV and 3GP, and are 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. Institutions can use the government-subsidized VPN bandwidth available through NMEICT.

NPTEL Usage Statistics

NPTEL is being extensively used by students, faculty members and working professionals. The NPTEL channel in YouTube has crossed more than 88.5 million upload views. The NPTEL site has recorded more than 21.9 million visits since its inception in 2006.

NPTEL Online Live Courses

Two live online courses, “Digital System Design” and “Basic Electrical Circuits”, were conducted this semester from IIT Madras. Several Institutions and some individuals participated in these courses.

Web Studio

The web studio at IIT Madras is equipped with state-of-the-art studio facilities, hardware and software for production of educational multimedia videos. The web studio assists faculty members with the creation of electronic course content, supplements, lecture notes, quizzes etc. and enables them to be available to the student community. All NPTEL video and web courses created by faculty members of IIT Madras are recorded and edited here. In addition to the creation and maintenance of the NPTEL web site, other departmental web sites, conference web sites and conference and meeting brochures are created at the web studio. The web studio has extended its services to include the following:

- Meeting the curriculum demands of IIT Hyderabad and IIT Mandi: IIT Madras faculty members have used the facilities available at the web studio, provided under the National Knowledge Network, to teach courses for IIT Hyderabad and IIT Mandi students.
- Supporting 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 facilitate 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
- Provision of a state-of-the-art video conferencing facility, under the Country-wide Classroom Network, for faculty members, research scholars and students to use as virtual classrooms and for video conferencing
- Conducting educational programmes and research initiatives for school children

6.1.9. Educational Technology Cell

CCE—TV Studios

Two broadcast-quality digital TV studios, equipped with state-of-the-art equipment such as digital video cameras, vision mixers/special effects generators, audio mixers and a presentation computer connected through VAG to PAL converters, tele-prompters, etc., are available in a classroom atmosphere lit by Cine-cool-lights.

Two 3-CCD portable video camcorder units for outdoor video coverage and a digital non-linear editing machine are available for video production. All video courses created by faculty members are recorded here.

CCE maintains three remote controlled video cameras with a remote control room at IC&SR Auditorium for video recording and video streaming.

6.1.10. 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 convocations and conferences held in the Institute. Besides these, the section renders assistance to UG and PG students, research scholars and faculty members of all the departments/centres for their activities, including technical photography, preparation of posters for conferences, etc. In-house processing and printing work is confined to black and white photography. After recent modernization, this section has been providing digital/high resolution photography for all the needs of the Institute.

The Central Photographic Section has undertaken 79 departmental job orders and covered 44 functions during 2012–2013. In addition, the Central Photographic Section has contributed a large percentage of its photographs to the Heritage Centre. Passport size photos of the graduands at the 2013 convocation were made ready for their degree certificates.

6.1.11. Conference Registration for the Year of 2013–2014

The Institute, vide its circular No. F.R.150/3/2011 dated 31 March 2011, gave the instruction that all national and international conferences, workshops, seminars, symposiums, etc. organized by IIT Madras faculty members have to be registered with CCE. Details of such programmes registered accordingly with CCE for 2013–2014 are given below:

Sl. No.	Department	Coordinator	Title of the Conference	Duration	No. of Participants
1	Civil Engineering	A. Boominathan R.G. Robinson M. Muttharam	The Fourth Indian Young Geotechnical Engineers Conference	17–18 May 2013	100
2	Biotechnology	M. Michael Gromiha	Second IIT Madras–Tokyo Tech Joint Symposium on Techniques and Applications of Bioinformatics	27–28 September 2013	56
3	Civil Engineering	Gitakrishnan Ramadurai	National Workshop on Urban Freight Transport: A Global Perspective	24–25 June 2013	80
4	Management Studies	Rahul R. Marathe R.K. Amit Usha Mohan	17th Annual International Conference of Society of Operations Management	20–22 December 2013	150
5	Biotechnology	Mukesh Doble S. Mahalingam	International Conference on Cancer Biology	30 January to 22 February 2014	250
6	Civil Engineering	A. Veeraragavan Murali Krishnan	National Workshop on Warm Mix Asphalt Challenges and Way Forward: A workshop at IIT Madras for Practitioners	8–9 August 2013	100
7	Mathematics	S. Sundar	International Workshop on Recent Advances in PDE Modeling and Computation	21–25 October 2013	50
8	Civil Engineering	Gitakrishnan Ramadurai	National Workshop on Sustainable Urban System	30–31 July 2013	80

9	Physics	A. Subrahmanyam	International Workshop on Coatings and Surfaces for Biomedical Engineering	16–19 February 2014	100
10	Ocean Engineering	V. Sundar	International Workshop on River Mouths Tidal	15–16 September 2013	100
11	Chemistry	B. Rajakumar Ramesh L. Gardas	Institutional symposium, Chemistry in-House Symposium-2013	21 August 2013	350
12	Computer Science and Engineering	N.S. Narayanaswamy John Augustine	Eighth International Workshop on Algorithms and Computation	13–15 February 2014	100
13	Civil Engineering	Lelitha Devi	International Symposium on Intelligent Transportation Systems	9–10 December 2013	120
14	Aerospace Engineering Applied Mechanics	R.I. Sujith Mahesh V. Panchagnula	International Workshop on Experimental Methods in Thermoacoustics	3–7 February 2014	50
15	Humanities and Social Sciences	Sudhir Chella Rajan	Fourth National Research Conference on Climate Change	26–27 October 2013	140
16	Biotechnology	R.S. Verma	National Symposium on Biomers 2013	30–31 October 2013	250
17	Mechanical Engineering	G.L. Samuel T. Sundarajan	International Colloquium on Materials, Manufacturing and Metrology (ICMMM'14)	7–8 August 2014	200
18	Mathematics	S.H. Kulkarni R. Rama	National Symposium on Mathematical Methods and Applications	22 December 2013	100
19	Biotechnology	Doble Mukesh	Regional Workshop on Harnessing Nanotechnology to Combat Infection Disease: From Bench to Bedside	9 November 2013	30
20	Management Studies	T.J. Kamalanabhan Lata Dyaram	International Conference on Excellence in School Education	27–28 January 2014	210
21	Ocean Engineering	V. Sundar S.A. Sannasiraj K. Murali	International Conference on Asian and Pacific Coasts (APAC 2015)	7–10 September 2015	200
22	Electrical Engineering	E. Bhattacharya A. Das Gupta N. Das Gupta	International Conference on MEMS and Sensors (ICMEMSS 2014)	18–20 December 2014	300
23	Electrical Engineering	Bijoy Krishna Das	National Short-Term Course on NEMS and Nanophotonics	24–28 February 2014	25
24	Ocean Engineering	S.K. Bhattacharya P. Krishnankutty	International Conference on Computational and Experimental Marine Hydrodynamics (MARHY 2014)	3–4 December 2014	80
25	Ocean Engineering	V. Anantha Subramanian P. Krishnankutty	International Workshop on Modern EFD and CFD Applications in Ship Design (ECASD 2014)	1–2 December 2014	60
26	Electrical Engineering	Ramkrishna Pasumarthy Arun D. Mahindrakar K. Sridharan	International conference, Indian Control Conference	5–7 January 2015	225
27	Chemistry	S. Sankararaman S. Baskaran	National conference, J-NOST 2014	4–6 December 2014	160
28	Metallurgical and Materials Engineering	Uday Chakkingal	International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering (ISRS—2014)	11–13 December 2014	250

29	Physics	Arul Lakshminarayan Neelima Gupta	International Conference on Dynamics Days Asia Pacific	21–24 July 2014	150
30	Civil Engineering	A. Boominathan R.G. Robinson Subhadeep Banerjee	Sixth International Geo Tech. Symposium on Disaster Mitigation in Special Geo Environmental Condition	21–23 January 2015	200
31	Chemistry	Ramesh Gardas	Chemistry in-House Symposium-2014	13 August 2014	300
Total					4566

6.1.12. ISBN Number Allotment

Allotment of ISBN numbers is one of CCE's activities, and this year we have so far allotted eight ISBN numbers, the details of which are provided in the accompanying table.

Sl. No.	Department	Author(s)	Title of the Proceedings	ISBN Number
1	Physics	S. Ramaprabhu M.S. Ramachandra Rao S.S. Bhattacharya	<i>E-Proceedings of Fourth International Conference on Advanced Nanomaterials 2012 (ANM 2012)</i>	978-93-80689-16-6
2.	Mechanical Engineering	N. Siva Prasad A. Ratnakumar Swaminathan Narasimha Sankar Krishna Pillai	<i>Proceedings of the International Conference on Computer Aided Engineering 2013</i>	978-93-80689-17-3
3.	Ocean Engineering	K. Murali V. Sundar K. Srinivasan	<i>Proceedings of 18th Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering—HYDRO 2013 International</i>	978-93-80689-18-0

6.1.13. Teaching Learning Centre (TLC) and the Faculty Development Programmes Organized

The TLC, possibly the first of its kind among higher technical institutions in the country, was established in 2011. The centre has its own premises on Level-V of the Central Library Building. The activities and the programmes conducted by the TLC so far are described in the following.

Activities

- The second anniversary of the TLC was celebrated on 23 August 2013. A panel discussion on the theme “Is teaching an art or science?” was held. Prof. Shreepad Karmalkar was the moderator, and Profs. Krishniah, Vijayan and Preeti Aghalyam and Dr.Thillai Rajan were the panelists. Our Director, Prof. Bhaskar Ramamurthi, delivered the valedictory address. About 15 faculty members participated.
- Dr. Edamana Prasad, Core Team Member of the TLC, attended a meeting organized by MHRD, New Delhi in connection with capacity development initiatives for TEQIP Institutions on 23 October 2013.
- A felicitation ceremony was held on 6 September 2013 to felicitate YFRA awardees 2013. Prof. P. Sankaran, former Head of the Department of Electrical Engineering and Chairman, Estate and Works Committee, was the chief guest, and he gave away mementos to the following YFRA awardees:
 1. Dr. Bobby George, Electrical Engineering
 2. Dr. Arokia Rajan, Applied Mechanics
 3. Dr.Madhulika Dixit, Biotechnology
 4. Dr.Kalpana K., Humanities and Social Sciences
- Dr. Rajeev Sukumaran has joined the TLC as Senior Project Consultant for a period of one year. He will take care of multi-dimensional TLC activities including special TLP lectures, training programmes for students, TEQIP programmes, and he will be in charge of the TLC library and newsletter.
- It has been decided to offer a 90 minute interactive session on the theme of “Learning Learning” every Wednesday. Accordingly, Dr.Rajeev Sukumaran, Senior Project Consultant of the TLC has been conducting these interactive sessions. Many faculty members and research scholars regularly attend this session.

Workshops/Special Lectures

- A short-term course titled “Self Awareness and Higher Goals in Education 2013” was conducted from 17 to 21 June 2013 for the benefit of faculty members across the country. A total of 39 participants participated. Dr. Vijayalakshmi and Dr. Arun Menon of the Department of Management Studies and the Department of Civil Engineering were the coordinators. The programme was inaugurated by Prof. David Koilpillai, Dean Planning, IIT Madras. Prof. Devdas Menon, Prof. Mukhopadhyay, TIST Cochin, Prof. L.S. Ganesh, Shri Arul Dev, Shri Manoj Pavitrnan and Shri Parthasarathy Ramanujam delivered special lectures. Prof. Anand Tanikella, Director, Saint-Gobain Research India, Chennai, delivered the valedictory address, and Prof. Devdas Menon distributed certificates to the participants. The programme was well received, and the participants gave very good feedback.
- Prof. Anup K. Ray (IIT Kharagpur), delivered a special lecture titled “Effective Teaching Pedagogies in Higher Education Sector” on 10 July 2013. About 15 faculty members participated.
- The three-day Faculty Development Programme (FDP) on Teaching Methodologies was held from 11 to 13 July 2013, for the benefit of faculty members of other colleges. Dr. Edamana Prasad, of the Department of Chemistry, and Prof. Ajit Kumar Kolar, of the Department of Mechanical Engineering, were the coordinators. A total of 29 participants took part actively. The programme was well received, and the participants gave a very good feedback. The following topics were covered, and the training programme was conducted by the TLC. A few special sessions were handled by experts from Mission 10X, viz., Dr. Joshi and Dr. Sujatha Jagannath:

Sl. No.	Topic	Faculty Members
1	Learning Outcomes	Edamana Prasad (CY)/Nandita Madhavan (CY)
2	Active and Cooperative Learning	Sujatha Srinivasan (ME)/Parag Ravindran (ME)/G. Phanikumar (MME)
3	Assessment Plan	Edamana Prasad (CY)/Rahul Marathe (ME)
4	Growing as a Reflective Teacher	S. Karmalkar (EE), Vijayan (PH)
5	Guidelines and Preparation for “Active Learning Session” Demonstrations	Rajendra Joshi (Wipro, Mission 10X)

- A half-day Teaching Assistant orientation programme was conducted by the TLC Core Team on 26 and 31 July for Teaching Assistants from the departments of Electrical Engineering, Ocean Engineering, Engineering Design, Mathematics and Physics. A total of 90 Teaching Assistants from the Department of Electrical Engineering, two from the Department of Ocean Engineering, 31 from the Department of Engineering Design, 34 from the Department of Mathematics and 40 from the Department of Physics participated. Dr. Deepa Venkitesh (Electrical Engineering) and Prof. S. Karmalkar (Electrical Engineering) were the coordinators.
- A one-day interactive session for faculty members from TEQIP institutions of Tamil Nadu was organized at the request of the Directorate of Technical Education at the TLC on 29 July 2013. A total of 28 TEQIP participants attended. The Dean Academic Courses, Prof. K. Ramamurthy, and the Chairman, CCE were involved in the interactive sessions. The participants were acquainted with the various facilities and research activities at IIT Madras so that they could choose one and interact with a faculty member after the due process.
- Dr. Gandham Phanikumar, TLC Core Team Member, Department of Metallurgical and Materials Engineering delivered a special lecture on the topic “MOODLE: A Course Management Software” on 6 August 2013. This lecture was well received.
- The two-day “Faculty Development Programme (FDP) on Introduction to Research Methodologies” was held on 30 and 31 August 2013 for the benefit of TEQIP faculty members. Prof. S. Karmalkar, of the Department of Electrical Engineering, was the coordinator. There were 29 TEQIP participants who took part actively. The following topics were covered:

Sl. No.	Topic	Faculty Member
1	What and Why of Research	Shreepad Karmalkar
2	Research Literature	M.V. Satyanarayana
3	Thinking Skills	Shreepad Karmalkar
4	Oral Presentation Skills	J. Murali Krishnan
5	Writing Skills	R.I. Sujith
6	Modeling Skills	Pramod S. Mehta
7	Experimental Skills	Ajit Kumar Kolar
8	Management Skills and Ethics	V. Vijayalakshmi
9	Activity	Shreepad Karmalkar

- The three-day “Faculty Development Programme (FDP) on Teaching Learning Methodologies” was held from 16 to 18 October 2013 for the benefit of TEQIP faculty members. Dr. Edamana Prasad, of the Department of Chemistry, was the coordinator. There were a total of 30 TEQIP participants. The following topics were covered, and a few special sessions were handled by experts from Mission 10X, viz., Dr. Rajendra Joshi and Dr. Sujatha Jagannath:

Sl. No.	Topic	Faculty Members
1	Motivation	V. Vijayalakshmi (MS), Pramod S. Mehta (ME)
2	Learning Outcomes	Nandita Madhavan (CY), Smita Srivastava (BT)
3	Active Cooperative Learning	Edamana Prasad (CY), Parag Ravindran (ME)
4	Assessment	Rahul R. Marathe (MS), Edamana Prasad (CY)
5	Growing as a Reflective Teacher	Shreepad Karmalkar (EE), Vijayan (PH)

- National Educational Day is being celebrated on 11 November every year in memory of Shri Maulana Abul Kalam Azad, first Union Education Minister of India. A special lecture has been organized at TLC on 11 November 2013. Dr. M.P. Ganesh, Department of Management Studies delivered a special lecture on the topic “Role of Teacher Leadership in Today’s Education Paradigm”. About 20 faculty members participated in this interactive session.
- Dr. Rajeev Sukumaran, Director, SEED, conducted a one-hour interactive session, “Brain and Learning”, on 26 November 2013. This session was received well, and about 20 faculty members attended.
- Prof. Jeffery Froyd conducted a special session on the topic “How to do Micro Teaching” on 10 December 2013. The aim of the session was to train the core team on how to analyse a video lecture of a teacher and provide feedback to the teacher. About 15 faculty members participated.
- The three-day Faculty Development Programme (FDP) for our faculty was held from 11 to 13 December 2013. Twenty-three faculty members participated. This FDP was planned by the Core Faculty Team of the TLC, IIT Madras, and the interactive sessions were handled by Prof. Jeffery Froyd, Director, Academic Development, Texas A&M University. Members of the TLC Core Faculty also handled a few sessions. Prof. Ajit Kumar Kolar and Dr. Edamana Prasad were the coordinators of FDP-2013. The following topics were covered:
 1. Motivation
 2. Learning to Learn
 3. Learning Outcomes
 4. Assessment
 5. Active and Cooperative Learning
 6. Growing as a Reflective Teacher
 7. Large Classroom Teaching
- The half-day Teaching Assistant Orientation Programme was conducted on 15, 17 and 18 January for the Teaching Assistants from departments of Applied Mechanics, Biotechnology, Chemistry, Electrical Engineering, Mathematics and Physics by the TLC Core team. Forty-five Teaching Assistants from the Department of Applied Mechanics, 57 from the Department of Biotechnology, 86 from the Department of Electrical Engineering, 25 from the departments of Chemistry and Mathematics and 23 from the Physics Department participated. Dr. Deepa Venkitesh (Electrical Engineering) and Prof. S. Karmalkar (Electrical Engineering) were the coordinators. Efforts will be made to repeat this programme at the beginning of every semester.
- Dr. Rajeev Sukumaran, Senior Project Consultant of the TLC conducted a 90-minute Interactive session, “Learning in Large Classrooms”, on 5 March 2014. This lecture was received well. Twelve faculty members and seven research scholars of the Institute participated in the session.
- Dr. Rajeev Sukumaran, Senior Project Consultant of the TLC conducted a 90-minute interactive session, “Learning Theories: What Works in a Classroom” on 12 March 2014. This lecture was received well. Eight faculty members and six research scholars of the Institute participated in the session.
- Dr. Ranganathan Vijayaraghavan conducted a 90-minute interactive session, “Concept Based Learning Development Forum”, on 19 March 2014. This lecture was received well. Nine faculty members and nine research scholars of the Institute participated in the session.
- Prof. Sankararaman, Department of Chemistry conducted a 90-minute interactive session, “Is Chemistry Relevant in Engineering Education? If yes, How to Make It Interesting? If not, Why not?” on 26 March 2014. This lecture was received well. Seven faculty members and 14 research scholars of the Institute participated in the session.

6.2. CENTRE FOR INDUSTRIAL CONSULTANCY AND SPONSORED RESEARCH

6.2.1. Introduction

The Centre for Industrial Consultancy and Sponsored Research was set up in 1973 to foster and promote sponsored research activities as well as relationships with industries. It facilitates active participation of the faculty in various interactive programmes organized for the benefit of industries and the Institute. The centre also plays a pro-active role in managing the intellectual property generated by the Institute and its commercialization. In addition, the centre provides administrative support for carrying out consultancy and sponsored research projects, particularly for recruitment of project staff, maintenance of accounts and purchase of equipment and materials.

Some of the major activities that the centre is involved in are:

- Sponsored research programmes
- Consultancy projects: research based/retainer/institutional
- Collaborative projects with organisations and industries in foreign countries
- Industrial Associateship Scheme
- ISRO–IIT Madras Space Technology Cell joint projects
- IGCAR–IIT Madras Cell joint projects
- NIOT–IIT Madras Ocean Technology Cell
- Patenting and technology transfers
- Faculty and student entrepreneurship and incubation
- Positive Messaging and Outreach Programme

Dean: Krishnan Balasubramanian

Staff

R. Sundaram	Chief Techno Economic Officer
V. Suresh	Senior Techno Economic Officer
B. Nagarajan	Deputy Registrar
V. Rajendran	Assistant Registrar

6.2.2. Sponsored Research

A total of 139 projects with a value of ₹15,147 lakhs were taken up by the Institute during 2013–2014:

Sl. No.	Agency	No. of Projects	Value (in lakhs of ₹)
1	AIM Scientific Research Foundation Inc.	1	8
2	Armament Research Board	1	23
3	Aeronautics Research & Development Board	1	11
4	Archaeological Survey of India	1	67
5	Board of Research in Nuclear Sciences	8	156
6	Council of Scientific and Industrial Research	3	63
7	Department of Biotechnology	13	413
8	Department of Information Technology	2	169
9	Defence R&D Establishment	1	164
10	Defence Research and Development Organisation	13	1570
11	Department of Science & Technology	46	6228
12	European Commission	3	105

13	Gas Turbine Enabling Technology Initiative	1	110
14	IBM Corporation, USA	2	15
15	Indian Council of Social Science & Research	4	78
16	Indian German Science & Technology Centre	1	41
17	IISc, Bangalore	1	3
18	Indian National Centre for Ocean Information Services	1	68
19	Indian Space Research Organisation	7	173
20	Information Technology Research Academy	1	49
21	Ministry of Drinking Water and Sanitation	1	28
22	Ministry of Human Resource and Development	6	4322
23	Ministry of New and Renewable Energy	1	52
24	Ministry of Earth Sciences, New Delhi	1	114
25	Ministry of Science and Technology	1	20
26	Ministry of Urban Development	1	272
27	National Institute of Ocean Technology	2	82
28	Naval Research Board	3	121
29	Nissan Research Support Programme	5	56
30	Space Application Centre	1	24
31	South Asian Network for Development and Environmental Economics	1	11
32	South Asia Network of Economic Research Institutes	1	5
33	Society for Biomedical Technology	1	10
34	Shastri Indo-Canadian Institute	1	6
35	Tamil Nadu Pollution Control Board	1	500
36	UK India Education & Research Initiative	1	10
Total		139	15,147

These include international collaborative and industry sponsored projects. About 181 faculty members served as co-ordinators for projects sanctioned in 2013–2014. The value of the ongoing sponsored projects during 2013–2014 is ₹60,570 lakhs. About 323 faculty members were actively involved in these ongoing sponsored research projects.

6.2.3. Consultancy Programmes

Four hundred and sixty-four consultancy assignments of total value ₹5401 lakhs were taken up during 2013–2014:

Sl. No.	Type of Consultancy	No. of Jobs	Value (in lakhs of ₹)
1	Research based industrial consultancy	108	2012
2	Institutional consultancy	328	2637
3	Retainer consultancy	16	85
4	Testing (ET & IT)	12	70
	Additional value		607
Total		464	5401

A total of 175 faculty members were actively involved in consultancy projects. The total value of the ongoing consultancy projects during 2013–2014 is ₹8957 lakhs.

6.2.4. New Faculty Scheme

The Institute provides funds for new faculty member to initiate research in their area of specialization at IIT Madras. This funding will also help them get sponsored research grants to continue and establish their research activities at IIT Madras. This scheme is operated as a project under the Centre for IC&SR. Proposals for projects up to ₹5.00 lakhs will be recommended by the Dean, IC&SR to the Director for approval. In the case of proposals where there is experimental activity requiring special equipment, Institute support for the project up to ₹20.00 lakhs is possible.

