

Connections

IIT Gandhinagar



2017-2018, Volume X, Issue IV
April - June 2018

Connections is the quarterly newsletter for friends of IIT Gandhinagar

Institute Activities



VISIT OF UNION MINISTER DR SATYAPAL SINGH

Dr Satya Pal Singh, Union Minister of State, Ministry of Human Resource Development; and Ministry of Water Resources, River Development, and Ganga Rejuvenation, visited the Institute on June 6, 2018 and interacted with the faculty. Dr. Singh appreciated the outreach efforts of IIT Gandhinagar and encouraged research that addresses societal challenges.

INVENT@IITGN

IIT Gandhinagar hosted the maiden intensive Seven-week program in inventing, **Invent@IITGN**, from June 18 to July 27. Originated in the US as 'Invention Factory', the program was organized in India for the first time at IITGN. The selected 20 students, from IITs across the country including IIT Kharagpur, IIT Madras, IIT Guwahati, IIT Jammu and IIT Gandhinagar, received direct guidance from the founders of the original program in the U.S, Cooper Union Professors **Alan Wolf** and **Eric Lima**, and IIT Gandhinagar Professors **Vineet Vashista** and **Nithin George** on how to invent and develop their ideas into practice. The students developed solutions for real-life problems with inventions such as a car underrun protection system, navigation system for visually impaired, fire prevention device due to electric overload, load carrier for labourers and so on.



Yash Sharma and **Farazul Haque** from IIT Kharagpur won the prize of **Best Invention** for their apparatus and method for localized irrigation, weed control and localized pesticide delivery. **Kratika Bhagtani** and **Karthik Subramanya Karvaje** of IIT Gandhinagar bagged the prize of **Second Best Invention** for their portable CPR device. **Anshuman Dhar** and **Agrata Patel** from IIT Guwahati won **Third Best Invention** prize for sleep injury prevention device. Each of the ten teams have now filed for provisional US patents.

MOU WITH INDIAN NAVY

The Indian Navy entered into a Memorandum of Understanding (MoU) with IIT Gandhinagar on May 7 to promote academic cooperation and enhance scientific understanding of technologies related to defense. As per the agreement, IITGN will also accept naval officers in its masters and doctoral programmes for various disciplines.

NASSCOM IN RESEARCH PARK

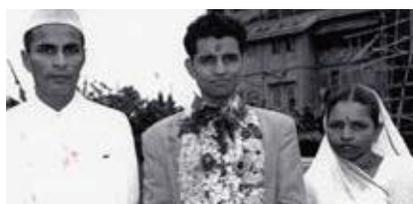
An agreement to this effect was signed on May 19 in the presence of the Chief Minister of Gujarat, **Shri Vijaybhai Rupani** and the Chief Secretary of Gujarat, **Mr J N Singh**, IAS, **Mr Dhananjay Dwivedi** and **Ms Sandhya Bhullar**, Mr Harish Mehta, founder Chairman of NASSCOM, **Mr Nirmal Jha** of IIT Gandhinagar, and **Mr**

Sanjeev Malhotra of NASSCOM, were also present on the occasion. Under this agreement, National Association of Software and Services Companies (NASSCOM) will set up a Centre of Excellence for Internet of Things (IoT) at the IITGN Research Park.

Support for the Institute

KANCHAN AND HARILAL DOSHI CHAIR

Mr Navin Doshi and **Mrs Pratima Doshi** of Los Angeles, California have set up the **Kanchan and Harilal Doshi Chair** in honour of Mr Navin Doshi's parents. The Chair is expected to identify and initiate research and develop cost-effective and sustainable technologies/solutions for water purification and sanitation.



Mr Navin Doshi with his parents
Smt Kanchan and Shri Hiralal Doshi

Mr Navin Doshi, who grew up in Mumbai, is a graduate of Puna Engineering College and the LD Engineering College of Gujarat University, and holds a Master's degree in Electrical Engineering from the University of Michigan, Ann Arbor. He worked as an Aerospace Engineer at TRW (now Northrop), where he was the recipient of NASA awards and US patents. He also ran highly successful businesses with his wife Pratima.



