



Director's Report

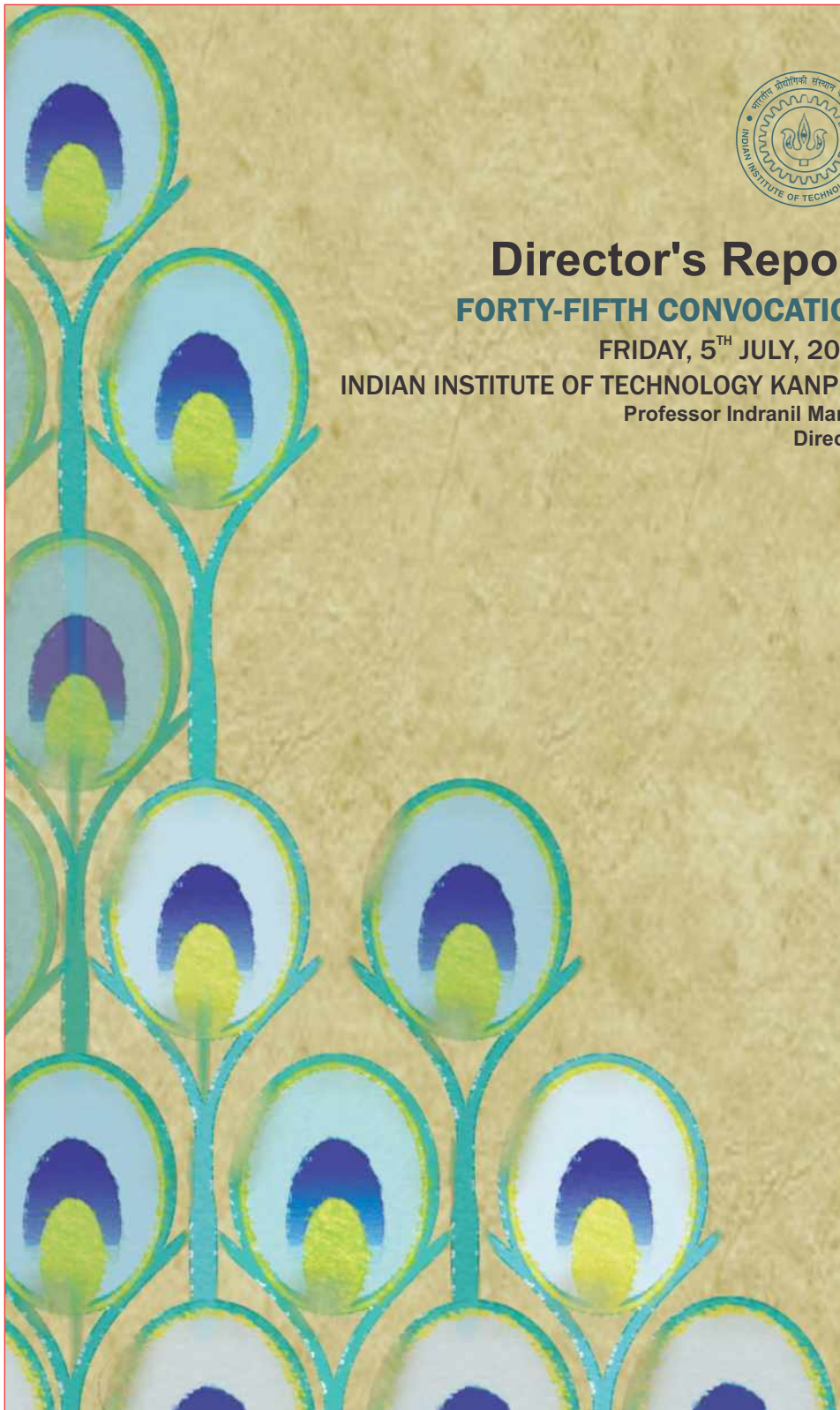
FORTY-FIFTH CONVOCATION

FRIDAY, 5TH JULY, 2013

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

Professor Indranil Manna

Director



Executive Summary

Honourable President of India Shri Pranab Mukherjee, Honourable Governor of Uttar Pradesh Shri B. L. Joshi, Honourable Chairman, Board of Governors of the Indian Institute of Technology Kanpur, Professor M. Anandkrishnan, Shri N. R. Narayana Murthy, Executive Chairman of Infosys Limited, Professor Ashoke Sen, Harish-Chandra Research Institute, Allahabad, Members of the Board of Governors, Members of the Academic Senate, all graduating students and their family members, members of faculty, staff and students, invited dignitaries, guests, and members of the media: I heartily welcome you all on this occasion of the forty-fifth convocation of the Indian Institute of Technology Kanpur.

The academic year closing in June 2013 has been momentous, and I consider it a privilege to review our activities pertaining to this period. I am very happy to share with you that 132 Ph.D. students have graduated over the last academic year. The number of graduating students at the undergraduate level was 691 and at the postgraduate level it was 636.

During the year, the Institute has witnessed significant growth in its Research and Development activities. The number of externally funded ongoing projects has reached 588 with a sanctioned amount of Rs. 314 crores. Some of the major grants sanctioned by various agencies during the year are DST Rs. 7 crores, SERB Rs. 7 crores, ARDB Rs. 4 crores, DRDO Rs. 6 crores, and DAE Rs. 2 crores. Some of the major industries which have funded projects are Unilever, HUDCO, CEAT, Intel, Power Grid Corporation of India, BHEL, GE, Samsung, and Boeing. A list of major projects sanctioned is given at the end of the report.

The Institute and consumer goods company Unilever signed a wide ranging partnership agreement to collaborate on several cutting edge research projects in the areas of materials science and engineering. Overall, during the year, the Institute signed around 110 MoUs/agreements with various sponsors and research institutions. Apart from this, about 15 MoUs were signed with universities and academic institutions.

During the year, twelve technologies developed at the Institute were licensed for commercialization while we filed eighteen national patents including two design patents. Three patents were granted and our earnings from intellectual property are US\$ 86,400.

Amongst a large number of technologies developed by the Institute, I would specially like to mention a novel Zero Discharge Toilet System. The toilet system eliminates use of fresh water for flushing and converts human excreta into manure and fertilizer. Over 300 such toilets were deployed in Maha Kumbh 2013 at Allahabad which served approximately one million users.

Reporting about the awards and honours won by our faculty and students is always a proud moment for the Director. It gives me enormous sense of pride to share with you that during this year Professor Sanjay G. Dhande, former Director of the Institute and Professor Manindra Agrawal have been conferred Padma Shri by the Government of India. Dr. S A Ramakrishna has been awarded the Swarnajayanti Fellowship by the DST, Dr. Yogesh Joshi received NASI Scopus Young Scientist Award in Engineering from the National Academy of Sciences, Allahabad and Dr. Avinash Agarwal has been chosen for the NASI-Reliance Industries Platinum Jubilee Award for Application Oriented Innovations in Physical Sciences. This year 8 Japanese TODAI scholarships were awarded to IITK students. The full list of awards to the faculty and students is given at the end of the report.

The year was good for fund raising as well. The Institute received Rs. 4.54 crores from 701 donations made by 538 donors (334 donors from India and 204 donors from abroad). A total of 310 donors (169 donors from India and 141 donors from abroad) contributed Rs. 54.8 lakhs under the Annual Gift Programme (AGP).

Mrs. Asha Jadeja wife of Late Prof. Rajeev Motwani (BT/CSE/1983) has donated US\$ 181,000 towards the Rajeev Motwani Building for CSE department.

On the students' front, this year the Gymkhana is celebrating its Golden Jubilee. The Golden Jubilee celebrations were inaugurated by Dr. A P J Abdul Kalam. Dr. Kalam's speech during the ceremony was witnessed by thousands of students even though the event occurring during the mid-semester recess.

