

Connections

IIT Gandhinagar



2015-2016, Volume VIII, Issue IV
April - June 2016

Connections is the quarterly newsletter for friends of IIT Gandhinagar

Institute News

IITGN RANKED 8TH BY NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

IIT Gandhinagar was ranked 8th among all engineering institutions in the country by the National Institutional Ranking Framework (NIRF) on April 4, 2016. In particular, IITGN was ranked 4th in Teaching, Learning and Resources and 5th in Outreach and Inclusivity. The NIRF has been initiated by the MHRD and was launched on Sep 29, 2015. The framework outlines a methodology to rank institutions across the country. The parameters broadly cover Teaching, Learning and Resources; Research and Professional Practices; Graduation Outcomes; Outreach and Inclusivity; and Perception.



the research park, industry professionals will also get opportunities to be part of the academic programmes at the Institute such as guiding joint PhD and master's students, supervising interns, delivering lectures etc.

IIT GANDHINAGAR INNOVATION AND ENTREPRENEURSHIP CENTER

IITGN Innovation and Entrepreneurship Center (IIEC) is now fully functional. It is meant to support the incubation and technology commercialization initiatives of the Institute. The registration process has been concluded and IIEC is now incorporated under the Companies Act, 2013. The centre is receiving significant funds from the Department of Science and Technology, Government of India.

NEW ACADEMIC PROGRAMMES INTRODUCED

The institute has introduced the following new academic programmes from the Academic Year 2016-17:

- BTech in Computer Science and Engineering
- MTech and PGDIIT programmes in Biological Engineering and in Earth System Science
- Early Admit MTech programme
- Dual major in BTech programme
- BTech and MTech dual degree programmes

RESEARCH PARK AT IIT GANDHINAGAR

IIT Gandhinagar is setting up a Research Park at its campus to boost industry-academia collaboration and innovation. The institute plans to build 100,000 sq ft space for the research park in the first instance. The Government of India will provide initial funding for the establishment of the Research Park. Envisioned as a highly productive physical space, the park aims to foster powerful interplay between Industry and Academia. The Research Park will facilitate research projects between industry and the institute and also enable the industrial partners to access the laboratories, high-end equipment and other resources at IITGN. The research park will also provide technical advice on collaborative R&D, market research, intellectual property management and licensing. Through the engagement with

MOU WITH THE NEW SCHOOL, NEW YORK

IIT Gandhinagar has forged an MOU with The New School in New York. The New School was founded in 1919 as a modern, progressive and free school. One of its autonomous colleges is the Parsons School of Design, which was the first school in the United States to offer programs in fashion design, advertising, interior design, and graphic design, and is widely regarded as one of the most prestigious art and design schools in the world. This summer, under the MOU, several IITGN students credited courses at the Parsons School of Design.

Support for the Institute

RESEARCH PARK

USAID has allocated significant funds to enable IITGN to avail technical support from Research Triangle international (RTI) for establishment of the Research Park. This support is expected to add significantly value in terms of quality to the processes involved in setting up the facilities associated with the research park.

REACHING OUT

- A delegation of faculty and officers led by **Prof Sudhir K Jain** visited Duke University for a series of workshops and discussions during June 16 and 17, 2016. They were hosted by Duke Provost **Prof Sally Kornbluth** and Vice Provost for Research **Prof Larry**

Carin. The two institutions began collaborating in Jan 2016 to establish collaborative research and teaching programmes. The partnership is facilitated by RTI International.

- The delegation also attended a site visit of the Research Triangle Park in North Carolina. They also attended a strategic planning workshop in NC focused on learning from the Research Triangle Park (RTP) and North Carolina State University Centennial research park models, and the broader applied research and innovation



ecosystem in RTP. A broad set of speakers and area site visits were facilitated with RTP university representatives, leading Research Triangle Park private industries, as well as three RTP incubator models. The workshop facilitated hands-on learning for the IITGN team, and helped them to prepare core concepts for their university-led research park strategic plan.