During the year, 33 proposals were approved for funding under the New Faculty Scheme, for a total sum of ₹607 lakhs.

6.2.5. Industrial Associateship Scheme

A total of 176 industries were members of this scheme (large scale, 33; medium scale, 100; small scale, 43).

6.2.6. Technology Appreciation Programme

Sl. No.	Title of the Programme	Name of the Co-ordinator
1	Engine Combustion Analysis for R&D	Pramod Mehta, Department of Mechanical Engineering
2	Surface Preparation Methods	S. Ramanathan, Department of Chemical Engineering
3	Solar Absorption Refrigeration Systems Operating with Ionic Liquids	S. Srinivasa Murthy, Department of Mechanical Engineering
4	Workshop on Composite Design and Analysis and Manufacturing	N. Siva Prasad, Department of Mechanical Engineering

6.2.7. Other Programmes

ISRO–IIT Madras Space Technology Cell joint projects

This is an ongoing activity sponsored by ISRO, in which research projects of interest to ISRO are being taken up at IIT Madras. Nineteen ongoing projects with a total value of ₹506 lakhs were continued, and seven new projects with a value of ₹173 lakhs were taken up during the year 2013–2014.

IGCAR–IIT Madras Cell

Only one ongoing project was continued during 2012–2013, its value being ₹30 lakhs. No new projects were initiated during this period.

NIOT–IIT Madras Cell

The NIOT–IIT Madras Cell was set up to initiate further NIOT sponsored research activities at IIT Madras during 2010–2011. The five ongoing projects, with a total value of ₹145 lakhs, were continued during 2012–2013, and two new projects with a value of ₹82 lakhs were sanctioned for the year 2013–2014.

Technologies for social development

IIT Madras has initiated activities for transfer of technologies that are of immediate relevance to society. Towards this end, the following three projects were 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.

6.2.8. Distinguished Visitors to the Centre

Delegations from the following organizations visited IIT Madras for discussions on possible collaborative research work.

- The Head, Research Planning—SAIT India, Samsung India Software Operations
- Halliburton, USA
- HLL Lifecare Limited (HLL)
- Danfoss Industries Pvt. Ltd.
- BEML Ltd.
- Forbes Marshall
- BOSCH Ltd.
- Schaeffler
- Petrofinaz

- Eaton Corporation
- Chennai Metro Rail Ltd. (CMRL)

MoUs/agreements signed

Sixty new MoUs/agreements were signed by IIT Madras with the following organizations/institutions during 2013–2014:

- Jeevan Blood and Research Centre
- Tamil Nadu Pollution Control Board (TNPCB)
- SmartKonnexion & GoRecroot
- Danfoss Industries Pvt. Ltd. Chennai (amendment)
- Hindustan Aeronautics Limited, Bangalore (HAL)
- Simulator Development Division
- Trivitron Healthcare Pvt. Ltd.
- it-rural.com
- Integral Coach Factory
- GE India Technology Centre Pvt. Ltd.
- Becton Dickinson India Pvt. Ltd
- Projects in the areas of assistive devices
- Bio-Incubator
- EATON
- Biotechnology Industry Research Assistance Council and Centre for Cellular and Molecular Platforms
- Intelizon Energy Pvt. Ltd.
- Chennai Petroleum Corporation Ltd.
- Southern Railways
- Hitachi India Pvt. Ltd.
- Unilever Industries Pvt. Ltd.
- Daan Shaaban QS Consultancy
- Biocon Ltd.
- BHEL Corporate R&D Bangalore
- RNTBCI
- Solar Integration Systems India Pvt. Ltd. (SOLARSIS)
- Toshiba Corporation
- Neurosynaptic Communications Pvt. Ltd.
- IGCAR, Kalpakkam
- NISSAN Motor Co. Ltd.
- Institute of Engineering and Ocean Technology (IEOT), Oil and Natural Gas Corporation Ltd. (ONGC)
- Parthys Reverse Informatics Analytic Solutions Pvt. Ltd.
- IIT Madras, Incubation Cell
- Genus Power Infrastructures Limited
- Information Technology Research Academy (ITRA), Media Lab Asia
- Gyana Data Pvt. Ltd.
- Eli Lilly and Company
- Samsung Electronics Co. Ltd.
- Hindustan Unilever Ltd.
- Saint-Gobain Research India Ltd.
- TVS Motor Company Ltd.
- Thermo Scientific India Pvt. Ltd.
- Dow Chemicals International Pvt. Ltd.
- Titan Company Ltd.
- Crompton Greaves Ltd.
- Oil and Natural Gas Corporation Ltd.
- Toshiba Corporation
- Central Manufacturing Technology Institute, Bangalore
- Vellore Institute of Technology—Technology Business Incubator (VIT-TBI)
- High Energy Batteries Ltd.
- eBay Inc.
- Liquid Propulsion Systems Centre

- Samsung R&D Institute India-Bangalore Pvt. Ltd.
- Biotech Consortium India Ltd.
- Ricycle'n City
- Hitachi India Private Ltd. and Hitachi Ltd.
- Athena Infonomics
- Smart Engineering & Design Solution Ltd.
- Institute of Electrical and Electronics Engineers Incorporated (IEEE)
- ClariTrics Technologies Pvt. Ltd.
- Factory Mutual Insurance Company (FM Global)

6.2.9. Patents

Details of patent applications filed during 2013–2014 are given below:

Sl. No.	Title	Inventor	Departments
1	An Apparatus for Measuring Rheological Parameters and Methods for Its Operation	Jitendra S. Sangwai	OEC
2	Piezo-electric, Ultrasonic Annular Surface Injection for Emission Reduction and Better Control in Engines	Anand T.N.C.	MEE
3	A Wireless System to Monitor and to Predict the Consumption and Remaining Gas in a Cylinder	Pradeep Kiran Sarvepalli, Anjan Chakravorty	ELE
4	Novel Segmented Strip Design for a Magnetostriction Sensor (MsS) Using Amorphous Material for Long Range Inspection and Structural Health Monitoring at High Temperatures	Krishnan Balasubramaniam, Tarun Kumar Mishra	MEE
5	A Combined Reluctance–Hall Effect Based Angle Sensor	Boby George, Anoop C.S.	ELE
6	Intelligent Universal Seat and Backrest Cover for Haptic and Other Feedback to Monitor and Provide Intervention Based on Driver Fatigue and/or Behaviour	Venkatesh Balasubramanian	EDD
7	Intelligent Universal Steering Cover for Haptic and Other Feedback to Monitor and Provide Intervention Based on Driver Fatigue and/or Behaviour	Venkatesh Balasubramanian	EDD
8	Measuring the Rate of Injection in a Syringe	George, Mohanasankar Sivaprakasam	ELE
9	System and Method for Ophthalmic Anesthesia Training	Biswarup Mukherjee, Boby George, Mohanasankar Sivaprakasam	ELE
10	Novel Resin Matrix for Dental Composites with Enhanced Physical Properties and Biological Response	Venkatesh Balasubramanian, Susila Anand	EDD
11	A Versatile Tissue Engineering Bioreactor	Venkatesh Balasubramanian, Soma Guhathakurta	EDD
12	Efficient Methodology for Optimal Linkage of Arbitrarily Oriented Fluid Flow Ducts Using Single Parameter Bezier Curves	Sreenivas Jayanti, Srinivasan K.	CHE
13	System and Method for Ocular Compression	Preejith S.P., Mohanasankar Sivaprakasam	ELE
14	Metal Nanoparticle Decorated Carbon Nanotube and Method of Preparation and Use	Ramaprabhu S.	PHY
15	A Composition for Biocidal Property and a Water Purification Device Based on the Same	Pradeep T.	CHY
16	Swimming Pool Lift for Physically Challenged	Sujatha Srinivasan, Swostik Sourav Dash	MEE
17	Development of a Pedal Powered Water Filtration System	Balkrishna C. Rao, Raunak Bhinge	EDD
18	A Method for Retinal Pathology Detection	Krishna Kumar R., Hem Rampal, Nikhilrajan	EDD
19	A Semi-flexion Orthotic Knee	Sujatha Srinivasan, M. Rohith, Sushant Veer	MEE
20	A Novel Waveguide Technique for the Simultaneous Measurement of Temperature Dependent Properties of Materials	Krishnan Balasubramaniam, Suresh Periyannan	MEE

21	A Method of Computing Strains from Full-Field Data	Sankara J. Subramanian	EDD
22	A Deep Ocean Remotely Operated Submersible Dredge Head with Distributed Propulsion Units for Collecting Nodular Minerals from Soft Ocean Floor (DOROSMIN)	Kumaraswamy S.	MEE
23	The Integrated Hydro-mechanical System for Deep Ocean Manganese Nodule Mining (HYMECHDOMS)	Kumaraswamy S.	MEE
24	Portable Multi-utility Multi-position Holding Device cum Bag	Gyan Vardhan Gupta, Varshith Dondapati, Ruchir Jolly, Vivek Sarda	MEE
25	A Method for Placement to Variable Length Guide Vanes for Flow Control in Manifolds	Sreenivas Jayanti, Srinivasan K.	CHE
26	Providing Uninterrupted DC Supply to Consumers	Ashok Jhunjunwala	ELE
27	A Platform for Screening for Ophthalmic Problem	Niranjan Joshi Keerthi Ram, Mohanasankar Sivaprakasam, Preethi Gopal	ELE
28	An Improved Bioprocess for Producing Camptothecin from Endophytes	Smita Srivastava, Aarthi V.	BIO
29	Graphene Quantum Dots, Their Composites and Preparation of the Same	Ramaprabhu S.	PHY
30	A New Multilayer Sandwich Design of a Redox Flow Battery Cell	Kothandaraman Ramanujam, Varadaraju U.V.	CHY
31	Methods and Apparatus for Measuring Rheological Properties of Multi-phase Fluids	Jitendra S. Sangwai	OEC
32	A Five Degree-of-Freedom Haptic Interface Device for Laparoscopic Simulation	Manivannan Muniyandi, Raghu Prasad	APM
33	Formation of Uniformly Distributed Abrasive Slurry for Micro Abrasive Water Jet Machining Applications	Ramesh Babu N., Tushar Tukaram Gurav, Srikanth R.	MEE
34	GPU Assisted Scheduling Technique (GAS) for Multicore Operating System	Janaki Ram D., Balaji Setty, Hemang Mehta	CSE
35	Lanthanum Doping of Ceria Abrasive to Obtain Robust CMP Polish Rates	Ramanathan S., B.V.S. Praveen, Manivannan R., Umashankar T.D.	CHE, CHE, MME, CHE
36	Multiple Inlets–Outlets Valveless Micropump and Micromixer	Ashis Kumar Sen, Derosh George, Satnam Singh	MEE
37	Preparation of a Dog-Bone Shaped Micro-specimen for Testing of Mechanical Properties	H.S.N. Murthy, Paresh Ghangrekar, Balkrishna C. Rao	ASE, ASE, EDD
38	Dilute Magnetic Nanoparticles for Fast Removal of Arsenic from Water	Ramachandra Rao M.S., Muvvala Krishna Surendra	PHY
39	Methods for Synthesis of Diamond Thin Films/Coatings on Sapphire	Ramachandra Rao M.S., Maneesh Chandran	PHY
40	Graded Nano- and Micro-crystalline Composite Diamond Coatings for Load-Bearing Tribological Applications	Ramachandra Rao M.S., Ramamoorthy B., Ravikumar Dumpala	PHY, MEE, MEE
41	Electrospun Nanofibrous Membrane for Sensing Food Spoilage	Chandra T.S., Natarajan T.S., Anshika Agarwal	BIO, PHY, BIO
42	Method for Determining Distortion Contributions from Individual Circuit Elements and Blocks in an Electronic Circuit	Nagendra Krishnapura, Rakshidatta	ELE
43	Effect of Semi-labile Multidentate Ligands on Oxygen Reduction Reaction Performance of Non-precious Metal Catalysts	Kothandaraman Ramanujam, Karthikayini M.P.	CHY
44	Compact RF Phase-Shifters Based on Frequency Translation	Aniruddhan, Radhakrishna Ganti, Gaurav Agarwal	ELE
45	Electrolysis Assisted Atomization	Srinivasan K.	MEE
46	Device and Methods for Determining the Elemental Identity and Analysis on Moving Target from a Variable Stand-off Distance	Nilesh J. Vasa, Sarathi R., Sathiesh Kumar V.	EDD, ELE, EDD
47	Intelligent Fare Metering System for Metropolitan Transport Services	Shankar Narasimhan, Raghunathan R., Nirav Bhat, Ganesh Sankaran, Abhijit Sinha	CHE, CHE, GYAN

48	Sugar–Triazole–Cardanol Conjugates as Efficient Low Molecular Weight Gelators Capable of Forming Gels in Mixed-Aqueous And Non-aqueous Solvents	Mishra A.K., Surya Prakash Rao H., Kamalraj M., Jitendriya Swain	CHY
49	Recyclable Metallo-micellar Molybdenum Catalyst for Sulfoxidation Reaction in Water at Ambient Conditions Using Aqueous Hydrogen Peroxide as Oxidant	Dillipkumar Chand	CHY
50	Condensed Sparse Single Transmitter Multiple Receivers (STMR) Array Based Structural Health Monitoring for Large Plate-like Structures Using Ultrasonic Guided Waves	Krishnan Balasubramaniam, Prabhu Rajagopal, K.K. Mithunraj, Johnson B. Lakra	MEE
51	Overhead Line and Equipment Inspection Device	Vignesh Krishnakumar, Kishore Natarajan, Mahesh V. Panchagnula	CSE, OEC, APM
52	Mechanical System to Achieve Variable Valve Event Operation by Continuously Varying Valve Lift Height and Duration to Attain Optimum Volumetric Efficiency at All Speed and Load Conditions	Ramesh A., Arun Vinayak	MEE
53	“r-Wavelet method” : A Novel Wavelet Based Signal Processing Technique for Signal Enhancement	Krishnan Balasubramaniam, Sreedhar Puliyakote	MEE
54	Pipe Solar Concentrator	Srinivasan K.	MEE
55	Deflector for Sunroof Apparatus	Babu Viswanathan, Mitsuru Satou, Kazuya Asao, Hirota Tomita	MEE
56	Passive Cooling Based Secondary Concentrator for Solar Concentrating Photovoltaic System for Uniform Flux Distribution And Effective Cooling	Srinivasa Reddy K.	MEE
57	Solar Parabolic Trough Collector with Integrated Torque Tube—Box Support Structure	Srinivasa Reddy K.	MEE
58	Miniaturized Blood Serum Triglyceride Monitoring System	Enakshi Bhattacharya, Anju Chadha, Shanthi Pavan, Mohanasundaram S.V.	ELE, BIO, ELE, ELE
59	System and Methods for Predetermining the Onset of an Impending Blowout in Practical Combustion	Sujith R.I., Vishnu R. Unni, Vineeth Nair V.	ASE
60	Energy-Based Auto Correction and Repetition-Rate Optimization of Laser Pulses—System, Apparatus and Methods Therefor	Balaji Srinivasan, Anil Prabhakar, Arunn Narasimhan	ELE, ELE, MEE
61	Antibiofilm and Antimicrobial Food Packaging Using Enzyme Modified Polymer Films and the Process for the Production Thereof	Mukesh Doble, Veluchamy Prabhawathi	BIO
62	Cyclic Glucan Blended with Synthetic or Natural Polymer, Metal or Ceramics as Carrier for Drugs, Food, Flavouring Agents, Growth Factors, Natural Products	Mukesh Doble, Geetha V., Nandakumar V.	BIO
63	New Oxygen-Deficient Perovskite Nanomaterial for Reversible CO ₂ Capture at Room Temperature	Ramachandra Rao M.S., Shubra Singh, Kapil Gupta	PHY
64	Method of Doping Potassium Into Ammonium Perchlorate	Ramakrishna P.A., Ishitha K.	ASE
65	Formulations for Dissolution of Petroleum Sludge or Waxes and Method for Evaluation Thereof	Jitendra S. Sangwai, Ramesh Gardas, Sivabalan Sakthivel, Sugirtha Velusamy	OEC, CHY, OEC, OEC
66	Tilt-Controlled Training and Mobility Device	Anil Prabhakar, Sujatha Srinivasan, Vivek Sarda	ELE
67	Enhancement of Hybrid Fuel Regression Rate Using a Bluff Body	Ramakrishna P.A., Rajiv kumar	ASE
68	Application of Entropy of Centrality Measures of Routing in Tactical Wireless Networks	Krishnamoorthy S.	CSE
69	A Smart Multi-output Adaptive Camera and Video Recording System	Anurag Mittal, Kamakoti V.	CSE
70	An Cone Plate Instrument to Apply Laminar Shear to Cultured Mammalian Cells	Madhulika Dixit, Manivannan P.V., Rathna Kumar K., Abhiram C. Tej	BIO, MEE, BIO, BIO
71	Synthesis of Amorfrutin and Cajaninstibenes and their Analogues from a Common Building Block	Indrapal Singh Aidhen, Mukkakala Ramesh	CHY
72	System and Method for Predicting the Onset of an Impending Instability in a Practical System	Sujith R.I.	ASE

73	High Yielding Preparation and Processing of Omega-3 Highly Unsaturated Fatty Acid by Locally Isolated Microbe	Anju Chadha, Rony K. Roy, Kabilan C.	BIO, University of Singapore, BIO
74	Large Scale Sketch-Based Image Retrieval Invariant to Similarity Transformations	Anurag Mittal, Sarthak Parul	CSE
75	Gas Hydrate Slurry Formation Systems and Methods	Jitendra S. Sangwai	OEC
76	A Novel Method for Investigation of Solubility of Tank Bottom Sludge with Solvents	Jitendra S. Sangwai, Ramesh Gardas, Sivabalan Sakthivel, Sugirtha Velusamy	OEC, CHY, OEC, OEC
77	A Filtering Means for Tracking Information Flow in Android Operated Devices	Janaki Ram D.	CSE
78	A Filtering Mechanism For Securing Linux Kernel	Janaki Ram D.	CSE
79	Flow Regulator for Multi-feed Fluid Manifolds	Sreenivas Jayanti, A. Ramesh	CHE, APM
80	Unusual Dehalogenation on Graphene Nanocomposites: Degradation of the Pesticide, Lindane to Trichlorobenzenes and Removal of the Products from Water	Pradeep T., Soujit Sengupta, Indranath Chakraborty, Shihabudheen Mundampra Maliyekkal	CHY
81	Processing of the Bimodal Ultrafine Grained Microalloyed Dual Phase Steel Sheets	Sankaran S., Subramaniya Sarma V., Papa Rao Mondi	MME
82	Molecular Ionization from Carbon Nanotube Paper	Pradeep T., Depanjan Sarkar, Graham Cooks, Rahul Narayanan	CHY, Purdue University
83	Methods and Apparatus to Store and Transport Natural Gas (Hydrocarbon Gas) in Porous Media	Jitendra S. Sangwai, Parvesh Chug, Halder	OEC
84	N-Methylpyrrolidinone Hydroperoxide as an Efficient Epoxidation Reagent	Kannoth Manheri Muraleedharan, John Victor	CHY
85	Zeolites–Mg Based Novel Hydrogen Storage Nanomaterials	Ramaprabhu S.	PHY
86	A Device to Pressurize and Time the Injection of Gaseous Fuel for Direct Injection in an IC engine	Ramesh A., Arun Prasath K.	MEE
87	Layered Oxide Catalyst Composites for Photo-catalytic Reduction of Carbon Dioxide	Viswanathan B.	CHY
88	Engineered Pericardium and Derivatives for Uses in Medicine, Pharmaceuticals, Food and Cosmetics	Soma Guhathakurta, Venkatesh Balasubramanian	EDD
89	A Composition for Dental Remineralization	Sampath Kumar T.S., Vundru Bindu, Madhumathi K.	MME
90	Providing Uninterrupted Power Supply to Consumers	Ashok Jhunjunwala, Bhaskar Ramamurthi, Krishna Vasudevan	ELE
91	Biopotential Signal Acquisition System Using Multi-frequency Chopping	Aniruddhan, Sujan Kumar	ELE
92	High Performance Electrocatalyst for Proton Exchange Membrane Fuel Cell Application	Ramaprabhu S.	PHY
93	Non-invasive Measurement of Haemoglobin in Blood	Jagadeesh Kumar V., Lourdes Albina Nirupa L.	ELE
94	A Single Remote Control Unit for Controlling Various Devices	Ashok Jhunjunwala, Lakshminarasamma N.	ELE
95	User Controlled Configurable Authorization Layer (UCCAL)	B. Viswanathan	MGT
96	Electrophysiological Monitoring of the Heat Dry Electrodes on Non-traditional, Non-boney Regions of the Chest	Venkatesh Balasubramanian, Soma Guhathakurta, Robert Rajkumar S.	EDD
97	A Brake Energy Recovery System in Conventional Vehicle with Super-capacitor and Battery Energy Storage Devices	Srirama Srinivas, Mariappan V.	ELE
98	Bioceramic Nanocarrier Formulations for Simultaneous Drug Delivery Treatments	Sampath Kumar T.S., Madhumathi K.	MME
99	Microbial Degradation of Waxy Crude Oil Deposition at Surface and Downhole Facilities for Flow Assurance	Jitendra S. Sangwai, Mukesh Doble, N. Sakthipriya	OEC, BIO, OEC

100	Leakage Detection Using the Novel Wireless Sensor System	Anjan Chakravorty, Pradeep Kiran Sarvepalli	ELE
101	Microwave Hyperthermia Device with Compact Heating Applicator and Low Cost Inline Degassing for Bolus Circulation	Kavitha Arunachalam, C.Geetha	EDD
102	Chemically Modified and Functionalized Carbon Nanocomposites for Simultaneous CO ₂ Reduction to Hydrocarbons and Electricity Production	Ramaprabhu S.	PHY
103	Single-Antenna Full-Duplex Communication System Employing Transformer-Based Cancellation	Aniruddhan, Abhishek Kumar, Radhakrishna Ganti	ELE
104	A Method for Setting Link Weights in OSPF Networks Based on Entropy Betweenness Centrality Measures	Krishnamoorthy S., Vannirajan Chellappan	CSE, HCLT
105	Apparatus and Method for Wireless Detection of Wristwatch with Conductive Back Plate and Wireless Charging of Its Battery	Boby George, Anish Babu	ELE

Details of patent applications granted during the year 2013–2014:

Sl. No.	Title	Inventor	Department
1	Water Purifier Design and Line Drawings	Pradeep T.	CHY
2	A Method of, and an Apparatus for, Combusting Hydrocarbon Fuels for Providing a Clean Heat/Energy Source	Sreenivas Jayanti, Sivaji Seepana	CHE

Technology transfer/royalty

Sl. No.	Inventor	Name of the Invention	Company	Value (in lakhs of ₹)
1	Gonsalves T.A.	Development of Lan Trainer Kit	Benchmark Electronic Systems Pvt. Ltd.	1.61
2	Pradeep T.	Pesticide Removal Attachment Based on Nano Technology	Aquamall Water Solutions Ltd., Hyderabad	21.61
3	Ashok Jhunjhunwala	Royalty on OFT Form Benchmark	Benchmark Electronic Systems Pvt. Ltd., Perungudi, Chennai	1.53
4	Natarajan T.S.	Electro Spinning Apparatus	Physics Instruments Co., Chennai	5.76
5	Mangala Sunder K.	Distribution and Marketing of NPTEL Educational Material	Bodhbridge Educational Services Pvt. Ltd.	4.20
6	Ashok Jhunjhunwala	Voice Banking Technology	Uniphore Software Systems Pvt. Ltd.	0.73
7	Giridhar K.	WICOMM-T KIT	Benchmark Electronic Systems Ltd.	1.29
Total				36.72

An amount of ₹96.67 lakhs was received for transfer of technology during this year.