Despite the fear of a second recession, several companies actively participated in the Campus placement programme with many old recruiters registering their presence once again after the recession in 2007. Around 914 students registered for placements this year, of which 709 received job offers from 200 companies. Thus the overall placement record stands at 78% as on 5th of May, 2013.

In recent times, the connectivity of Lucknow airport to major metros has considerably improved, but the same cannot be said for the connectivity between IIT Kanpur and Lucknow airport. To address this issue, a helicopter service operated by Pawan Hans has been started from the institute to Amausi airport. While presently it is running on an experimental basis, efforts are being made to explore how it can be operated as a regular service.

Dear graduates, on this occasion of the forty-fifth convocation, I extend my heartiest congratulations and best wishes to the Class of 2013 passing out today. This hard-earned success is a major milestone in your career. I also take this opportunity to salute your parents who have ensured your success and glory in all you have chosen to do through their quiet support. Each of you in your own way has internalized the spirit of IIT Kanpur that imbibes commitment, excellence, fellowship, and, importantly, service. No matter where you are, continue to dream and dream big at that! My sincere, good wishes for the productive work you aspire to do in the future.

Jai Hind.

Director's Report

Honourable President of India Shri Pranab Mukherjee, Honourable Governor of Uttar Pradesh Shri B. L. Joshi, Honourable Chairman, Board of Governors of the Indian Institute of Technology Kanpur, Professor M. Anandkrishnan, Shri N. R. Narayana Murthy, Executive Chairman of Infosys Limited, Professor Ashoke Sen, Harish-Chandra Research Institute, Allahabad, Members of the Board of Governors, Members of the Academic Senate, all graduating students and their family members, members of faculty, staff and students, invited dignitaries, guests, and members of the media: I heartily welcome you all on this occasion of the forty-fifth convocation of the Indian Institute of Technology Kanpur.

Academic Activities

The academic year closing in June 2013 has been momentous, and I consider it a privilege to review our activities pertaining to this period. I am very happy to share with you that 132 Ph.D. students have graduated over the last academic year. The number of graduating students at the undergraduate level was 691 and at the postgraduate level it was 636.

Awards and Honours

Reporting about the awards and honours won by our faculty and students is always a proud moment for the Director. It gives me enormous sense of pride to share with you that Professor Sanjay G. Dhande, former Director of the Institute and Professor Manindra Agrawal (CSE) have been conferred Padma Shri by the Government of India.

The many prestigious scholarships and awards received by our students have been a matter of pride and pleasure for us. This year 8 Japanese TODAI scholarships were awarded to IITK students.

I am happy to inform you that during the academic year, several honors were bestowed on the distinguished faculty members of IITK family in the form of various awards and honours, including fellowships of professional societies and editorships of international journals.

Prof. S A Ramakrishna (Phy) has been awarded the Swarnajayanti Fellowship by the DST. Dr. Pankaj Wahi (ME) and Dr. Nishant Nair (CHM) have been awarded the prestigious Indian National Science Academy (INSA) Young Scientist Medal. Dr. Bushra Ateeq (BSBE) received Wellcome Trust-DBT India Alliance Intermediate Fellowship Award. Prof. Ashok Kumar (BSBE) has been selected for TATA Innovation Fellowship by DBT. Prof. Mukesh Sharma (CE) has been awarded Hiyoshi Environmental Award by Hiyoshi Corporation, Japan and Hiyoshi India Ecological Services Pvt. Ltd., Chennai, for his outstanding contribution in fundamental research for Environmental Conservation and Protection. Dr. Yogesh Joshi (CHE) received NASI Scopus Young Scientist Award in Engineering from the National Academy of Sciences, Allahabad. Dr. Raja Angamuthu (CHM) received Young Scientist Research Award of DAE. Prof. S C Srivastava (EE) received Academic Excellence Award at the 17th National Power Systems Conference held at IIT BHU Varanasi for his exemplary contributions in the field of power engineering. Dr. Yogesh Singh Chauhan (EE) received Ramanujan Fellowship by DST. Prof. Kalyanmoy Deb (ME) has been awarded TWAS Prize in Engineering Sciences. Prof. Avinash Agarwal (ME) has been chosen for the NASI-Reliance Industries Platinum Jubilee Award for Application Oriented Innovations in Physical Sciences. Dr. Kantesh Balani (MSE) received TMS Young Leader Professional Development Award of the Minerals, Metals and Materials Society. Dr. Krishanu Biswas (MSE) received the DAAD Fellowship and Prof. Dipak Mazumdar (MSE) has been awarded the SAIL Gold Medal of the Indian Institute of Metals for the third time in his career. Dr Amit

Agarwal (Phy) has been awarded the Inspire Fellowship by DST. IIT Kanpur received the Agriculture Leadership Award of Agriculture Today.

Research & Development Overview

During the year, the Institute has witnessed significant growth in its Research and Development activities. The number of externally funded ongoing projects has reached 588 with a sanctioned amount of Rs. 314 crores. During 2012-2013, the Institute got sanctions for 119 sponsored projects worth Rs. 54 crores and 101 consultancy projects of value Rs. 11 crores. Some of the major grants sanctioned by various agencies during the year are DST Rs. 7 crores, SERB Rs. 7 crores, ARDB Rs. 4 crores, DRDO Rs. 6 crores, DAE Rs. 2 crores, UGC Rs. 1 crore and DBT Rs. 1 crore. Some of the major industries which have funded projects are Unilever, HUDCO, CEAT, Intel, Power Grid Corporation of India, BHEL, and GE. At the international level, organizations like Samsung, Boeing, the Finnish Meteorological Institute, Finland have funded our research. A list of major projects is given at the end of the report.

The Institute and consumer goods company Unilever signed a wide ranging partnership agreement to collaborate on several cutting edge research projects in the areas of materials science and engineering. Overall, during the year, the Institute signed around 110 MoUs/agreements with various sponsors and research institutions.



During the year, twelve technologies developed at the Institute were licensed for commercialization while we filed eighteen national patents including two design patents. Three patents were granted and our earnings from intellectual property are US\$ 86,400.

Twenty-two companies are currently being incubated at SIDBI Innovation and Incubation Centre (SIIC) while twenty-one have graduated. SIIC has successfully incubated eight Bio-Tech Companies with two more in the pipeline. BIRAC has sanctioned Rs. 833.716 lacs to SIIC under its Bio-incubator Scheme. SIIC plans to establish the Bio-incubator as per the timeline laid down under the scheme in the next one year.

A novel Zero Discharge Toilet System has been developed in the Department of Civil Engineering. The toilet system eliminates use of fresh water for flushing and converts human excreta into manure and fertilizer. Over 300 such toilets were deployed in Maha Kumbh 2013 at Allahabad which served approximately one million users. Housing and Urban Development Corporation (HUDCO) facilitated this initiative under their Corporate Social Responsibility program.

An Autonomous Mini-Helicopter model was displayed in Bangalore at AERO India 2013. It weighs only a few kilograms and incorporates most of the functions of a real life helicopter and achieves autonomous



control in hover and forward flight. This project serves as a platform to test innovative ideas in the design, development, ground/flight testing of autonomous flying vehicles.

A laboratory focusing on the fundamentals of design, manufacturing, and testing of systems and sub systems has been created to assist the development and testing of the mini helicopter. An agreement was also signed with HAL Bangalore for the development of autonomous mini helicopter.

