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Infrastructure and Facilities

- Library
- Computer Centre
- Medical Centre
- Laboratory Facilities
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Library

The Central Library of IIT Gandhinagar, now located in a 400 sq. m. area, continues to



provide and expand new services to support teaching, learning, training, research and consultancy needs of the Institute through reference books, text books, journals, CDs/DVDs and other electronics means. The library subscribes to research journals in electronic as well as print formats. Online journals are available from Annual Reviews Collection, American Society of Mechanical Engineers (ASME), American Chemical Society (ACS), American Physical Society (APS), IEEE Xplore (IEEE/IEL), American Society of Civil Engineers (ASCE), American Society of Microbiology (AMS), JSTOR Archives, Science Direct, Springer Link, Project Muse, Mathscinet, SIAM, Indian Standards (BIS), EBSCO Communications & Mass Media Complete, and Nature. The online journals are IP-authenticated to make them easily accessible from anywhere on the campus. The Central Library also subscribes to bibliographic databases SciFinder and EBSCO MLA International Bibliography. Mechanisms are available for access to scientific journals and reports not available at IITGN. Moreover, Wi-Fi enabled library premises add to the academic productivity of users. Most of the library operations have now been automated with the use of SOUL, a library management system, after addition of a powerful high-end server (IBM X-3500 M3 Tower 5U).

The Central Library provides the following services to support the teaching and research activities:

Circulation of Reading Materials, Reference and Information Service, Document Delivery Service, Inter Library Loan, New Additions of Books, Journal Table of Contents from Publishers Photocopy Service, Subject bibliographies. The library staff makes extra efforts to disseminate information through such services as Journal Contents Alert, FLIP-

Through: A Weekly Article Alert and Compilation of Subject Bibliographies.

Computer Centre

The Institute's computer facilities have been developed with high-end hardware, a wide range of software and excellent connectivity so that students, faculty and staff can carry out their work without interruptions. The LAN setup integrates the entire IITGN community into a single unit. The Institute premises and the student hostels are also Wi-Fi enabled. Currently the Institute houses two computer labs, one for common use and the other for instructional purposes. Over 30 PCs are available to the students in a Common Computer Laboratory that is open round the clock and is used for programming, project work, browsing and other purposes. In addition, the Computational Instructional Laboratory houses over 60 PCs. All faculty members, research scholars, research associates, project staff and administrative staff have been provided with individual PCs, and printers on sharing basis. A few high-end printing and photocopying machines are available for common use at strategic locations. Individual email accounts have been provided to IITGN students, faculty and staff with the facility of sending bulk email to common groups, for example, sending home assignment to students in a course or to students in a particular branch and year. Important scientific software such as Mathematica, PSCAD 4.2, STATA 11.1, AutoCAD, NI Labview, Cadence, T Cad, Matlab, Xilinx ISE have been procured. IITGN is also a part of the IIT System Portal at <http://www.iitsystem.ac.in/index.jsp>

Medical Centre

A qualified medical practitioner **Dr Deepa Shah**, (M.B.B.S., Diploma in Medicine, Fellow Infectious Diseases, Italy) is available on the Institute premises for several hours on working days to provide medical advice to students, staff and faculty. The doctor can also be consulted at her clinic as well as at the Life Care Hospital located nearby. Hospitalization expenses of all students are covered under a medical insurance policy. A trained male nurse is available full-time to



provide emergency first-aid and for routine medical services such as checking temperature, blood pressure, blood sugar, oxygen levels and dressing wounds. He dispenses many common medicines stored in the medical room, as per the doctor's prescription or through phone consultation. He also assists in maintaining medical supplies and keeping medical records. The other facilities include an Electrocardiogram (E.C.G.) machine, Nebulizer therapy for asthma and chronic obstructive pulmonary disease (COPD), and a 24-hour vehicle facility for patients in case of emergency. Corporate Hospital SAL, Ahmedabad is now an approved hospitals.

Laboratory Facilities

Chemical Engineering

All Chemical Engineering undergraduate students are required to take a laboratory course each semester from the 3rd to the 7th semester. The Chemical Engineering laboratory, with an area of 165 sq. m., includes experimental set-up on Unit Operations, Reaction Engineering, and Process Dynamics. The current facilities



include Double Pipe/Coiled/Plate/Fluidized/FinTube Heat Exchangers, Chemical reactors, Differential distillation set-up, Packed-bed absorption column, Sieve-plate distillation column, Interacting/non-interacting tanks set up (all from Shree Fabricators and Engineers), Calorimeter and refractometer (both from Scientific Products India), and Batch dryer (from Technical Education, Bangalore). The laboratory also has several set-ups to demonstrate the basic principles of fluid flow such as flow measuring devices, centrifugal pumps and pipe fittings apparatus. The facility is being further expanded to include experiments based on Process Control and Advanced

Separation Techniques.

The current Chemical Engineering faculty has research interests in the fields of Particle Formation for Drug Delivery, Biochemical Engineering, Systems Biology and Powder Technology. An area of 175 sq. m. has been provided for their research activities. A Particle Size Analyzer (Coulter Private Ltd) and an optical microscope with camera facility (Nikon) have been procured to build a particle formation research facility. A freeze dryer (Martin Christ), Zeta-sizer (PSS NICOMP) and Peristaltic Pumps (Watson Marlow) have also been procured. A particle size analyzer to characterize gaseous micro-bubbles and liquid drop suspensions and high-pressure vessels for particle formation using high pressure CO₂ have also been installed. A High-Pressure Liquid Chromatography (HPLC) system (Waters), a Gas Chromatography (GC) system (Perkin Elmer), Fermentor (Sartorius), Microplate Reader (TECAN), Polymerase Chain Reaction Thermocycler (Eppendorf), deep freezer (-86 °C) (Thermo Fisher Scientific) and other basic biology laboratory utilities are available for Biochemical and Biomolecular Engineering research.

For Powder Engineering, a V-blender and Cone-mill (both Prism Pharma) have been installed for powder mixing and nano-coating. Powder Rheometer (Freeman Technology) and Laser Diffraction Particle Size Analyzer (CILAS) are available for characterization of powder. Also Digital Automatic Tap/Bulk density Apparatus (Veego) and Angle of Repose apparatus have been procured for bulk property characterization of powders. An Environmental Test Chamber (HMG India) has also been procured for subjecting the test powders at different humidity and temperature conditions. The Powder Engineering facility of the Chemical Engineering Department is a typical Formulation and Pre-formulation labs of Pharmaceutical R&D.

Chemistry

The research interests of the Chemistry faculty include synthesis of modified nucleic acids for development of bioanalytical assays and sensor systems, synthesis of natural

product analogues, electron transfer, photophysical and photochemical studies of synthesized organic molecules in ionic liquid media, developing methodology towards synthesis of Glutamate containing natural products, isolation and characterization of chromophores from natural sources, development of natural food coloring agents, synthesis and functionalization of nanomaterials, enzymology of redox processes, synthesis of macrocyclic systems such as porphyrinoids with potential applications as sensing systems as well as in the area of electrochemistry.