6.2.10. Publications

- IC&SR brought out the IIT Madras calendar, IIT Madras New Year greeting card and the IIT Madras diary for 2014.

6.2.11. Research Fund

An amount of ₹50 crores has been earmarked for the Research Fund from the IC&SR overheads. The interest on the fund (approximately ₹5–6 crores) is proposed to be used for various research-related expenses. The broad allocation for expenses for this financial year (2013–2014) is as given below:

1. R&D Award: 50% from the Institute Fund and 50% from the Research Fund. Approximate budget—₹100 lakhs.
Status: Seven awards with a total value of ₹190 lakhs
2. Research Scholar Innovation Projects: Up to ₹25 lakhs from the Research Fund
Status: In progress
3. Exploratory Research Projects: To support projects from any faculty member who has a “breakthrough” idea and wishes to initiate work without waiting for his or her proposal to be sanctioned by the funding agency. Maximum of ₹10 lakhs, with a duration of 12 months. Approximately ₹100 lakhs.
Status: 24 projects with a total value of ₹175 lakhs

4. New Faculty Initiation Grant: Add-on grant up to a maximum of ₹5 lakhs. National and international travel will be permitted. The total outlay is estimated to be around ₹100 lakhs.
Status: 22 projects with a total value of ₹110 lakhs
5. One Team Project of Significance: One project which has demonstrated proof of concept will be eligible for funding for a period of 2 years, with an initial maximum budget of ₹200 lakhs. The project will be selected through peer review members.
Status: In progress
6. Patenting and Commercialization Activities by IP Cell: A maximum amount of ₹50 lakhs was earmarked.
Status: In progress
7. Maintenance of Capital Equipment and Operation of These Facilities: This will be supported by IC&SR initially for a value of ₹25 lakhs. It will be used for a hiring technical person for maintaining and operating select central research facilities. Maintenance funds for capital equipment will require further steps to be taken about the modalities and will be considered in the near future.
Status: Seven projects with a total value of ₹33 lakhs

6.2.12. Innovative Student Projects

Sl. No.	Name of the Lead Student	Name of the Mentor	Title	Amount sanctioned (in lakhs of ₹)
1	Vivek Sarda	Sujatha Srinivasan, MEE	Training and Mobility Device for Children with Cerebral Palsy	1.20
2	Sripriya Kalidoss, Ramineni Ajay Raj, Vivek Sarda	Sujatha Srinivasan, MEE	Assistive Gait Orthosis	2.00
3	B.V.S.S Pavan Kumar Kotha	A. Gopala Krishna, BIO	Development of Easy and Conventional Method for Diabetes Treatment	1.60
4	Anand Antony, Derek D. Kuttiikat, Sooraj Gopakumar, M. Abhishek, Gopakumar	David Koilpillai, ELE	Low Cost "Sun Angle Detector"	2.00
5	Aenugu Sneha Reddy, Adepur Naresh Kumar, Ranjani Srinivasan, Sai Surya Teja, Mahajan Shashank Ravindra, S. Varsha, C.R. Rakesh, Ramineni Ajayraj	Harishankar Ramachandran, ELE	Development of a Scintillation-Based Radiation Detector	2.00
6	Theeda Swathi Mayi, Ch.K. Siva Teja, Banda Maurya, Padma Bharathi	Ravindra Gettu, CIE	Self Healing Concrete	1.00
7	Anant Jain, Gaurav Jain, Shakeel Abdulla	Srikanth Vedantam, EDD	Kinetic Energy Recovery System for a Bicycle	1.00
8	Rohan Bendre	Madhulika Dixit, BIO	Investigation of the Anti-proliferative Effect of Amargentin on Vascular Smooth Muscle Cells (SMCs)	1.50
9	Aman Kumar, Mayank N.K. Choudhary, Kanishka Waghmare, Nandita Damaraju, Namit Holay, Nishita Mohan, Tolkappiyam Premkumar	Nitish Mahapatra, BIO	Inhibiting and Neutralizing the Shiga Toxin Using a Novel Synthetic Biology Approach	2.00
10	Mitan Sutradhar	D. Karunakaran, BIO	Design and Production of a Novel Anti-cancer Therapeutic Protein	1.50
11	D. Vishaal, Ranjana Meena, Piyush Jadhav, Sai Gole	Palaniappan Ramu, EDD	Optimal Design of Savonius Wind Turbine to increase Efficiency to Generate, Store and Utilize Power	1.30
12	Athul Vijayan, S. Balaji, R.B. Maharishi, S. Sunil Kumar	T.S. Natarajan, PHY	Smart Library Management System	1.00
Total				18.10

6.2.13. Positive Messaging and Outreach Programme

A new initiative on positive messaging from IIT Madras was initiated. A start-up company, Yrs Intuitions, was requested to coordinate the creation of different Net-based avenues for “ReachIITM” and reaching out to the various stakeholders of IIT Madras. An e-newsletter campaign was initiated, and currently a monthly periodical is brought out. As part of this effort, the following sites have been created and are managed on an ongoing basis:

1. Facebook (www.facebook.com/reachIITM)
2. Twitter (www.twitter.com/reachIITM)
3. YouTube (www.YouTube.com/reachIITM)

6.2.14. Other Information

- A project co-ordinators’ meeting was held on 5 April 2013.
- A meeting was held on 18 April 2013 at IIT Madras with the Jt. Secretary Shri Harbajan Singh, from the Ministry of Heavy Industry, to develop cooperation models for establishing Centres of Excellence at IIT Madras.
- A sub-committee meeting to develop cooperation models for establishing Centres of Excellence in Heavy Industry at IIT Madras and proposal outlines was held on 7 May 2013.
- The follow-up meeting for establishing Centre of Excellence at IIT Madras by Department of Heavy Industries.
- Air Marshal M. Matheswaran visited IIT Madras on 23 July 2013 to discuss aeronautical research activities at IIT Madras.
- A 2-week entrepreneurship development programme for IIT students was organized by the Centre for IC&SR between 15 and 26 July 2013.
- Mr. Carlos Ghosn, the Chairman and CEO of Renault and Nissan, visited IIT Madras on 16 July 2013 and delivered a talk about the significance of frugal innovation in today’s emerging markets.
- A meeting of the committee constituted by the Dean, IC&SR to evaluate the proposals for Nissan Research Support Programme was held on 6 August 2013. Out of 11 proposals presented, five were considered for funding for a total value of ₹55.649 lakhs.
- Joint Policy Committee meetings of the ISRO–IIT Madras Space Technology Cell were held on 24 September 2013 and 17 January 2014.
- The first Joint Policy Committee meeting of the HAL–IIT Madras Centre for Aerospace Transmission System (CATS) Cell was held on 28 September 2013.
- Governor Terry Branstad, of Iowa, and his delegation visited IIT Madras on 16 September 2013.
- A workshop, “Autonomous Vehicles and Society—A Technology Perspective”, organized by IIT Madras and sponsored by RNTBCI (NISSAN), was conducted on 29 November 2013.
- The Centre for IC&SR organized a 1-week entrepreneurship awareness programme, “E Week” for students and faculty members of IIT Madras from 9 to 15 March 2014. The programme was co-ordinated by Ashwin Mahalingam, Department of Civil Engineering.

Annexure 1
SOCIALLY RELEVANT PROJECTS (SRP) PROGRAMME
IIT MADRAS
ANNUAL REPORT 2013–2014

The Socially Relevant Projects programme, which was started in 2003, with an initial grant of ₹10.0 lakhs from IIT Madras, is over the years being supported by funds received from IIT Madras alumni. In 2011, in honour of Prof. M.S. Ananth, who was retiring as Director that year, the alumni of IIT Madras established the M.S. Ananth Endowment Fund. The interest from this fund, along with other contributions from alumni, is now used to fund projects under the SRP scheme. In 2014, five new projects were funded under this scheme for a period of 1 year. Some of the projects funded in 2013 have been extended by an additional 6–12 months. A project technician has been hired to help with mechanical fabrication across different SRP projects. A summary of the new and ongoing projects follows.

A new project, “Public Participatory Irrigation Water Management”, was proposed by Palaniappan Ramu (Engineering Design) and K.P. Sudheer (Civil Engineering). The project aims to develop a GIS-based platform for collecting water-related information and developing a database. The information will be in terms of the spatial extent of agricultural fields, irrigation sources and the cropping pattern. Simulation models will be integrated with the GIS database for generating optimal irrigation schedules under water deficit conditions, with the objective of maximizing the total production and enabling informed decisions using data related to water table levels, crop patterns, soil quality and demand.

A project titled “Tactograph” was proposed by Anil Prabhakar (Electrical Engineering). The objective is to develop and refine a fully functional, low-cost, portable device that can dynamically and easily create tactile images from computer graphics for children with visual impairments. The project’s aims are to productize the Tactograph and distribute it at affordable prices to organizations with a significant number of persons with visual impairments.

Another project, titled “Engineering Can Be Fun—A Workshop to Impart an Engineering Understanding to School Children”, was proposed by M.S. Sivakumar (Applied Mechanics) and G. Balaganesan (Central Workshop). The project aims to create interest in engineering, with an emphasis on targeting suburban and rural school children. Using workshops, various features of our infrastructure, such as mechanical and electrical power transmission systems, their workings and design, environmental awareness and safety, will be presented. The emphasis will be on nurturing creative aspects of simple design ideas. In addition, some hands-on training in wood working, basic circuitry and other skills will be provided.

A project proposed by Basavaraja and Sridharakumar Narasimhan (Chemical Engineering) targets community health through a women’s cancer screening programme. The main objectives of this proposal are development of advanced image processing techniques for rapid diagnosis, use of mobile devices by health workers for cytoscreening (pap smears) and development of cloud-based solutions for rapid and low-cost diagnosis.

Srinivasa Chakravarthy (Biotechnology) has proposed a project to publish science books at the high school level in regional languages (Telugu and Tamil) and donate them to village school libraries. He is an active science writer and blogger and plans to write, publish and distribute a handful of science books in Telugu and Tamil on topics such as exploration of space and the human body.

Of the projects funded last year, “HuMotor: A Humane Way to Utilize Human Efforts at a Workplace”, proposed by Sandipan Bandyopadhyay, G. Saravana Kumar and Palaniappan Ramu, of the Department of Engineering Design, was completed. Two improved prototypes were built, and a study was carried out to compare the performance of the HuMotor with manual lifting of bricks. The study concluded that use of the HuMotor is beneficial to labourer in terms of increased efficiency and reduced damage to the body while increasing productivity for contractors.

Five of the other projects funded last year requested and were granted extensions of 6–12 months. The interim reports indicated that the projects are making good progress towards meeting their objectives.

The project “Improving Supply Chain Efficiency for Food Security”, initiated by Usha Mohan and R.K. Amit (Management Studies), has identified factors influencing the efficiency of supply chains and are working toward gathering more data to validate their hypothesis.

In the project titled “Development of an Exoskeleton to Enable Enhanced Mobility for a Differently-Abled Person”, proposed by Prathap Haridoss (Metallurgical and Materials Engineering), the primary structure around which the exoskeleton will be built has been assembled.

Some data collection has been done, and the data are being integrated into an application for the project “Enhanced Agricultural Decision Support System Using GIS” by Palaniappan Ramu (Engineering Design) and M.S. Sivakumar (Applied Mechanics).

Dr. Pijush Ghosh (Applied Mechanics), who had proposed a project titled “A Student in Teacher’s Role in Rural Schools: A Pilot Study of the (C Minus 4) Model”, conducted a 4-day workshop at IIT Madras and trained 19 students so that they can successfully teach classes for students 4 years junior to them. The students have started teaching classes, and the post-workshop progress is being monitored.

In the project “Development of a Standing Wheelchair”, proposed by Sujatha Srinivasan (Mechanical Engineering), a prototype that addresses several shortcomings in the first (proof-of-concept) device has been designed and fabricated. Testing with able-bodied users has shown that the device is easy to use. A few refinements are being worked on to enable the next step, conducting tests with some actual wheelchair users.

The project “Design and Fabrication of a Low-Cost Bioptic Electronic Focus Telescope for Subjects with Low Vision”, proposed by Shanti Bhattacharya and Nitin Chandrachoodan (Electrical Engineering), in collaboration with Sailaja, M.V.S. (Elite School of Optometry, Chennai), which was sanctioned in 2011, has been completed. Four prototypes of the device were built, and the final design was tested on nine patients at Shankar Nethralaya. It was concluded that the design satisfied the patients’ basic needs but that further work is required to address some usability limitations before it becomes a product.

Another project, “Mobile Eye Surgical Units”, initiated in 2011, is continuing. The project investigators are Mohanasankar Sivaprakasam, V. Jagadeesh Kumar and V. Jayashankar (Electrical Engineering). The project has been a grand success, with ~500 surgeries having been carried out in the pilot phase in rural areas. The project is the first of its kind in India and has garnered a great amount of goodwill amongst several sections, including our alumni. The surgeries are continuing via the mobile unit and will continue for a few years.

Annexure 2

RURAL TECHNOLOGY ACTION GROUP (RuTAG), IIT MADRAS

The Rural Technology Action Group (RuTAG) has been working since 2004, and a number of new technologies have been developed at the request of NGOs and given back to various agencies over the last few years. Some of the products developed during the year 2013–2014 have been listed below.

1. Banana Fibre Extraction Machine

A machine has been developed for extracting fibre from banana stems. This machine removes up to 90% of the pith and impurities. This has helped take away the drudgery from the existing all-manual process and increased the productivity. It is extremely useful to artisans.

2. Handloom for the Visually Challenged

The request for this handloom came from Grameen Shramik Pratishthan, a Latur (Maharashtra)-based NGO, to help blind women weavers improve their working conditions, the quality of mats produced by them and their productivity so that their earnings would improve. The new handloom, developed in cooperation with Sardar Vallabhbhai Patel International School of Textiles and Management, Coimbatore, for weaving mats from used sarees, has been installed successfully at Latur. The highlights of the development are an improvement in productivity of 50–60% and avoidance of unnecessary movements of the operator while weaving. The potential for replicating this activity to make fabric from used sarees is tremendous across the country. Buoyed by the success of the pilot, the NGO has placed an order for 15 more such looms.

3. Microwavability of Red Clay Products

A new idea has been developed with the help of CGCRI, Kolkata, which is expected to benefit a large number of potters in the country. The clay products made by rural artisans can be made microwavable using this technology, which will improve the market potential of the products and the earnings of potters. The concept is expected to bring in fresh ideas to the dying pottery industry. Because of the high initial investment required, this is more suited for clusters rather than individual potters.

4. Modified Pedal Loom

Pedal-operated looms can replace ordinary handlooms, providing improved productivity and ease of operation. They will also help form weaver clusters. RuTAG has modified the existing pedal loom, which will be installed on a trial basis in weaver clusters in Kerala and Tamil Nadu. The productivity is expected to nearly double, with other associated benefits such as ease of operation. RuTAG is working closely with KVIC in propagating this idea.

A few projects such as the grey water treatment, Athangudi tile manufacture improvement, sustainable mobile trike for water filtration and palm tree climber projects are in various stages of completion and are expected to be given to the NGOs during the course of next year.



Project Report: April 2013 to March 2014
Center for Social Innovation and Entrepreneurship (CSIE)

Indian Institute of Technology Madras



IIT Madras - CSIE
(Center for Social Innovation & Entrepreneurship)

Sponsored by alumni of the 1982, 1984 and 1986 batches

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1. Introduction

The Centre for Social Innovation and Entrepreneurship (CSIE) at IIT Madras was founded in August 2010 with a focus on teaching and research related to social enterprise in India. It aims to bring together the innovation and entrepreneurship aspects of IIT Madras by creating knowledge and understanding that will be relevant to the problems that the poor in India face.

1.1. Mission

To build an environment that will facilitate the creation of social enterprise knowledge through research and empower students to apply their entrepreneurship abilities to develop solutions for greater social impact through academia.

This is achieved by:

- *Education.* Offering academic programmes on social innovation and entrepreneurship for students across disciplines and degrees at IIT Madras
- *Research.* Providing an enabling environment for both student and faculty researchers interested in social enterprise research within the IIT campus
- *Catalysing innovation.* Encouraging young innovators and entrepreneurs by assisting in the development of socially beneficial products and ideas
- *Collaboration.* Creating an ecosystem that extends to other technology institutions, including IITs

1.2. CSIE seeks to distinguish itself through

- Its focus on delivering social enterprise knowledge primarily to engineering students, with the aim of developing their ability to develop and deliver technology solutions that create social impact
- Its focus on academic research that will seek to address problems exclusively within the Indian context

The Center for Social Innovation and Entrepreneurship (CSIE) focuses 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.

2. Governance structure

The Governance Committee (GC) consists of representatives from the sponsors ('84 batch), IIT Madras faculty members and the partnering agency (Villgro). The members of GC are:

Dr. R. Nagarajan, Project Coordinator, CSIE
Dean, International & Alumni Relations, and Professor, Chemical Engineering
Prof. Ashwin Mahalingam, Assistant Professor, Civil Engineering
Prof. B.S. Murty, Professor, Civil Engineering
Prof. Devendra Jalihal, Professor, Electrical Engineering
Prof. John Bosco Lourdasamy, Associate Professor, Humanities and Social Sciences
Prof. K.N. Satyanarayana, Professor, Civil Engineering
Prof. L. Prakash Sai, Professor, Management Studies
Prof. L.S. Ganesh, Dean of Students, and Professor, Management Studies
Prof. Sandipan Bandyopadhyay, Assistant Professor, Engineering Design
Prof. Sudhir Chella Rajan, Professor, Humanities and Social Sciences
Prof. V.R. Muraleedharan, Professor, Humanities and Social Sciences
Paul Basil, Founder & CEO, Villgro
Anand Krishnaswamy, Consultant, The Lemelson Foundation

Joseph Thomas, Project Consultant, CSIE
James Rajanayagam, Project Consultant, CSIE
Nishant Goyal, Project Consultant, CSIE

2.1. Staffing

One full-time and two part-time Project Consultants work at the centre.

3. Activities

The various activities undertaken during 2013–2014, as per the mission of CSIE, are:

a) *Education*

- Minor courses in innovation and social entrepreneurship
- M.B.A. in Social Enterprises (planning stage)

b) *Research*

- Academic/applied research, consultancy
 - i. Evaluation of social entrepreneurship educational programmes in India
 - ii. Rural Technology and Business Incubator: Leveraging the Indian Institute of Technology, Madras ecosystem for social enterprises
 - iii. Role of rural local bodies in sustainable development
 - iv. Needs assessment survey by IIT Madras students undertaken for Centre for Innovation in Public Systems, Hyderabad
- Events
 - i. Co-sponsor, National Conference on Social Entrepreneurship and Sustainable Development with TISS, Mumbai
- Proposals and MoUs
- Meetings attended
- Documentation
 - i. Case study on Minor in Innovation and Social Entrepreneurship by the Lemelson Foundation and supported by CSIE
 - ii. Social Enterprises and Support System in India
 - iii. Documentation: List of domain reports—social enterprises

c) *Catalysing innovation*

- Student start-up, internship, project
 - i. Mentoring, email opportunities to students
- Proposals/MoUs
- Events
 - i. ‘Art of Business Modeling’ session during Shaastra 2014
 - ii. Helped M.B.A. students with problem statement for organizing Udyami—B-plan competition in Samanvaya
 - iii. Participated in E-week, the annual entrepreneurship event
 - iv. Research scholar was sponsored to attend National Conference on Social Entrepreneurship and Sustainable Development
 - v. Two students were sponsored for Jagriti Yatra
 - vi. Information session on Entrepreneur-in-Residence programme of Villgro
 - vii. Sankalp Unconvention 2013 passes to Minor students

d) *Collaboration*

- Idea Spark 2013
- CSIE–IIT Madras Academic Contribution Award
- Internal organizations at IIT Madras/external networking
- Proposals and MoUs, Meetings
- Events
- Awareness and branding

Apart from the above-mentioned activities, various management-related activities are also carried out in accordance with the required process laid out internally (e.g. internal documentation) as well as by IC&SR (Industrial Consulting and Sponsored Research) (e.g. finance and accounts).

The work done during the reporting period, under each activity heading, is mentioned in the following.

4. Education

4.1. Minor courses in innovation and social entrepreneurship

Description

Minor specialization is an integrated, three-semester stream, consisting of four courses (choice between two courses), available as elective to students of the B.Tech. and M.A. Development Studies/English programmes in their third and fourth years. Students from other degree programmes may also take courses as electives; the maximum number of enrolments allowed is 40, and the Minor is fully subscribed. The Minor is a 10-credit programme.

The Minor is multidisciplinary, with faculties from various departments including Management, Humanities & Social Science and the engineering branches. Practicing social entrepreneurs and domain experts deliver guest lectures.

The course lays emphasis on two aspects:

- A theoretical understanding of the business of enterprise and innovation, in particular focusing on its relevance for India's marginalized communities
- Practical understanding of establishing and running an enterprise, including developing appropriate technology, product and business development

Table: Courses in the Minor, course content and output

Courses in Minor	Coverage	Output from Students
Social Enterprises in India	<ul style="list-style-type: none"> • Theory • Case studies • Guest lecture by practitioners • Rural field visit/visit to SE 	Case studies
Product Design and Business Models	<ul style="list-style-type: none"> • Problem definition • Creative problem solving (TRIZ techniques) • Engineering design and prototyping • Business models and strategy • Entrepreneurship and finance 	Business plans
Laboratory based (at Centre for Innovation, CFI)	Prototyping Lab	Prototypes
Rural field study	Rural visits	Business plans

Table: Statistics of Minor – No of students, projects, guest speakers, field visit

Batch	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014
Average student enrolment per course	34	36	40	40	35
Student projects undertaken	Course 1—11 projects Course 2—7 projects Course 3—2 projects Course 4—4 projects	Course 1—14 projects Course 2—10 projects Course 3—4 projects Course 4—3 projects	Course 1—15 projects Course 2—12 projects Course 3—7 projects Course 4—5 projects	Course 1—10 projects Course 2—9 projects Course 3—4 projects Course 4—5 projects	Course 1—12 projects Course 2—11 projects
Number of guest lecturers invited in 4 courses	20	20	21	24	18 (to date)
Field visits in Course 1, 4	2 visits by entire class with supplementary visits by students	2 visits by entire class with supplementary visits by students	2 visits by entire class with supplementary visits by students	3 visits by entire class with supplementary visits by students	1 visit (to date)

Impact

- Over 175 students enrolled between 2010 and 2014.
- Students have undertaken 100 team projects in socially relevant technologies.
- About 12 past students of the Minor in ISE are currently entrepreneurs in various domains, 4–5 other students also started up but moved on.