Mrs Pratima and
Mr Navin Doshi

OUTREACH

- **Prof Pratik Mutha, Prof Nithin George, Prof Vineet Vashista and Mr Manish Jain** visited six universities of the US (Stanford University, University of California Berkeley, Carnegie Mellon University, Columbia University, New York University and Massachusetts Institute of Technology) from May 19 to June 2, to learn about their experiences with designing “Maker Spaces”. IITGN aims to put an increasing emphasis on hands-on training and “learning-by-doing”, which are facilitated

through such spaces. The visits were aimed at understanding the philosophy of such programs, how they are integrated into the curriculum and also some managerial aspects. These experiences will inform the development of prospective maker spaces at IIT Gandhinagar in due course.

- **Prof Sudhir K Jain** visited Maker Spaces at the University of California at Berkeley, Massachusetts Institute of Technology, and Carnegie Mellon University in June 2018. He also reached out to numerous well-wishers of the Institute in San Francisco,

Los Angeles, Boston, New York, Tampa and Washington DC area. He was accompanied by **Prof Chelva Kumar, Prof Achal Mehra** and **Prof Gaurav Srivastava** at some of these places.



Faculty News

SPONSORED PROJECTS

- To strengthen the post-graduate teaching & research facilities in the Department, sponsored by Science & Engineering Research Board Resources - Principal Investigator: **Prof Emila Panda**, Materials Science and Engineering
- ECO-WET - Efficient Coupling of - Water and Energy Technologies for Smart Sustainable Cities, sponsored by Indo-German Science and Technology Centre - Principal Investigator: **Prof Naran Pindoriya**, Electrical Engineering
- The Dual Origins of Gravity - Vajra, sponsored by Science & Engineering Research Board - Principal Investigator: **Prof Sudipta Sarkar**, Physics
- Development of nanoporous geopolymeric catalysts for industrially relevant liquid-phase reactions, Design of Antinephrolithiac Peptide-nanoparticles, sponsored by Science & Engineering Research Board - Principal Investigator: **Prof Abhijit Misra**, Materials Science and Engineering
- Enhancing Sensitivity of Disease Diagnosis using Enzyme Chemotaxis, sponsored by Shastri Grant -

- Principal Investigator: **Prof Krishna Kanti Dey**, Physics
- Development of new water supply strategies in two major cities of India and Sri Lanka in the context of climate change, rapid urbanization and population growth: a vulnerability assessment approach, sponsored by Asia-Pacific Network for Global Change Research - Principal Investigator: **Prof Manish Kumar**, Earth Sciences
- Development of new water supply strategies for Brahmaputra watersheds of India under climate change regime, sponsored by Department of Science and Technology - Principal Investigator: **Prof Manish Kumar**, Earth Sciences
- Development of safe and green technology for removal of paint from the surface of the ships for environment-friendly ship recycling, sponsored by Global Marketing Systems - Principal Investigator: **Prof Chinmay Ghoroi**, Chemical Engineering
- High yield exfoliation of layered metal diborides to synthesize boron analogs of graphene for developing a new class of energy storage nanocomposites, sponsored by Science & Engineering Research Board - Principal Investigator: **Prof Kabeer Jasuja**, Chemical Engineering

- Intelligent Power Management System for Monitoring, Diagnosis & Prognostics of Electric Loads in Armoured Fighting Vehicles, sponsored by Defence Research & Development Organisation - Principal Investigator: **Prof Babji Srinivasan**, Electrical Engineering
- Tectonic and climatic control on variability of sediment routing in the NW Himalaya since late Quaternary, sponsored by Science & Engineering Research Board - Principal Investigator: **Prof Vikrant Jain**, Earth Sciences