Sophisticated research equipment such as 500MHz FT NMR spectrometer and ESI-QToF Mass Spectrometers have been ordered and will be available soon. Research instrumentation such as Digital Polarimeter (Anton-Paar), FT-IR spectrophotometer (Thermo Scientific), Digital Melting Point Apparatus (MR-VIS), and Photochemical Apparatus (Luzchem) have also been procured.

Civil Engineering

The Geotechnical Engineering Laboratory supports post-graduate teaching and research focusing on core subjects as well as on broad areas of research pursued by the M. Tech. and Ph. D. students. The lab is equipped with basic soil testing equipment as well as high-end research equipment. The equipment are being used to measure the mechanical properties of soils, including index property, permeability, compressibility, and shear strength and dynamic properties of soils. The Geotechnical Laboratory is equipped with the following facilities/equipment:

- ▲ Index Property and Soil Classification: Sieve shaker (noise reduction), hydrometer test, Atterberg limit equipment (liquid limit, plastic limit, shrinkage limit), specific gravity, relative density, core cutter, sand pouring apparatus, chemical test (PH, Sulphite, Chloride, Iron, Hardness), swelling pressure measuring system, optical & digital LCD microscopes for studying the shapes of sand particles.
- ▲ Permeability: Falling head permeability test for fine grained soil and constant head

test for coarse grained soil.

- ▲ Compressibility: Proctor testing setup (compaction test; standard & modified), Automated Oedometer setup (consolidation test)
- ▲ Sample Preparation: Pulverizer, high speed stirrer, hydraulic extractor, Shelby tube, mechanical auger, industrial grade RO system, de-airing apparatus
- ▲ Shear Strength: Direct shear device for measuring cohesionless soils; automated unconfined compression testing device for cohesive soils; advanced automated triaxial setup for simulating field conditions.
- ▲ Dynamic Properties: Cyclic triaxial testing system and bender element system for measuring damping ratio and shear modulus.
- ▲ Design Software: GEO5 geotechnical.

Electrical Engineering

The Department of Electrical Engineering currently offers one laboratory course to all undergraduate students and five additional laboratory courses to Electrical Engineering



undergraduate students. The laboratory, located in an area of 300 sq. m., has a wide repertoire of experimental facilities for all courses. Experiments include studies of characteristics of semiconductor devices, analog circuits, active filters & Schmitt triggers, digital circuits, counters, shift registers, timer circuits and analog-to-digital converters. Other experiments include microprocessor- and microcontroller-based experiments, studying the characteristics of electrical motors and generators, speed control of motors, synchronization of alternator with infinite bus or another alternator, performance of various power electronic converters. The electronics lab recently added two Gunn diode-based microwave test benches (Sciencetech Technologies NV9001) and two antenna

trainer kits (ST-2261 Sciencetech Technologies) for RF experiments in the communications lab course. The control systems laboratory has process control trainer modules that include simulators of various types of feedback control systems that are able to simulate typical time and frequency response characteristics of a plant. PID controllers and lead/lag compensators are also in place. Process measurement kits are available to measure parameters such as temperature, level, position, velocity and acceleration. A comprehensive two-channel vibration analyser is being procured. This will enable the study, analysis and control of vibrations in flexible structures. A Programmable Logic Controller (GE - Fanuc) has been installed to familiarise the students with industrial control process. The VLSI laboratory facility includes Synopsis TCAD tools, Xilinx FPGA kits and ISE software that are being used for several undergraduate laboratories and project work. The laboratory is also equipped with ARM, PIC controller, AVR and microcontroller boards, digital storage oscilloscopes, digital multimeters and IC testers, universal IC programmer, ScopeCorder, Precision Magnetics Analyzer and all other electrical engineering laboratory utilities. In addition, the power systems simulation laboratory has PSCAD software licensed for 25 nodes. A new embedded systems lab has recently been designed and developed. This lab is equipped with twenty PIC18F microcontroller-based development boards. Seven experiments were developed for the related course.

The current Electrical Engineering faculty has research interests in Image Processing, Power Systems, Renewable Energy, VLSI and Fibre-optic sensors. The current research facilities include transformers of different winding geometry. IITGN has a collaboration with Cadence under its University Programme. The VLSI design research and development work greatly benefits from this collaboration through the availability of many tools and facilities provided by Cadence. A fibre-optics lab has also been developed for research in the field of optical physical and chemical sensors. The current focus of research is tunable diode laser

spectroscopy (TDLS) of gases for industrial and medical applications. The laboratory is equipped with narrow linewidth near-infrared and mid-infrared edge-emitting (Toptica) and surface-emitting (Vertilas) laser diodes, high-sensitivity Peliter-cooled photodetectors (Thorlabs), precision laser diode current and temperature controllers (Thorlabs), an arbitrary waveform generator (Tektronix) and a digital oscilloscope (Tektronix). The lab also has a Fujikura fibre splicing machine, singlemode and hollow-core optical fibre and assorted optoelectronic equipment for a standard optoelectronics laboratory.

Mechanical Engineering

The Department of Mechanical Engineering currently offers five undergraduate laboratory courses. All first year undergraduate students are required to take a laboratory course on Workshop Practice. The Manufacturing Laboratory housed in 280 sq. m. area, has facilities including lathes, milling machine, vertical machining centre, electric discharge machine, welding, fitting and tin smithy equipment. The manufacturing laboratory is also used to offer two laboratory courses on manufacturing practices and processes for



second and third year Mechanical Engineering undergraduate students. A general workshop having carpentry, fitting, welding, tin-smithy, band saw, welding machines, lathes, drilling machines, shaping machine, slotting machine, milling machine, hand press and metrology instruments have been set up.

An advanced manufacturing laboratory (AML) with a rapid prototyping machine (RPM), computer numerically controlled (CNC) lathe, CNC milling machine, coordinate measuring machine (CMM) and profile projector supports teaching and

research activities in manufacturing related areas. These facilities will also support integrated product design and manufacturing activities.

The mechanical systems design lab supports the teaching of kinematics and dynamics of mechanisms and machine design courses. The laboratory has four bar mechanisms, quick-return mechanism, cam mechanism, gears and gear trains, fundamental mechanical vibration tests, balancing and whirling of shaft test rigs.

High performance computing facilities have recently been initiated with two work station servers (Celsius R-670) and five network high-end work stations. The facilities enhances design capabilities and will be used for research and teaching. The facilities permit application of newer techniques for solving complex problems at high speed. The facilities will be linked to national network "Garuda" to further elevate computing capabilities. Generous partial financial support has been received from Fujitsu and Nvidia.



All second year Mechanical Engineering students are required to take a laboratory course on solid mechanics and experimental stress analysis. The laboratory, in 70 sq. m. area, has two MTS universal testing machines of 100 kN and 200 kN capacity, Charpy impact testing machine of 450 J capacity (MTS), Rockwell and Vickers hardness testing machines (ZwickRoell), torsion and fatigue testing machines.