- Some students took up job or internship in social enterprises.
- Many students have won national and international B-plan competitions.

Students of the laboratory course at the CFI Lab worked on socially relevant projects to develop prototypes e.g. an economical tent for winter, an assistive device for blind people, a spectacle locator based on radio frequencies and finger gloves for tea plantation workers.

Students of the rural field study course prepared business plans after visits to village e.g. ‘Improving English Literacy Using Games’, ‘Biogas Plant’ and ‘Wild Boars’ etc. The students gain information through interaction with various stakeholders in village and social enterprises.

The output of the course ‘Product Design and Business Model’ are proof of concept (PoC) and business plan of 12 projects, e.g. biosand filter, milk adulteration test kit, arsenic detector for households, haemoglobin/anaemia analyser and e-monitoring of electrical appliances.

Role of CSIE

CSIE coordinates with the faculties of the Minor courses for design and operations:

- *Course 1.* Introduction to Social Enterprises in India—lectures on systems approach to problem solving, organize field visit, guest speakers—15, lead class discussion on SE, evaluation, Google group
- *Course 2.* Product Design and Business Models—lecture on problem definition, coordinate with module leaders and guest speakers, manage course time-line, students project and assignments through problem definition, ideation, prototyping, business model and plan
- *Course 3.* CFI Lab Course—facilitate hand-over to new faculty, student project expenses
- *Course 4.* Rural Field Study—facilitate hand-over to guest faculty, and support for rural visits

4.2. M.B.A. in Social Enterprises (planning stage)

The M.B.A. in Social Enterprises is in the planning stage. In this regard, meetings were held with faculty members, including Prof. Satyajit, TISS.

A study of 15 national and international Master’s courses in social entrepreneurship was carried out. Literature review on education in social innovation and enterprises was also completed.

5. Research

5.1. Academic/applied research, consultancy

5.1.1. Evaluation of social entrepreneurship educational programmes in India

The research project ‘Evaluation of Social Entrepreneurship Educational Programmes in India’ was initiated by CSIE along with Centre for Social Entrepreneurship, TISS in February 2013. The project was funded by IDRC, Canada and Villgro. The study was completed and submitted to Villgro in November 2013. This research will form a chapter among the cases and overview essays, written by leading researchers and educators in India, to provide lessons on talent infusion for social enterprises and the ecosystem of incubators, educators, fellowship programmes, etc.

Objectives of the study

- To understand the relevance and quality of the social entrepreneurship academic programmes from the points of view of the stated mission/objectives of programmes, students/graduates and social enterprises seeking employees
- To analyse the range of activities undertaken by the graduates of the programme
- To understand the gap between competencies prescribed by the social entrepreneurs and the actual competencies taught in the courses
- To analyse the views of actual and potential employers about preparedness of graduates

5.1.2. Rural Technology and Business Incubator: Leveraging the Indian Institute of Technology Madras ecosystem for social enterprises

The Rural Technology and Business Incubator (RTBI), spun off from within the Indian Institute of Technology Madras (IITM) at Chennai has its roots in an informal network called the TeNeT group, which worked to create cost-effective communication technologies to compete with imported ones. The TeNet group incubated many companies started by alumni and other bright young engineers. It provided technical advice through the faculty at the Electrical Engineering

(EE) and Computer Science (CS) departments of IITM. Prof. Ashok Jhunjhunwala of the EE realized that companies that wished to serve rural markets needed many different types of support, and RTBI was created to address all the needs of such social enterprises. The success of a number of these social enterprises points to the fact the RTBI and IITM have had some influence in getting these enterprises to move from being self-sustaining to profitability, with some having accessed venture funding. This project will study the way RTBI has leveraged the IITM ecosystem to achieve this.

The project was funded by IDRC, Canada and Villgro. The study was completed and submitted to Villgro in September 2013. This research will form a chapter among the cases and overview essays, written by leading researchers and educators in India, to provide lessons on talent infusion for social enterprises and the ecosystem of incubators, educators, fellowship programmes, etc.

5.1.3. Role of rural local bodies in sustainable development

The research paper ‘Role of rural local bodies in sustainable development’ was presented at an international conference, ETSD 2014, Environment and Technology for Sustainable Development, held at ABV-IIITM (Atal Behari Vajpayee—Indian Institute of Information Technology & Management, Gwalior) from 2 to 4 March 2014.

This paper looks at the role of rural local bodies (RLBs) in implementing infrastructure solutions. It explores how RLBs can independently deliver solutions and the means for delivering them.

This paper will showcase a few successful models where RLBs have taken the initiative and the ownership to implement infrastructure and how they have been sustainable and beneficial to the community. This paper will explain why this approach is better than other models of sustainable infrastructure development and present a road map for implementation and show how challenges can be overcome.

5.1.4. Needs assessment survey by IIT Madras students undertaken for Centre for Innovation in Public Systems, Hyderabad

Initially, a full-fledged study was planned to find ways to upscale state activities in the wake of NOFN and also to take stock of the inventory of present infrastructure in government departments. Having got to know that the departments are still to be linked to the network, it was decided to conduct instead a “Needs Assessment Study” for 15 days under the aegis of CIPS (Centre for Innovation in Public Systems) in association with the Centre for Social Innovation and Entrepreneurship (CSIE) of IIT Madras, Chennai. Based on the inputs and data gathered from this study, it was envisioned that a model would be prepared for ensuring the roll-out of services at citizens’ doorsteps by making use of common service centres/portals of different government departments. The report thus seeks to answer the overall question of ‘quo vadis’—where do we go from here: the real and ground-level expectations of the people, the future possibilities and most importantly the ways to realize them in concrete terms. Sixteen students from IITM and one from SRM University undertook 15 days of field work at Parawada Mandal, Visakhapatnam, Andhra Pradesh.

Objectives of the study

- (v) The manner in which the existing services in health and animal husbandry can be scaled up by methods like tele-veterinary care and telemedicine
- (vi) The manner in which the services in rural development, agriculture, police and revenue can be refined and scaled up
- (vii) The additional infrastructure needed at the CSCs for ensuring the above
- (viii) The possibility of utilizing the available IT infrastructure at schools, colleges, primary health institutions and veterinary institutions, if any, by networking them with the CSCs/state data centres/portals of different government departments
- (ix) The possibility of utilizing manpower available at educational, health and veterinary institutions for evolving self-supporting/models
- (x) Any other item relevant for scaling up services
- (xi) A set of concrete recommendations based on the above for the furtherance of more effective ICT-based rural services

The study was completed and the final report submitted in September 2013.

5.2. Events

Co-sponsors of TISS National Conference on Social Entrepreneurship and Sustainable Development, 8–10 January 2014

Also, an RTBI study presentation was made by James Rajanayagam on behalf of Joseph Thomas.

5.3. Proposals and MoUs

- Proposal for IDRC, Canada sponsored research, ‘Rebuilding Food and Nutritional Security in Developing Countries: New Paradigms, Foods and Research Agendas’, submitted in June 2013
- Knowledge Management for NRLM—proposal with KICS, May 2013
- Engineers Without Borders—proposal submitted, September 2013
- Motivation for Excellence (Alumni—Avinash), December 2013
- Lemelson Foundation, February 2014
- 1984 batch alumni proposal, February 2014
- Participate in Ashoka U research on Social Innovation for information on IITM

5.4. Meetings Attended

Meetings Attended by Joseph Thomas, representing CSIE

- Core Advisory Group on Sustainable Agriculture Business Practice of United Nations Global Compact, meetings attended at Geneva (January 2013), New York (March 2013), Rome (7–8 May 2013) and Geneva (2 December 2013). The white paper can be viewed at the link below. It acknowledges the participation of CSIE, IITM. http://www.unglobalcompact.org/docs/issues_doc/agriculture_and_food/SABP_White_Paper_July13.pdf
- Talk at IIT Mumbai, 16 April 2013, on “Social Enterprises”
- Meeting with Sudha Narayanan, IGIDR, Mumbai, 16 April 2013
- “CSR Partnerships Training Workshop for NGOs & Social Enterprises” in Bangalore, 26–27 August, Bangalore
- KICS Core Group meeting, 12 June 2013, Hyderabad
- CIPS Parawada Project presentations meet at Parawada, Visakhapatnam, 13 June 2013
- Round Table on Asia’s Science and Social Science Research Councils, 25–26 November 2013, organized by Centre for Culture, Media and Governance, Jamia Milia Islamia and IDRC (Canada), held at New Delhi
- Conference on Corporate Governance, National Foundation for Corporate Governance, 12–13 December 2013, held at Chennai
- Project launch: Energy Conservation through Industrial Empowerment (ENERGIE), hosted by ASSIST and UL-DQS, Chennai, 17 December 2013
- CSR Requirements and the Companies Act, 2013—awareness session, 25 January 2014, hosted by UL-DQS at Chennai
- Meeting of Project Advisory Committee for UNIID in South East Asia. CSIE (represented by Joseph Thomas) became a member of the Project Advisory Committee (PAC) for UNIID in South East Asia (UNIID-SEA). Member countries include Malaysia, Thailand, Indonesia and Vietnam, and the project is run by the Ateneo School of Government, Manila, Philippines. CSIE attended the UNIID SEA meetings held at Bangkok (1–3 April 2012), Manila (26–27 July 2012) and Kuala Lumpur (21–22 November 2012) to review the projects being implemented by UNIID-SEA. Through these meetings, CSIE is building a strong network that will have implications for fund raising through collaborative projects. The third meeting of the PAC took place between 19 and 22 February 2014, Subic Bay, Philippines.
- Conference and exhibition on CSR, “A Call to Action Towards Conscious Competitiveness” on 10 March 2014, ITC Grand Chola, Chennai
- Meeting with DFID team at IIT Madras Research Park, 27 March 2014

Other meetings/conferences attended

- Science and Technology Studies Conference, SISTEM–SPHERE IV, by HSS Department, IIT Madras, on Saturday, 1 March 2014

5.5. Documentation

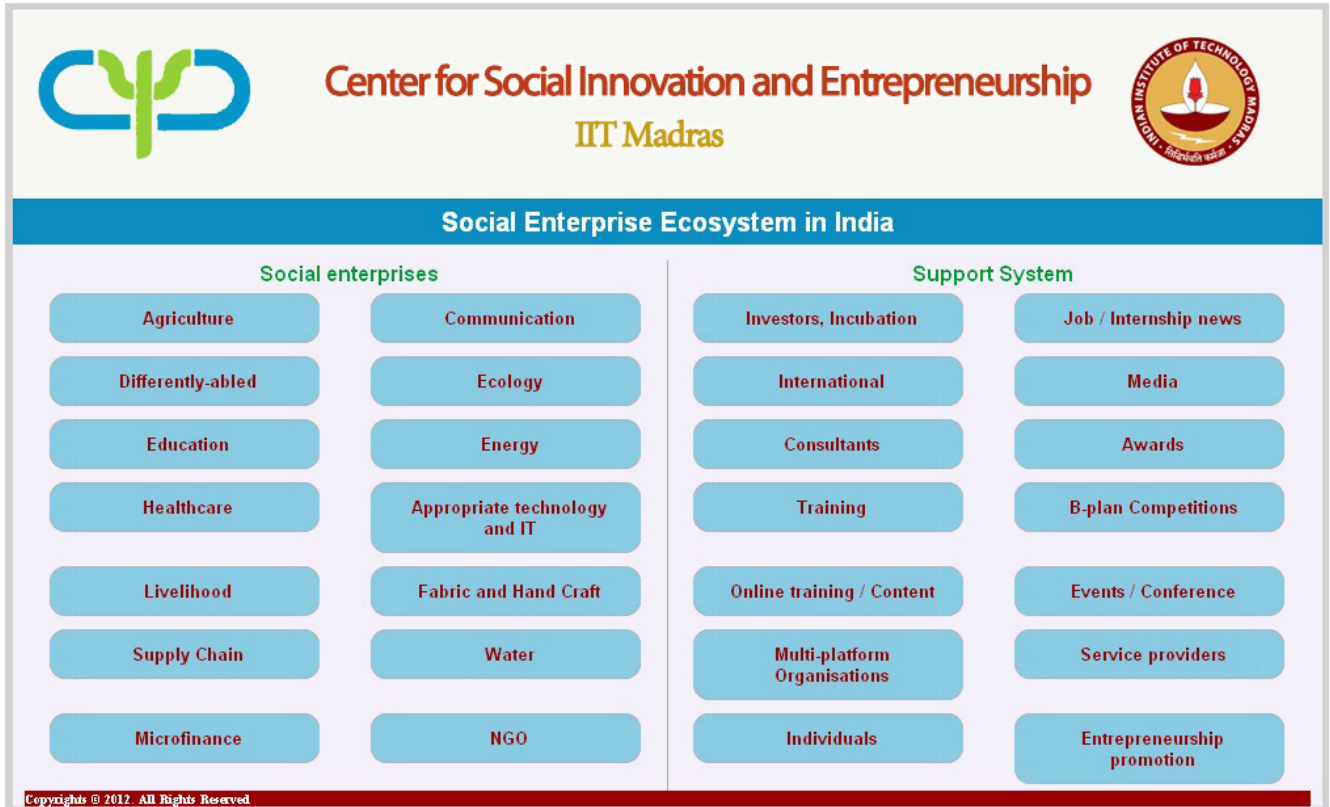
5.5.1. Case Study on Minor in Innovation and Social Entrepreneurship by the Lemelson Foundation and supported by CSIE

The objective of the case study was to learn about the conception of Minor education and the strategy to link it to incubation of student enterprises.

5.5.2. Social enterprises and support system in India

(<http://csie.iitm.ac.in/SEandSupport.html>)

Information on various social enterprises and support system in India is posted on the web site. The number of organizations posted on the page are social enterprises, 240 and support organisations, 170 (total 406). The web page informs students about the maturity of the social enterprise domain.



Social enterprises are organized in sectors such as Agriculture and Dairy, Communication and IT, Differently-Able, Education, Energy, Healthcare, Affordable Housing, Livelihood, Microfinance, Supply Chain, Waste Management and Environment, and Water and Sanitation.

Support system includes various resources and organizations such as Investors, Incubators, Media, Education Training and Research, Online Training/Content, Awards, B-Plan Competitions, Job/Internship News, Fellowship, Multi-platform Organizations and Entrepreneurship Networks.

Social enterprises in Tamil Nadu

A web page was created to list social enterprises or support organizations that have head offices or distribution in Chennai/Tamil Nadu.

5.5.3. Documentation: List of domain reports—social enterprises

Reports and studies on various social enterprise sectors are listed on the web site for students (and other stakeholders). These reports are available in the public domain, on the web sites of various organizations. Links are provided on this page, aggregating the list at one place.

The reports are organized as per themes in the SE domain (impact measurement, etc) and sectors such as Agriculture and Dairy, Communication and IT, Differently-able, Education, Energy, Healthcare, Livelihood, Affordable Housing, Microfinance, Supply Chain and Water and Sanitation.

6. Catalysing Innovation

6.1. Student start-up, internship, project

The students at IITM are encouraged to start up their own social enterprises, intern in an existing social enterprise and develop socially relevant projects. These students include 40 students of the Minor course.

Student interns/start-ups and out-of-class activities

IITM alumni of the M.Tech. 2007 batch from the Electrical Engineering Department worked as interns with CSIE on preparing a proposal for an M.B.A. in Social Enterprises.

Minor course students also took up-out-of-class activities in social entrepreneurship as internships in social enterprise, worked on socially relevant projects, started up companies, presented papers at international conferences, etc.

Mentoring

It is heartening to report that students and IITM alumni see value in sharing and discussing their plans and activities with the CSIE staff. Their need ranges from simply connecting with the right people in networks and other resources to gaining knowledge related to technology and management. About 50 such meetings were held. CSIE staff members also coordinated group mentoring sessions of student/recent alumni entrepreneurs with senior IITM alumni in the area of entrepreneurship.

E-mails on various opportunities such as internship, social B-plan competitions and events are sent to the students. About 34 such e-mails were sent in this reporting period.

6.2. Proposals and MoUs

- New India Foundation proposal, July 2013

6.3. Events

- Organized ‘Art of Business Modeling’ during Shaastra 2014, the annual tech-fest
- Helped M.B.A. students with the problem statement for organizing Udyami—B-plan competition at the Samanvaya event of the Department of Management Studies
- Participated in E-week, the annual entrepreneurship event
- One research scholar was sponsored to attend the TISS National Conference on Social Entrepreneurship and Sustainable Development, 8–10 January 2014.
- Two students were sponsored for Jagriti Yatra, a tour to meet social entrepreneurs.
- Students volunteered during the Ashoka Globalizer event on 28 February 2014.
- Information session on Entrepreneur-in-Residence programme of Villgro
- Three students of ISE Minor were offered free passes to attend Sankalp Unconvention 2013 (ticket costs ₹15,000 each + taxes). CSIE sponsored up to 50% of the boarding and lodging expenses of these students (train + economy stay). The students were selected based on their statements of purpose. As a pay back, sponsored students were asked to write a summary on each session attended during 2 days at the event.

7. Collaboration

7.1. Idea Spark 2013

Idea Spark 2013, a contest to scout technological ideas among students to solve social issues, was launched in July 2013. The scope of the work is to disseminate social entrepreneurship among selected technological institutions and subsequently hold a contest for their students.

The objective of Idea Spark 2013 is to create awareness among students, bring out their ideas, and help their ideas to develop into business plans. These B-plans will be submitted to the Genesis B-plan competition, held by C-TIDES. CSIE will support the selected ideas with mentoring to develop them into business plans.

Nine technological colleges were selected on the basis of whether they have a technology business incubator or entrepreneurship cells. The final list of colleges is given in Appendix 1. It was decided to conduct an awareness camp to promote social entrepreneurship at IITM (to reach out to colleges in the Chennai region) and at PSG-STEP (to reach out to colleges in the Coimbatore region). The agenda of the Awareness Camp at these places is given in Appendix 2 and Appendix 3.

At IITM, the awareness camp was held on Saturday, 5 October 2013. Faculty members from IITM were invited to speak on various topics related to social entrepreneurship. There were a total of 92 participants from three engineering colleges in Chennai. Prof. L S Ganesh gave an introduction about social entrepreneurship. A panel discussion was conducted on the theme “How to Promote Entrepreneurship Ecosystem within Technological Institutions”. Amrutash, Kedar and Rohit shared their experiences, and the session was moderated by Vivek Rajkumar. During lunch, all the students were taken round the facilities of CFI. The students observed what is going on at CFI. After lunch, Prof. John Lourdasamy spoke about various social issues. A lecture on business plan writing by Prof. Ashwin Mahalingam followed. Prof. Mahesh joined the Q&A session after this and answered queries raised by students. Finally, how to participate in Idea Spark 2013 and Genesis was explained to the students.

At PSG Tech, the awareness camp was held on Saturday, 14 December 2013. Faculty members from IITM were invited to speak on various topics related to social entrepreneurship. There were a total of 97 participants from four engineering colleges in Coimbatore. Prof. L.S. Ganesh gave an introduction about social entrepreneurship. Prof. John Lourdasamy spoke about various social issues. After lunch, a panel discussion was conducted on the theme “How to Identify Socially Relevant Issues and Develop Products/Services?” Three entrepreneurs who are currently incubated at PSG-STEP participated and shared their experiences. After this, students were asked to make mock presentations of their ideas. Finally, how to participate in Idea Spark 2013 and Genesis was explained to the students.

Students were asked to submit their ideas by 31 December 2013. There was an overwhelming response from the participating colleges. A total of 51 ideas were submitted. The internal team at CSIE evaluated the ideas based on innovation, technical & market feasibility and impact and ranked the ideas on a scale of 1–5.

It was decided to give certificates and cash awards to the top three ideas from each college. A final event was held on 15 March 2014 to hand over certificates. A pitch session was organized to present the ideas and give feedback to take them forward. Prof. Nagarajan, Dean—International & Alumni Relations, presided over the function as the chief guest and handed over certificates to all the winners.

List of colleges selected for Idea Spark 2013

- 1) IITM, Chennai
- 2) VIT—Chennai Chapter
- 3) Tagore College of Engineering, Chennai
- 4) PSG College of Technology, Coimbatore
- 5) Periyar Maniammai University, Thanjavur
- 6) Bannariamman Institute of Technology, Sathy
- 7) Kongu College of Engineering, Perundurai

Agenda of awareness camp at IITM

Time	Agenda	Speaker
0930–1000 am	Inauguration	Prof. L.S. Ganesh
1000–1100 am	Social Entrepreneurship—An Introduction	Prof. L.S. Ganesh
<i>Tea break</i>		
1130 am to 0100 pm	Panel discussion: How to promote innovation ecosystem in technological institutions?	Amrutash—serial entrepreneur Kedar—Lema Labs Rohit—Desto Creative Solutions Moderated by Vivek Rajkumar
<i>Lunch</i>		
0200–0300 pm	An overview of social issues	Prof. John Lourdasamy
0300–0400 pm	Social entrepreneurship B-plan writing	Prof. Ashwin Mahalingam
<i>Tea break</i>		
0430–0500 pm	About Idea Spark 2013—guidelines, Q&A	

Agenda of Awareness Camp at PSG-Tech

Time	Agenda	Speaker
0930–1000 am	Opening remarks	Prof.L.S. Ganesh, Dean—Students, IIT Madras, Chennai
1000–1100 am	Social Entrepreneurship—An Introduction	Prof. L.S. Ganesh, Dean—Students, IIT Madras, Chennai
<i>Tea break</i>		
1130 am to 0100 pm	An overview of social issues	Prof. J.B. Lourdasamy, Department of Humanities & Social Sciences, IIT Madras, Chennai
<i>Lunch</i>		
0200–0300 pm	Panel discussion: How to identify socially relevant issues and develop products/services?	Moderated by K. Suresh Kumar Three entrepreneurs incubated at PSG-STEP
0300–0430 pm	Micro pitch preparation session and pitch of a few ideas	
<i>Tea break</i>		
0430–0500 pm	About Idea Spark 2013—guidelines, Q&A	Mr. R. James

7.2. CSIE-IITM Academic Contribution Award

Academic Contribution Award recognizes and felicitates individuals in the academia who have made a contribution in India through research, educational programmes and/or practical initiatives, contributing to practical understanding and advances in development-relevant knowledge.

7.2.1. Finalists and winner 2013

The finalists were

- Prof. Satyajit Majumdar, Tata Institute of Social Sciences, Mumbai,
- Prof. C. Shambu Prasad, Xavier Institute of Management, Bhubaneswar,
- Mr. Ajay Dixit, Entrepreneurship Development Institute of India, Ahmedabad and
- Dr. Rama Krishna Reddy Kummitha, Tata Institute of Social Sciences, Mumbai.

The winner of the award is Prof. Shambu Prasad. The winner was announced at the Sankalp Unconvention Forum.

7.3. Internal organizations at IITM/external networking

Regular interactions were had with student-driven organizations such as CTIDES (the student led e-cell), CFI (Centre for Innovation) and iVil (IIT for Villages) and with other organizations in similar domains, such as RuTAG (Rural Technology Action Group) and RTBI (Rural Technology Business Incubator).

CSIE is reaching out to various national and international organizations for strategic partnerships. CSIE has also hosted various visitors in this regard.