- **Mr Ram Babu Bhagat**, Assistant Registrar visited Birmingham,

United Kingdom from April 24-30, 2016 to attend the **Leadership and Management Development Programme** organized by Leadership Foundation for Higher Education (LFHE). During the programme, he visited Universities of Coventry, Warwick Wolverhampton and Birmingham City to understand the processes of management in UK Higher Education environment.

Faculty News

AWARDS AND RECOGNITION

- **Prof Anand Sengupta** shared the **Special Breakthrough Prize in Fundamental Physics** awarded for detection of gravitational waves as the part of the LIGO discovery team.



FELLOWSHIPS

- **Building Energy Efficiency Higher & Advanced Network (BHAVAN) Fellowship** supported by the Department of

Science & Technology and the Indo-US Science & Technology Forum. Principal investigator: **Prof Naran Pindoriya**, Electrical Engineering.

- **The Ramanujan Fellowship** supported by the Science and Engineering Research Board (SERB). Principal investigator: **Prof Arnab Datta**, Chemistry.
- **Prof Nihar Mohapatra** has been selected for the **Young Faculty Fellowship** under Visvesvaraya PhD Scheme for Electronics & IT for the year 2014-15.

SPONSORED PROJECTS

A faculty team consisting of **Prof Chinmay Ghoroi**, **Prof Gaurav Srivastava** and **Prof Arup Lal Chakraborty** received funding of Rs 3.73 crores under the Uchhatar Avishkar Yojana (UAY). This is a research grant for a project involving the **development of environment-friendly and cost-effective fire detection and suppression systems**. This project has a 1:3 cost sharing jointly with Vimal Fire Controls Private Limited (VFCPL), Mumbai. The UAY is meant to promote product-oriented research to be jointly undertaken through private and public partnership.

- **Cost-effective integration of 20-40V n/p LDMOS devices in SCL's 0.18mm CMOS process** sponsored by Department of Science & Technology. Principal investigator: **Prof Nihar Ranjan Mohapatra**, Electrical Engineering.
- **Molecular mechanisms of kinesin-3 based cargo transport and their implications in human diseases** sponsored by Department of Biotechnology. Principal investigator: **Prof Virupakshi Soppina**, Biological Engineering.
- **Thermodynamics of black holes: general relativity and beyond** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Sudipta Sarkar**, Physics.
- **Mechanistic analysis of eukaryotic mobile genetic elements** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Sharmistha Majumdar**, Biological Engineering.
- **Grobner basis, Syzygies and Betti numbers of Determinantal ideals** sponsored by Science & Engineering Research Board. Principal investigator:

Prof Indranath Sengupta, Mathematics

- **Asymptotic problems for stochastically perturbed switching dynamical systems** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Chetan Pahlajani**, Mathematics.
- **On automorphisms of finite group** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Surjeet Kour**, Mathematics.
- **Geometry of moduli of real parabolic bundles** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Sanjaykumar Amrutiya**, Mathematics.
- **LHC studies of beyond the standard model physics** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Baradhwaj Coleppa**, Physics.
- **At the interface of analytic number theory and special functions** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Atul Abhay Dixit**, Mathematics.
- **Influence of humid environment and high temperature hydrogen exposure on thermo-physical properties of Li₂TiO₃ and Li₄SiO₄ pebbles and its formation kinetics through solid-solid reaction** sponsored by Board of Research & Nuclear Sciences. Principal investigator: **Prof Chinmay Ghoroi**, Chemical Engineering.
- **Regulation of inter-allelic epigenetic differences by CGGBP1-CTCF axis** sponsored by Science & Engineering Research Board. Principal investigator: **Prof Umashankar Singh**, Biological Engineering.
- **Singular nonlinear elliptic equations: existence, uniqueness and qualitative**

questions sponsored by Science & Engineering Research Board Principal investigator: **Prof Jagmohan Tyagi**, Mathematics.

- **Deep analytics of multi-layered complex systems: sketching insights from multidimensional time series** sponsored by Cisco Research Center University. Principal investigator: **Prof Anirban Dasgupta**, Computer Science & Engineering.