CONSULTANCY PROJECTS

- Seismic studies on Anjar – Mundra Pipeline Project for M/s GIGL, for L&T Gulf Private Ltd., Principal Investigator: **Prof Sudhir K Jain**, Civil Engineering
- Bridging the Innovation Gap School Program for IMC India Pvt. Ltd. (a subsidiary of Intel Corporation), Principal Investigator: **Prof Joycee Mekie**, Electrical Engineering
- Metallurgical Investigation of Cylinder Liner for Indian Railways Diesel Loco Shed, Sabarmati, Ahmedabad, Principal Investigator: **Prof Superb Kumar Misra**, Material Science Engineering

NEW FACULTY

The following faculty members joined the institute during this quarter:

Name	Designation	Discipline	Date of joining
Prof Michel Danino	Visiting Professor	Humanities & Social Sciences	09.05.18

Activities at IITGN



SUMMER RESEARCH INTERNSHIP PROGRAM (SRIP)

The SRIP program offers opportunity to engineering students from across the country as well as from foreign universities to carry out research under the mentorship of IITGN faculty. This year, the flagship Summer Research Internship Program began on May 1. A total of 129 students from across the country, including 41 students from

the IITGN participated in the eight weeks programme. More than 46 faculty members of the institute guided the participating students in about 65 research projects.



JEE OPEN HOUSE

Like every year, IITGN organized JEE (Joint Entrance Examination) Open House for JEE Advanced qualified students on June 17. The program was conducted to provide guidance

to the students and their parents to help them choose among different engineering branches in IITs. Students got a deeper insight about various opportunities and possibilities at IITGN. There were sessions by the Deans of IITGN and interaction with faculty and students. A campus tour was also organized during the event for the participants.

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAM

The third phase of Technical Education Quality Improvement Programme (TEQIP) was held at IIT Gandhinagar in two batches between May 28 to June 01 and June 18 to June 22. Each batch had 160 participants including senior faculty members from several engineering colleges. The programme covered vital topics to enhance teaching and



learning environment in colleges such as Active Learning, Autonomy, Governance & Management, and Research & Development.



GUJARAT MARITIME BOARD INDUCTION TRAINING

The institute conducted a training program during May 7-25 for the newly recruited engineers of Gujarat Maritime Board. The program covered variety of subjects from engineering, communication, leadership development to creativity and so on. A total of 68 participants attended this 3 week residential training program.

VIGYAN JYOTI PILOT PROGRAMS

IITGN hosted two Vigyan Jyoti pilot programs for children and girls to encourage and motivate them to develop their interest in Science, Technology, Engineering, and Math (STEM) subjects and increase participation of women in STEM fields by making focused interventions during early years of education. In one workshop, the Center for Creative Learning (CCL) conducted a week-long workshop during June 18-22 where for 27 children of class 6 to 8 from Alirajpur district of Madhya Pradesh learned to make motor generators, levitating pens, JCB machine and so on. In the process, they also discovered the science and mathematics principles behind these toys.

Another Vigyan Jyoti STEM camp for selected class 11 science girls was hosted from June 18 to July 02, 2018. 32 young meritorious girls



GLOBAL INITIATIVE OF ACADEMIC NETWORKS (GIAN) COURSE

The Advanced Materials Processing Research Group at IITGN hosted a thought-provoking workshop on the subject “Aerospace Materials: Microstructure, Fracture, and Fatigue” as a Global Initiative of Academic Networks (GIAN) course from June 11 to 22. The course was taught by **Dr Kumar V Jata**, CEO, Jata Materials Solutions, USA. It focused on various microstructures that can be produced in structural metals and how one can manipulate the microstructure to produce desirable properties. Researchers from the Air Force, Industry, Defense Research Labs, and academic Institutes from across the country participated in the course.

IN-SERVICE WORKSHOPS FOR KVS TEACHERS

The Centre for Creative Learning (CCL) at IITGN organized the first spell of bi-annual in-service workshops with Kendriya Vidyalaya Sangathan (KVS) teachers from across the country for the subjects of Math, Science, and Computer Science. Two workshops of 12 days each were held between May 29 to June 19 with emphasis on the importance of hands-on and experiential learning. About 100 Trained Graduate Teachers (TGTs) of classes 8th to 10th and about 55 Post Graduate Teachers (PGTs) of classes 11th and 12th attended the workshops.