With the growing popularity of Massively Open Online Courses (MOOCs), the problem of automating components of education is the need of the hour. We are developing Intelligent Tutoring Systems to aid online classrooms as well as traditional classrooms. Automated tutoring systems are being developed for topics such as Periodic Table, Limits, Trigonometry, Natural Deduction, Visual Sequences to name a few. These tutoring systems can help instructors in creating sample solutions to assignment problems and new problems along with their solutions and can automatically generate variants of given seed problems with similar difficulty level. The project is being done in collaboration with Microsoft Research, and was recently showcased at Techfest 2013, Microsoft Research, Redmond, USA.

The contributions of Prof. A K Ghosh (AE) towards the successful flight of a supersonic (Mach=3.5) 214 mm PINAKA Mk-II artillery rocket weighing 300 Kg was commended by the Director, ARDE (DRDO). After the first round of rockets failed, modifications were incorporated on the basis of Prof. Ghosh's recommendation and all the rockets exhibited majestic flight.

A new DC power supply has been designed by BSNL-IITK Telecom Centre of Excellence at IIT Kanpur for rural telecom exchanges. It works with one, two or three phase grid input and obviates the need for operating diesel generators during partial grid failure. The product will result in savings in operational cost and an environment friendly telecom exchange. It was showcased in Delhi at India Telecom 2012.

Major Projects Sanctioned

In a recent high level meeting with DRDO, the Institute has expressed its desire to embark upon mega projects which can lead to the development of challenging products which are challenging and which are required by the country's defence or by society, in general.

I am happy to inform you that DRDO has sanctioned two major projects as part of its nano-photonics program, with a funding of Rs. 309 lakhs. One project targets the development of miniaturized optical devices to function as sources and detectors based on the concept of photonic crystals. The other project concerns the development of large area micro and nano structured meta-materials for visible and infra-red frequencies with a view to developing selective absorbers, detectors and shields.

An Indo-German project - FLEXIPRIDE (Flexible Printed Integrated Disposable Electronics) - has been initiated with one academic Institute and one industrial partner from each country to develop circuits on flexible substrates on which electronic components such as displays, solar cells and transistors can be printed. The main thrust of the project is to improve and integrate components to produce multifunctional system applications such as electronic seals. As a part of the project various printing techniques such as ink-jet and gravure will be used to port ink-based applications from one platform to another. The project spans over three years at a cost of Rs. 4 crores among all the partners.

DBT has sanctioned a project on unraveling the role of Glycogen metabolism in neurodegenerative disorders. Glycogen is the principle storage form of energy in all cell types except the neurons which store either no or negligible amount of glycogen. Intriguingly, neurons in the patients with Alzheimer's disease, Parkinson's disease, Amyotrophic lateral sclerosis or Lafora disease are known to have increased

glycogen content, although the significance of the glycogen accumulation in the neurodegeneration is not understood. The outcome of the project is likely to unravel the commonality in the pathological process of diverse set of neurodegenerative disorders and may help to explain the possible role of glycogen metabolism in neurodegenerative disorders.

A project for research and demonstration of the concept of Homogeneous Charge Compression Ignition (HCCI) and Partially Premixed Charge Compression Ignition (PCCI) combustion in Single Cylinder Engine using diesel and biodiesel as test fuels has been sanctioned by DST. It is a three year project with a budgetary allocation of Rs 1.58 crores and Tata Motors, Pune, as the industrial partner. The objective of the project is to develop HCCI/PCCI concept with biodiesel and development of biodiesel PCCI combustion system as an ultra clean combustion system. This advanced combustion seeks to decrease the rate of consumption of conventional fuel-stock and reduce the high pollutant level in exhaust, simultaneously.

The Obama Singh scheme is an Indo-US initiative that aims to form partnerships between US institutions and institutions of higher learning in India. IIT Kanpur partnered with Virginia Tech and was one of the four Indian led partnerships to be funded in the first year of the scheme to create an international program for Sustainable Infrastructure Development. The project with a total funding of Rupees 122.808 lakhs over a three year period seeks to (1) conduct research in areas related to the development, maintenance, and monitoring of infrastructure (2) apply geospatial techniques to infrastructure monitoring (3) develop curriculum in educational institutions and (4) conduct an awareness and sensitization program towards the need for comprehensive planning, development, and maintenance of infrastructure among practicing engineers (5) and contribute to greater mutual understanding among faculty at both the institutions

through exchange of scholars, joint publications, and collaborative research.

The state of the art Photovoltaic (PV) Field Performance Test Station has been established under the DST sponsored Indo-UK project Stability and Performance of Photovoltaics. A 50 KWp solar power station having five PV technologies has been created. The power station is unique and first of its kind in the country hosting five PV technologies; mono-crystalline silicon, multi-crystalline silicon, amorphous silicon thin film, copper-indium-gallium-selenide (CIGS) thin film and high concentration high efficiency triple Junction solar cells in two different configurations, i.e., fixed angle and 2D tracker at 5 KWp levels. An online monitoring system for comprehensive field performance evaluation of various PV system parameters and ambient conditions has been designed. The test station also provides an R&D platform to faculty, research engineers and students of the institute associated with the Solar Energy



Research Enclave (SERE). Besides providing opportunity for R&D in PV technologies, the enclave acts as a demonstrator of solar based technologies. The enclave is self sufficient in its electricity needs through 5 KWp battery supported solar panels and is also feeding about 200 units/day to the IITK electricity grid.

Infrastructure Development

Keeping in view the requirements of the campus community, the institute has embarked upon a major exercise to enhance the infrastructure in the campus. Some of the new facilities that are being planned are a Convention Centre including a Senate Hall, a new Sports' Complex, Vivekananda Youth

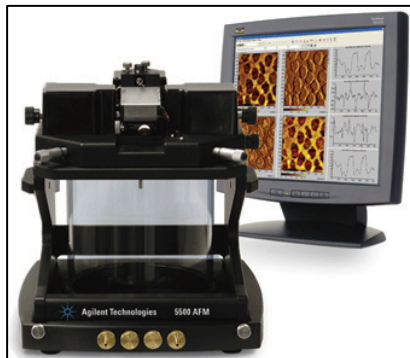
Centre, TeQIP Nodal Centre, Engineering Core Laboratory, Administrative Block and faculty apartments. As a part of this exercise, some of the existing low usage footprints like Workshop and Aerospace buildings will be converted to multistoreyed buildings.

The Institute strives to provide the state of the art equipments to its faculty, students and staff to facilitate cutting edge research in the frontier areas of science and technology.

During the year, the Institute has procured the following facilities under its CARE scheme: Anechoic Acoustic Chamber, Femto-second Transient Absorption Spectrometer, Laser Micro-pattern Generator, Femto-second Laser based Beam Delivery and Scanning System, Large area nano/micro depth profiling by AFM, Facility for transgenesis of multiple model organisms and a large scale centrifugation facility.



Under the FIST scheme of DST, the Department of Chemistry received a total budget of Rs. 465.00 lakhs and procured several new facilities including Mass Spectrometer, Computer Cluster, Fluorimeter, GA-DSC, Atomic Force Microscopy, Resonance Raman Spectrometer, etc.



Other facilities established in the Institute during this year are listed at the end.

International Academic Collaborations

For promoting scientific and academic co-operation, the Institute has entered into MoUs with the University of Gothenburg, Sweden, National University of Ireland at Galway, Ireland, Singapore Management University, Singapore, University of Applied Sciences, Germany, Ecole Centrale Nantes, France, Ecole Nationale Supérieure D Arts et Metiers, France, Erasmus Mundus Europe Asia (EMEA), Sweden, The University of Melbourne, Australia, RWTH Aachen University, Germany, The University of Tokyo, Japan, Ulsan National Institute of Science and Technology, Korea, University of Malaya, Malaysia, and University of Saskatchewan, Canada.

The Department of Industrial Management and Engineering helped Defence Engineering College, Ethiopia to establish an M.Tech program in Industrial Management.