CONSULTANCY PROJECTS

- **Geotechnical study of hill-cut for proposed residential development at hill slope in Ghatkopar** for Omkar Realtors & Developers Pvt Ltd, Mumbai. Principal investigator: **Prof Amit Prashant**, Civil Engineering.
- **Protection work at washed out area of Mehsana-Palanpur Pipeline near Rupen river** for Gujarat State Petronet Ltd. Principal investigator: **Prof Amit Prashant**, Civil Engineering.
- **Computer vision and machine learning tools for food recognition** for Innit Inc. Principal investigator: **Prof Shanmuganathan Raman**, Computer Science & Engineering.
- **Advising on test setup and instrumentation, on-site testing and test result certification of heat exchanger** for Loyal Equipments Ltd, Dehgam. Principal investigator: **Prof Atul Bhargav**, Mechanical Engineering.
- **Investigation of flange buckling of gantry girder at Talwada unit** for Sheela Foam Pvt Ltd. Principal investigator: **Prof Gaurav Srivastava**, Civil Engineering.
- **Intake well and approach bridge in Tapi river** for Gujarat Water Supply & Sewerage Board. Principal investigator: **Prof Pranab Mohapatra**, Civil Engineering.

NEW FACULTY

The following faculty joined IITGN during this quarter:

Name	Designation	Discipline	PhD/Last degree	Date of joining
Dinesh Garg	Associate Professor	Computer Science and Engineering	IISc Bangalore, 2006	20.06.16

Activities at IITGN



JEE OPEN HOUSE

IITGN hosted two JEE Open House events on June 5, 2016 and June 18, with the aim of offering guidance and exposure to students who appeared for Joint Entrance Examination (JEE) Advanced 2016. The objective of the Open House was to help the prospective engineering students in their decision making process.

During these events, **Prof Sudhir K Jain** (Director, IITGN) and **Prof Dheeraj Sanghi** (Dean of Academic Affairs and Dean of External Relations at IIT Delhi) addressed the students and their parents in an interactive session. The Open House also had several other sessions with IITGN faculty, students and alumni. A campus tour was also organized. Both the open house events had over 150 participants including students and their parents.

WORLD ENVIRONMENT DAY

IITGN community planted around 100 saplings in the campus to mark the celebration of **World Environment Day** on June 5, 2016. The event was initiated by a group of students at the institute called 'Green Gang'.



INTERNATIONAL DAY OF YOGA

IITGN observed the International Day of Yoga on June 21, 2016. The events included a talk on **Philosophy and History of Yoga** by **Prof Nitin Padhiyar**, demonstration and practice of asanas and their specific benefits by **Mr Hemant Shah**, screening of videos from the Ministry of Ayush and a light healthy lunch of fruits and vegetables.

SUMMER SCHOOL ON ENGINEERING

A four-week **Summer School on Engineering Topics** was held at IITGN under TEQIP-II initiative (MHRD and Government of Gujarat), June 6 - July 2, 2016. The Summer School provided the participants with better understanding and effective teaching methodology for the first

three years of engineering education. Around 35 speakers and resource persons from IITGN and other IITs were a part of this initiative which was attended by 337 faculty and students from other institutes.

SUMMER RESEARCH INTERNSHIP PROGRAMME (SRIP)

The fifth edition of **Summer Research Internship Programme (SRIP)** offered around 70 research projects for students to work with IITGN faculty. The programme which began on May 2, 2016 concluded on July 8, 2016. The programme is aimed at building strong ties with other institutions through research at IITGN. The number of applications for SRIP were more than 10,000 this year. 123 students from outside IIT Gandhinagar and 104 students from IIT Gandhinagar participated in the programme. A large number of students from leading engineering institutes in the country including IIT Delhi, IIT BHU, IIT Roorkee, NIT Trichy, NIT Karnataka, NIT Calicut, Birla Institute of Technology and Science (BITS) Pilani, Indian Institutes of Science Education and Research (IISER) Bhopal, National Institute of Science Education and Research (NISER) Bhubaneswar, and other premier institutes were part of SRIP 2016. There was a poster presentation on July 6, 2016. **Prof Vineet Vashista**, **Prof Manish Kumar** and **Prof Shanmuganathan Raman** coordinated the programme.