NYASA SUMMER CAMP

Nyasa, a social initiative by the IITGN community for welfare of the construction workers and their families around the campus, organized its fourth edition of Annual Summer Camp for the underprivileged kids. The camp aimed to impart fundamental yet essential knowledge of various fields ranging from basic awareness to the English language. IITGN students successfully conducted six sessions on Math puzzles, Dance, English, Craft, Cricket, and Football.

WORLD ENVIRONMENT DAY

IITGN community celebrated the World Environment Day on June 5 with much fervour. The Green Office of IITGN in association with Hara Pitara - Social 1.0, organized some hands-on workshops and a green market of handpicked eco-friendly products. The drawing competition brought out unique creativity of kids who gave some beautiful messages to lead a sustainable lifestyle.



INTERNATIONAL DAY OF YOGA

IITGN marked the International Day of Yoga on June 21 with demonstration and practice of various yoga asanas, followed by a lecture cum demonstration session on ‘Yoga: personal experiences and perspectives’. The event created awareness about importance and benefits of Yoga in day to day life for complete well-being of mind and body.



from various government and government-aided schools of Gujarat and Madhya Pradesh explored the Science behind many things with the hands-on sessions. The two weeks residential camp received very encouraging response from the participating girls.



NEEV SUMMER SKILL COURSES

NEEV, IITGN organised 8 weeks Summer Skill Courses from April 23 to June 14 to provide entrepreneurship and skills training to youth and women from neighbourhood communities. More than 100 trainees participated and were awarded certificates in various courses like vocational skills, computer skills, spoken English skills, and stitching skills.

SHORT COURSES

- Logic by **Prof Sadanand Dinkar Agashe**, Emeritus Professor till 2015 at IIT Bombay, during April 02-06.
- Accounting, Finance and Business Valuation for Engineers by **Rajiv Bhatt**, Associate Partner at Ernst & Young LLP and CA, during March 31 - April 01.
- Hamiltonian Formulation of General Relativity by **Dr Avirup Ghosh**, Postdoctoral fellow, IITGN, during April 02 - 07.

LECTURES

- Songs of script: performance, affect, and the spread of Santali language literacy in eastern India by **Mr Nishant Choksi**, PhD, Michigan-Ann Arbor, on April 4 -5.
- Understanding the African Story: Past, Present and Future by **Mr Shigoli Shitero** on March 19.
- Taxation and Fiscal Federalism in India by **Shri Sanjay Prasad** (IRS) on April 16.
- SDC lecture on Programming Self by **Mr R K Chopra**, a certified management trainer AIMA and a certified NLP practitioner, on May 3.
- Mumbai-Ahmedabad High Speed Rail Project: Technology Leap Forward - Innovations & Growth by **Shri Achal Khare**, Managing Director, National High Speed Rail Corporation Limited on May 12.

- Tools, Time and Transitions: New Perspectives on Early Prehistoric Populations in South Asia by **Dr Shanti Pappu**, Professor, Sharma Centre for Heritage Education, Chennai, Tamil Nadu on May 23.
- Low-Reynolds Number Multi-Rotor Aerodynamics & Building Startups: A Customer Discovery Based Approach by **Mr Dhwanil Shukla**, Research Fellow, Georgia Tech on May 29.
- Strategies on Sustainable Urban Water Use Adapted to Climate Change by **Prof Hiroaki Furumai**, University of Tokyo, Japan on June 6.
- Post-Modernist Challenge and the Indian Context by **Prof Braj Sinha**, University of Saskatchewan on June 19.
- Project Based Learning by **Prof Dheeraj Sanghi**, IIT Kanpur, on June 22, 2018.
- Extremal Rays of Betti Cones by **Dr Rajiv Garg**, IIT Dharwad, on April 3, 2018.
- Phenomenology of relativistic heavy ion collisions by **Dr Sandeep Chatterjee**, Postdoctoral fellow, AGH-UST, Krakow, Poland on April 5.
- Neural control of sequential movements by **Prof Aditya Murthy**, IISc Bangalore, April 6.
- Himalayas – India's Northern Frontier, Chinese Claims on Indian Territory, Significance of Siachen by **General Prakash Katoch**, Indian Army on April 6.
- Through the looking glass: A roadmap to a parity symmetric Universe by **Prof Urjit A Yajnik**, IIT