The third year Mechanical Engineering undergraduate students are required to take a laboratory course on fluid mechanics and fluid machinery. The laboratory is located in a 155 sq. m. area, and has set-ups for conducting experiments on fluid statics and fluid dynamics. Several common turbo

machines such as gear pump, centrifugal pump, Francis Turbine, Pelton wheel along with various flow measuring devices and accessories have also been installed. An open-loop low-speed wind tunnel having test section 330x300mm at the end and a closed-loop water tunnel of test section 250x250mm are being set up to support the teaching of and to facilitate basic research in fluid mechanics. Additionally, the control systems laboratory is being updated with a number of control experiments relevant to mechanical engineering.

The current Mechanical Engineering faculty research interests include Aerodynamics, Flight Mechanics, Fluid-Structure Interaction, Polymer Composites, Dynamics and Control, Systems Theory, Thermo-Fluids Systems, Hydrodynamic Stability, High Performance Computational Modeling of Engineered Systems.

The manufacturing laboratory and the solid mechanics and experimental stress analysis laboratory include many fabrication and research facilities. These facilities are currently being further developed and expanded according to experimental and fabrication needs.

Physics

All first year undergraduate students are required to take a laboratory course in basic physics. The laboratory consists of a room for general experiments and a dark room. There are 7 experiments covering optics, electricity and magnetism, modern physics and classical mechanics.

The procured equipment includes Grating Spectrometer and Fresnel's Biprism with optical bench (Indosaw), Newton's Rings (Holmarc), Frank Hertz Experiment and Planck's constant (Scientific Equipments India Ltd). Part of the experimental set-up of Helmholtz Coil experiment was fabricated at the Institute. Four sets of all experimental equipment are available in the lab and they are made available to the students for hands-on experience in their course. Apart from these experiments, the Physics laboratory also has moving coil galvanometers (spot reflection type and suspended mirror type)

and compound pendulum experiments. Cathode ray oscilloscopes (Scientech, Scientific and Aplab), signal generators (Scientech, Scientific), DC power supplies and several optical components are available for use in many experiments. Other experimental set-ups available in the Physics laboratory include universal B-H curve tracer, dielectric constant (Mittal Enterprises) and measurement of e/m by Thomson method (Besto). The Indian Academy of Sciences, Bangalore kit for experimental physics is also available in the Physics laboratory.

The Physics laboratory also has a few mini electric motors and electric generators which were made by the first year students as part of their laboratory course. The Institute has recently acquired an astronomical telescope in the Physics laboratory to encourage students to develop interest in this area. It has a reflector with eight inch mirror of a focal length 1200 mm with a Dobsonian mount. Many students have started using it for observations of planets, star clusters and other cosmic objects. It has a lunar as well as a solar filter. It should be possible to observe the transit of Venus across the disc of the Sun in June 2012.

New Buildings

A new temporary building (Shed-3) with an area of 2010 sq. m. has been constructed by the Institute on the VGEC campus through the CPWD to expand laboratory facilities, provide office space to faculty and research scholars and add new class-rooms to the



existing teaching infrastructure. Another temporary building (Shed-4) with an area of 2010 sq. m. is also being constructed and is likely to be completed in June 2012. The sanction for one more building (Shed- 5) with an area of 3000 sq. m. has been issued to CPWD. This building is likely to be completed within the next ten months.

Institute Master Plan

IITGN has been provided about 400 acres on the eastern bank of the Sabarmati in Gandhinagar, opposite the Secretariat. The master plan of the campus took shape after several brain-storming sessions between a group of faculty members of the Institute and the consultants. The campus is envisioned to be compact, energy-efficient by minimizing energy consumption and making optimum use of natural resources by harvesting rain water. The campus will have clearly identified vehicle-free zones. The campus is being designed to facilitate close interaction between faculty and students and also between the various sections of the student community. After a careful selection process, M/s Green Campus Development Consortium, New Delhi was awarded the contract to develop the master plan of the campus.



Institute Master Plan



Faculty Activities

Sponsored Projects
Consulting Projects
Awards and Recognition
Honorary Work
Academic Lectures
Other Faculty Activities
Publications

Sponsored Projects

Academic activities described in this section pertain to individual faculty members with regard to research and development, consulting, recognition, publications and honorary work for other academic organizations.



Projects Sanctioned during 2011-12

External sponsoring agencies sanctioned the following research projects to IIT Gandhinagar faculty with the total budget of Rs 3,48,40,522:

- ▲ **Photochemical and photophysical studies of donor-acceptor substituted aryl and heteroaryl polyenes**, sponsored by CSIR. Principal Investigator: **Prof. Sriram Kanvah Gundimeda**, Chemistry.
- ▲ **Engineering escherichia coli strains optimized for large scale lignocelluloses fermentation for biofuel production**, sponsored by Department of Science and Technology. Principal Investigator: **Prof. Supreet Saini**, Chemical Engineering.
- ▲ **Short-term generation scheduling in power systems under uncertainty/ intermittent characteristics of renewable energy sources (RES) and demands**, sponsored by Department of Science and Technology. Principal Investigator: **Prof. Naran Pindoriya**, Electrical Engineering.
- ▲ **Studies of structure-property relations in polymer nanocomposites using molecular simulations**, sponsored by Department of Science and Technology. Principal Investigator: **Prof. Suchira Sen**, Chemical Engineering.
- ▲ **Engineering stable and bio-compatible microbubble formulation for biomedical applications**, sponsored by Department of Biotechnology. Principal Investigator: **Prof. Sameer Dalvi**, Chemical Engineering.
- ▲ **Thermodynamically stable pickering emulsions**, sponsored by Department of Science and Technology. Principal Investigator: **Prof. Mukta Tripathy**, Chemical Engineering.
- ▲ **Center of excellence in biomedical engineering and health care technologies**, sponsored by Industries Commissionerate, Government of Gujarat. Principal Investigator: **Prof. Sameer Dalvi**, Chemical Engineering.
- ▲ **Technology Incubation and Development of Entrepreneurs Centre**, sponsored by Department of Information Technology. Principal Investigator: **Prof. Joycee Mekie**, Electrical Engineering.
- ▲ **High fidelity computational engineered systems on HPC platforms**, sponsored by the Department of Information Technology. Principal Investigator: **Prof. Murali Damodaran**, Mechanical Engineering. Co-PIs include **Prof. Surendra Ranganath**, **Prof. Supreet Saini**, **Prof. Bireswar Das** and **Prof. N. Kishore Kumar**.
- ▲ **Experimental studies of metastability in different synchronizers**, sponsored by the Department of Science and Technology. Principal Investigator: **Prof. Joycee Mekie**, Electrical Engineering.
- ▲ **Technological value addition to the initial design of a low-cost windmill for pumping brine and electricity production in rural areas - a GRiDS@IITGN-NIF Initiative**, sponsored by National Innovation Foundation, Department of Science and Technology. Principal Investigator: **Prof. Murali Damodaran**, Mechanical Engineering. Co-PIs include **Prof. Atul Bhargav** and **Prof. Naran Pindoriya**.