Financial Resource Mobilization

The year 2012-13 has witnessed significant growth in financial resource of the institute. The total Grant-in-aid received during the financial year from MHRD, Govt. of India, under non-plan was Rs. 169.65 crores and under Plan Rs. 163.80 crores.

The year was good for fund raising as well. The Institute received Rs. 4.54 crores from 701 donations made by 538 donors (334 donors from India and 204 donors from abroad). A total of 310 donors (169 donors from India and 141 donors from abroad) contributed Rs. 54.8 lakhs under the Annual Gift Programme (AGP). Donations received under AGP have been utilized for providing travel support to the students for attending international conferences, cash award for publication of their research papers in reputed journals,

support to community services and other activities encouraging excellence in the Institute.

Class of 1988 has contributed Rs 1,11,20,790.00 (Rs one crore eleven lakhs twenty thousand and seven hundred ninety) during their Silver Jubilee Reunion towards naming of squash court,



Community outreach activities, Noida campus, alumni association, merit cum means scholarship, mess workers' pension fund, tinkering lab, various student activities and center for development of soft skills.

Mr. Anil Kumar Singh (BT/AE/1970) has donated for Kunwar Devendra Pratap Singh & Kunwarani Krishna Kumari Memorial Award and Mr. Puneet Prakash (MSC5/MTH/1992) has donated for Shailja Srivastava Award.

Several donors have instituted new scholarships during the financial year 2012-13. Arpita Mahila Mandal, Azad Nagar, Kanpur has instituted two scholarships named as "Arpita Mahila Mandal Scholarship" to provide financial assistance to two poorest girl students during the full degree program. Mr. Rangarajan Vellamore R, BTech from Mechanical Engineering (1990) has instituted Sri R & R Chari Scholarship. Mr. Anupam Saronwala, B. Tech from Electrical Engineering (1980) has instituted Dr. K. C. Saronwala Memorial Scholarship. Mr. Rajeev Chopra (BTech Metallurgy 1985) and Sandeep Chopra (BTech, Electrical 1993) has donated to institute four annual scholarships namely Ram Parkash Chopra Memorial Scholarship. Mr. Satya P. Chauhan (BTech/ChE/1968) has instituted Shri Ranbir and Shrimati Mahadevi Chauhan Scholarship. Mr. Santosh Mehra (BT/EE/1966) & Mrs. Anita

Mehra, donors of "Anita and Santosh Mehra Scholarship" instituted in 2010 have instituted four more scholarships and all the four scholarships will be named under "Anita and Santosh Mehra Scholarship".

Mrs. Asha Jadeja wife of Late Prof. Rajeev Motwani (BT/CSE/1983) has donated US\$ 181,000 towards the Rajeev Motwani Building for CSE department. Mrs. Jadeja has committed to donate 50% cost of Rajeev Motwani building which is presently under construction.

Mr. Jagjeet Singh Bindra has donated US\$ 20,000 towards Mr. & Mrs. Gian Singh Bindra Chair. Mr. Kamlesh Dwivedi has donated US\$ 40,000 towards Pandit Girish Ranjan & Sushama Rani Pathak Chair.

SURGE 2012 program was conducted during summer 2012 which saw student participation of 95 members from 122 Institutes, and faculty participation of 72 members from IIT Kanpur as mentors. The selection of student participants was very competitive as 2600 applications were received from various institutions in the country, which gives a clear indication of its increasing popularity.

The Institute encourages research by providing travel support to students and rewarding students for publishing research papers in high quality journals. The Institute provided travel support of Rs. 68 lakhs to 155 students for attending international conferences, and cash awards of Rs. 18.20 Lakhs to 147 students for publication of their research papers in reputed ISI Web Journals during the financial year 2012-13.

Rs. 1.59 crores from endowment fund account was reimbursed for New Faculty Fellowships during the financial year 2012-13.

The Institute is working on an ambitious plan for raising substantial resources to increase the research and development activities on campus and hopes to launch some new initiatives in the year 2013-14.

Students' Activities

IIT Kanpur continues its striving to encourage an equitable balance between academics and extracurricular activities among its students. Our vision is to create future leaders in their field of interest and not just technically accomplished individuals. The Institute strongly believes that an abiding social and humane engagement is the hallmark of its student body. To translate such a belief into reality, the Institute nurtures social, cultural and sporting activities pursued by the students' gymkhana and other student groups. With a firm belief in self-governance, Students' Gymkhana continues to provide platform to all students to pursue their interest. This year also witnessed the Golden Jubilee of Students' Gymkhana.

A variety of activities are pursued by various clubs coming under the broad ambit of the councils of the Students' Gymkhana. They range from clubs like Prayas, where students teach children coming from socially disadvantaged and economically deprived backgrounds to the Dramatics club which stages thematically inspired and socially relevant plays. This year Institute's technical team won the Overall Championship at IITM's technical competition. Our dance club also made their impact in Mood Indigo, IITM cultural festival and IITD cultural festival. Music club is actively working on launching a music album of its own, again first of its kind initiative by any student group in India. It has composed three patriotic songs and is working on composing the Anthem for IIT Kanpur. Apart from these, Vox Populi, the campus newspaper provides the news from every aspect of the campus community. A full-fledged studio for photography has come into existence and the last phase work is under

progress. It will be fully operational from the month of July. Other technically oriented student groups as part of the Science and Technology Council are engaged throughout the year in pursuing special interests like robotics, electronic, astronomy, aero-modeling, business, programming, HAM, Rubik's cube to name only a few activities. This year was a landmark for Science and Technology Council. We saw International participation in Techkriti'13 and also our SAE team participated in the International competitions. This time we have successfully completed many engrossing projects such as Microsoft Touch Table, Hexapod (six legged robot bot), and India's first student made in house Planetarium which is all set to enter the Limca book of records. Also we have put up a splendid show in IITB's Technical festival and in Intel Embedded Challenge. We have also successfully set up the Society of Automotive Engineers, IIT Kanpur chapter and are all set to take part in Formula SAE 2013 which is going to be held in December.

The overriding objective of the large-scale events of the Institute such as Antaragni (the cultural festival), Techkriti (the technical and entrepreneurship festival) and Udghosh (the sports festival) is to infuse a sense of richness and purpose in the lives of students. All these social, cultural and sporting activities play a crucial role in the transformation of a student into a complete human being. These festivals have seen vastly improved participation levels, both from within the Institute and also from students from other national and international institutions. The revenues generated for conducting these festivals saw an impressive growth last year, which is a tribute to the managerial and logistic skills of our students. Social activists like Medha Patkar, economists like Trilochan Sastry and Mahesh Murthy and veteran journalists like Kuldip Nayar, and many more have visited the campus in the past. The Institute sports teams participated in the Inter IIT Sports meet this year held at IIT Roorkee. The Athletics team was successful in securing Gold. We also secured Silver

Medal in Table Tennis (boys) and Squash (boys) and Bronze in Table Tennis (Women). This was the first time when both the Men and Women team won a medal in any Inter-IIT sport. The year also saw the addition of a new Rock Climbing wall and an air-conditioned gymnasium to the Institute Facilities. This year also marked the presence of an Archery, Horse-riding and Boxing Workshop for the students.

The Institute witnessed stiff Inter-Hall competition in the form of Galaxy, Takneek, Spectrum and Inferno, Inter-Hall Cultural, Science & Technology, Films & Media and Sports championships respectively. Fresher Inferno tournament also was organized to find some new talent from the freshers' batch. The sole guiding principle behind organizing these championships is to provide the students of this campus, a much needed platform to compete and showcase their cultural and sports talents and to give them a reason and a motivation, strong enough, to come out of their rooms and participate in group activities.