SUMMER INTERNSHIPS

IIT Gandhinagar considers internships as a valuable mechanism through which students gain exposure to real-world problems and cutting-edge research by working in apex academic institutions and industries. Students are encouraged to take up internships that suit their exploratory instincts and future plans. This year, 56 students went abroad for internships in reputed institutions like Caltech, University of Washington, Duke University, SUNY Buffalo, etc. Another 102 students worked in leading industries within India such as Nielsen, Underwriters Laboratories, Tyco, NFIL, IRICEN and many more. About 104 students spent their summer in campus, working with IITGN faculty members in various SRIP projects.

EXPLORERS FELLOWSHIP 2016

Fifty IITGN students received the **IITGN Explorer Fellowship** for the summer of 2016. Students consisted of 23 teams and every team member was awarded Rs 35,000 to travel to different states in India over a period of six weeks during May-June, 2016. The Explorer Fellowship programme aims

to introduce students to the cultural and geographic diversity of the country. Students are required to explore six or more states, including at least one state each from the southern, northern and north eastern regions of the country. The fellowship stipulates that students travel by sleeper class in trains or by state government buses and stay in low-cost accommodation. Students are also expected to maintain a diary or blog during the travel, within city the two best diaries or blogs being eligible for a prize of Rs 5,000 and a certificate of merit.



VOCATIONAL SKILLS TRAINING PROGRAMME

A two-month long **Vocational Skills Training Programme** was conducted from May 23 to July 25, 2016 wherein 25 young men from local villages were introduced to trades such as carpentry, fitting, wiring, plumbing, tin-smithy, machining and welding. The event was conducted under the aegis of NEEV, the community outreach programme of IIT Gandhinagar and with financial support from Desai Foundation. In addition to vocational skills, the programme also included modules on business skills, soft skills as well as field visit to local industries. The programme was coordinated by **Ms Soumya Harish**.

PAHEL - EK SHURUAT

Pahel - Ek Shuruat aimed to explore the role of counselling services at educational institutes and ways in which the institutes can reach out to students more effectively was organized at IITGN during June 18-19, 2016. Some of the institutes that participated in this workshop included IITBHU; IIM Indore; FLAME University, Pune; Pandit Deendayal Petroleum University, Gandhinagar; Sardar Vallabhbhai National Institute of Technology, Surat and others. The event was coordinated by **Ms Nitu Singh Bhadouria**, **Ms Jasbirkaur Thadhani**, and **Prof Kabeer Jasuja**.

SUMMER@IITGN

Ten students and one professor from Texas A&M visited IITGN this summer. This continues our strong partnership with Texas A&M, with many students from IITGN having visited their campus for summer research in the past.

SHORT COURSES/ WORKSHOPS/ PANELS

- Short course on **Quantitative Method in Microscopy** by **Prof T Ramachandran**, formerly with IIT Kanpur, March 29-April 11, 2016.
- **Workshop to Introduce World History & Sequence and Perspective to Heritage Issues** by **Ms Gauri Waagenar**, April 9-10, 2016.
- Short course on **Basic Bioinformatics: NGS Analysis** by **Dr Prasoon Agarwal**, College of Medicine, Manitoba, Canada, May 21-23, 2016.
- GIAN workshop on **Synchronous and Synchronous Approaches to Network-on-chip (NoC) Architecture Design** by **Prof Peter Beerel**, University of Southern California and **Prof Virendra Singh**, IIT Bombay, June 7-18, 2016.
- Short course on **Bionics** by **Mr Samir Shukla**, former Visiting Faculty at IIMA, June 10-12, 2016.
- Short course on **Finite Element Analysis** by **Prof J N Reddy**, Texas A&M University, June 11-19, 2016.
- GIAN workshop on **Black Hole Information Paradox** by **Prof Samir Mathur**, Ohio State University, June 27-July 8, 2016.