Ongoing Sponsored Projects

The following sponsored projects were initiated in earlier years and are still continuing:

- ▲ **Development of a rapid visual screening method for seismic assessment of RC frame buildings in India**, sponsored by the Seismology Division, Ministry of Earth Sciences, Government of India, New Delhi. Principal Investigator: **Prof. Sudhir K. Jain**; other collaborators are Prof. Durgesh C. Rai, IIT Kanpur; Prof. Keya Mitra, BESU Shibpur and Prof. Mehul Shah, CEPT Ahmedabad.
- ▲ **R&D of equipment for peeling of husk from cashew kernels**, sponsored by Olam Exports India Ltd, Quilom, Kerala. Principal Investigator: **Prof. N. Ramakrishnan**, Mechanical Engineering.
- ▲ **A novel process for precipitation and stabilization of drug nanoparticles in aqueous suspensions using CO₂**, sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Sameer V. Dalvi**, Chemical Engineering.
- ▲ **An experimental investigation to locate and assess the severity of winding deformations in power transformers**, sponsored by the Department of Science and Technology, Government of India. Principal Investigator: **Prof. Ragavan K.**, Electrical Engineering.
- ▲ **Engineering zymomonas mobilis for the efficient production of biofuels from lignocellulosic biomass**, sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Supreet Saini**, Chemical Engineering.
- ▲ **Reprogramming cellular networks in salmonella enterica to develop novel vaccines**, sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Supreet Saini**, Chemical Engineering.
- ▲ **Rapid precipitation of drug nanoparticles using ultrasonically-driven mixing device**, sponsored by Department of Science and Technology,

Government of India. Principal Investigator: **Prof. Sameer V. Dalvi**, Chemical Engineering.

- ▲ **Quantitative near- and mid-infrared wavelength modulation spectroscopy for gas sensing applications**, sponsored by Department of Science and Technology, Government of India. Principal Investigator: **Prof. Arup Lal Chakraborty**, Electrical Engineering.
- ▲ **Virtual geotechnical laboratory**, sponsored by Ministry of Human Resource Development, Government of India. Principal Investigator: **Prof. Amit Prashant**, Civil Engineering.
- ▲ **Photo-processes of donor-acceptor substituted polyenes in ionic liquid media**, sponsored by the Department of Science and Technology, Government of India. Principal Investigator: **Prof. Sriram Kanvah Gundimeda**, Chemistry.
- ▲ **A cognitivist exploration of the concept of privacy behavior and experience**, sponsored by Department of Science and Technology, Government of India. Principal Investigator: **Prof. Jaison A. Manjaly**, Philosophy.
- ▲ **Hybrid Cali (n) hyrin(s) with pyridine moiety: new block of macrocycles as potential candidates for anion sensing and metal coordination**, sponsored by Department of Science and Technology. Principal Investigator: **Prof. Iti Gupta**, Chemistry
- ▲ **Fire Engineering Lab, UL-USA**, Principal Investigator: **Prof. Chinmay Ghoroi**, Chemical Engineering.

Consulting Projects

The following consulting projects have been undertaken by the faculty of IIT Gandhinagar with the total budget of Rs 41,84,871.

- ▲ **National level expert institute to advise and oversee the scheme on State Level Anchor Institutes in the focus sectors**, for the Government of Gujarat. Principal Investigator: **Prof. Sudhir K. Jain**, Director.
- ▲ **Design of helium gas circulators for helium cooling loop at IPR**, for Institute for Plasma Research, Gandhinagar.

Principal Investigator: **Prof. Vedant Kadambi**, Mechanical Engineering.

- ▲ **Development of a user interface for facilitating literature search at IITGN**, for Ricoh Innovations, Inc. (RII), USA. Facilitator and Coordinator: **Prof. Supreet Saini**, Chemical Engineering.

Ongoing Consulting Projects

- ▲ **Seismic Studies of the area around Bhagyam Oil Fields**, for L&T - GULF Private Ltd and executed jointly by IITGN, IIT Kanpur and IIT Kharagpur with **Prof. Sudhir K. Jain** as coordinator.
- ▲ **Consulting for Dr Fixit Institute**,

Principal Investigator: **Prof. Sudhir K Jain**, Civil Engineering.

- ▲ **Consulting for Sundaram Architect**, Principal Investigator: **Prof. Sudhir K Jain**, Civil Engineering.
- ▲ **Consulting for Electrotherm India Ltd**, Ahmedabad, Principal Investigator: **Prof. Ragavan K.**, Electrical Engineering.
- ▲ **Consultancy for INDEXT B**, Principal Investigator: **Prof. Sudhir K. Jain**, Civil Engineering.
- ▲ **Geotechnical Design for Cell-1 of Kanjurmarg Solid Waste Management System**, Principal Investigator: **Prof. Amit Prashant**, Civil Engineering.

Awards and Recognition

The following faculty members have received special awards and recognition by external bodies during 2011-12:



Prof. Nikhil Balam, a Guest Professor at IIT Gandhinagar, President and CEO of Ricoh Innovations Inc., was conferred the **2011 Alumni Achievement Award** by Carnegie Mellon University, Pittsburgh.



Prof. Rita Kothari has been nominated as the Reviews Editor for **Interventions**, a high impact Routledge journal in Humanities and Social Sciences. She was an invited panelist on "The Chutnefication of English: Amlish, Hinglish, Chinglish" at the **Jaipur Literature Festival 2012**.



Prof. Sudhir K. Jain is an independent director on the Board of Gujarat Foundation for Entrepreneurial Excellence (GFEE). Prof. Jain has also joined the Board of Gujarat International Finance Tec-City (GIFT) Company Ltd as an Independent Director. He has been chosen a member of the **Working Group on Technical Education** to formulate the **Twelfth Five Year Plan (2012-17)** by the **Planning Commission**.