Significantly, the students also engaged in an Energy Saving Competition amongst hostels through an Inter-Hall Competition called Green Opus. The results were astounding in that the students just by internal competition were able to markedly reduce the average energy consumption. Results from all the five Inter Hall Competitions were then used to identify the winner of the Overall Championship Trophy.

This year, the Gymkhana's Golden Jubilee is being celebrated to commemorate the momentous journey of the Students' Gymkhana. The Golden Jubilee celebrations were inaugurated by Dr. A P J Abdul Kalam on the 25th of October. Dr. Kalam's speech during the ceremony was witnessed by thousands of students despite the event occurring during the mid-semester recess.

The Counselling Service is an active wing of our students. The activities include organizing the orientation programme for UG as well as PG students; providing specific attention to students having academic, financial or personal problems; monitoring the progress of students who need special attention. It enjoys wide appreciation from both faculty and students alike.

Despite the fear of a second recession, several companies actively participated in the Campus placement programme with many old recruiters registering their presence once again after the recession in 2007. Apart from an overwhelming response from the traditional Consulting, FMCG and the core engineering sectors, the e-commerce sector registered a sizeable presence with a total of 30 job offers from companies such as Myntra, Flipkart and Snapdeal.

Around 914 students registered for placements this year, of which 709 received job offers from 200 companies. Thus the overall placement record stands at 78% as on 5th of May, 2013. The break-up is as follows: B. Tech 80%, Dual 98%, M. Tech 70%, M. Des 62%, Integrated M.Sc. 92%, and M.Sc. 2 year 49%, and MBA 90%. Results from several companies that participated in the placement process are still awaited.

The Career Counseling Program continued successfully this year with almost a two-fold rise in the number of students availing this facility. The Institute has put in place the entire infrastructure necessary to meet the requirements of the enhanced student strength. As of now, there are eleven halls of residence, nine for boys and two for girls. The total capacity in these halls is over five thousand.

The Students' Gymkhana of IIT Kanpur was established in the year 1962, with the goal of complementing education through exposure to science, culture and sports and thereby fostering an environment that provides every student that passes through the hallowed halls of IIT Kanpur with an opportunity to develop and have a wholesome college experience.

A number of events like The Golden Jubilee Duathlon, Montage Film Festival, Vivekananda Youth Convention and Stress Buster events like "Laugh it out" were organized. This year is not just about celebrating and recognizing the 50 years' worth of achievements of the Gymkhana but also to contemplate and look towards the future, to leave behind a legacy that would continue to benefit the student community over the years to come. In this direction, a number of infrastructural projects dealing with every council have been taken up this year, right from establishing our very own in-house recording studio to setting up an archery range on campus. Apart from the infrastructural projects, a number of workshops were organized to introduce the campus to new forms of art, culture and media. A solar tree has been put up in the campus. Many other procedures have started on for IITK Paper Waste Management and Water Harvesting. These, we are told, are long term projects and will take time to complete.

In Hall-2 work on a Mini-Library in the Reading Room has started, if successful it will be implemented in other halls too. An Electronic Voting Machine has been brought to the campus. The mail-quota is also going to be increased. Study kits have been given to all the students in Prayas. A ball-throwing machine is soon to arrive in the campus, much to the enjoyment of the cricket lovers. An exquisite projector has been bought and will be used in the Auditorium for screening movies.

Over the past 50 years, the Gymkhana has developed into one of the finest models of student Governance and Organization in the country and is now an integral part of the life of every student on campus.

It represents, to a student of IIT Kanpur, the most unique feature of our Institute life: the independence that an

autonomous student body offers us. The privilege to organize our own student-managed festivals, the privilege to compete with each other in student-organized competitions, the opportunity to perform and participate in a spate of extracurricular activities and the chance to exemplify the spirit of competition are all offered to us by the institution of the Gymkhana.

While the connectivity of Lucknow airport to major metros has considerably improved, the same cannot be said for the connectivity between IIT Kanpur and Lucknow airport. To address this issue, a helicopter service operated by Pawan Hans has been started from the institute to Amausi airport. While presently it is running on an experimental basis, efforts are being made to explore how it can be operated as a regular service.

I am happy to say that the Institute has also joined hands with the Merchants' Chamber of Uttar Pradesh to provide its services towards improving the traffic and related civic infrastructure in Kanpur city.

Dear graduates, on this occasion of the forty-fifth convocation, I extend my heartiest congratulations and best wishes to the Class of 2013 passing out today. This hard-earned success is a major milestone in your career. I also take this opportunity to salute your parents who have ensured your success and glory in all you have chosen to do through their quiet support.

As individuals you will choose the profession that excites you, that generates intellectual passion within yourself, engages your mind in the best possible way. I fervently hope that you are successful in your endeavors. Today, you will be leaving the protected environment of the Institute to find your place in the larger order of society. Prepare yourselves to evaluate the needs of others and respond to the call for action. It is people like you who keep our flag flying high.

I admire you for your fine accomplishments during your stay at IIT Kanpur. Given your intellectual attainments and breadth of understanding, you are destined to bring cheer, hope, joy and luck in all the lives you touch. Each of you in your own way has internalized the spirit of IIT Kanpur that imbibes commitment, excellence, fellowship, and, importantly, service. No matter where you are, continue to dream and dream big at that! My sincere, good wishes for the productive work you aspire to do in the future.

Jai Hind.

Books Published

1. A book written by Prof. Ashish Tiwari (AE) titled Atmospheric and Space Flight Dynamics has been translated into Chinese language by National Defense University Press (Beijing).
2. Nanomedicine for Drug Delivery and Therapeutics: Multifunctional Nano/Micro Polymer Capsules as Potential Drug Delivery and Bioimaging Agents, Haider Sami, Jaishree, Ashok Kumar (BSBE), Sri Sivakumar (CHE), Wiley.
3. El Comercio De Bienes Amigables Con El Ambiente Y Otros Productos Especializados Del Ecuador (in Spanish), Mathur Somesh K (HSS) with Luis Barreno, Maria Isabel and Rene Vasconez, UTE (Universidad Technologica Equinoccial), Ecuador, Quito, Ecuador.
4. Trade in Climate Smart and Other Specialized Products of Ecuador, Mathur Somesh K (HSS), E book, bookboon.com, <http://bookboon.com/en/textbooks/economics/trade-in-climate-smart-goods>, UK and Denmark.
5. Choosing Right Control System for Organization Strategies, Devjani Chatterjee (IME) and RRK Sharma (IME), LAP Lambert Academic Publishing, Germany, 2012.
6. Statistical Signal Processing, Frequency Estimation, Debasis Kundu (Math) and Swagata Nandi, Springer, New York.
7. Micromanufacturing Processes, edited by V K Jain (ME), CRC Press (Taylor and Francis, USA), New York.
8. Nanotribology and Materials in MEMS, Sujeet K. Sinha (ME), N. Satyanarayana and S. C. Lim, Springer, Germany.
9. Schlieren and Shadowgraph Methods in Heat and Mass Transfer, Panigrahi, P K (ME) and Muralidhar, K (ME), Springer, Newyork, Heidelberg, Dordrecht London.
10. Imaging Heat and Mass Transfer Processes-Visualization and Analysis, Panigrahi, P K (ME) and Muralidhar, K (ME), Springer, Newyork, Heidelberg, Dordrecht London.