Meetings attended

- Mr. Vishnu Swaminathan, Country Director, Ashoka India
- Dr. Parameshwar Rao, Ms Lakshmi, Mr Samir—Rejuvenate India Forum
- Prof. John Tharakan, Howard University
- Dr. Gavin Melles, Swinburn University

Proposals and MoUs

- MoU between CSIE and Chilasa Venture Philanthropy signed

7.4. Events

- Attended Sankalp 2013 at Mumbai, April 2013. Sankalp Unconvention is Asia's largest collaborative platform on social entrepreneurship. It was held on 17 and 18 April 2013, at the Hotel Renaissance, in Powai, Mumbai, India. The annual summit is a convergence of global knowledge, investment and dialogue geared towards building a more inclusive ecosystem for high-impact, pro-poor businesses. Each year, it brings several social enterprises to the forefront and connects them to enablers, mentors and crucial networks. The CSIE-IITM-sponsored Academic of the Year Award was given to Prof. Shambu Prasad, of XIMB. See Prof. Shambu Prasad at <http://www.youtube.com/watch?v=Bmz-Wq4C1es>. Shambu Prasad is also an IITM alumnus. The winners are listed at <http://unconvention.co.in/winners>.
- Attended TiE-Villgro Social Entrepreneurship-Special Interest Group inauguration event on 2 February 2014
- Attended Ashoka Globalizer on Economic Inclusion, ecosystem day on 28 February 2014

7.5. Awareness and branding

The various channels used for promotion and awareness of CSIE, as well as the social entrepreneurship domain, are the web site, e-mails on IITM student and faculty groups, flyers on Alumni Day, communication with past students of the Minor course, C-Tides students (IITM students' entrepreneurship cell), organizing and participating at various events, mentoring of social entrepreneurs, etc. to connect to IITM students, faculty, alumni and other people.

We have received interest and requests from multiple agencies to know more about the centre and possible ways of working together. These include social entrepreneurs, enterprises, academia, investors, government agencies and accelerator programmes.

The CSIE web site (<http://csie.iitm.ac.in>) has information for everyone, to keep them abreast with the social entrepreneurship sector. There were 5926 visitors to the web site in April-March 2014 with 4435 unique visitors.

8. Management Activities

8.1. Governance Committee meeting

Regular meetings are being held to monitor the progress and plan further. Minutes of meetings are circulated among the GC members.

8.2. Internal documentation

The planning and informational documents on all activities within the centre are maintained and updated regularly. These include documentation of the Minor course, research proposals, events and reporting. The concept note of CSIE was prepared and circulated among various stakeholders. CSIE continues to update the activity plan document to guide its activities. Minutes of Governance Committee meetings are being prepared and circulated.

The activities report of CSIE is published in the IITM annual report and circulated among IITM alumni.

9. Testimony and Photographs

9.1. Testimony from students

“The course was very much different from the usual courses at IIT making it very interesting to work and think differently.”

“Now we have got the flavor for business and how things work, the risks involved, the patience required and the strategies that can be employed.”

“This course has helped me not just in realizing the complexities of the business world, but also it made me realize certain hidden abilities in me.”

9.2. Photographs



Guest speaker speaking on creative problem solving in the ‘Product Design and Business Model’ course



Evaluation of prototypes prepared by students in the ‘Product Design and Business Model’ course



Prof. L.S. Ganesh speaking on social entrepreneurship at the awareness camp at PSG Tech, Coimbatore



Awareness camp at PSG Tech, Coimbatore



Certificate distribution

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 at the Institute. A key attribute of this centre is a blend of an academic environment and an industry-like working atmosphere.

The Centre is housed in a dust-free environment. The CEC has a team of qualified, experienced and talented staff members trained in India and Germany in various aspects of electronic instrumentation, testing and calibration. The infrastructural facilities and equipment have been continually enhanced over the years using GoI funds and successive Indo-German collaborative projects.

When the Centre was established, in 1971, a critical need for training service engineers for maintaining electronic equipment was foreseen, and an 18-month training programme, the first of its kind in the country, was started the same year. Later, the duration of the training programme was extended to 24 months. In view of large demand for the trained personnel both within the Institute as and outside, conducting such long-term training programmes has become one of the important activities of the CEC.

The Centre has diversified its activities and now offers the following services:

- Servicing and maintenance of electronic equipment/instruments
- Conducting training programmes for developing manpower
- Calibration of electronic test equipment and measuring instruments
- Testing of electronic products
- Development of custom-built equipment
- Consultancy services for industries in the above-mentioned areas
- Servicing and maintenance of personal computers and printers

The CEC has provided expertise and services in the above areas to more than 230 industries/organizations inside and outside the country so far.

The CEC has been playing a key role in the area of renewable energy by conducting training programmes related to solar photo-voltaics (SPV). This project was sponsored by the Indian Renewable Energy Development Agency (IREDA), New Delhi. Forty SPV training programmes have been conducted, and more than 860 personnel have been trained. SPV laboratory (indoor and outdoor) facilities have been established to promote developmental activities in this area. The CEC is active in diverse projects involving SPV technology.

Four special (customized) 12-week training programmes were organized for radio officers of the merchant navy so that they could become Electro-Technical Officers. This project was sponsored by AMET (Academy of Maritime Education and Training), Chennai.

As the Centre has expanded its activities, most of the laboratories have been upgraded. In 2001, the CEC received the ISO 9001:2000 quality certification from RWTÜV, Germany for having established quality systems in its services. Also, in 2004 the Centre received NABL accreditation, which is given to testing and calibration laboratories that conform to ISO/IEC 17025 standards. In the CEC, both the ISO and NABL accreditation were actively maintained through adherence to specified processes and procedures.

Activities

1. CEC 2-year Technician Training Programme

Preparations are going for admission of the 29th batch of the Technician Training Programme (2 years' duration). The total number of candidates to be admitted is 12. The previous batch comprised 8 trainees.

2. Workshop sessions for B.Tech. students

The CEC conducts electronics workshop/laboratory sessions (part of WS 1020) for B.Tech. I Year students.

3. Some important consultancy projects completed in 2013–2014

Sl. No.	Co-ordinator	Title of Project	Organization	No of Assignments	Project Value (₹)
1	The Head, CEC	Servicing of 1. Multimeter 2. Fluke adapter 3. Data acquisition switch 4. Function generator 5. Universal calibrator 6. Oscilloscope (2) 7. EMC analyser 8. Spectrum analyser	Elmak Engineering Services, Chennai	9	1,63,000
2		Calibration of 1. Oscilloscope 2. DC power supply 3. Decade megohm box 4. Function generator (3) 5. AC/DC calibration standard 6. Capacitance box, 7. AC/DC voltage current source 8. AC/DC current clamp meter 9. Universal fuel gauge 10. Digital multimeter (5) 11. Digital calibrator 12. Decade resistance box (2) 13. Analogue multimeter 14. Static inverter	Instralab Aero & Allied System, Chennai	21	29,500
3		Calibration of 1. AC/DC clamp meter (8) 2. True RMS multimeter (2)	Siemens Ltd., IC RL CS&TS CS, Chennai	10	19,000
4		Calibration of 1. Oscilloscope 2. True RMS OLED multimeter	Pulsars, Chennai	2	11,700
5		Servicing of spectrophotometer	Regional Labour Institute, Chennai	1	2670
6		Servicing of digital multimeter	National Test House, Chennai	1	3000
7		Servicing of bipolar coagulator	Dr. Achantal Lakshimipathi Neurasurgical Centre , VHSMC, Chennai	1	2999
8		Servicing of documenting process calibrator	Central Scientific Instruments Organization (CSIR), Chennai	1	5000
9		Testing of inverter	Indo National Limited (Nippo Batteries), Chennai	2	60,000
10		Testing of inverter	The Director, Electronics Test & Development Center (ETDC), Chennai	1	5000
11		Testing of white colour polyester fabric	Dhilip Kumar M.O., Sri. Krishna Engg. College, Chennai	1	876
12		Calibration of electronic load	Ingsman Energy and Fuel Cell Research Organization Pvt. Ltd., Chennai	1	7000
13		Calibration of decade resistance box	MTL Instruments Pvt. Ltd., Chennai	2	3600
14		Calibration of dual display multimeter	The Group Head, SAMEER, Chennai	1	3000
15		Fault analysis of nonlinear junction detector	Kwick Soft Solutions, Pvt. Ltd., Chennai	1	5000
16		Servicing of temperature calibrator	R.R. Electronics, Chennai	1	6500
17		Servicing of power supply board of differential scanning calorimeter	The Head , Department of Rubber Plastics Technology, MIT, Chromepet, Chennai	1	25,000
18		Servicing of Dialogue Plus module	Orchid Chemicals & Pharmaceuticals Ltd., Alathur	1	26,000
Total				58	3,78,845

4. Conference presentations

- P. Sadasivam attended the *IEEE 39th Photo Voltaic Specialists Conference (PVSC)* (international conference), 16–22 June 2013, and presented a poster.
- C.R. Jeevandoss, M. Kumaravel, Boby George and V. Jagadeesh Kumar. 2013. Novel method for the in situ measurement of the temperature of a satellite's solar panel. *IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2013)*, 6–9 May 2013, Minneapolis, USA.
- C.R. Jeevandoss, M. Kumaravel, Boby George and V. Jagadeesh Kumar. A novel measurement technique for performance comparison of sun tracker systems. *IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2013)*, 6–9 May 2013, Minneapolis, USA.
- K. Sulochana attended the *International Conference on CLEO-PR and OECC/PS 2013* 1–5 July 2013, Kyoto, Japan and presented a paper.

5. Training programmes attended by CEC staff

- N. Karthiyayini attended the NABL conclave on the theme 'Innovative Practices in Laboratory Management' on 16 and 17 September 2013.
- N. Karthiyayini and K. Sulochana attended the 'ISO 9001:2008 Awareness' training programme at IIT Madras on 11 December 2013.

6. Development work completed

- Development of ignition system for the Department of Mechanical Engineering
- Development of controller for laser trigger system for the Department of Mechanical Engineering

7. Staff strength

The Centre has 10 technical and 2 administrative staff members assisted by 12 technicians employed in project mode.

6.4. P.G. SENAPATHY CENTRE FOR COMPUTING RESOURCES

6.4.1. Introduction

The Computer Centre at IIT Madras was established in 1973 to provide centralized computing resources and support to the academic initiatives of the Institute. It has professionally maintained facilities, from the IBM System 370, in the 1970s, and the Siemens system, in the 1980s, to the SGI and Sun systems in the earlier part of this millennium and the super-computers, communication and network services of today, and served the IIT Madras community. Over the years the computing and information technology requirements of the IIT Madras community have changed. The Computer Centre's organization has also evolved with these changing requirements. In 2007 the infrastructure of the centre was significantly upgraded through an endowment given by Shri S. Gopalakrishnan in the name of Shri P.G. Senapathy.

In 2013–2014 the activities of the centre were organized under five verticals: High Performance Computing Environment (HPCE), Networks, E-Services, Workflow and Data Centre. Each vertical is focused on continually improving its services to meet the needs of the IIT Madras community. The Computer Centre has been ISO 9000 certified since 1999. Currently it maintains all its processes in conformance with ISO 9001: 2008 standards and is certified along with other units in the Institute by TUV Nord. This report presents a background of each vertical and a summary of the annual activities.

6.4.2. High Performance Computing Environment

The High Performance Computing Environment (HPCE) group was established to cater to the ever-increasing demand for supercomputing facilities felt by researchers at IIT Madras.

A new cluster (GNR) was installed at the Computer Centre. This cluster has 16 compute nodes, with a dual processor and an eight-core Intel Xeon Ivy Bridge E5-2650v2 series processor with 4×8 GB RAM and a 500 GB SATA hard disk at each node, and a head node consisting of a Super micro server with a dual processors and an eight-Core Intel Xeon Ivy Bridge E5-2650v2 series processor with 4×8 GB RAM and a 500 GB of SATA hard disk with 14 TB of shared storage.

A Virgo super cluster with 292 nodes and two master nodes (I-Dataplex Dx360M4) with FDR 10 Infini-band connectivity is already in use. These nodes have $2 \times$ Intel E5-2670, eight-core 2.6 GHz processors and have 4 GB of memory per core. This machine is catering to the needs of the research community which uses mostly parallel programming.

In terms of speed, this machine, when it was commissioned, was rated 224 in the world and is the fastest among the educational institutes of India. With an energy efficiency of 932 MFop/W, this machine has set new benchmarks for energy efficiency. It is the most energy-efficient supercomputer in India and was ranked fifth worldwide.

The Virgo system has two 80 TB General Parallel File systems with a 50 TB NAS file system as a backup. Suselinux 11.2 has been installed on all the nodes, with Xcat being used as the clustering software. A load leveler has been installed for scheduling jobs.

Some of the active research areas for which the Virgo cluster is being used are aerospace engineering; atmospheric and ocean modeling; analysis of large structures; flows and combustion modeling; material sciences; social, ecological and physical network modeling; molecular modeling; spectroscopy; and VLSI.

The Computer Centre also has a GPU cluster—a Libra with one head node (HP Proliant DL380 G7 server with a dual processors, six-Core Intel Xeon 5670 series processor with 24 GB RAM and a 146 GB SAS hard disk) and eight compute nodes (based on a HP Proliant SL390s server consisting of a dual processor, six-core, Intel Xeon X5675 processor with a 3 Tesla M2070 GPU card and a 146 GB SAS hard disk at each node).

The HPCE group also maintains project machines from various departments and centres that are used for sponsored research and programmes such as the National Programme on Technology Enhanced Learning. This group also supports users in improve code and organizes training programmes related to effective usage of HPCE hardware and the related software. Detailed information about HPCE, including the latest usage statistics and the software available, are posted at www.cc.iitm.ac.in.

6.4.3. Networks

The Campus Computer Network was established in 1994, connecting about 18 buildings in the Academic Zone, using telephone cables. The initial bandwidth was 64 kbps. Today, a high-speed network using a fibre backbone and ATM 622 Mbps communication technology, connecting all the buildings in the Academic Zone is operational. In addition, a backbone interconnecting the three zones (Academic, Hostel and Residential zones) is also operational. The total number of nodes in the campus is approximately 15,000. The network equipment in the Academic Zone was recently upgraded to provide 100/1000 Mbps connectivity to the nodes. All the buildings in the Academic Zone are provided with dual fibre connectivity. Video conferencing is also facilitated as a network service. The Networks vertical also oversees the procurement of external network services as well as installation and maintenance of cabling across the IIT Madras campus. A summary of the key activities of the Networks group is given below:

1. Building-wise VLAN segmentation completed for all the buildings in the Academic and Hostel zones. Residential Zone segmented into three VLANs.
2. Network support provided for web telecasting of Institute Convocation through Chennai online.
3. Tata Communications Internet bandwidth upgraded from 45 Mbps to 200 Mbps 1:1.
4. Implemented wired connectivity to Auto Shop (new building), Engineering Unit, Residential Zone, Maintenance Office, G7 Sarayu Hostel extension, Community Hall and Techkids. Now all the campus buildings have wired network connectivity.
5. Direct optical fibre connectivity implemented from CC to MSB, CC to Physics office. SAIF is not a nodal point any more.
6. Assigning an I/O box number to each network point in a few buildings (containing the name of the building, room number, point number, switch port number, switch host name and IP address) in the Academic Zone has been completed.
7. Proxy-less access has been implemented for the Hostel and Residential zones.

6.4.4. E-Services

The E-Services vertical focuses on services such as web system configurations, e-mail, web access, web security and storage solutions. Several new services were enhanced and added by the e-service group. The services maintained and initiated by the group are listed below.

Mail services

- i) IIT Madras
- ii) Students
- iii) Alumni
- iv) Retirees
- v) Conferences

Web services

- i) Virtual hosting
- ii) Mailing list maintenance
- iii) Employee user web portal
- iv) Web sites

Security and monitoring services

- i) Firewall tuning
- ii) Hack solution
- iii) Security gateway (spam appliances)
- iv) Log analytics
- v) SSL certificate

Storage solution

- i) Backup and restore process
- ii) Disaster recovery
- iii) Server and desktop consolidation by virtualization (VVMWARE)

User management services

- i) Active Directory Service (ADS)
- ii) Lightweight Directory Access Protocol (LDAP)

Development and deployment services

- i) Convocation
- ii) Distinguished Alumnus Awards
- iii) User registration for IC&SR
- iv) HPCE web-based user management
- v) Faculty and staff portal
- vi) Web based training
- vii) VTLS support (Library)
- viii) Support to students' election
- ix) Support to JEE
- x) Support to HSEE
- xi) Support to departments with web services
- xii) Support to Office of Alumni Affairs
- xiii) Support to Placement Office

Other services

- i) SMS gateway
 - ii) Google API services
 - iii) Intranet services
 - vi) Virtual Private Network (VPN)
 - vii) Project management support
 - viii) Online ticketing system
 - ix) Home portal for staff/faculty
 - x) Cloud services (own cloud)
 - xi) Authenticated mail service
 - xii) Local/global FTP
-

6.4.5. Workflow

The increased student intake in recent years has been accompanied by an increase in the faculty strength. IIT Madras now supports about 8000 students and 1300 employees. The Institute began the process of providing a new suite of electronic data services to students and faculty members in January 2012, starting with academic processes. This was followed by a switchover to Tally for the employee payroll in the financial year 2012–2013. The implementation of enterprise resource planning (ERP) software, or what is internally referred to as Workflow, has now matured to include e-services in the Academics, Administration, Accounts, Stores & Purchase and IC&SR sections.

The Workflow group at the Computer Centre works with various sections in the Institute to document process requirements, develop specifications, perform business acceptance testing, support system usage and monitor change requirements.

The faculty, staff and students are beginning to see the benefits of an Institute-wide effort to adopt an ERP solution. Each of the administrative and academic processes has been mapped, documented and simplified. The data platform is flexible and can connect to Tally, for accounting and the payroll, and to open source software such as Moodle, for academics.

The Workflow team worked with different users from various sections to re-engineer selected processes to streamline operations. Reports from workflow have been widely used in administration, accounts and academics to manage day-to-day operations easily.

Workflow submissions are compulsory in a few processes such as leave and LTC applications, faculty visits, student course registrations and grade approvals. On the basis of user feedback, change requests have been raised to implement a few modifications in these processes as well.

In the near future, administrators from various sections will be able to analyse the data collected, develop measurable outcomes and align our internal processes better to support our vision for IIT Madras.

6.4.6. Data Centre

The function of the Data Centre vertical is to ensure appropriate facility management for efficient functioning of all the service verticals of the Computer Centre. These facilities include an uninterrupted power supply, backup power supply (DG set), CCTV, climate control, access control, water leakage system, fire protection and office space maintenance. The key activities of the Data Centre group during the year included the following.

1. Commissioned 80 KVA at Data Centre
2. Commissioned 30 KVA battery bank (34 × 42 Ah) to Data Centre
3. Commissioned 11 TR at Data Centre
4. Replaced the following battery banks
 - 96 × 120 Ah—two sets for 160 KVA UPS systems
 - 32 × 48 Ah—two sets for 80 KVA UPS systems
 - 9 × 28 Ah—one set for 3 KVA UPS system
5. Retrofit of electrical wiring to enable dual power supply for all racks
6. Routine maintenance activities of all power supply and climate control equipment
7. Replacement and upgrading of power supply components to ensure uninterrupted power supply at the Data Centre
8. Painting and repair of Data Centre
9. Specification of upgrading of building maintenance system with latest technologies

6.4.7. Training and Professional Activities

The staff of the Computer Centre participated in the following training activities this year.

- R. Thiruneelagandan attended the Cat Customer Care event at Chennai, conducted by GMMCO and Caterpillar on 24 July 2013.
- V. Selavaraju and P. Mahesh Mithreeven attended the Second National Technical Workshop at IISc, Bangalore from 17 to 19 October 2013.
- The Computer Centre Workflow group organized a training programme for newly recruited Junior Assistants for implementation of Workflow in various sections of the Institute.
- V. Selavaraju and P. Mahesh Mithreeven underwent training in a network routing and switching programme at Alchemy Solutions, Guindy from 3 to 7 March 2014.

Details of Staff and Area of Work

Sl.No.	Name	Designation	Area of Focus
1	Koshy Varghese	Chairman	Overall
2	Sanjib Senapathi	Faculty-in-Charge	High Performance Computing Environment
3	Nitin Chandrachoodan	Faculty-in-Charge	Networks
4	G. Phanikumar	Faculty-in-Charge	E-Services
5	Anil Prabhakar	Faculty-in-Charge	Workflow
6	S.K. Ramesh (retired)	Senior Systems Engineer	Data management, data processing and examination support
7	C.S. Sourirajan	Systems Officer Gr. I	Data Centre, Work Flow, Stores & Application Software development
8	V. Ravichandran	Deputy Systems Engineer	High performance computing, application programming, system programming and administration, WorkFlow
9	C.N. Vijayaragavan	Deputy Systems Engineer	Center Representative for ISO-9000; In-Charge, Data Centre
10	Banavath Baman	Assistant Systems Engineer	Training
11	C.S. Venkatesan	Assistant Systems Engineer	Software support
12	S. Anand Kumar	Assistant Systems Engineer	E-services, server hardware, e-mail, VMWARE and system administration
13	V. Selvaraju	Assistant Systems Engineer	Network design, maintenance and administration of servers and campus network PC Hardware & Software
14	S. Priya	Assistant Systems Engineer (contract)	Workflow and software development
15	D. Hariharan	Senior Superintendent	Antivirus maintenance
16	T.V. Subba Rao	Technical Superintendent	Workflow—Administration Module
17	R. Thiruneelagandan	Junior Technical Superintendent	Data Centre
18	P. Gayathiri	Junior Systems Engineer	High performance computing and software development
19	M. Jeevanandam	Junior Technician	Computer networks
20	M. Irudayaraj	Junior Technician	Web Programming, Linux and e-services
21	R. Jayaganesh	Junior Technician	Computer networks
22	P. Mahesh Mithreevan	Junior Technician	Computer networks
23	J. Nandagopal	Attendant	Office

Apart from these permanent staff members, there are Senior Project Officers and Project Associates/Technicians assigned to each vertical in the Computer Centre to support the various activities of the Centre.

7. CENTRAL FACILITIES

7.1. Central Workshop Facilities

The Central Workshop was established in 1959. Initially it consisted of shops associated with three major manufacturing processes, i.e. metal cutting, metal joining and metal forming. Later on, sections related to other modern manufacturing processes and control systems were introduced in the workshop training programme.

Presently the Central Workshop offers facilities in different shops and sections. A list of the shops and sections, with their facilities, is provided here.