Honorary Work

- 1 **Prof. Ambarish Kunwar**, Physics
 - ▲ Reviewer, New Journal of Physics (Institute of Physics)
- 2 **Prof. Arup Lal Chakraborty**, Electrical Engineering
 - ▲ Reviewer, Optics Letters (Optical Society of America).
 - ▲ Reviewer, Applied Optics (Optical Society of America).
- 3 **Prof. Ashwini Kumar**, Civil Engineering
 - ▲ Member, Campus Development Committee for IIM, Udaipur.
 - ▲ External Assessor for the B. Tech. Programme in Civil Engineering. University of Malaysia Sabah, Kota Kinabalu, Malaysia, January 15-20, 2012
- 4 **Prof. Chinmay Ghoroi**, Chemical Engineering
 - ▲ Member of Board of Studies in Chemical Engineering (Degree Programme) Nirma University, 2012-2013.
 - ▲ Invited to the 71st meeting of the Advisory Committee of Central Glass and Ceramic Research Institute (CGCRI), Naroda Centre, Ahmedabad, November 18, 2011.
 - ▲ Reviewer, Powder Technology (Elsevier).
- 5 **Prof. D. V. Pai**, Mathematics
 - ▲ Examiner, Ph. D. thesis in Mathematics, IIT Kharagpur, March 2012.
 - ▲ Chairman, DST-constituted Planning Committee, SERC School on “Multivariable and matrix variable calculus with applications: optimization” C. M. C. Pala, Kerala, April-May 2012.
 - ▲ Member, P. M. M. C., DST Centre for Mathematical Sciences, Pala, Kerala.
- ▲ Member, P. M. M. C., DST Centre for Interdisciplinary Mathematical Sciences, BHU, Banaras, India.
- ▲ Associate Editor, Asian European Journal of Mathematics, World Scientific Publishers, London and Singapore.
- ▲ Reviewer, Mathematics Reviews (American Mathematical Society).
- 6 **Prof. G. K. Sharma**, Mechanical Engineering
 - ▲ Member, BOG, IIITDM, Jabalpur.
 - ▲ Member, Building and Works Committee, IIITDM, Jabalpur.
- 7 **Prof. Jagmohan Tyagi**, Mathematics
 - ▲ Reviewer, Mathematical Reviews (American Mathematical Society).
- 8 **Prof. Jaison A. Manjaly**, Humanities (Philosophy and Cognitive Science)
 - ▲ Programme Committee Member, European Cognitive Science Conference, Sophia, Bulgaria, May 21-24, 2011.
 - ▲ Institutional Ethical Committee member: School of Biological Sciences and Biotechnology, Indian Institute of Advanced Research, Gandhinagar, Gujarat.
- 9 **Prof. K. V. V. Murthy**, Electrical Engineering
 - ▲ Member, Governing Council, NMAM Institute of Technology, Nitte, Karnataka.
 - ▲ Member, Academic Council, NMAM Institute of Technology, Nitte, Karnataka.
 - ▲ Delivered two lectures on “Fourier and related transforms – Different Insights” for Faculty Development Programme, at Government Engineering College, Idduki,



- Kerala, October 27-28, 2011.
- ▲ Participated in a meeting for designing a new B. Tech. Programme for Navarachana University, Vadodara, March 25, 2012.
 - ▲ External examiner of Ph. D. theses for NMAM Institute of Technology, NITTE and NMIMS, Mumbai.
- 10 Prof. Naran M. Pindoriya, Electrical Engineering**
- ▲ Reviewer, IEEE Transactions on Power Systems (IEEE).
 - ▲ Reviewer, International Journal of Power and Energy Conversion (Inderscience Publishers).
- 11 Prof. Sameer V. Dalvi, Chemical Engineering**
- ▲ Reviewer, Crystal Growth and Design (American Chemical Society).
 - ▲ Reviewer, Chemical Engineering Journal (Elsevier).
 - ▲ Reviewer, Powder Technology (Elsevier).
- 12 Prof. Sharmita Lahiri, Humanities (English)**
- ▲ Conducted a session on How to write a Research Paper at National Training Programme on Research Methodology, Nirma University, Ahmedabad, June 2011.
- 13 Prof. Sudhir K. Jain, Civil Engineering**
- ▲ Executive Vice President, International Association for Earthquake Engineering.
 - ▲ Chairman, International Activities Committee, Earthquake Engineering Research Institute, USA.
 - ▲ Member, Board of Management, NIIT University, Neemrana, Rajasthan.
- ▲ Member, INAE Silver Jubilee Celebrations Committee, Indian National Academy of Engineering.
 - ▲ Member, Advisory Editorial Board, Earthquake Engineering and Structural Dynamics, John Wiley and Sons.
 - ▲ Member, Editorial Board, Earthquake Engineering and Engineering Vibrations, Springer-Verlag.
 - ▲ Member, Board of Directors, Gujarat Foundation for Entrepreneurial Excellence, Ahmedabad
 - ▲ Member, Board of Governors, Gujarat Technological University, Ahmedabad
 - ▲ Member, Board of Directors, Gujarat International Finance Tech-city (GIFT) Company ltd.
- 14 Prof. Supreet Saini, Chemical Engineering**
- ▲ Reviewer, BMC Systems Biology (Biomed Central).
 - ▲ Institutional Biosafety Committee, Torrent Pharma, Ahmedabad.

Academic Lectures

- ▲ **Prof. Ajanta Sachan on Geotechnical practice for solid waste disposal**, SVNIT Surat, Gujarat, October 8-9, 2011; **Liquefaction and induced lateral spreading**, ISTE Gujarat, SVIT Vasad, Gujarat, November 28-December 2, 2011; and **Geotechnical testing for dynamic response of soil**, Nirma University, Ahmedabad, Gujarat, December 26-31, 2011.
- ▲ **Prof. Amit Prashant on Advances in Geotechnical Engineering**, at National Seminar, SVNIT Surat, October 8-9, 2011; and **Recent Trends in Geotechnical Engineering**, SVIT Vasad,



- November 28, 2011; on **Geotechnical Aspects of Earthquake Engineering for Infrastructure Development**, Institute of Technology - Nirma University, Ahmedabad, December 28, 2011; on **Application of Geotechnical Engineering in Construction**, for Training of Trainers, CEPT University, Ahmedabad, March 19-24, 2012.
- ▲ **Prof. Arup Lal Chakraborty** on **Calibration-free approaches in tunable diode laser spectroscopy of gases for industrial applications**, at the 36th Optical Society of India (OSI) Symposium; and **Frontiers in Optics and Photonics – FOP 11**, IIT Delhi, December 3–5, 2011.
 - ▲ **Prof. Atul Bhargav** on **Latest developments in fuel processing for hydrocarbon-fueled PEM fuel cell systems** at the National Materials Research Laboratory (NMRL) Ambernath, December 7, 2011 and on **Control strategies for LPG-based fuel processors in PEM fuel cell systems** at the International Conference on Advances in Energy Research (ICAER 2011), IIT Bombay, December 10, 2011.
 - ▲ **Prof. D. V. Pai** on **Multivariable calculus and optimal recovery of functions**, SERC School, Arunapuram, Kerala, May 16-18, 2011 and on **On well-posed problems in approximation theory**, in an International Conference **Multi-valued analysis and topology**, Varenna, Italy, July 18-22, 2011 and chaired a session.
 - ▲ **Prof. Mukta Tripathy** on **Colloidal emulsions glasses and gels**, NIT Nagpur, September 30, 2011, on **Polymer nanocomposites: emerging possibilities and trends**, National Chemical Laboratory, Pune, November 24, 2011; and on **Self-Assembly in patchy colloidal rods** at the Indo-US Bilateral Workshop, IIT Delhi, December 14, 2011.
 - ▲ **Prof. N. Ramakrishnan** at a CEP Course on **Gear Materials and Heat Treatment**, IIT Bombay, February 10, 2012.
 - ▲ **Prof. Naran M. Pindoriya**, **Integrating Renewable Energy Sources into Emerging Electric Power Systems**, IIT Mandi, May 16-20, 2011, **Emerging trends in Indian Electricity Markets** and **Short-term forecasting of electric load and price in competitive power market**, CHARUSAT, Anand, Guajrat, February 3, 2012; and **Advancement in Power Systems and Power Electronics**, SPCE Vishnagar, Gujarat, March 1-3, 2012.
 - ▲ **Prof. Pawan Lingras** on **Soft computing: Neural networks and fuzzy sets**, a tutorial at Computer Science and Applications, orientation workshop, University of Mumbai, December 25-27, 2011.
 - ▲ **Prof. Pia Thielmann** keynote address on **The importance of communication and teaching skills from an international perspective** at Vishwakarma Government Engineering College, Ahmedabad, June 17, 2011.
 - ▲ **Prof. Rita Kothari** chaired a session on **Tagore and Sindhi literature** at the Sahitya Akademi's National seminar, Institute of Sindhology, Adipur, Kutch, October 22-23, 2011; conducted a two-day workshop on **Imagining India**, Jaipuria Institute of Management, Indore, November 10-11, 2011; and served as a Panelist for **Publishing World: Editors and Writers' Relationship**, IIM, Ahmedabad, January 12, 2012.
 - ▲ **Prof. Sudhir K. Jain** keynote address on **Seismic Safety in India: Past, Present and Future** at GSDMA International Conference on Post Earthquake Reconstruction, Gandhinagar, April 14-16, 2011; on **The Future of Product Safety in India** at the 2nd Annual UL India Product Safety Summit, Delhi, April 20, 2011; and on IITGN: a **Laboratory for Experiments in Education** at Innovation Educators Conference, ISB Hyderabad, April 29-30, 2011; on **Seismic Design of Railway Bridges** in a Short Course at IIT Kanpur,