- Bombay, on April 25.
- Role of Crystallographic Texture in Development of Aluminum Alloys for Automobile and Defence Applications by **Dr Chandan Mondal**, Defence Metallurgical Research Laboratory, as on April 26.
- An introduction to CEH's Water Resources Research and the India-UK Water Centre by **Dr Harry Dixon**, Centre for Ecology and Hydrology, NERC, UK, dated on April 27.
- From drought research to decision-making: experiences from the UK (and beyond) by **Mr Jamie Hannaford**, Centre for Ecology and Hydrology, NERC, UK, on April 27.
- Pathophysiology, Treatment and Rehabilitation by **Prof Soumya Sundaram** on May 1, 2018.
- Strategies of sustainable urban water use adapted to climate change by **Prof Hiroaki Furumai**, University of Tokyo on June 6, 2018.
- Nano-Engineered Mesenchymal Stem Cells for True Active Tumor Targeting by **Prof Swayam Prabha**, University of Minnesota, on June 13.
- Therapeutic Modification of Tumor Microenvironment to Boost Nano Drug Delivery by **Prof Jayanth Panyam**, University of Minnesota, June 13.

Student and Staff Activities

AWARDS AND RECOGNITIONS

Ms Ayatri Singha, a student of MSc Physics at IITGN, has been awarded the prestigious Ronald Drever Scholarship. She will pursue doctoral studies in gravitational waves at the University of Glasgow.

UDAAN FAREWELL

Udaan was organized on April 15 for the farewell of 7th BTech, 6th MTech, 4th MSc, 3rd MA and 5th batch of PhD students of IIT Gandhinagar. The nostalgic evening had several cultural performances by the students and faculty. A few faculty members also shared their vision and experiences with



graduating students. This was followed by a formal dinner.

STUDENT'S SUMMER TECHNICAL PROJECTS

The first edition of Students' Summer Technical Projects (SSTP) was held on May 14 by the Technical Council IITGN, which



was conducted exclusively for 1st year BTech students. The institute provided support to three teams to work on their prototypes. The SSTP Programme is an initiative to encourage first year BTech students to get hands-on experience by working on their projects. The selected teams worked on their projects from May 14 to July 3.

Sports News

LEAGUE OF FOOTBALL PLAYERS

The 9th edition of intra-college football league kick-started on January 9 to April 16. It attracted scores of enthusiastic, skillful and football crazy players in a full-fledged bidding process that builds the teams for each season. There was participation from the faculty and staff as well.

SRIJA MEMORIAL LEAGUE

This was the 1st edition of the Intra college volleyball league called **Shrija Memorial League** as a commemoration to our senior volleyball player Late **Ms Srija Vaddineni**. After an enthusiastic response from the

IITGN community, eight teams were formed through the auction process. The event was organized from February 9 to April 26.

DISHA CUP

IIT Gandhinagar organized the 4th edition of Disha Cup sports tournament during June 22 - 24 with great enthusiasm and team spirit. The institute organizes this event every year in order to motivate the ground staff and to make them feel as a part of the institution.

SUMMER FITNESS CAMP

This year the Summer Fitness Camp was organized during May 21 to June 14. The scope of this summer camp was to bring

in the motivation of doing exercises daily among the IIT Gandhinagar community and convert that into their habit.

SUMMER SPORTS CAMP

The summer sports camp was organized for the second time from June 1-15 to continue the sports activity at IITGN in summers. This was a good opportunity for the players who are staying on the campus to continue their practice. The camp included Basketball, Cricket, Football, Gym, Volleyball and Yoga and was open to all IITGN community and SRIP students.