Sl. No.	Shop	Facilities
1	Carpentry	Wood working with planing, circular saw cutting, 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	Horizontal and vertical milling machines, lathes, planing machine, radial drilling machine, tool and cutter grinder, CNC lathes, CNC milling machines, vertical and universal milling machines and computer aided manufacturing (CAM) software
4	Gear Shop	Spur, helical and bevel gear cutting and gear inspection
5	Electrical Shop	Trainers for single-phase electrical circuits and three-phase DOL and star–delta starter trainers
6	Instrument Shop	Calibration of pressure gauges up to 1000 bar, precision machines And rapid prototyping machine (3D printer)
7	Welding Shop	Arc welding, gas welding, brazing, TIG welding and plasma arc cutting
8	Foundry Shop	Sand moulding, melting and die casting machines
9	Smithy Shop	Open hearth furnace
Sections		
10	Pneumatics and Hydraulics	Basic and advanced pneumatics trainers, electro-pneumatic trainer, PLC for pneumatics trainer And basic and advanced hydraulic trainers
11	FRP	Manufacturing polymer reinforced composites by hand lay-up process
12	Plastics	Introduction to plastics, demonstration of hand-operated semi-automatic injection and compression moulding of plastics and production
13	Instrumentation & Communication Laboratory	Introduction to basic communication systems, exercises in optical fibre communication, introduction to various kinds of transducers, microprocessor-based control applications, examples of stepper motor control, traffic light controller and PLC

In addition, the Central Workshop operates the Institute buses and maintains the Institute vehicles (light and heavy).

The Central Workshop trained 833 B.Tech/Dual Degree (1st year) undergoing the courses WS1010 (4 credits), WS1020 (2 credits) and WS 1030 (2 credits, exclusively for the students of the Engineering Design Department, during the 1st semester). Details are provided here.

Department	No. of Students	Training Modules
Electrical Engineering	118	1. Power Tools
Engineering Physics	30	2. Machining Process—Turning
Mechanical Engineering	148	3. Machining Process—Milling
Metallurgical and Materials Engineering	49	4. Foundry and Smithy
Aerospace Engineering	58	5. Plastics and FRP
Chemical Engineering	91	6. Welding

Naval Architecture & Ocean Engineering	55
Civil Engineering	97
Biotechnology	65
Computer Science	55
Physics (Dual Degree)	11
Engineering Design	56
Total	833

7. Electrical
8. Electronics
9. Pneumatics and Hydraulics
10. Instrumentation and Communication

The Central Workshop fabricates test set-ups and accessories for Ph.D., PG and UG projects. A total of 1118 work orders were executed during the year 2013–2014.

Enhancement of facilities for students training in various modules and modernization of training facilities were carried out in the year 2013–2014. Computer Aided Manufacturing (CAM) software (Single network license) and Rapid Prototyping Machine (3D Printer, 1 no.) were procured. These software and machine are used for fabrication works and students training.

7.2. Central Gas Supplies Unit

The Central Gas Supplies Unit procures industrial gases and special gases from various manufacturers/suppliers and issues them to the various departments, laboratories and sections of the Institute for research and practical classes.

7.3. Central Glass Blowing Section

The Central Glass Blowing Section has been one of the important infrastructural facilities of the Institute since 1972. Being a central facility, this section undertakes design and fabrication of sophisticated glass apparatus for research and development in various departments.

This section has a range of modern glass working equipment, largely procured from Germany through the collaborative programme, including a horizontal-cum-vertical lathe, universal lathe, forming lathe and high-vacuum system. The section is also equipped with a number of sophisticated burners, drilling and cutting machines, grinding and polishing equipment and such other tools as are necessary for fashioning a variety of glass apparatus. The section has adequate facilities for quartz working and has developed a high level of expertise in this area.

A cryostat, spherical and cylindrical Dewar flasks, a lugging probe, a laser housing tube with a water jacket, a reactor tube, a vacuum tube collector for solar energy and quartz ware are among the sophisticated apparatus that have been fabricated.

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 resources related to applied science, engineering, technology, the humanities, management, social sciences and other new emerging areas. The Central Library holds 4,80,048 collections, including 719 current journals, catering to the information needs of 13,421 members, and provides various value-added services with the help of modern information handling tools and techniques. The major activities of the Central Library from April 2013 to March 2014 are described in the following.

8.1. STATISTICS RELATED TO LIBRARY INFORMATION SERVICES

<i>Item</i>	<i>2012-2013</i>	<i>2013-2014</i>
A. Collections		
Books	2,54,515	2,58,500
Theses	6,212	6,216
Pamphlets and reports	5153	5153
Microfilms/fische	1,842	1,842
Book Bank	17,118	17,807
Current periodicals by subscription	845	719
Current periodicals by exchange/gifts	87	87
Back volumes of periodicals	1,11,441	1,13,173
Patents and specifications	20,418	20,418
German collection	44,280	44,280
CD-ROMs	1488	1489
Audio/video cassettes	448	448
e-Books	21	916
Total	4,63,868	4,80,048
B. Membership		
Staff members	787	888
Faculty members	574	650
Students	9888	11,056
Alumni members	51	351
Corporate members	10	11
Special members	58	58
IAS members	165	337
Project co-ordinators	70	70
Total	11,603	13,421
C. Circulation		
1. Number of books/journals issued	90843	77063
2. Number of books issued—Book Bank (GS)	4402	3930
3. Number of books issued—Book Bank (WS)	3232	2673

5. Overdue and other charges collected (₹)	6,73,437	4,70,950
6. Photocopy charges collected (₹)	7100	5,130
D. Project Loans to Departments/Centres		
1. Books issued	771	257
E. Inter-library Loan Transactions		
1. Borrowed from other libraries	8	7
2. Loaned to other libraries	9	5
F. Reprint Service		
1. Reprints received from other institutions	84p	90p
2. Reprints supplied to other institutions	596p	600p
G. Smart Cards Generated/Issued	4480	4612
H. Expenditure (lakhs of ₹)		
1. Purchase of books	112.68	142.96
2. Subscription of journals	1050.90	1295.52
I. New Journals/Databases Added	8	41

8.2. ISO 9001:2008 ACTIVITIES

The Central Library actively participated in ISO-9001:2008 activities and also maintained a quality-based library system, services and procedures. The major activities related to ISO-9001:2008 are listed here:

1. An ISO internal audit was conducted on 26 April 2013.
2. An ISO management review meeting was held on 24 May 2013.
3. An ISO surveillance audit held on 25 November 2013.
4. The Central Library has taken initiative to conduct periodical review meetings of the library staff comprising the Chairman LAC, Librarian, Deputy Librarian, assistant librarians and section in-charges for effective functioning of the Central Library. For this purpose, one review meeting, one LAC meeting and two staff meetings were organized between April 2013 and March 2014.

8.3. MAJOR INITIATIVES

The Central Library has taken various initiatives to improve the existing infrastructure, facilities, services and collections to provide strong and dynamic support to the academic, research, development, continuing education and industrial interaction programmes and policy of the Institute. Selected initiatives in this regard are listed in the following.

8.3.1. Equipment Added

The following equipment was added between April 2013 and March 2014:

- a. Three self-check-out stations (One Smart)
- b. One book drop box
- c. Stock inventory management system
- d. Five PCs

8.3.2. On-line Access to e-Journals

1. On-line access to the SciFinder Scholar, MathSciNet, Scopus RSC-Gold and PsyArticle databases was added on the basis of recommendations of faculty members.
2. The following e-databases and e-journals, from various publishers, were renewed:

One Petro database, Turnitin, UptoDate, ProQuest (Full text dissertations and theses, PQDT) Journal Citations Report (JCR), Thomson Core Patents, Taylor & Francis package, Indian Economy Database, *Science* (online subscription), 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 and Syndetic.

8.3.3. Extended Working Hours on Saturday and Sundays

The Central Library has extended its working hours up to 12.00 midnight during quiz/end semester and make-up exams on Saturdays and Sundays for the benefit of students.

8.3.4. Systematic Re-shelving of Books

To facilitate easy retrieval of books for our students and faculty, two groups, with 22 members, have been formed who devote 1 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.

8.3.5. Smart Card Facilities

A dual-side Retransfer Smart Card Printer was purchased and installed.

8.3.6. Major Reorganization of Library Books in Stacks

To create more reading space for users, we have shifted MRH books to the old Reading Hall—I (RH-I). The RH1 books have been shifted to Level-III (left side), and Reading Hall—II books have been shifted to Level-IV (left side). The Book Bank books have been shifted from the basement to RH-II (first floor). All the back volumes have been shifted from the left side of Level-III and Level-IV to the right side on the same floors. The Chemical Abstracts have been shifted to the HSS Back Volumes area. The tables and chairs have been placed on all the floors along with the book stacks.

8.4. RETIREMENT OF STAFF

1. Mr. P. Natarajan, Assistant Librarian, was retired from service on 31 January 2014.

8.5. LIBRARY AUTOMATION

1. *i-portal* was upgraded to Chamo (<http://iportal.cenlib.iitm.ac.in:8080/>), the new web OPAC.
 - (i) Three self-check-out stations were added.
 - (ii) One book drop box was added.
 - (iii) A stock inventory management system was added.
2. The ELIMS server was upgraded for RFID based circulation transactions.
3. The VTLS server was migrated to a VM-WARE server.
4. A manual backup of the database in CC is taken daily by the Deputy Librarian.
5. Data relating to 2550 patrons (students, faculty and staff members, alumni, IAS members) were added to the Virtua-VTLS database
6. Five PCs were procured for the RFID workstation and VTLS web OPAC.

8.6. FACULTY AND THEIR ACTIVITIES

Name	Qualifications	Major Areas of Specialization
Harish Chandra, Librarian	M.A., M.L.I.Sc., Ph.D.	Rural information systems, ISO in libraries, digital libraries, web site design and maintenance, industrial information services
Dr. Mahendra N. Jadhav Deputy Librarian	M.Sc., M.L.I.Sc., M.Phil. Ph.D.	Library Automation, Digital Libraries, Open Source Software, Library Portal, RFID etc.
P. Natarajan, Assistant Librarian	M.A., M.L.I.Sc.	Library administration, acquisition sections, technical processing, smart card applications, store management

8.7. SHORT TERM COURSES/WORKSHOPS/SEMINARS/SYMPOSIA/CONFERENCES/TRAINING PROGRAMMES/MEETINGS ATTENDED BY FACULTY/STAFF MEMBERS IN RECOGNIZED ACADEMIC INSTITUTIONS

Sl. No.	Name of Staff Member	Title	Institution	Period
1	Harish Chandra, Librarian	Best and Innovative Practices in Libraries (seminar)	AMITY University, Chennai	26 October 2013
2	Mahendra N. Jadhav	KOHA Workshop 7 under NMEICT Project	Central Library, IIT Madras	12–15 June 2013
3	M. Muthu N. Muruganandham P. Velmurugan	Springer Roadshow Workshop on e-Resources	Springer	2 September 2013
4	S. Muthumari K. Thiagarajan	Emerging Trends in Modern Structures—Fire & Life Safety—A Real Concern	Indian Institute of Security Management, Chennai	29 November 2013

8.8. SPECIAL LECTURES DELIVERED BY FACULTY MEMBERS IN OTHER INSTITUTIONS

Sl. No.	Name of Faculty Member	Topic of Lecture	Venue and Date
1	Dr. Mahendra N. Jadhav	Installation of DSpace and Administration	National Workshop on FLOSS Based Digital Library Software DSpace, at Synergy Institute of Technology, Bhubaneswar, 25–27 April 2013
2	Dr. Mahendra N. Jadhav	Installation of KOHA Software in Ubuntu Operating System	KOHA Workshop 7 under NMEICT Project, Central Library, IIT Madras, 12 June 2013
3	Dr. Mahendra N. Jadhav	Use of RFID in the Library	KOHA Workshop 7 under NMEICT Project, Central Library, IIT Madras, 13 June 2013

8.9. DISTINGUISHED VISITORS/GROUPS TO THE CENTRAL LIBRARY

Sl. No.	Name of the Visitor and Designation	Date of Visit	Purpose of Visit
1	Director (Library) and Library Officers of the Anna University Library Team	25 July 2013	To see the facilities and observe the functioning of the Central Library
2	Principal and children from Satchidannda Jyothi Niketan Matric Higher Secondary School, Mettupalayam	29 September 2013	To see the facilities and observe the functioning of the Central Library
3	A professor, the Director and the Library Team from JNTU, Kakinada	7 March 2014	To see the facilities and observe the functioning of the Central Library

8.10. FUTURE PLANS

1. To procure e-books
2. To create more reading space for users
3. To initiate the creation of a database of conference proceedings received from faculty members of IIT Madras
4. To initiate the creation of a database of bound volumes
5. To capture more ISBNs for updating the syndetic database
6. To repair a minimum of 10,000 books in the stacks that will be identified
7. To organize professional development lectures and other professional events
8. To issue newly designed smart cards to dependents of faculty and staff members residing on campus

9. STUDENTS AMENITIES AND ACTIVITIES

9.1. Hostels

IIT Madras, being a residential institute, requires that students reside in the hostels on campus. At present there are 15 men's hostels and two ladies' hostels used for accommodating students of the UG and PG programmes, research scholars and project staff. Further, in order to meet the additional requirements of accommodating a large number of lady students, two extensions (3 G-type quarters originally meant for accommodating married research scholars and 10 C-2-type faculty quarters) have been used. A total of 5665 single rooms, 88 double rooms, 241 triple rooms, 3 quadruple rooms and 3 pentuple rooms are available in the hostels. Research scholars and some students in the master's programmes, who are married and who seek family accommodation on campus are housed in earmarked quarters. A few students, especially those from the armed forces, are provided accommodation in the MOH quarters. During the period under report, there are 7003 students residing in the hostels.

At present, there are six dining halls (messes) that cater food to the students and project staff members residing in the hostels. Of these messes, one is run by staff members of the Office of Hostel Management, and the other five (including one for lady students) are run by private contract caterers. The housekeeping services in the hostel sector are outsourced.

Each hostel is administered by a Warden (a faculty member), an Assistant Warden (a senior research scholar or project staff member) and a Hostel Council, consisting of student secretaries and the Assistant Warden, which assists the warden with the day-to-day functioning of the hostel. Each hostel office is supported by the staff of the Office of Hostel Management, which is a centrally administered body and is in overall charge of the functioning of the hostels and the Central Supplies Unit. There are 95 employees, and they are accountable to the Hostel Management through the respective Wardens of the hostels. The Chairman, Council of Wardens is the Chairman of the Office of Hostel Management. The Chairman is assisted by the supporting staff. During the period under report, the following Wardens were in position.

Chairman, Council of Wardens and Chairman, Hostel Management

K. Sethupathi

Professor, Department of Physics

Name of the Hostel/Unit	Warden
Alakananda	Somashekhar S. Hiremath, Associate Professor, Department of Mechanical Engineering
Brahmaputra	Dillip Kumar Chand, Associate Professor, Department of Chemistry
Cauvery	Ranga Rao G., Professor, Department of Chemistry
Central Supplies Unit	K. Sethupathi, Professor, Department of Physics
Ganga	A. Gopala Krishna, Associate Professor, Department of Biotechnology
Godavari	Appa Rao G., Associate Professor, Department of Civil Engineering
Jamuna	Kesavan V., Associate Professor, Department of Biotechnology
Krishna	S.M. Shiva Nagendra, Associate Professor, Department of Civil Engineering
Mahanadhi	Dhiman Chatterjee, Associate Professor, Department of Mechanical Engineering
Narmada	B.S.V. Prasad Patnaik, Associate Professor, Department of Humanities and Social Sciences
Pamba	Asokan T., Associate Professor, Department of Engineering Design
Saraswathi	P. Murugavel, Assistant Professor, Department of Physics
Sarayu	Madhumathi R., Professor, Department of Management Studies
Sharavati	Usha Mohan, Assistant Professor, Department of Management Studies
Sindhu	P.N. Santhosh, Associate Professor, Department of Physics
Tamiraparani	Umakant Dash, Associate Professor, Department of Humanities and Social Sciences
Tapti	Prafulla Kumar Behera, Associate Professor, Department of Physics

9.2. Medical Facilities

Medical facilities are provided to the students in the well equipped Institute Hospital. Advice is given to students on a wide range of health problems. Details of the medical facilities are available in Chapter 13. Campus Amenities.

9.3. Gymkhana

The Institute Gymkhana takes care of the general welfare, sports and co-curricular and cultural activities of students. Sports activities form an integral part of the overall development of personality and prepare the students to overcome challenges in their various walks of life after their graduation. Hence the students are encouraged to participate in and organize a number of sports activities.

The following tournaments were conducted during 2013–2014 by the Institute Gymkhana of IIT Madras.

- Freshie Tournament for I year B.Tech. students (for all games).
- The inter-collegiate invitation tournament “Sportfest—2013”.
- NSO selection for I year B.Tech. students (compulsory attendance 85%).
- All-India Inter-collegiate Basketball Tournament for Men (Gerhard Fischer Cup) and for Women (Mrs. Koikila Rajaiah Trophy)—2013
- IIT Sanmar Inter-collegiate Invitation Cricket Tournament—2013
- Inter-gostel Tournament “Schroeter Trophy” (Gymkhana Day)
- Inter-IIT Tournament—2013 (participation, 148 students)
- Non-media tournament “Dean (Students) Trophy”
- Inter-IIT coaching camp (12 days, compulsory for Inter-IIT contingent)
- Inter-IIT Staff Meet selection and coaching for the staff
- Institute Annual Open Road Race
- Institute Annual Cycle Race
- Institute Open Chess Tournament
- Institute Open Bridge Tournament
- Institute Premier League
- Institute Open Best Physique Competition

Sportfest—2013

This inter-collegiate invitation tournament was conducted for city colleges for both men and women during 25–30 September 2013. A total number of 32 colleges participated, of which 12 were women’s colleges. The tournament was conducted on a league-cum-knockout basis. Trophies were awarded to the winners of various games. This tournament helps finalize the Inter-IIT team probable. Our students took part enthusiastically in all the games and won a few events.

Inter-IIT Aquatic Meet 2013

The Inter-IIT Aquatic Meet was held from 1 to 5 October 2013 at IIT Guwahati. The IIT Madras contingent won the gold medal in aquatics and water polo.

Inter-IIT Sports Meet 2013

The 49th Inter-IIT Sports Meet was held between 16 and 23 December 2013 at IIT Guwahati. The intense practice during the mini camps held in November and December improved our preparations quite a bit. IIT Madras won the second position in the men’s section. IIT Madras won gold medals in hockey and table tennis and a bronze medal in weightlifting. The IIT Madras women’s section scored a total of 22.80 points. The women’s basketball team got the silver medal. In swimming, the IIT Madras women performed well. Our teams performed their best. The IIT Madras men were the runner-up in the general championship.

All-India Inter-collegiate Invitation Basketball (GF & KR) Tournament 2013

This tournament was conducted from 15 to 20 March 2013 and attracted teams from south India. The matches were held at our revived basketball court in the IIT Open Air Theatre. The attractive features of the tournament are: (1) prize money for both men’s and women’s teams and (2) special prizes for men’s and women’s teams. A large number of spectators attended this tournament and witnessed many existing matches, wherein many teams performed excellently. The matches were conducted on a league-cum-knockout basis.

Hindustan University, Chennai retained the Gerhard Fischer Trophy for Men, and M.O.P. Vaishnav College, Nungambakkam, Chennai retained the Kokila Rajaiah Trophy for Women.

IIT Madras–Sanmar Inter-collegiate Cricket Tournament

The prestigious IIT–Sanmar Inter-collegiate Cricket Tournament for city colleges, sponsored by the Sanmar group, was conducted from 25 to 31 March 2014. This year we restricted the number of entries, inviting only six teams and making them play league matches. There were 25 overs in each match, except the final match, which had 50 overs. A high level of competition was witnessed throughout the tournament. Vivekananda College won the coveted trophy, and Guru Nanak College entered the finals and was placed runner-up.

Inter-hostel tournaments

Inter-hostel tournaments were conducted in all the games/events over the academic year for the Schroeter Trophy (General Championship). The Inter-IIT pattern of sports events was followed. Tapti Hostel and Jamuna Hostel, at first position, won the Schroeter Trophy.

The following non-media tournaments were conducted for the students: (i) nine-a-side tennis ball cricket, (ii) nine-a-side tennis ball cricket for freshers, (iii) six-a-side football, (iv) six-a-side hockey, (v) three-a-side basketball and (vi) three-a-side volleyball. Institute open events (Road Race, Cycle Race, Triathlon, Cycle Race for Freshers) were also conducted. All these events encourage participation from the students/campus community. These events were a grand success, attracting a large number of participants, both from the staff and students. There were also a large number of student spectators, who witnessed and encouraged their hostel teams.

All the Gymkhana clubs, such as the 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 and faculty members and campus children benefited from these excellent facilities and the coaching offered by the Institute Gymkhana.

The Fitness Club had a registered membership of 1293, the Tennis Club had a membership of 273, and the Badminton Club had a membership of 276. Excellent training and able guidance were provided for the students and the campus residents at the Fitness Club, bringing out the importance of maintaining a good physique and health.

Planning of the calendar of sports events, including the fixtures for both the Schroeter and Dean's Trophy events, in advance helped the various sports events to be conducted smoothly. Also, the new flood-light facilities attracted many students to the basketball, volleyball and tennis courts. New international-quality synthetic tennis courts were added to the sports and games facilities at the campus.

The new Indoor Sports Complex was inaugurated last year. It has facilities for table tennis and weight lifting, and a fitness centre with new equipment. New squash courts are coming up, which will be an addition to the sports and games facilities at the campus.

National Sports Organisation

National Sports Organisation (NSO) is functioning in keeping with the decision of the Government of India to improve sports with special reference to maintaining the fitness of students. The Institute has been taking the necessary steps to encourage students to participate in various games and sports events and in physical fitness activity.

In the academic year 2013–2014, nearly 340 first year undergraduate students were registered under this scheme. Twenty coaches/experts from various sports federations and the Sports Development Authority of Tamil Nadu were engaged for coaching our NSO students.

The noteworthy performance of a sizeable number of first year students at the various tournaments, viz. Inter-IIT Sports Meet, Sportsfest and All-India Invitation Inter-collegiate Basketball Tournament, is partly due to the quality training given to the students and the hard efforts put in by them during the NSO programme.

Institute Premier League

New events were started in a few games, viz. hockey, football, basketball and volleyball.

Overall, it has been an eventful year in terms of Gymkhana activities, and the glory of the General Championship Cup was experienced this year also.

9.4. Advisor, Weaker Section

The institute has nominated one advisor to take care of the welfare of the foreign national and weaker section students. The Advisor periodically meets these students and counsels them regarding various academic and non-academic requirements. During the period under report, a few students could not do well, and they were 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 students of the B.Tech. programme as they experienced difficulties in understanding

what was taught during normal teaching hours. Further, drawing instruments were 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 a weaker section is attached to a mentor (from among the senior students) for discussions and guidance related to academic matters. Their reports are periodically reviewed and discussed with the Advisor.

Guidance and Counselling Unit (renamed “Mentoring for Individual Transformation” (MITr))

A campus information booklet—*IIT Life: A Glance*—was prepared for all the fresh students and was 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 quickly. The counselors solved student problems by providing individual attention.

The first year B.Tech. students were distributed to various student counselors and faculty counselors for individual attention. The unit attended provided emotional counseling in a few instances since such problems are more common during the first year.

The unit arranged, whenever possible, instruction classes conducted by senior students for needy first year students who wanted guidance in subjects such as mathematics, physics and chemistry.

9.5. International & Alumni Relations

9.5.1. Introduction

The I&AR Dean’s office was established in October 2012. This office strives to support the Institute’s drive towards global excellence in

- a. Education
- b. Research
- c. Relations with industry
- d. Innovation and entrepreneurship
- e. Sustainability and social impacts
- f. Internationalization
- g. Physical infrastructure

9.5.2. Vision

Enhance the global stature and impact of IIT Madras by leveraging alumni and international relations.