May 2-6, 2011; and a public lecture on **Confined Masonry: an alternative building typology for seismic regions of India** at Gujarat Institute of Civil Engineers and Architects, Ahmedabad, May 21, 2011.

- ▲ Prof. Supreet Saini on **How do cells count? Flagellar regulation in salmonella**, IISc Bangalore, September 23-24, 2011; and **Protein secretion and flagellar abundance in bacteria**, NIT Agartala, November 4, 2011.
- ▲ Dr T. S. Kumbar, Librarian, on **Institutional Repository and IPR Issues**, INFLIBNET Centre, Ahmedabad, February 17, 2012; **Evaluation of ETD Programs/Projects: Identification of some Indicators for Success**, Jawaharlal Nehru University, New Delhi, March 22, 2012; and **Reference Management Tools: An Overview**, National Workshop on Research Techniques in Library & Information Science, Rajkot, March 31, 2012.

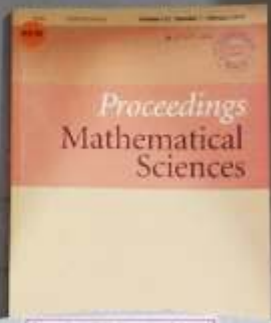
Other Faculty Activities

- ▲ Prof. Arnapurna Rath conducted a workshop on **Workplace etiquette: blending the verbal and the non-verbal**, SVNIT Surat, January 21, 2012.
- ▲ Prof. Joycee Mekie attended a national workshop on **Biostatistics: Applications of computational statistics in medicine and biology**, IIT Kharagpur, September 8-10, 2011; attended a conference **International Symposium on Asynchronous Circuits and Systems**, Ithaca, New York, April 27-29, 2011; and visited the Johns Hopkins University's

Biomedical Engineering Department.

- ▲ Prof. Naran M. Pindoriya attended the IET International Conference on Smart grids at Bangalore, May 31, 2011, and the **7th National Conference on Indian Energy Sector**, Ahmedabad, November 18-19, 2011.
- ▲ Prof. Nitin Padhiyar conducted a training session on **Computational methods for research in engineering programme** at L. D. College of Engineering, Ahmedabad, July 28, 2011.
- ▲ Prof. Sudhir K. Jain attended the Board meetings of Gujarat Technical University (GTU) on July 2011 and August 2011; and of the NIIT University, Neemrana on July 14, 2011; participated in the **UL India Fire Security and Signaling Advisory Council Meet 2011** in New Delhi on September 21, 2011.
- ▲ Prof. Supreet Saini participated in **Workshop on academic ethics** at Institute of Mathematical Sciences (IMSc), Chennai, July 15-16, 2011.
- ▲ Prof. V. Kadambi attended the conference **Indo-US nuclear energy safety summit**, organized by American Nuclear Society, at IIT Bombay, September 30, 2011.

Journals/Magazines



Publications

The Institute faculty is actively encouraged to present their research work for peer-review through publication in reputed journals and conference proceedings, and also to make presentations at conferences. These activities give the faculty important feedback on their work, and enhance the visibility of the Institute in the national and international academic arena. The Institute also encourages dissemination of knowledge through other avenues such as publication of books, book chapters and monographs. The following is a list of publications by faculty during 2011-12:

Books

Anulekha Dhara and Joydeep Dutta, **Optimality Conditions in Convex Optimization: A Finite-dimensional view**, CRC Press, Taylor and Francis, October 17, 2011, ISBN 9781439868225.

Mukund Hari Divekar and Nitin V. Bhate, **Process Dynamics Laboratory - Orientation, Protocol and Design Methodology**, Lambert Academic Publishing, Saarbrücken, Germany, ISBN: 978-3-8443-9766-6.

Rosa Maria Perez, **The Tulsi and the Cross**, RCS Publishers, ISBN: 8192304604.

Jasbirkaur Thadhani and Dr Nisha Tajpuri, **Stress management**, Kruti Prakashan, Ahmedabad, ISBN: 978-93-5067-160-3.

Book Chapters

Sharmita Lahiri, **Everything is an Argument: A Thematic Approach to Teaching English and Communication Skills Course**. *Unlock Their Futures: A Skills-based Approach to Teaching English*. Ed. Viney Kirpal and Shridhar B. Gokhale. New Delhi: Sterling Publishers, 2011.

D. V. Pai, Chapter 5: **Multivariable Calculus and Optimal Recovery of Functions** in Publication No. 42, SERC School Notes 2011, on Multivariable and Matrix Variable Calculus and Applications:

Matrix Methods, pp 139-189, April 2011, CMS, Pala, Kerala.

Arnapurna Rath, **Introduction to Far From the Madding Crowd** (Thomas Hardy). A WINK Signature Special, ISBN 978-81-264-3231-8. Bengaluru: DC Books and EC Media, 2011.

Papers Published in Refereed Journals

C. Ghoroi, X. Han, D. To, L. Jallo, L. Gurumurthy and R. N. Dave, "Dispersion of fine and ultrafine powders through surface modification and rapid expansion", *Chemical Engineering Science*, in press 2012. <http://dx.doi.org/10.1016/j.ces.2012.02.038>.

X. Han, **C. Ghoroi**, Y. Chen and R. N. Dave, "Simultaneous micronization and surface modification as a tool to improve flow and dissolution", *Int. J. Pharmaceutics*, 415, 185-195, (2011). <http://dx.doi.org/10.1016/j.ijpharm.2011.05.070>.

A. Hinkle, **S. Goyal** and **H. J. Palanthandalam-Madapusi**, "Estimation of the Constitutive-law of a Microfilament From its Discrete-Structure Simulations," *Journal of Applied Mechanics*, online March 2012. <http://dx.doi.org/10.1115/1.4006449>.

