campus diary

iit **bombay**
हीरक जयंती २०१८
Diamond Jubilee 2018
एक साथ प्रगति की ओर
Achieving Excellence Together

QS Ranks IIT Bombay 1st in India, 162nd in world

"The faculty and students are striving to excel in education and research. The increase in rank is a reflection of continuous improvement in all spheres of our activity"

- Prof. Devang Khakhar, Director, IIT Bombay

IIT Bombay has moved significantly up from 179th rank last year to 162nd rank this year in the Quacquarelli Symonds (QS) World University Rankings. Overall, the Institution improved on its 2018 performance by 17 places.

The results were released on June 6, 2018 by QS, a British company. IIT Bombay ranks 1st in India, with an overall score of 48.2 out of 100. The Institute has a score of 52.5 in academic reputation, 72.9 in employer reputation, 54.1 in citation per faculty, 43.3 in faculty student ratio, 4.4 in international faculty and 1.8 in international students, all scores out of a maximum of 100 points. Among these six parameters, Employer Reputation is the strongest one for IIT Bombay with a rank of 93 globally.

Since 2014, in the World University Rankings by QS, IIT Bombay has moved up 71 places.

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IIT Bombay Racing Team Unveils "EVoX" Electric Race Car

The Students Racing Team of Indian Institute of Technology Bombay (IIT Bombay) are gearing up for Formula Student 2018 competition, world's largest student motorsport competition, to be held at Silverstone Circuit, UK in July 2018. The electric race car "EVoX" was officially unveiled on May 26, 2018 by Prof. Devang Khakhar, Director, IIT Bombay. The unveiling was followed by roll out of the car on a predefined road in the campus.

Congratulating the student team in their endeavor, Prof. Khakhar said *"IIT Bombay Racing experience provides an excellent platform for students to put the concepts in action learnt in classroom. It gives valuable hands-on experience which helps them to become better engineers and succeed in their chosen careers"* .

Director Prof. Devang Khakhar unveiling the EVoX Electric Race Car

The single seater electric race car named '**EVoX**' is the **6th generation electric race car, powered with a pair of 40KQ Motors, featuring self developed Battery Management System, Titanium Uprithts, Aerodynamic Wings and Powertrain designed to take you from 0 – 100 kmph in just 2.88 seconds**, informed by the student members of the IIT Bombay Racing Team.

The Electric Race Car "EvoX"

The students aspire to develop electric sports car technology in India like that of Tesla in USA, and work for the government's target to make india an e-vehicle nation by 2030, through revolutionising electric mobility technology in India, said Jasdeep Singh, a student member of the team during the launch.

The competition – run by the Institution of Mechanical Engineers - is the world's largest student motorsport event and challenges student engineers to design, build and race a single seat racing car in one year. The Formula Student is Europe's biggest educational motorsport event. It challenges engineers to design, build and compete as a team with their own single racing car. The competition challenges students to design, build and race a one man, open-wheeled race car assuming that they have been engaged by a manufacturing firm to produce a prototype car for evaluation as a potential production item.

About IIT Bombay Racing

- IIT Bombay Racing team consists of 60+ enthusiastic students which Engineer a Formula E race car that is one of its kind in the country.

- The team has been awarded the Formula Student Award by IMechE for the past four years, and also won the Formula Bharat's "Electric Vehicle Concept Challenge" this year.

- It has a 3-tier structure present in the team to ensure good project management, knowledge transfer and an amazing design to make Our cars a resounding success.

- Alumnus of IIT Bombay Racing are working in companies like Google and Tesla, and have also founded startups like "Ather Energy"

Times Higher Education (THE) Emerging Economies University Ranking 2018

IIT Bombay ranked 26th in the prestigious Times Higher Education (THE) Emerging Economies University Ranking 2018.

IIT Bombay is one of the top 378 institutions in the 42 countries included in the analysis.

IIT Bombay Wins Clarivate Analytics India Innovation Award 2018

IIT Bombay has won the Clarivate Analytics India Innovation Award 2018 in the Academic Institutions category. The award places IIT Bombay in the top 12 innovators in India.

Prof. A.K. Suresh, Deputy Director (Academic and Infrastructural Affairs) received the award on behalf of IIT Bombay at a ceremony held on May 16, 2018 in Bengaluru.