LECTURES

- **Lessons learned from the April 2015 Nepal earthquake: damage, recovery, and reconstruction** by **Prof Svetlana Brzev**, IITGN; **Prof Durgesh Rai**, IIT Kanpur; **Mr Vivek Rawal**, People in

Centre, Ahmedabad; and **Mr Rajendra Desai**, National Centre for Peoples' Action in Disaster Preparedness, Ahmedabad, April 1, 2016.

- **Experimental research in earthquake engineering** by **Prof Durgesh Rai**, IIT Kanpur, April 2, 2016.
- **Seismic isolation in safety-related nuclear facilities** by **Prof Andrew Whittaker**, State University of New York (SUNY) Buffalo, April 4, 2016.
- **Membranes in biological assembly and organization: insights from reconstituted systems** by **Dr Senthil Arumugam** Curie Institute, Paris, France, April 7, 2016.
- **Experiences in using geosynthetics in Gujarat and potential of its applications** by **Mr Vivek Kapadia**, Water Resource Department, Government of Gujarat, April 9, 2016.
- **Introduction on Archaeozoology** by **Prof P P Joglekar**, Deccan College, Pune, Pune, April 15, 2016.
- **Internal security management in India and threats like the Islamic state** by **Mr Vappala Balchandran**, former RAW Chief, April 18, 2016.
- **Beyond Meluhha: Evidence for Harappans out of Greater Indus Valley** by **Dr Dennys Frenez**, University of Bologna, April 18, 2016.
- **A route to permanent valley polarization in monolayer MoS₂** by **Dr Nirpendra Singh**, King Abdullah University of Science and Technology

(KAUST), April 20, 2016.

- **Silicene: A functional material for future electronics?** by **Dr Udo Schwingenschlöggl**, King Abdullah University of Science and Technology (KAUST), April 20, 2016.
- **Digital mobile plans of BBC on Messaging platforms** by **Mr Trushar Barot**, British Broadcasting Corporation's (BBC) World Service Group, April 27, 2016.
- Four lectures on **Random walk problem and Brownian motion** by **Prof Anupam Kundu**, ICTS, Bangalore, April 27-30, 2016.
- **Compact modeling of bipolar devices** by **Prof Anjan Chakravorty**, IIT Madras, May 9, 2016.
- **Interconnection between matter and life** by **Prof Ananta Kumar Giri**, Madras Institute of Development Studies, May 22, 2016.
- **Planning technology based startups** by **Mr Hemant Kumar**, IIT Delhi, June 6, 2016.
- **On subadditivity of maximal shifts in the resolutions of graded algebras** by **Prof Hema Srinivasan**, University of Missouri, Columbia, USA, June 15, 2016.
- **Sampling linear extensions using promotion** by **Dr Arvind Ayyer**, Indian Institute of Science, Bangalore, June 20, 2016.
- **The technological Indian** by **Dr Ross K Bassett**, North Carolina State University, USA, June 29, 2016.

Student and Staff Activities



UDAAN - FAREWELL DINNER

Udaan, the formal farewell dinner for the graduating batch, was organized on April 9, 2016. The event was attended by the graduating batch of Bachelors, Masters, and PhD students. The evening invoked nostalgia and brought back memories with several speeches from faculty and students. The event also involved an array of cultural performances and a traditional batch photo shoot.

AWARDS AND RECOGNITION

Three students of IITGN namely, **Krishna Sai Vootla**, **Sai Rama Krishna** and **Vaishnavi Patil** stood third in the **International Undergraduate Embedded Design Competition**, the Intel Cup, held in Shanghai, China.

Sports News

IIT GANDHINAGAR CRICKET CUP

IITGN hosted its first ever **Inter-College Cricket** tournament from April 2-16, 2016. Eight colleges participated in the tournament which was planned as in the knock-out

format. The teams that participated are Indus College, PDU, GNLU, VGEC, DAICT, IHM, LDRP and IITGN. The IIT Gandhinagar team reached the semi-finals and lost to VGEC by 10 runs. The tournament concluded with **Indus University** emerging

as the champions by overcoming VGEC in the final. Batting first Indus College were bowled out for 80 runs in 19 overs. VGEC in return could not chase down the target and fell short by 20 runs.