S. K. Jain, A. D. Roshan, S. Yadav, S. Srivastava and P. C. Basu, "Strong motion data from structural response recorders in Indian earthquakes", *Earthquake Spectra*, Vol. 28, No.1, pp. 77-103 (2012).

L. Jallo, **C. Ghoroi**, L. Gurumurthy, U. Patel and R. N. Dave, "Improvement of flow and bulk density of pharmaceutical powders using surface modification", *Int. J. Pharmaceutics*, 423, 213-225 (2012). <http://dx.doi.org/10.1016/j.ijpharm.2011.12.012>.

S. Joshi, **A. Prashant** and **S. K. Jain**, "Analysis of buried pipelines subjected to reverse fault motion", *Soil Dynamics and Earthquake Engineering*, Vol. 31, Iss. 7, pp 930-940 (2011).

- M. Kumar***, and K. Gayen, "Developments in biobutanol production: New insights," *Applied Energy*, Vol. 88, No. 6, pp. 1999-2010, (2011).
- M. Kumar***, **Y. Goyal***, Abhijit Sarkar and Kalyan Gayen, "Comparative economic assessment of ABE fermentation based on cellulosic and non-cellulosic feedstocks", *Applied Energy* (2012).
<http://dx.doi.org/10.1016/j.apenergy.2011.12.079>.
- N. K. Kumar** and G. Nagaraju, "Nonconforming least-squares method for elliptic partial differential equations with smooth interfaces", *Journal of Scientific Computing*, doi 10.1007/s10915-011-9572-5.
- S. Lahiri**, "Not a vanquished rebel but a successful explorer of newer realms: A study of Edna Pontellier in Chopin's *The Awakening*", *The IUP Journal of English Studies* 4.3, 61-72 (2011).
- S. Lahiri**, "Things fall apart: Winesburg Ohio a world in transition." *The IUP Journal of American Literature* 4.4, 16-27 (2011).
- S. Lahiri**, "Local vs. Cosmopolitan: A comparison of *The Home and the World* and *Midnight's Children*." *SKASE Journal of Literary Studies* 3. 2, 2-20 (2011).
- G. A. MacRae, U. T. Myint and **S. K. Jain**, "Steps in earthquake proofing a country – a case study of Myanmar", *Bulletin of the New Zealand Society for Earthquake Engg.*, Vol. 44, No. 2, pp. 87-98, (2011).
- J. Manjaly**, "Conceivability, metaphysical possibility and the zombies", *Journal of the Indian Council of Philosophical Research* 28, 3: 43-53, (2011).
- J. Manjaly**, "The knowledge argument and inconsistency of the nonphysical", *Journal of the Indian Council of Philosophical Research* 28, 2: 81-94, (2011).
- G. Mondal, **A. Prashant** and **S. K. Jain**, "Simplified seismic analysis of soil-well-pier system for bridges", *Soil Dynamics and Earthquake Engineering*, Vol. 32, pp 42-55 (2012).
- V. Narayanan** and R. Govindarajan, "Secondary Instabilities in Incompressible Axisymmetric Boundary Layers: Effect of Transverse Curvature", *Journal of Fluids Engineering*, 134, 024503 (2012).
- T. D. Nguyen and **S. Ranganath**, "Facial expressions in American sign language: Tracking and recognition", *Pattern Recognition*, Vol 45, No. 2, pp 1877-1891, (2012). <http://dx.doi.org/10.1016/j.patcog.2011.10.026>.
- H. J. Palanthandalam-Madapusi** and **S. Goyal**, "Is Parkinsonian Tremor a Limit Cycle?" *J. of Mechanics in Medicine and Biology*, Vol. 11, No. 5, pp 1017-1023, (2011).
<http://dx.doi.org/10.1142/S0219519411004915>.
- R. S. Patil***, **M. Pandey** and P. Mahanta, "Parametric studies and effect of scale-up on wall-to-bed heat transfer characteristics of circulating fluidized bed risers," *Experimental Thermal and Fluid Science*, Vol. 35, No. 3, pp. 485-494, (2011).
- A. Sachan**, "Shear Testing Data of Soil: A function of boundary friction in Triaxial setup", *Indian Geotechnical Journal*, Vol. 41, No. 4, pp. 168-176. (2011).
- M. Sahu, B. Wu, L. Zhu, C. Jacobson, W.-N. Wang, K. Jones, **Y. Goyal***, Y. J. Tang and P. Biswas, "Role of dopant concentration, crystal phase, and particle size on microbial inactivation of Cu-doped TiO₂ nanoparticles", *Nanotechnology*, Vol. 22, (2011).
<http://dx.doi.org/10.1088/0957-4484/22/41/415704>.
- C. H. Sim, E. Rajmadhan and **S. Ranganath**, "Detecting people in dense crowds", *Machine Vision and Applications*, Vol 23, No. 2, pp 243-253 (2012).

A. Thorat* and **S. V. Dalvi**, "Liquid antisolvent precipitation and stabilization of nanoparticles of poorly water soluble drugs in aqueous suspensions: Recent developments and future perspective", *Chemical Engineering Journal*, Vol. 181-182, pp 1-34 (2012).
<http://dx.doi.org/10.1016/j.cej.2011.12.044>.

M. Tripathy and K. S. Schweizer, "Activated dynamics in dense fluids of attractive nonspherical particles. I. Kinetic crossover, dynamic free energies, and the physical nature of glasses and gels," *Phys. Rev. E* 83, 041406 (2011).

M. Tripathy and K. S. Schweizer, "Activated dynamics in dense fluids of attractive nonspherical particles. II. Elasticity, barriers, relaxation, fragility, and self-diffusion", *Phys. Rev. E* 83, 041407 (2011).

J. Tyagi, "Existence of non-negative solutions for predator-prey elliptic systems with a sign-changing nonlinearity", *Electronic J. Differential Equations*, No. 153, pp. 1-9, (2011).

J. Tyagi, "A global positive solution of a delay differential equation with indefinite coefficients", *Applied Mathematics Letters*, 25, 1068-1070 (March 2012).

A. K. Vishwakarma, **P. P. Ghalsasi**, and P. S Ghalsasi, "Temperature-dependent Raman spectroscopy of anilinium chloride near phase transition," *Physica Status Solidi B*, Vol. 248, No. 8, pp. 1956-1960, (2011).

W. Zhu, F. S. Romanski, **S. V. Dalvi**, R. N. Dave, M. S. Tomassone, "Atomistic simulations of aqueous griseofulvin crystals in the presence of individual and multiple additives" *Chemical Engineering Science*, Vol. 73, pp 218-230 (2012).

Papers Published in Conference Proceedings

A. Bhargav, M. Lyubovsky, C. J. Tesluk, P. Hearn, "Control strategies for LPG-based fuel

processors for PEM fuel cell systems", *International Conference on Advances in Energy Research*, IIT Bombay, December 2011.