Fellowships

1. Prof. Sanjay Mittal (AE) has been awarded the J C Bose Fellowship by DST.
2. Prof. Sanjay Mittal (AE) has been elected Fellow of National Academy of Sciences, India.
3. Prof. Ashok Kumar (BSBE) has been awarded Tata Innovation Fellowship by Department of Biotechnology, Ministry of Science & Technology, Govt. of India.
4. Dr. Bushra Ateeq (BSBE) has been awarded Wellcome Trust-DBT India Alliance Intermediate Fellowship.
5. Prof. S. Ganesh (BSBE) has been awarded Ramanna Fellowship by Department of Science & Technology.
6. Prof. S. Ganesh (BSBE) has been elected Fellow of the National Academy of Sciences, Allahabad.
7. Prof. Animesh Das (CE) has been awarded Fulbright-Nehru Senior Research Fellowship.
8. Prof. Amalendu Chandra (CHM) has been awarded the J C Bose Fellowship by DST.
9. Prof. Amalendu Chandra (CHM) has been elected Fellow of the Indian National Science Academy (FNA).
10. Prof. Sandeep Verma (CHM) has been awarded the J C Bose Fellowship by DST.
11. Prof. Manindra Agrawal (CSE) has been elected Fellow of the Academy of the Developing World, Trieste, Italy.
12. Dr. Yogesh Singh Chauhan (EE) has been awarded Ramanujan Fellowship by DST.
13. Prof. Arvind K Sinha (HSS) has been elected Fellow of the National Academy of Psychology.
14. Prof. Avinash Kumar Agarwal (ME) has been elected as SAE International Fellow by the Society of Automotive Engineers (International), USA.
15. Dr. Anupam Saxena (ME) has been awarded Alexander von Humboldt Fellowship from Alexander-von-Humboldt Stiftung.
16. Prof. Gautam Biswas (ME) has been elected Fellow of Indian National Science Academy.

17. Dr. Krishanu Biswas (MSE) has been awarded DAAD Fellowship.
18. Prof. S A Ramakrishna (Physics) has been awarded Swarnajayanti Fellowship for the year 2012.
19. Dr Amit Agarwal (Physics) has been awarded Inspire Fellowship by DST.
20. Prof. Debashish Chowdhury (Physics) has been awarded the J C Bose Fellowship by the DST.

Awards and Honours

1. Prof. Ashok Kumar (BSBE) received GRO Samsung project award by Global Research Outreach, Samsung Ltd, Korea.
2. Prof. Mukesh Sharma (CE) has been awarded Hiyoshi Environmental Award by Hiyoshi Corporation, Japan and Hiyoshi India Ecological Services Pvt. Ltd., Chennai.
3. Prof. Sudhir Jain (CE) has been elected President of the International Association for Earthquake Engineering (IAEE).
4. Prof. Mukesh Sharma (CE) has been chosen for 2012 Kong Ha Award for Excellence in Air Quality Management.
5. Prof. Ashutosh Sharma (CHE) has been awarded the Syed Husain Zaheer Medal by the Indian National Science Academy.
6. Prof. D. Kunzru (CHE) has been awarded Chinnamaul Memorial Prize and M. H. Shukla 1st Prize by Indian Institute of Chemical Engineers.
7. Dr. Yogesh Joshi (CHE) has been awarded NASI Scopus Young Scientist Award in Engineering by National Academy of Sciences, Allahabad.
8. Prof. P. K. Bharadwaj (CHM) has been awarded Prof. P. R. Ray Memorial Award by Indian Chemical Society.
9. Prof. Sandeep Verma (CHM) has been awarded Prof. R. C. Mehrotra Commemorative Lecture and Gold Medal by Indian Science Congress Centenary Session, Kolkata.
10. Dr. Raja Angamuthu (CHM) has been awarded Young Scientist Research Award by BRNS, DAE.

11. Prof. Debabrata Goswami (CHM) has been awarded Thathachari Research Award 2012 by Bramhara Trust.
12. Dr. Nisanth N Nair (CHM) has been awarded INSA Medal for Young Scientist.
13. Prof. Vinod Singh (CHM) has received Pt Jawaharlal Nehru Award from Dept. of Science and Technology, MP Govt.
14. Prof. Vinod Singh (CHM) has received the Distinguished Alumnus Award from the Banaras Hindu University.
15. Prof. Sanjay G. Dhande, former Director IIT Kanpur has been conferred Padma Shri by the Government of India.
16. IIT Kanpur received the Agriculture Leadership Award of Agriculture Today.
17. Prof. Manindra Agrawal (CSE) has been conferred Padma Shri by the Government of India.
18. Prof. S C Srivastava (EE) received Academic Excellence Award at 17th National Power Systems Conference.
19. Prof. S C Srivastava (EE) received Power Energy Society (PES) Outstanding Engineer Award by PES/IAS chapter, IEEE Uttar Pradesh Section.
20. Prof. M Ramamoorthy (Visiting Professor and also former faculty, EE) received Malviya Excellence Award in Power Systems at 17th National Power Systems Conference.
21. Dr. Prashant Bagad (HSS) received the P. N. Pandit Puraskar for his short story collection in Marathi titled 'Vivade Vishade Pramade Pravase' by the Sarvajanic Vachanalay ('Public Library'), Nashik.
22. Dr. Prashant Bagad (HSS) received Baburao Bagul Shabda Puraskar.
23. Prof. Anoop singh (IME) has received Amity Academic Excellence Award in Management & Engineering from Amity University.
24. Prof. Peeyush Chandra (Math) has been elected President, Indian Society of Theoretical and Applied Mechanics.
25. Prof. Avinash Agarwal (ME) has received the NASI-Reliance Industries Platinum Jubilee Award for Application Oriented Innovations in Physical Sciences.

26. Dr. Pankaj Wahi (ME) has been awarded the INSA Medal for Young Scientist.
27. Prof. Kalyanmoy Deb (ME) has been awarded TWAS Prize in Engineering Sciences.
28. Prof. Gautam Biswas (ME) has received Distinguished Alumnus Award from the Bengal Engineering and Science University (BESU) Shibpur.
29. Prof. N. N. Kishore (ME) and Prof. Prabhat Munshi (ME) received ASNT Outstanding Paper Award for the article, "Tomographic Reconstruction of Defects in Composite Plates Using Genetic Algorithms with Cluster Analysis".
30. Prof. Dipak Mazumdar (MSE) has been selected Chair Professor by the Ministry of Steel, Govt. of India.
31. Prof. Dipak Mazumdar (MSE) has been awarded the SAIL Gold Medal of the Indian Institute of Metals.
32. Prof. Dipak Mazumdar (MSE) has been selected INAE Distinguished Industry Professor.
33. Prof. R C Budhani (Physics) has received the Distinguished Alumnus Award of IIT Delhi.

Editorships

1. Prof. T K Sengupta (AE), Regional Editor, Computers and Fluids.
2. Prof. T K Sengupta (AE), Associate Editor, Int. J. Emerging Multi- Disciplinary Fluid Mechanics, U.K.
3. Prof. T K Sengupta (AE), Associate Editor, Progress in Applied Mathematics, Canada.
4. Prof. T K Sengupta (AE), Editorial Board, International Journal of Intelligent Unmanned Systems, Emerald.
5. Prof. Ashok Kumar (BSBE), Advisory Board Member, Biotechnology Journal, Elsevier Publications.
6. Prof. Ashutosh Sharma (CHE), Editorial Advisory Board Member, Industrial and Engineering Chemistry Research, American Chemical Society (ACS).
7. Prof. Ashutosh Sharma (CHE), Editorial Advisory Board Member, ACS Applied Materials & Interfaces, American Chemical Society (ACS).