9.5.3. Mission

Develop strong and sustainable partnerships with (a) research laboratories, (b) academic Institutions, (c) industry and (d) entrepreneurs and leverage alumni as catalysts in forging these global linkages and as key resources in Institute development activities.

9.5.4. Events

- a. Institute Day and DA Forum—Institute Day was held on 7 April 2013, and four of our DAs received their awards on that day. The day after Institute Day was celebrated as DA Day, when we had our past DAs participate in the DA Forum to celebrate the milestone of the 100th DA award. Past DAs, Deans and our Director participated.
- b. Convocation and Alumni Day—Our Distinguished Alumnus, Prof. Subra Suresh [1977/BT/ME], President of Carnegie Mellon University, was the guest of honour at the Alumni Day celebrations.
- c. Chapter meetings—We had two chapter meetings last year. The Mumbai Chapter meeting was held in December 2013 and was attended by more than 40 alumni. In February 2014, the Delhi Chapter meeting was organized, where young and old IIT Madras alumni got together, along with their spouses.
- d. PAN IIT—A global community boasting 2,00,000 IIT alumni, PAN IIT holds its yearly conference in either India or the USA. This time it was held in Houston, TX in December 2013 with the theme “Inspiring Innovation for Tomorrow”. There were two IIT Madras break-out sessions that provided the alumni an opportunities for networking. A round-table was held on the theme “Energy”, engaging academia and industry in an interesting discussion.

- e. Reunion Day—Held on 27 December 2013, Reunion Day was an interesting mix of nostalgia, games and engaging technical talks. The 1988 batch had their silver reunion.

9.5.5. Distinguished Alumnus Awards

The Distinguished Alumnus Award (DAA) is the highest award given to its alumni by IIT Madras, in recognition of achievements of exceptional merit and excellence. The DAA is awarded in recognition of outstanding achievements in the areas of entrepreneurship, leadership and management, academia, social and technological innovation, and service to humanity at large.

In 2014, the following 10 alumni were given the Distinguished Alumnus Award:

- (1) **Dr. Lalgudi V. Ramanathan**, Head, Energy and Nuclear Research Institute (ENRI), Brazil [1969/BT/MT]
- (2) **Dr. Krishna Raghavachari**, Professor of Theoretical Chemistry, Indiana University, USA [1975/MSc/CY]
- (3) **Dr. Thirumalai S. Sudarshan**, President and CEO, Materials Modification Inc., USA [1976/BT/MT]
- (4) **Dr. Venkatraman Sadanand**, Associate Professor of Neurosurgery, Loma Linda University Medical Center, USA [1978/BT/EE]
- (5) **Mr. Raju Venkatraman**, Founder, MD & CEO, Medall Healthcare Pvt. Ltd., Chennai, India [1981/BT/CH]
- (6) **Dr. Ananth Agarwal**, Professor of Electrical Engineering and Computer Science, MIT, and President, edX, USA [1982/BT/EE]
- (7) **Mr. Anil Ananthaswamy**, Science Writer, Consultant, *New Scientist* magazine, author of *The Edge of Physics*, Bangalore, India [1985/BT/EE]
- (8) **Dr. Ramesh Govindan**, Professor in Department of Computer Science, University of Southern California, USA [1987/BT/CS]
- (9) **Mr. Kannan Lakshminarayan**, Founder & CTO, Vortex Engineering Pvt. Ltd, Chennai, India [1988/BT/ME]
- (10) **Dr. Sridhar Ramaswamy**, Senior Vice President, Search Advertising, Google Inc., USA [1989/BT/CS]

9.5.6. Other Activities

Lecture series

Leadership Lecture Series—Initiated in 2012 to create more avenues for alumni to interact and share their experiences with students and faculty members. We have about three or four lectures each month and have crossed 50 lectures so far, of which 28 lectures were held during April 2013 and March 2014. Please visit <http://alumni.iitm.ac.in> for more details.

Nobel Laureate Lecture Series—We had the first lecture in this series in January 2014, and Nobel Laureate Prof. Kurt Wuthrich presented the first lecture.

Institute Lecture Series—Sponsored by the 1985 batch, Bharat Ratna awardee Prof. C.N.R. Rao gave a talk, “Celebration of Science”, on 22 January 2014.

B.R. Sengupto Lecture Series—Last year we also had the first lecture of the B.R. Sengupto Lecture Series, and the lecture was delivered by Dr. E.G. Ramachandran in December 2013.

Funds received (2009 to date)

Calendar Year	IITMACT (in lakhs of ₹)	IIT Madras (in lakhs of ₹)	External Trusts (in lakhs of ₹)	Total (in lakhs of ₹)
2009	7.61	39.19		46.79
2010	63.22	272.11		335.34
2011	226.57	775.16		1001.73
2012	1105.22	118.52		1223.74
2013 (to date)	503.03	275.13	403.00	1181.16
Total	1905.65	1480.12	403.00	3788.77

External Trusts	Created in	Amount (in lakhs of ₹)	Purpose
Dr. Kamlesh Shyamdas Varyani Memorable Trust	January 2012	100.00	To financially support travel of NA/OE students to UK to pursue M.S., Ph.D. and "study-abroad" programmes
SSAN Trust	September 2013 and December 2013	403.00	Interest-free loan
Total		503.00	

Travel grants

The IITMAANA Travel Grant was instituted 10 years ago. Its scope was enlarged in 2010 to support undergraduate travel as well. Sponsored by the IIT Madras Alumni Association of North America, it reimburses half of the expenses incurred abroad by students and allows them to travel overseas for competitions, summits, workshops, conferences and internships. This grant transfers \$20,000 annually to IIT Madras for this purpose.

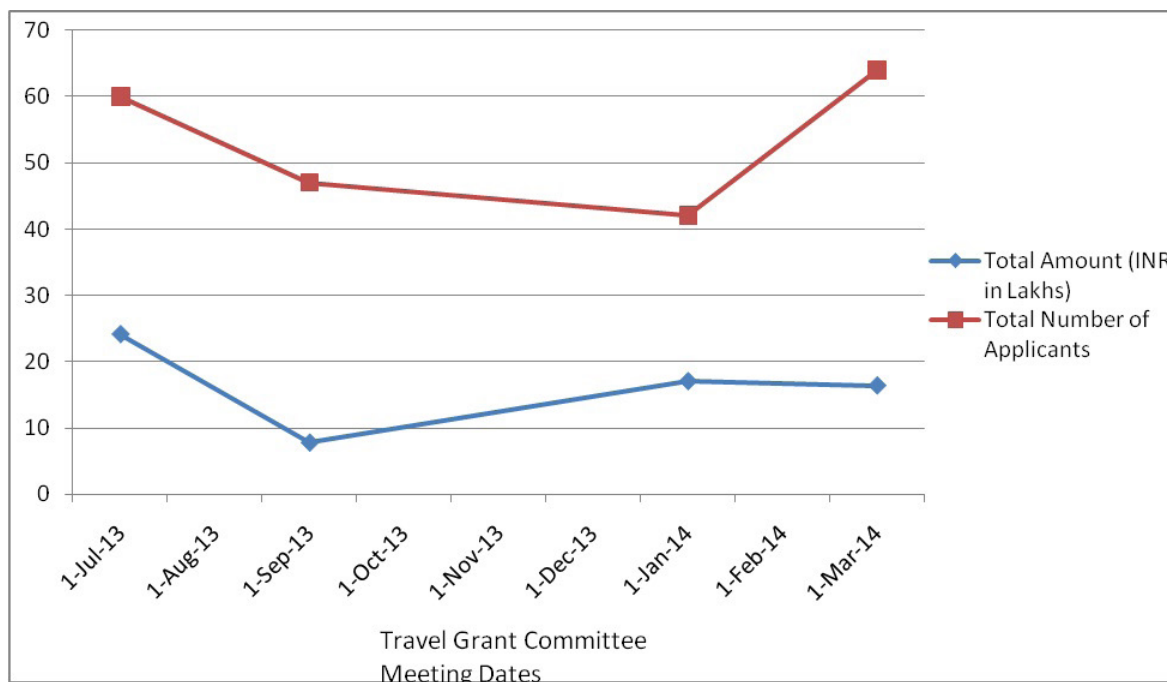
IITMAANA instituted the Travel Grant Endowment in 2011, aiming to make the travel grant a sustainable initiative while widening its reach. The Travel Grant is one of the most popular and successful alumni programmes.

In 2012, the Excellence in Research Travel Grant was instituted by the batch of 1980. It differs from the IITMAANA Travel Grant in one respect—the candidate should have demonstrated exceptional research aptitude—for example, through publication in a journal prior to a conference. The grant reimburses 80% of expenses incurred.

The Ram Sundaram [1988/BT/CE] Travel Grant also assists undergraduate and postgraduate students with travel abroad for various purposes. It reimburses 50% of the expenses incurred up to 60,000.

In 2013–2014, faculty members were also given travel grants for travel related to research collaborations. About ₹23 lakhs were granted towards faculty travel.

Meeting Number	Meeting Date	Total Amount Given (in lakhs of ₹)	Total Number of Applicants
23	10 July 2013	24.15	60
24	17 September 2013	7.84	47
25	13 January 2014	17.08	42
26	14 March 2014	16.44	64
Total	4	65.51	213



Funds Received

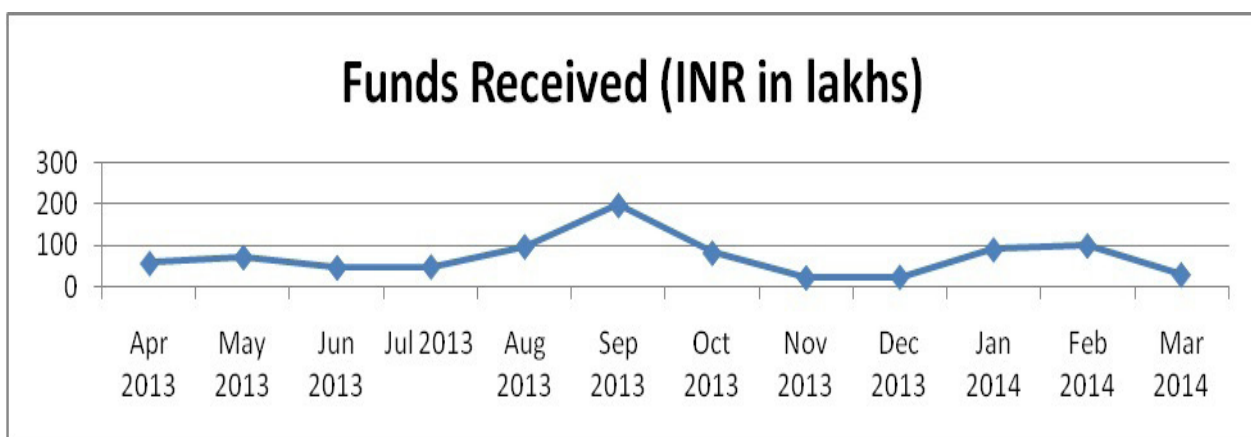
These include amounts received under the Give Every Month (GEMs) project.

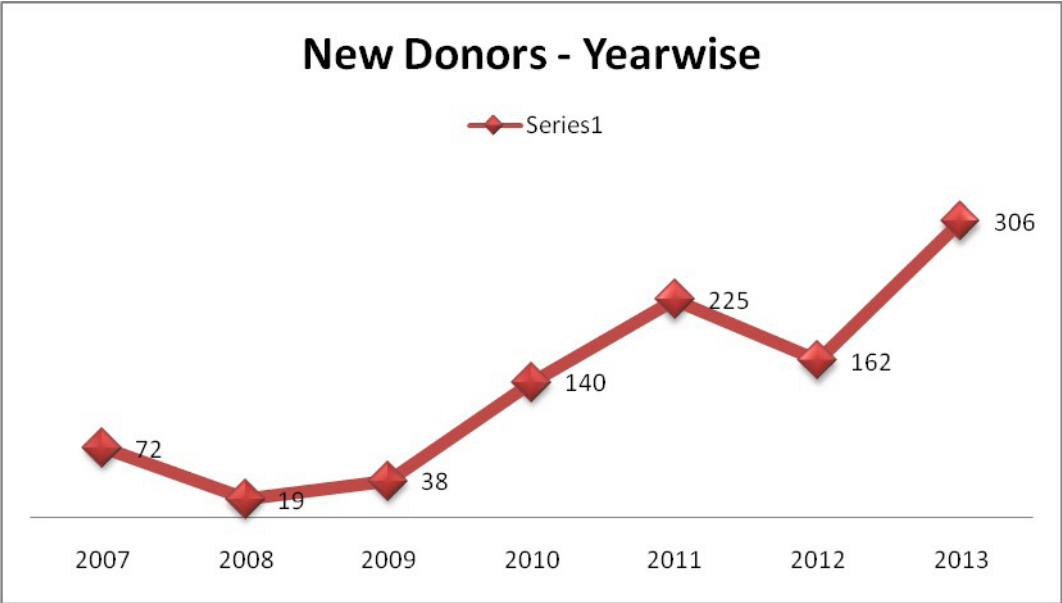
For the first time, our alumni set up external trust funds to benefit the students.

The K.S. Varyani Trust was established by Mrs. Maya Varyani, in memory of her husband, Dr. Kamlesh Varyani, who was a member of the Department of Ocean Engineering at IIT Madras. The endowment was set up to offer financial support to deserving students who wished to travel to the UK to pursue M.S. or Ph.D. programmes or to make use of other study-abroad options in the fields of naval architecture and ocean engineering.

The SSAN Ananya Trust was created by Suderam Swaminathan [1969/BT/ME] with the aim of providing interest-free education loans to B.Tech. and Dual Degree students who are unable to cover their tuition and living fees.

Month/Year	IITMACT (in lakhs of ₹)	IIT Madras (in lakhs of ₹)	Total (in lakhs of ₹)
April 2013	5.231	51.6903	56.9213
May 2013	45.99075	25.67375	71.6645
June 2013	0.405	45.94322	46.34822
July 2013	36.41372	12.19405	48.60777
August 2013	68.83581	28.82818	97.66399
September 2013	184.6196	13.775	198.3946
October 2013	73.17158	8.96721	82.13879
November 2013	5.11058	16.90808	22.01866
December 2013	0.305	23.23823	23.54323
January 2014	86.39412	3.815	90.20912
February 2014	75.57111	24.17	99.74111
March 2014	3.80646	25.39521	29.20167
Total	585.85473	280.59823	866.45296





10. STUDENTS PLACEMENT

Details of the number of students placed during 2013–2014 are summarized below:

<i>Branch</i>	<i>B.Tech.</i>	<i>Dual Degree</i>	<i>M.Tech.</i>	<i>M.B.A.</i>	<i>M.A.</i>	<i>M.Sc.</i>	<i>M.S.</i>	<i>Ph.D.</i>	<i>Total</i>
Aerospace	15	17	5	—	—	—	4	—	41
Applied Mechanics	—	—	2	—	—	—	3	1	6
Biotechnology	14	17	8	—	—	—	1	—	40
Civil	31	29	24	—	—	—	2	—	86
Chemical	48	15	15	—	—	—	5	1	84
Chemistry	—	—	—	—	—	2	—	2	4
Computer Science	28	17	45	—	—	—	17	1	108
Electrical	44	45	35	—	—	—	24	4	152
Engineering Design	—	35	—	—	—	—	4	—	39
Engineering Physics	14	—	—	—	—	—	—	—	14
Humanities and Social Sciences	—	—	—	—	7	—	—	—	7
Management Studies	—	—	—	80	—	—	—	—	80
Mathematics/IMSC	—	—	2	—	—	3	—	—	5
Mechanical	57	50	35	—	—	—	11	2	155
Metallurgical	23	9	8	—	—	—	—	3	43
Ocean	15	11	8	—	—	—	4	—	38
Physics	—	—	2	—	—	—	—	1	3
Total	289	245	189	80	7	5	75	15	905

During the year, 905 students/scholars were placed in various organisations.

11. FINANCIAL ASSISTANCE TO STUDENTS

Financial assistance in the form of scholarships and fellowships is given to meritorious students pursuing engineering, technology and science education at the Institute. Details of the scholarships and fellowships sanctioned to students of different programmes during 2013–2014 follow.

11.1. Assistance to B.Tech/Dual Degree Students

Twenty-five percent of the students admitted to the B.Tech./Dual Degree programmes and students whose parental income was less than ₹4.5 lakhs were sanctioned merit cum means (MCM) scholarships (i.e. they were exempted from paying the tuition fees of ₹45000 per semester and given a pocket allowance of ₹1000 per month). During the period under report, 832 students benefited. Year-wise details of the numbers of students who benefited are given in Table 11.1(b).

SC/ST students admitted to B.Tech./Dual Degree programmes and whose parental income was less than ₹4.5 lakhs were sanctioned the concession of free messing and given a pocket allowance of ₹250 per month. They were also exempted from paying tuition fees and the hostel seat rent in accordance with Government of India post-matric scholarship rules. As of 31 March 2014, 385 students had benefited.

The Institute's free studentship scholarships (exemption from paying tuition fees) were sanctioned to students of the B.Tech./Dual Degree programmes. Batch-wise details of the numbers of students who benefited are given in Table 11.1 (b).

Table 11.1 (a)

Sl. No.	Name of the Scholarship	No. of Students
1	Government of India (Ministry of Tribal Affairs) SC/ST Scholarship	18
2	Ministry of Social Empowerment	44

Table 11.1 (b) Number of MCM and SC/ST scholarships

Batch	MCM Scholarships	SC/ST Scholarships	Free Studentships
2013	202	65	33
2012	210	87	60
2011	214	102	47
2010	206	131	87
Total	832	385	227

In addition, the Institute sanctioned notional prizes of ₹1000 each to the 25 top ranking (in JEE 2011) B.Tech. students whose parental income was more than ₹2 lakhs.

11.2. Other Scholarships

Scholarships were sanctioned by NCERT, the Government of India and state governments to meritorious students pursuing the B.Tech. programme at the Institute.

Number of state government scholarships obtained by B.Tech./DD students

State	Batch				Total
	2013	2012	2011	2010	
Maharashtra	—	—	2	2	4
Total	—	—	2	2	4

11.3. M.Tech.

Students who joined the M.Tech. programme through GATE were awarded Half-time Teaching Assistantships (HTTAs) of ₹8000 per month. During the period under report, 345 fresh assistantships and 61 renewed assistantships were awarded. The discipline-wise details are given here:

Number of HTTAs awarded

Sl. No.	Discipline	Fresh (2013 Batch)		Renewal (2012 Batch)
		First Semester	Non-HTTA Converted to HTTA	
1	Aerospace Engineering	7	3	2
2	Applied Mechanics	8	2	3
3	Biotechnology—Clinical Engineering	9	0	12
4	Chemical Engineering	26	5	4
5	Civil Engineering	37	11	5
6	Computer Science and Engineering	53	0	9
8	Electrical Engineering	51	0	11
9	Industrial Mathematics and Scientific Computing	7	0	2
10	Mechanical Engineering	61	8	6
11	Metallurgical and Materials Engineering	23	3	3
12	Ocean Engineering	24	1	1
13	Solid State Technology	6	0	3
Total		312	33	61

11.3.1. M.Tech. Dual Degree

Students of the 2009 batch who joined the M.Tech. Dual Degree programme were awarded HTTAs of ₹8000 per month based on their obtaining valid GATE scores or on scoring CGPA of 8.0 or above (CGPA of 7.5 and above for SC/ST students). During the period under review, 279 students were awarded fresh assistantships of ₹8000 per month from June 2013, and 279 assistantships were renewed in January 2014, of which 252 were HTTAs renewed at a rate of ₹8000 per month and 27 were renewed at a rate of ₹4500 per month (since they had obtained CGPA scores of less than 6.5 in the July–November 2013 semester). The department-wise details are given here:

Sl. No.	Discipline	2009 Batch	
		Fresh (Ninth Semester)	Renewal (10th Semester)
1	Aerospace Engineering	19	19
2	Biotechnology	21	21
3	Chemical Engineering	17	17
4	Civil Engineering	34	34
5	Computer Science and Engineering	18	18
6	Electrical Engineering	54	54
7	Engineering Design	34	34
8	Mechanical Engineering	59	59
9	Metallurgical and Materials Engineering	11	11
10	Naval Architecture and Ocean Engineering	10	10
11	Physics	2	2
Total		279	279

11.4. M.Sc.

Students admitted to the M.Sc. programme were sanctioned merit scholarships of ₹1000 per month according to the rules. Certain students were also exempted from paying tuition fees. During the period under report, 120 students benefited. The department-wise details are given in the following table.

Number of merit scholarships and freeships awarded

Sl. No.	Course	Merit Scholarship		Freeship (Tuition Fee Waiver)		50% Freeship (50% Tuition Fee Waiver)	
		I Year	II Year	I Year	II Year	I Year	II Year
1	Chemistry	14	12	5	5	4	6
2	Mathematics	11	12	4	5	2	8
3	Physics	10	11	4	4	-	1
	Total	35	35	13	14	6	15

11.5. M.A.

Twenty-five percent of the students admitted to the M.A. programme and those whose parental income was less than ₹4.5 lakhs were sanctioned merit scholarships (i.e., they were exempted from paying tuition fees of ₹3000/- semester and given a pocket allowance of ₹1000 per month).

SC/ST students admitted to the M.A. programme and those whose parental income was less than ₹4.5 lakhs were sanctioned a concession of free messing and given a pocket allowance of ₹250 per month. They were exempted from paying tuition fees and the hostel seat rent according to the Government of India post-matric scholarship rules.

The Institute's free studentship scholarships (exemption from payment of tuition fees) were sanctioned to students of the M.A. programme.

Batch-wise details of the numbers of students who benefited are provided in the accompanying table.

Batch	Merit Scholarship	SC/ST Scholarship
2012	1	—
2011	6	1
2010	7	1
2009	8	3
2008	1	3
Total	23	8

11.6. M.S.

Scholars admitted to the M.S. programme through GATE are given Half-time Teaching Research Assistantships (HTRAs) of ₹8000 per month for 3 years. During the period under report 674 scholars received these assistantships, 231 of them being fresh scholars. Department-wise details of the assistantships awarded and renewed are given here.

Numbers of HTRAs awarded

Sl. No.	Discipline	Fresh	Renewal	Total
1	Aerospace Engineering	19	30	49
2	Applied Mechanics	10	28	38
3	Biotechnology	12	20	32
4	Chemical Engineering	3	22	25
5	Civil Engineering	22	27	49
6	Computer Science and Engineering	20	48	68
7	Engineering Design	11	10	21
8	Electrical Engineering	36	111	147
9	Management Studies	16	31	47
10	Mechanical Engineering	46	66	112
11	Metallurgical and Materials Engineering	16	12	28
12	Ocean Engineering	20	38	58
	Total	231	443	674

11.7. Ph.D.

Scholars admitted to the full time Ph.D. time programme in engineering are sanctioned HTTAs/HTRAs of ₹18,000 per month for the first 2 years and ₹20,000 per month for the next 3 years. Scholars admitted to the full time Ph.D. programme in science subjects through GATE or equivalent exams are sanctioned ₹16,000 per month for the first 2 years and ₹18,000 per month for the next 3 years. During the period under report, 1289 students obtained assistantships, 349 of them being fresh scholars. Department-wise details of the assistantships awarded and renewed are given in the accompanying table.