The citation of the award reads *"IIT Bombay emerges as the top Innovator in the Academic Institution category with the highest number of unique patent families published during 2015-17. In addition they have a healthy performance in the category on the grant success and globalization parameters"*

The awards were given in 3 broad categories of namely Government Research Organizations, Academic Institutions, and Corporations.

Prof. A.K. Suresh, Dy. Director (AIA) receiving the Clarivate Analytics India Innovation Award 2018

Central Library Prepares Comprehensive List of Hindi Books

The Central Library of IIT Bombay has prepared a comprehensive list of new Hindi books purchased in the library during the year 2017-18. These books are related to science & technology, novels, travelogue, linguistics, official letter writing etc. The list can be accessed by scanning this QR code.

E-cell Organizes SEEtalks

E-cell, IIT Bombay hosted a platform that brings to the forefront hidden and unheard stories of entrepreneurs and inspirations within India with SEEtalks on June 16, 2018. These are the stories that captures human imagination, determination & yearning to see the larger picture and continuously move towards one's dream.

"Etti si khushi" how often we discuss the moments that provided us the immense pleasure of joy, moreover our act provided others the joy. SEEtalks is an endeavor to share inspirational stories from different walk of society that have changed the way we perceive our present and our future. These stories contains positivity and will inspire next generation to take steps which not only helps them but helps the larger society. Moreover it is an endeavor to handhold people in their journey to explore if entrepreneurship is for them or not.

Renowned actor Mr. Ashish Vidyarthi addressing the audience

During the event, inspirational speakers like Mr. Ashish Vidyarthi, Mr. Sarbjeet Singh, Mr. Harshvardhan Zala, Mr. Raja Mahendra Pratap, Ms. Renuka Aradhya, Mr. Anand Kumar, Capt. Anmol Yadav, Mr. Ritu Jaiswal, Arun Kumar, and Ms. Tejaswini Sawant shared their stories with the audience.

IIT Bombay Celebrates International Day of Yoga
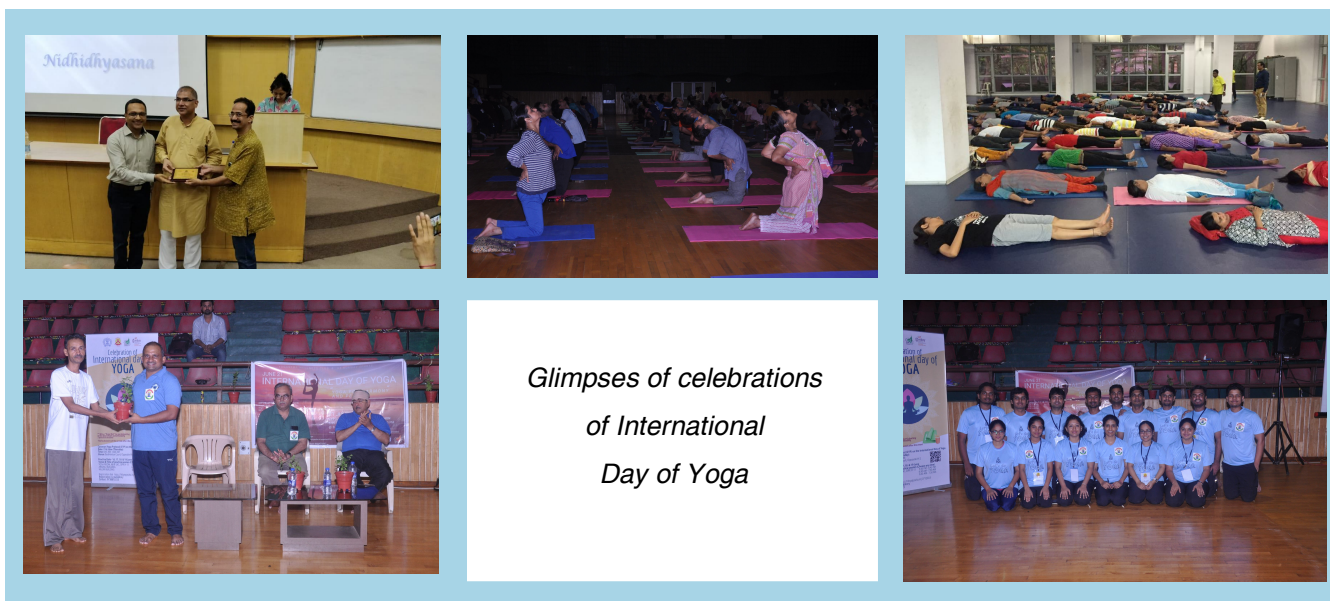
Glimpses of celebrations of International Day of Yoga