8. Prof. D. Kunzru (CHE), Member, Editorial Board, International Journal of Chemical Engineering, Hindawi Publishing Corpn.
9. Dr. Jayant K. Singh (CHE), Editor, Journal of Chemistry, Hindawi Publishing Cooperation.
10. Dr. Jayant K. Singh (CHE), Editor, The Scientific World Journal.
11. Prof. Sandeep Verma (CHM), Member, Editorial Advisory Board, Chemical Communications, Royal Society of Chemistry, London, UK.
12. Prof. Sandeep Verma (CHM), Overseas Member, Ceylon Journal of Science, Faculty Board of Science, Sri Lanka.
13. Prof. Debabrata Goswami (CHM), Editor-in-chief, Journal of Spectroscopy & Dynamics, Cognizure Inc.
14. Prof. Debabrata Goswami (CHM), Editorial Board Member, Reviews of Scientific Instruments, American Institute of Physics.
15. Prof. Debabrata Goswami (CHM), Senior Member, Optical Society of America.
16. Prof. Binay K Pattnaik (HSS), guest edited Journal of Sociology of Science and Technology (Vol. 3, No. 4, 2012), on behalf of the Russian Academy of Sciences, St Petersburg, Russian Federation.
17. Dr. Nishchal K Verma (EE), Guest Editor, International Journal of Computational Vision and Robotics, Inderscience Publishers.
18. Prof. Peeyush Chandra (Math), Review Bulletin of the Calcutta Mathematical Society.
19. Prof. Debasis Kundu (Math), Associate Editor, Journal of Statistical Distributions and Applications, Springer.
20. Prof. Manjul Gupta (Math), Vice President, Bharat Ganita Parisad, Lucknow.
21. Dr. Shantanu Bhattacharya (ME), Editorial Board Member, Trends in Mechanical Engineering & Technology, STM Journals.

22. Prof. V. K. Jain (ME), Associate Editor, International Journal of Precision Technology, Inderscience Publishers (UK).
23. Dr. Sujeet Kumar Sinha (ME), Editorial Board Member, Tribology International, Elsevier, UK.
24. Dr. Sujeet Kumar Sinha (ME), Editorial Board Member, Advances in Tribology, Hindawi Publishing, USA.
25. Dr. Sujeet Kumar Sinha (ME), Editorial Board Member, Tribology–Materials, Surfaces and Interfaces, Maney Publishing and the Institute of Materials, Minerals and Mining, UK.
26. Dr. Sujeet Kumar Sinha (ME), Editorial Advisory Committee member, Industrial Lubrication and Tribology, Emerald Group Publishing, UK.
27. Dr. Sameer Khandekar (ME), Associate Editor, Interfacial Phenomena and Heat Transfer, Begell House.
28. Prof. P. Venkitanarayanan (ME), Associate Editor, Experimental Mechanics, Springer.
29. Dr. Anupam Saxena (ME), Associate Editor, ASME Journal of Mechanisms and Robotics, ASME.
30. Prof. V. K. Jain (ME), Editor, Micro and Nanomanufacturing Series of Taylor and Francis (CRC Press), USA.
31. Dr. Kantesh Balani (MSE), Associate Editor, Nanomaterials and Energy, ICE Publishing.
32. Dr. Kantesh Balani (MSE), Editorial Board, Recent Patents on Materials Science, Bentham.
33. Dr. Kantesh Balani (MSE), Editorial Board, Recent Patents on Nanotechnology, Bentham.
34. Dr. Kantesh Balani (MSE), Editorial Board, Journal of Materials & Metallurgical Engineering, STM Journals.
35. Dr. Kantesh Balani (MSE), Editorial Board, Journal of NanoScience, NanoEngineering & Applic, STM Journals.
36. Dr. Kantesh Balani (MSE), Editorial Board, Journal of Engineering, Hindawi.
37. Dr. Kantesh Balani (MSE), Key Reader, Metallurgical and Materials Transactions A, Springer.

38. Prof. Dipak Mazumdar (MSE), Key Reader (Sub editor), MMTB, AIST, USA.
39. Prof. Dipak Mazumdar (MSE), Editor, Transactions of Indian Institute of Metals, Indian Institute of Metals, Kolkata.
40. Dr. Krishanu Biswas (MSE), Editorial Board, Indian Journal of Materials Science, Hindawi.
41. Dr. Bikramjit Basu (MSE), Member, Journal of Biomaterials Applications and Advances in Ceramic Science and Engineering (ACSE).
42. Prof. S. Anantha Ramakrishna (PHY) Member, Editorial Board, Journal of Electromagnetic Optics, Institut Fresnel, CNRS, French Optical Society.

Students' Awards

1. Mr. Joydeep Bhowmik (AE) won the first prize for Mechanical bird and also 3rd prize in Laws of Motion (Radio Controlled fixed wing aircraft design and flying competition) in ASME-Student Design Exposition held in Techno Management Fest at IIT Kharagpur.
2. Mr. Anjaney Kothari (BSBE) won the first prize for the paper presentation in the Annual Technical Festival, Cognizance held in IIT-Roorkee.
3. Mr. Paritosh Parashar (BSBE) won the BioAsia Innovation Award for 2013.
4. Shamjad P. M (CE) has been awarded the first prize for paper during Indian Aerosol Science and Technology Association (IASTA-2012) Conference.
5. Ms. Jaishree (CHE) won the Best Poster Award in International Conference on Materials Chemistry (ISMC 2012) organized by BARC.
6. Mr. Srikanth Divi and Ms. Paramita Haldar (CHE) received Garuda Challenge award at PARCOMPTECH 2013 (National Conference on Parallel Computing Technologies) organized by Center for Development of Advanced Computing.
7. Aman Jain, Bhuvan Gupta, Shilpa Chhippa, Ujjwal Agrawal, (CHE) won the first prize in the competition Prototype, Chemical Engineering, held as a part of the annual technical festival of IIT Roorkee.
8. Sauvik Samanta (CHM) got the 1st prize in poster presentation in the '5th International symposium' on "Drug Development for Orphan/Neglected Diseases" organized by Current Trend in Drug Discovery Research (CTDDR-2013) at CSIR-Central Drug Research Institute (CDRI), Lucknow.
9. Mr. Ashis Kumar Sahoo (CHM) got the Best Poster Award in the conference "Emerging Trends in Development of Drugs and Devices (ETDDD-2013).
10. Dr. Sandipan Halder (CHM) has been awarded Nehru-Fulbright Post Doctoral Fellowship.

11. Ms. Amrita Chaturvedi (CSE) received best paper award at International Conference on Software Engineering and New Technologies in Hammamet, Tunisia (ICSENT'12).
12. Mr. Pranay Dighe (CSE) and Anurag Kumar (EE) have won the Samsung Innovation Award in the Product Design Category.
13. Mr. Somak Bhattacharyya, Saptarshi Ghosh, Debdeep Sarkar (EE) received the best paper award of their respective sessions in Sixth Annual Conference of Antenna Test and Measurement Society of India (ATMS) held in Kolkata.
14. Mr. Somak Bhattacharyya (EE) has received Young Scientist Award at the International Symposium on Electromagnetic Theory, 2013 by International Union of Radio Sciences (URSI).
15. Power System Operation Corporation (POSOCO) in partnership with the Foundation for Innovation & Technology Transfer (FITT), IIT Delhi awarded POSOCO Power System Award (PPSA 2013) to the PhD theses of Dr. Seethalekshmi, Dr. Sachin Jain, and Dr. Naveen Jain (EE).
16. Power System Operation Corporation (POSOCO) in partnership with the Foundation for Innovation & Technology Transfer (FITT), IIT Delhi awarded POSOCO Power System Award (PPSA 2013) to the M.Tech theses of Mr. Dongare Kapil Subhash, Sivanagaraju Gangavarapu (EE).
17. Mr. Kunal (IME) has received the Best Paper Award at 6th Doctoral Colloquim 2013 at IIM Ahmedabad.
18. Mr. Dhananjay Kumar Srivastava (ME), Mr. Ajay M. Sidpara (ME), Kewal Dharmashi (ME) and Ms. Shanu Sharma (MDes) have been awarded Gandhian Young Technological Innovation Award.
19. Mr. Ambreen Nisar and Rajeev Kumar Sharma (MSE) received First Prize for their poster in Advanced Functional Materials and Structures workshop.