S. Chandrasekaran* and **Ragavan K.**, "Harmonic mitigation through sliding DFT based single-phase active power filter", *Proceedings of The EE Centenary Conference*, IISc, Bangalore, India, pp. 469-473, December 2011.

M. Kumar*, **Y. Goyal***, K. Gayen, and **S. Saini**, "Economic assessment of ABE (acetone-butanol-ethanol) fermentation for cellulosic and non-cellulosic feedstocks", 64th Annual Session, Indian Institute of Chemical Engineers, CHEMCON 2011, Bangalore, December 2011.

S. Lahiri, "India through different lenses: A study of Rushdie's *Midnight's Children* and Tagore's *The Home and the World*." *Proceedings of the 1st Asian Conference on Literature and Librarianship*, Osaka Japan, May 2011. Nagakute, Japan: The International Academic Forum (IAFOR), 233-244 (2011). http://www.iafor.org/librasia_proceedings.html.

T. D. Nguyen and **S. Ranganath**, "Recognizing continuous grammatical marker facial gestures in sign language video", 10th Asian Conference on Computer Vision, Queenstown, New Zealand, November 2010 (Published in *Lecture Notes in Computer Science*, LNCS Vol 6495, pp 665-676, Springer, 2011).

N. M. Pindoriya and N. Gurrapu, "Emerging trends in electricity market in India – A review", *Proceedings of the 2nd International Conference on Current Trends in Technology*, NUiCONE 2011, Institute of Technology, Nirma University, Ahmedabad, December 2011, pp. 1-7.

J. R. Prabhakar* and **Ragavan K.**, "Unified controller for reliable coordination of wind-solar-hydro energy conversion systems", *Proceedings of The EE Centenary*

Conference, IISc, Bangalore, India, pp. 353-358, December 2011.

K. Prajapat, S. R. Chaudhuri and **A. Kumar**, "Analytical and experimental study of buckling of plates considering in-plane boundary conditions", 4th International Conference on Structural Stability and Dynamics (ICSSD-12), MNIT Jaipur, January 2012.

S. Saini, "Computational biology and bioinformatics: A systems biology perspective", Proceedings of workshop on Bioinformatics, Tripura University, November 2011.

K. R. Shah* and **Ragavan K.**, "Locating and assessing the severity of mechanical deformations in power transformer windings", Proceedings of The EE Centenary Conference, IISc, Bangalore, India, pp. 289-294, December 2011.

B. Singh and **N. M. Pindoriya**, "Grid integration of large-scale wind power", Proceedings of the 7th National Conference on Indian Energy Sector: Synergy with Energy, AMA, Ahmedabad, November 2011.

Papers Presented at Conferences

A. L. Chakraborty and W. Johnstone, "Calibration-free 2f wavelength modulation spectroscopy using normalization by the nonlinear intensity modulation for quantitative industrial gas measurements", Field Laser Applications in Industry and Research (FLAIR 2011), Germany, September 2011.

A. L. Chakraborty, "Calibration-free approaches in tunable diode laser spectroscopy of gases for industrial applications", 36th OSI Symposium, Frontiers in Optics and Photonics, IIT Delhi, December 2011.

A. L. Chakraborty, "Tunable diode laser spectroscopy of gases for calibration-free measurement of concentration and pressure", 20th DAE-BRNS National Laser Symposium,

Anna University, January 2012.

S. Das* and **I. Gupta**, "Mono-functionalized N-Confused Porphyrin", 14th CRSI National Symposium in Chemistry (NSC-14), CSIR-NIIST, Trivandrum, February 2012.

Y. Goyal*, "Statistics-based model for prediction of chemical biosynthesis yield from *saccharomyces cerevisiae*", 111th general meeting of the American Society for Microbiology, May 2011, New Orleans, USA.

A. Guduru, P. W. C. Northrop, **S. K. Jain**, A. C. Crothers, T. R. Marchant, V. R. Subramanian, "Analytical solution for electrolyte concentration distribution in lithium-ion batteries", Journal of Applied Electrochemistry 42(4), 10.1007/s10800-012-0394-4(2012).

Ragavan K., **Prathamesh J.*** and **A. P. Kishore***, "A Novel Magnetic-Circuit Based Design Approach for Electric Vehicle Motors", IEEE International Electric Vehicle Conference, Greenville, South Carolina, USA, pp. 1-5, Mar. 4-8, 2012.

R. Kothari, "Cartography of a song and story", Centre for Region Studies, University of Hyderabad, February 19-20, 2012.

N. K. Kumar, "Nonconforming spectral/hp method for elliptic interface problems" at Scientific computing and partial differential equations Conference, Hong Kong, December 2011.

A. Kunwar, "Using computational modeling to understand in-vitro and in-vivo transport by molecular motors", Interdisciplinary Workshop on High Performance Computing, January 30-February 1, 2012, PRL, Ahmedabad.

J. Manjaly, "Panpsychism and evolution of experience", International Conference on Towards a Science of Consciousness - TSC 2011: Brain, Mind and Reality, Stockholm. May 2011.

M. Mukherjee and A. Prashant, "An automated approach for near surface soil site profiling by SASW technique", in 8th International Symposium on Field Measurements in GeoMechanics, Berlin, GER, September 12-16, 2011.

S. Mukherjee*, N. Srinivasan, J. Manjaly and N. Kumar*, "Effect of Money on estimations of Social Distance", XXI Annual Convention of National Academy of Psychology (NAOP), IRMA, Anand, Gujarat, December 2011.

S. Mukherjee*, N. Srinivasan and J. Manjaly, "Role of attentional processes on monetary estimations", International conference on Decision Making, CBCS, Allahabad, December 2011.

V. Palakollu, J. K. Katla and S. Kanvah, "Influence of Methyl and Nitro Groups on Photo induced Behavior of Diphenylbutadiene derivatives", 4th CRSI National Symposium in Chemistry (NSC-14), Trivandrum, Kerala, February 2012.

J. R. Prabhakar* and Ragavan K., "Classical controller for coordination of wind-solar-hydro energy conversion systems in isolated region", International Conference Power and Energy Systems (ICPS), IIT Madras, Chennai, India, pp. 1-6, December 2011.

A. Rath, "Situating time and binding space: An analysis of heterochronies and the carnival square", International Symposium on Spaces of Alterity: Literary and Dramatic Representations, IIT Gandhinagar, September 2011.

S. Saini, "Evolution of intrinsic microbial resistance to antibiotics in bacteria", 2nd National conference on Antibiotic Resistance, Allahabad, February 2012.

S. Saini, "Regulatory network architecture in pathogenic bacteria", RNAB, Sastra University, March 2012.

S. Saini, "Role of Fur in regulating pathogenic gene expression in enteric bacteria", International Conference & Exhibition on Proteomics & Bioinformatics, HICC Hyderabad, June, 2011.

A. Thorat* and S. V. Dalvi, "Controlled liquid antisolvent precipitation of ultrafine particles of curcumin in aqueous suspensions using ultrasound and stabilizers", 64th CHEMCON Conference, Bangalore, December 2011.

*Student