Numbers of HTRAs awarded

Sl. No.	Discipline	Fresh	Renewal	Total
1	Aerospace Engineering	11	31	42
2	Applied Mechanics	15	52	67
3	Biotechnology	28	79	107
4	Chemical Engineering	17	51	68
5	Chemistry	20	58	78
6	Civil Engineering	54	103	157
7	Computer Science and Engineering	15	31	46
8	Engineering Design	8	27	35
9	Electrical Engineering	32	102	134
10	Humanities and Social Sciences	12	24	36
11	Management Studies	6	29	35
12	Mathematics	7	23	30
13	Mechanical Engineering	50	123	173
14	Metallurgical and Materials Engineering	12	46	58
15	Ocean Engineering	23	66	89
16	Physics	39	95	134
	Total	349	940	1289

11.8. Financial Assistance to Research Scholars/Students for Presentation of Papers Abroad

This Institute encourages research scholars to present papers at international conferences and gives them financial assistance for this. The assistance (ad hoc amount, including registration fees) provided to M.S. and Ph.D. scholars is ₹1,50,000.

11.9. Financial Assistance to Research Scholars/Students for Presentation of Papers in India

Research scholars and students of course programmes are given the following financial assistance for presenting papers at national/international conferences in India:

- Registration fee (national conferences): ₹2000
- Registration fee (international conferences): ₹3000
- Travel: Third class AC train fare
- Daily allowance: ₹200 per diem, subject to a maximum of 10 days

12. WEAKER SECTION & FOREIGN NATIONAL STUDENTS

12.1. B.Tech Programme

As per GoI orders, 27%, 15% and 7.5% of the seats in the B.Tech. programme are reserved for OBC, SC and ST students. These students are admitted through the Joint Entrance Examination (JEE) with a relaxation. These students have to get only 60% of the marks obtained by the last student of the general category to qualify for admission. During counselling, prior to admission, an advisor explains to each student the requirements of different branches. This helps the students choose a suitable branch based upon his or her capability and interest. When a student finds that the chosen branch is tough, he or she is allowed to switch over to a branch with a lower JEE cut-off at the end of the first semester.

The following are the details of the numbers of SC/ST students admitted to the B.Tech./Dual Degree programmes through JEE and preparatory course in July 2013:

Programme	Intake			Number of Students Admitted			
	Total	SC	ST	Through JEE		Through Preparatory Course	
				SC	ST	SC	PD
B.Tech.	446	67	34	64	33	3	3
Dual Degree	392	59	29	55	25	-	3

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 ₹250 per month, provided their parents' income is ₹4,50,000 net per annum or less.
- A Book Bank (part of the Central Library) is maintained for the benefit of SC/ST students. The students are issued 12 tickets for borrowing books from the Book Bank. Books are issued for a semester.
- Drawing instrument (mini-drafter) free of cost
- Help in getting placement—wherever possible, industries are requested to conduct separate interviews for SC/ST students, and the requirements for these students are lower than those of the general category.

12.2. Preparatory Course for Admission to B.Tech. Programme

A preparatory course extending over one academic year was initiated by the Ministry of Human Resource Development, GoI, during the year 1983–1984 exclusively for SC/ST students. Selection for this course is made from the Joint Entrance Examination list of SC/ST students who did not qualify for admission. Upon successfully completing the preparatory course at IIT, they are eligible to join the B.Tech. programme, and they are not required to write JEE again. Details of the admissions in July 2013 follow:

Offers Issued for PC		No. Joined	
ST	PD	ST	PD
1	21	2	4

A total of 25 preparatory course (2013–2014 batch) candidates were offered admission to the B.Tech./Dual Degree programmes in July 2013 as they successfully completed the preparatory course.

12.3. M.Tech. Programme

Seats are reserved for SC and ST candidates as per GoI orders. These candidates are admitted through GATE by a separate merit list. The following are the details of the admissions in July 2012:

<i>Offers Issued</i>		<i>No. Joined (HTTA)</i>	
<i>SC</i>	<i>ST</i>	<i>SC</i>	<i>ST</i>
61	24	59	23

12.4. M.Sc. Programme

Admissions to the M.Sc. programme were through entrance examinations only. A total of 1 ST and 22 SC students were admitted. These students were given tuition fee waivers.

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 are requested to recruit SC and ST students. Other special steps are also taken to enhance the recruitment of this category of students.
- Scholarships are given to these students as per GoI norms.

12.5. Admission of Foreign National Students and Indian Nationals Residing Abroad

In July 2013, one Ethiopian student joined the M.Tech. programme.

At the end of March 2014, six foreign nationals were on the rolls of the Institute. The programme and country-wise details are given below:

<i>Country</i>	<i>I Year</i>	<i>II Year</i>	<i>III Year</i>	<i>IV Year</i>	<i>V Year</i>	<i>Total</i>
1. Foreign National Students						
M.Tech.						
Ethiopia	1	5	—	—	—	6

Foreign students are also permitted to use the Book Bank. Book Bank Library tickets are issued to each student. Books are issued for a semester.

In addition to the above, the IIT Madras Alumni Association provides financial assistance to students under the IITMAANA Travel Grant Programme to assist IIT Madras students to visit the USA and present their papers at nationally recognized technical conferences. The grant covers airline ticket charges and visa fees but does not include conference registration fees.

13. CAMPUS AMENITIES

IIT Madras is a residential institution. It houses about 6810 students and 795 faculty/staff members on campus. It provides various amenities in the campus for students and staff members.

13.1. Engineering Unit

The Engineering Unit, IIT Madras is entrusted with the responsibility of construction and maintenance of residential and non-residential buildings and providing various services. This unit also awards contracts in a transparent manner and in the best interest of the Institute by ensuring that all round integrity as well as the best possible standards are maintained, with adequate supervision. The Engineering Unit ensures that the residents of the campus are provided timely, prompt and efficient services.

The Engineering Unit completed the following major works during the period from April 2013 to March 2014.

Major works completed (civil)

Sl. No.	Name of Work	Amount (in lakhs of ₹)
1	Construction of new bus depot near Velachery Gate	600.00
2	Compound wall	
3	Renovation of swimming pool—widening of deep pool by 2.50 m and shallow pool by 5.01 m and revamping water purification, circulation, water proofing, vitrified tiles, etc.	
4	Revamping skating rink	26.17
5	Construction of 30 married research scholars' quarters (G + 6 floors, one block) at IIT Madras	651.61
Total		1277.78

Major work in progress (civil)

Sl. No.	Name of Work	Amount (in lakhs of ₹)
1	Construction of additional wing (G +2 floors) for Chemistry Department at IIT Madras, E.D.C. 30 March 2015	1218.00
2	Construction of National Centre For Combustion R&D (NCCRD) at IIT Madras, E.D.C. 30 March 2015	873.00
3	Implementation of e-tendering	
4	IVRS/web-based user request management system	
5	New Academic Complex and canteen blocks, E.D.C. 30 March 2015	10000.00
6	New boys' and girls' hostels, E.DC. 30 March 2015	6500.00
7	Additional floor over MSRC building, E.DC. March 2015	200.00
8	New Quark building, E.D.C. 30 March 2015	350.00
Total		19141.00

Major works completed (electrical)

Sl. No.	Name of Work	Amount (in lakhs of ₹)
1	Providing lighting to pool area and passage of swimming pool	7.55
2	Provision of lighting to 24 ´ 7 canteen near CCW Office and passage lighting in front of CCW Office	2.65
3	Provision of ceiling fan in the balcony area of B, C, D, E and E1 type quarters	11.97

4	Provision of ductable split air conditioners to seminar hall of Aerospace Engineering Department	4.45
5	Supplying, installing, testing and commissioning 90 kW grid-connected solar PV power plant (roof-mounted type) with three different cell technologies (monocrystalline, polycrystalline and CIGS), one central grid-tied inverter and three string-type grid-tied inverters	76.84
Total		103.46

Work in progress (electrical)

Sl. No.	Name of Work	Amount (in lakhs of ₹)
1	Supplying and installing of dumbwaiter (G + 4 levels—five opening/landings) of capacity 200 kg at library building	7.80
2	Providing internal electrification to clean rooms 100 and 1000 in ESB 123 extension and essential power distribution from 500 kVA DG set to ESB	11.78
3	Providing high velocity water spray system for the 10 MVA, 33/11 kV power transformer at Velachery Gate substation inside the campus	22.92
4	Providing and installing 500 kVA DG set for ESB	40.33
5	Electrification of proposed building for Quark canteen	7.67
6	Repair of fire hydrant system in two boys' hostels, provision of hydrant valves in fire fighting system	15.30
7	Provision of fire alarm, CCTV, PA, access control and fire fighting systems in the Main, PC and FTC buildings of the National Centre for Combustion Research & Development (NCCRD)	36.70
8	Providing chequered plate for the HT and LT cable trenches at various substations inside the campus	16.50
9	Providing and installing a 2000 kg goods-cum-passengers lift and eight-passenger lift in the Main Building of NCCRD (Aerospace Engineering)	41.60
10	Replacement of walk-in coolers in Himalaya and Vindhya messes	31.61
11	Providing air-conditioning facilities for the Nano Lab at MSRC (Second Floor)	11.16
12	Electrification of the Main, PC and FTC buildings of NCCRD	116.03
13	Construction and validation of class 100 and class 1000 clean rooms at ESB 123 extension for the Electrical Engineering Department	76.05
14	Fabricating, supplying, installing, testing and commissioning an eight-passenger lift at the MSRC building	14.50
15	Supplying, installing, testing and commissioning 1 MW grid-connected solar PV cell installation	662.48
16	Revamping water supply pumps and allied power mains and starters for Residential and Academic zones	19.06
17	Providing substation equipment and power cables for the new boys' and girls' hostels inside the IIT Madras premises	83.48
18	Providing internal electrification and power connections to the UPS and air conditioners of the Nano Lab, at MSRC (Second Floor)	40.03
Total		1255.00

Future plans

The following works are planned to be taken up during the next academic year:

Sl. No.	Name of the Work	Amount (in lakhs of ₹)
1	4 MLD sewage treatment plant	1000.00
2	Water treatment plant for IIT Madras lake water	250.00
3	Grey water supply (treated sewage) to Academic and Residential zones	335.00
4	New B type quarters—96 nos. (stilt + 8 floors)	6739.00
5	New D type quarters—48 nos. (stilt + 8 floors)	1747.00
6	New G type quarters—48 nos.	746.00
7	New Biotechnology & Centre for Sustainability (G + 6 floors)	2220.00

8	New dining facility at Krishna Hostel	716.00
9	Additional classrooms replacing ChLT/PhLT	1310.00
10	Extension of existing ESB III Floor	162.00
11	Additional rooms at Taramani Guest House	447.00
12	Upgrading existing water supply system of IIT Madras	1000.00
13	Additional rooms replacing the rear wing of Sarayu Hostel	2159.00
14	Additional wing in IC&SR building	304.00
15	Provision of 1 MW additional solar power unit	700.00
16	SCADA for all substations	100.00
Total		19,935.00

13.2. Housing Facilities

A total of 416 faculty quarters, 379 staff quarters and 158 students' quarters are available in the campus for accommodation. In addition, 167 servant quarters are also available in the campus.

13.3. Horticulture

A separate horticulture unit is functioning under the Engineering Unit. A corridor has been formed near the proposed sports complex area for movement of blackbuck in the Hostel Zone.

13.4. Telephone Facilities

A new telephone exchange has been commissioned by BSNL, Chennai Telephones Division, in the campus. All direct lines of this institute, which were linked from Raj Bhavan Telephone Exchange, have been linked to this exchange.

13.5. Central Supplies Unit

This functions under the administration of a warden. The unit procures milk from Tamil Nadu Co-operative Milk Producers' Federation (TCMPF) and distributes it to the student hostels.

Under a provision supply scheme, the unit procures items of major consumption from the wholesale suppliers through the Provision Selection Committee and Provision Purchase Committee and distributes them to the hostels, thus reducing the mess expenditure in the hostels.

Further, the unit is procuring branded cosmetics and eatables from wholesale dealers and distributing the same to students through the Students Amenities Centres at nominal prices, which are much less than the maximum retail prices (MRPs).

13.6. Guest Houses

There are two guest houses in the campus, viz. the Main Guest House and Taramani Guest House, which have seven suites and 84 rooms, respectively.

13.7. Hospital

The Institute Hospital takes great pride in the medical supportive service it provides to this esteemed Institute of national importance. It is the best of hospitals attached to a teaching institute.

The medical crew consists Of Dr. Mahalakshmi M. Ravi, DGO, Chief Medical Officer-i/c., and the following officers:

<i>Senior Medical Officers</i>	<i>Medical Officers</i>	<i>Senior/Junior Medical Officers (on Contract)</i>
Dr. B. Rebecca Punithavalli, MD (O&G)	Dr. N. Porchelvi, MBBS	Dr. Shabanam B. Mulani, MD (General Medicine)
Dr. Sabitha Selvam, DMRD	Dr. V. Thenral, MBBS	Dr. H. Anand, MBBS
	Dr. D. Saraswathi, MBBS	Dr. J. Siva, MBBS
	Dr. R. Gowri Shanker, DA	
	Dr. P. Kavitha, MBBS	

It is needless to mention that they have the dedicated assistance of visiting consultants, paramedics and supporting staff members.

Activities

The following continuing medical education programmes were conducted for academic improvement of our doctors:

<i>Topic</i>	<i>Name of Medical Faculty Member</i>	<i>Date</i>
Cervical Cancer and Its Prevention	Dr. Ramani Rajendran	12 April 2013
Acid Peptic Disorder	Dr. Mahadevan	18 April 2013
An Update in RA (Rheumatoid Arthritis)	Dr. Ravichandran	25 April 2013
Management of Vertigo and Neuropathy	Dr. A.V. Srinivasan	11 July 2013
Approach to Childhood Headache	Dr. V. Viswanathan	18 July 2013
Novel Risk Markers for Management of Dyslipidaemia in Type 2 Diabetes	Dr. Muthukumaran J.	24 July 2013
Practical Way to Use ACE Inhibitors in Proteinuria	Dr. Venkatesh	31 July 2013
Contraception Update	Dr. P.M. Gopinath	6 August 2013
Expert in the Evaluation of Atorvastatin + Aspirin Evidence	Dr. Sruti C.	7 August 2013
Eye Disease (Glaucoma)	Dr. Prathipa S.	17 September 2013
COPD Vs Asthma	Dr. Sai Kishore	26 September 2013
Preventive Cardiology	Dr. K. Sarada	24 October 2013
PCOD/PCOS	Dr. Sruti C.	30 October 2013
Management of Type 2 Diabetes—from Targets to Patients	DR. Sriraam M.	7 November 2013
Sulphonylureas—Are They All Same?	Dr. R. Gowri Shanker	19 November 2013
ALD, NALD	Dr. Pandurangan B.	22 November 2013
Savor Heart of the Matter (Recent Landmark Trial on CV Safety in T2D)	Dr. Srivatsa	23 January 2014
Management of Hypertension	Dr. S. Chandrasekar	18 February 2014
Role of Beta Blockers in Secondary Prevention	Dr. Sharada	20 March 2014

Conferences

- Nurses Day was celebrated at the Institute Hospital on 13 May 2013 in the context of World Nurses Day being celebrated on 12 May 2013.
- Doctors Day was celebrated.
- The “BRIDGE 2013” workshop was held on 25 and 26 May 2013 at the IC&SR Auditorium.
- A women’s health camp was conducted for Ladies Club members and Institute employees in view of Women’s Day on 5, 6 and 18 March 2014.
- Nurses in Service Education: Diabetes & Insulins—Mr. Vinay on 25 September 2013.

Training programmes for hospital staff

- As part of in-service education, the staff nurses and other paramedics were sent for basic life support (BLS)/ advanced cardiac life support (ACLS) training at the Academy of Clinical Training (TACT), Anna Nagar.
- Dr. Sabitha Selvam, Dr. V. Thenral, Dr. D. Saraswathi, Dr. N. Porchelvi, Dr. Shabanam B. Mulani and Dr. J. Siva also attended the BLS/ACLS programme conducted by TACT, Anna Nagar on 16, 20 and 21 January 2014.

Free medical check-up camps for Institute employees and their dependents

- Health check-ups were conducted for KV students from 19 to 21 February 2014 and on 26 February 2014.
- PD certificate evaluation was carried out by the Institute Hospital.

Surgeries

The operation theatre was upgraded with the latest equipment.

- Major surgeries: 91
- Minor surgeries: 439

1. Mastectomy: 1
2. Hydrocelectomy: 3
3. Debridement: 1
4. Vaginal hysterectomy: 1
5. Elective LSCS with sterilization: 3
6. Elective LSCS: 1
7. Emergency LSCS: 3
8. Puerperal sterilization: 1
9. Cyst excision: 1
10. Excision of sinus: 1
11. Fistulectomy: 1
12. Deroofing: 1
13. Sinusectomy: 1
14. Haemorrhoidectomy: 1
15. Laparoscopic appendectomy: 8
16. Exploration: 1
17. Fistulectomy with lateral sphincterotomy: 1
18. Circumcision: 10
19. Bilateral varicocelectomy: 2
20. Adeno Tonsillectomy: 4
21. FESS with septoplasty: 29
22. Tonsillectomy: 9
23. Fractional curettage: 1
24. D&C: 1
25. Cervical mastoidectomy with tympanoplasty: 1
26. Septal granuloma excision: 1
27. Kerotosis: 1
28. Nasal bone reduction: 2

Dental procedures: 1351

Details of infectious diseases treated as in-patients (ward)

1. Viral fever: 32
2. Chicken pox: 17
3. AGE: 15
4. Dengue fever: 93
5. Enteric fever: 37
6. Pneumonia: 2
7. Hepatitis: 2
8. Bronchitis: 5
9. TB: 3
10. Malaria: 4

Total claims for in-patient admissions at the Institute hospital through insurance companies: ₹70,05,532

Annual census of hospital for 2013–2014

Month	O.P. Day (8 am to 6 pm)	Emergency Cases (6 pm to 8 am)	Casualty Observation	In-Patient (in Ward)	Surgery	Dental	X-ray	ECG	USG	ECHO	Lab	Physio
April 2013	6042	648	248	50	39	161	227	103	80	—	677	122
May 2013	5607	621	251	30	16	119	167	71	50	—	564	84
June 2013	5590	452	360	37	25	102	150	61	32	—	643	118
July 2013	7271	1012	248	39	15	98	212	137	51	—	710	124
August 2013	8306	879	348	79	44	117	245	73	55	—	896	121
September 2013	7326	794	314	93	39	133	205	94	50	—	975	156

October 2013	7345	753	319	68	35	144	228	100	47	—	886	-
November 2013	7135	736	269	60	41	110	162	59	52	—	746	-
Dec 2013	6071	613	240	53	32	60	192	100	45	17	710	531
January 2014	8110	716	297	53	59	112	237	70	47	16	670	709
Feb 2014	7988	695	265	45	33	112	196	90	62	14	731	675
March 2014	7565	503	283	49	15	83	210	152	75	18	715	663
Total	84,356	8422	3442	656	393	1351	2431	1110	646	65	8923	3303

13.8. Bank

The State Bank of India IIT branch functions on campus. It provides two ATMs. A branch of Canara Bank is also functioning on 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-hour telecom centre caters 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 campus, apart from a Kendriya Vidyalaya (KV). VVMHSS offers courses from LKG to Standard XII, and KV offers courses from Standard I to Standard XII.

13.11. Open Air Theatre

The Open Air Theatre is available to the Film Club for screening films during weekends. It is also available for functions of the Institute and the schools.

13.12. Student Activities Centre

This building is used by students for playing indoor games. It is also used for conducting important functions such as convocations and orientation programmes for freshers.

13.13. Cafeteria

There are two canteens, viz. the IIT Staff Canteen and Tifanys Restaurant, on campus, catering 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 facilities to the staff, students and residents of the campus. Transport facilities are also available for 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 the Government of India i.e., 1 April to 31 March of the following year. The accounts of the Institute are annually audited by the Principal Accountant General (Tamil Nadu & Pondicherry), Chennai on behalf of the Comptroller & Auditor General of India.

The 80th Finance Committee of the Institute, in its meeting held on 12 November 2013, recommended non-plan revised estimates of ₹265.72 crores (gross) for the year 2013–2014 and budget estimates of ₹305.50 crores (gross) for 2014–2015. The committee also recommended a revised estimate of ₹267.34 crores under the plan head for the year 2013–2014 and a budget estimate of ₹244.50 crores for the year 2014–2015.

The following is the summary of revised estimates for 2013–2014 and budget estimates for 2014–2015 as approved by the Board of Governors of the Institute in their 219th meeting, held on 10 December 2013.

(Figures in crores of ₹)

Head	B.E. 2013–2014	R.E. 2013–2014	B.E. 2014–2015
I. Non-plan			
Opening balance	—	8.93	—
Income	45.40	50.72	55.05
Grant from MHRD (projected)	218.12	206.07	250.45
Total	263.52	265.72	305.50
Expenditure	263.52	265.72	305.50
II. Plan			
a. Normal plan			
Grant from MHRD	172.00	219.21	244.50
Expenditure(projected)	172.00	219.21	244.50

Audit

The annual accounts of the Institute for the year 2012–2013 were audited by the Principal Accountant General (Tamil Nadu & Pondicherry) in July 2013. A certified copy of the Accounts and Audit Report was sent to MHRD, New Delhi to be placed [Please check if the edits to the sentence retain the intended meaning.] before Parliament on 28 November 2013. The approval of the Board of Governors was obtained on 10 December 2013, and a copy of the resolution was sent to MHRD on 11 December 2013.

Summary of Plan/Non-Plan Funds Utilisation for 2012–2013

Plan

(Figures in crores of ₹)

Opening balance	-3.07
Normal plan grant sanctioned during 2012–2013	177.00
Total available	173.93
Capital expenses during 2012–2013	
Buildings & construction	51.32
Furniture & fixtures	2.77
Equipment	25.02
Books, journals & periodicals	11.67
Revenue expenditure: Scholarship payments	35.02
Total	125.80

Non-plan

(Figures in crores of ₹)

Grant sanctioned during 2012–2013	196.27
Tuition fees	9.83
Hostel fees	0.95
Entrance examination fees	17.92
Administrative income	6.58
Interest income	11.37
Other fees	1.20
Other income	1.64
Total available	245.76
Expenditure during 2012-13	
Pay & allowances	119.61
Service pension & family pension: Retirement benefits	53.17
Library services	0.20
Health services	2.88
Student scholarship	2.21
Hall subsidy	0.00
Administrative expenses	4.13
Departmental/laboratory/workshop expenses	10.82
Transport subsidy	0.92
Student support activities	3.06
Computer facilities	2.49
Housekeeping & estate maintenance	15.15
Water/electricity charges	19.39
Entrance examination expenses	2.72
Total utilised*	236.75
Depreciation provided	34.63
Total expenditure	271.38
Deficit	25.62

Endowment account balance as on 31 March 2014: ₹30.99 crores

Corpus account balance as on 31 March 2014: ₹170.99 crores

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