20. Mr. Abhijeet Moon (MSE) received the Best Paper Award in CORCON 2012.
21. Mr. A. P. Moon, A. Barman, C. Chattopadhyay, S. T. Anand, N. Balaji (MSE) received the best poster award at ADNAN 2013, Chennai.
22. Mr. Raghunandan Sharma (MSP) received the Poster Award in the National conference on Carbon Materials (CCM12) organized by Indian Carbon Society, Mumbai.
23. Ms. Soma Banerjee (MSE) received the Poster Award for in the National conference on Carbon Materials (CCM12) organized by Indian Carbon Society, Mumbai.
24. Mr. Raghunandan Sharma and Charchit Kumar (MSE) won the third prize in the 4th International Exhibition and Conference 'GRIDTECH 2013'.
25. Mr. Rajeev Kumar Sharma (MSE) bagged the First Prize in a poster competition of Advanced Functional Materials And Structures workshop.
26. Arun Kumar (MSE) received a special prize in International Conference on Advances in Materials and Processing: Challenges and Opportunities.
27. Mr. Anup Patel (MSE) received the Best Paper Award during ISRS 2012.
28. Mr. Amit Banerjee (Physics) won the best poster award at the International Conference on Material Science and Technology (ICMST 2012).
29. Mr. Gautam Nandi's (CHM) poster was among the winners of the IUPAC Scholarships.
30. Mr. Sanchit Singhal (MSE) was awarded the 'Promising Young Asian Leader' award at Asia'99 Conference, at NUS, Singapore.
31. Mr. Ankit Sahu finished 3rd place representing IIT Kanpur in the first ever Inter IIT Messier Marathon organized in the GMRT campus, Pune.
32. Ms. Vatsal and Saumya were selected for Honda Young Engineer and Scientist Award in India 2012.

Major Projects Sanctioned

- Characterization and Modeling of Uncertainties in Composites (ARDB).
- Multi-Scale Damage Modeling, Testing and Analysis For Life Prediction of Fibrous Composite Structures (ARDB).
- Design of Composite Structures: Methodologies and Criteria (ARDB).
- Understanding Nanoparticle Internalization by Mammalian Cells (DST).
- Flexible Printed Integrated Disposable Electronics (FLEXIPRIDE) (IGSTC).
- Development and Demonstration of Nano-Sized TiO_2 -Based Photo Catalytic Oxidation Technology for Controlling Volatile Organic Compound (VOCS) at Source and In Situ Ambient Air (MOEF).
- Organic Functional Materials with a Rational Design of Molecular Building Blocks (SERB).
- Understanding Plant Nematode Interaction: Identification of Plant and Nematode Genes Involved in Disease Development (ICAR).
- Dynamics and Phase Behaviour of Anisotropic Soft Materials (DAE).
- Metamaterials and Plasmonic Structured Materials for Controlling Radiation (DRDO).
- Photonic Crystal Based Devices for Light Contr (DRDO).
- Femtosecond Study of Metal Complexes, Green Fluorescent Protein and related Molecules (SERB).
- Creating a International Program for Sustainable Infrastructure Development under Obama-Singh 21st Century Knowledge Initiative (OSI) grant (UGC).
- Aakash Lab (MHRD).
- Unraveling the Role of Glucose Metabolism in Neurodegenerative Disorders (DBT).
- CNT Reinforced Composites for Structural Application (STC).

- Development of NB-Based High Strength Ultrafine In-Situ Composites for High Temperature Application (BRNS).
- India-UK Advanced Technology Centre (IU-ATC PHASE 2) of Excellence in Next Generation Networks Systems and Services (DST).
- Complex Bioinspired Systems (DAE).
- Nano-Patterned Conductive Adhesive for Metal-Polymer Inter-Connectors in Solar Cell (DST).
- Understanding the Self Assembly Behaviour of Amphiphilic Molecules on Surfaces (SERB).
- Developing Low Carbon Cities in India: Focus on Urban Infrastructures, Climate Risks & Vulnerability (USAID).
- Installation of Zero Discharge Toilet System (ZDTS) at Kumbh 2013, Allahabad (HUDCO).
- Experimental Investigations of HCCI/PCCI Combustion in a Single Cylinder Research Engine using Biodiesel (DST).
- Bio-Incubator Facility at SIDBI Innovation & Incubation Centre (BIRAC).

Labs/Facilities Developed

- Interferometric technique for fracture analysis in thin films (AE).
- Buckling characterization in heterogeneous and FGM beams (AE).
- Single-Crystal and Powder X-ray Diffraction Facility (CHM).
- RF and Microwave characterization lab (EE).
- Transducers and instrumentation virtual laboratory (EE).
- Brain computer interface laboratory (EE).
- Acoustic and vibration data acquisition facility (EE).
- Facility for measuring the impact strength of nuclear grade concrete (ME).
- Surface and Tribology Laboratory (MSE).
- High Temperature Fuel Cell Laboratory (MSE).

- Full scale corrosion labs with potentiostat, in-house built salt fog test machine and other test facilities (MSE).
- Oxidation test facility like in-house developed DTA/TGA and Netzsch DSC-TGA (upto 1500C) (MSE).
- A virtual laboratory on oscillations and phenomena experiments in mechanics (Physics)
- Vibrating sample magnetometer and heat capacity set up for measurements in the temperature range 2K-400K and in magnetic field up to 14 Teslan (added as a part of PPMS) (Physics).
- Helium reliquifier for PPMS (Physics).
- E-beam lithography set up (Physics).

Softwares Developed

- Monte Carlo software for heavy metal ion-solvent system Department of Atomic Energy (CHE).
- CPMD-GULP Hybrid Quantum Mechanical - Quantum Mechanical Interface (CHM).
- BSIM6.0 SPICE model for bulk MOSFET (EE).
- 3D Multipactin Analysis Code for BRNS (EE).
- Network Diagnostic and Optimizatin Tool (NetDOT) for BSNL (EE).
- Point of Use Kit Trays and Parts Tracking System for the Boeing Company (EE).
- Microwave material measurement code for thin samples for DRDO /DMSRDE (EE).
- Sensitive position finder for DAQ for the Boeing Company (EE).
- Android Application software for CBM for the Boeing Company (EE).
- Electronic Fuel Injection System For Diesel Locomotives (Technology Released for Serial Production) for RDSO, Lucknow (ME).

Technologies Developed

- Design and development of a deployable flight data recorder unit (DFDRU) for HAL, Korwa, which is ready for testing on Dornier DO-228 aircraft at HAL Kanpur (AE).
- Blood filter for leukocyte depletion for HLL-Life care, India (BSBE).
- Frequency Hopping UHF RFID Reader for the Boeing Company (EE).
- Smartphone Based Intelligent Condition Based Monitoring System for the Boeing Company (EE).
- Sensitive Position finder for Data Acquisition System for the Boeing Company (EE).
- Future Image Frame Generator (EE).
- An integrated microchip for the detection of a microorganism for Department of Biotechnology (ME).
- System with peristaltic motion for National Program of Micro and Smart Structures (ME).
- Nano-template based synthesis of high aspect ratio Zinc Oxide nano-bundle and their applications in Hydrogen detection for National Program of Micro and Smart Structures (ME).
- Passive vibration damping using polymer pads with micro-channel arrays for Possibility of US patent with Boeing Corporation (ME).



Office of Research & Development
Indian Institute of Technology Kanpur