Yoga is a 5,000-year-old physical, mental and spiritual practice that originated in India. It transforms both body and mind. On December 11 in 2014, the United Nations General Assembly declared June 21st as the International Day of Yoga.

Various workshops, lecture and symposiums were organized by the Wellness Club of IIT Bombay – Yogastha. Following series of events with regard to the celebration of International Day of Yoga (IDY) on June 21, 2018 were organised on IIT Bombay campus:

A workshop on 'Pain Management' was organized on June 4, 2018 for practicing Yoga asanas to relieve the pain from different body parts.

For clearing the concept about the science of performance nutrition a lecture by Ms. Nitika Gambhir, a practicing Yoga Therapist and Diet & Fitness Consultant, was organized on June 12, 2018.

A documentary film related to Yoga and wellness titled 'Yoga- A tradition in the eyes of modernity' was screened in PC Saxena auditorium of the Institute on June 14, 2018.

Camps for practicing Common Yoga Protocol were organized during June 16 -19, 2018 at different locations on the campus of IIT Bombay.

A symposium on *'Research on Yoga Based Practices'* on the different topics namely *'Relevance of Ancient Science of Yoga to Modern Obstetrics',* 'Yogic Thoughts on Research in Pranayama', 'Positive Impact of Sudarshan Kriya-

An Overview of Scientific Studies', 'Matter, Mind and Beyond- The Yoga Perspective' and 'Yoga: An Evolution Conserved Strategy for Wellness' was held on June 18, 2018. It featured lead yoga practitioners and researchers.

Shri Subodh Tiwari, CEO, Kaivalyadam Yoga Institute, delivered a lecture on 'Yoga – A classical approach in modern times' on June 20, 2018. He spoke about importance of Yoga in spiritual growth at physical wellbeing with modern perspective.

IIT Bombay celebrated the fourth International Yoga Day on June 21, 2018. The event witnessed enthusiastic participation from all the members of the IIT Bombay community including students, faculty, staff and their family members.

Two yoga sessions were conducted on June 21, 2018 at the indoor Badminton Hall located in the gymkhana building at IIT Bombay. During the morning session, a Common Yoga Protocol was conducted. The participants were taught various asanas and pranayam. The instructor explained the benefits of these for one's physical and mental health and well-being. The trainer encouraged the participants to practice yoga every day. **Dr. Hasit Joshipura**, Head of Corporate Centre at Larsen & Toubro, was the Chief Guest of the event. Prof. Soumyo Mukherji, Dean (Student Affairs) and Prof. Atul Shrivastav, Chairman, Gymkhana also graced the event.

In the evening session, Yogathon was organized at the same venue. Registered participants performed 108 set of Surya Namaskars. The participants practiced all the exercises with full determination and zeal.

IIT Bombay Partners With Ripple To Accelerate Innovation In Blockchain and Cryptocurrency

Indian Institute of Technology Bombay (IIT Bombay) signed a MoU on June 4, 2018 with Ripple, to create a Centre of Excellence to support academic research, technical development and innovation in blockchain, cryptocurrency and digital payments. The MoU was signed by Prof. Devang V. Khakhar, Director, IIT Bombay and Mr. Navin Gupta, Managing Director, Ripple.

Speaking about the relevance of the association, Prof. Khakhar, said, *"This is a partnership between a financial technology company and an academic institution, to promote greater understanding and utilization of blockchain, cryptocurrency, cryptography and related topics of mutual interest, and to foster a widespread adoption and innovation in these fields globally. The partnership will enable our faculty and students with novel opportunities for research and technology development in blockchain and cryptocurrency which will add value to the global blockchain ecosystem as well as emerging fields like FinTech. We look forward to the fruits of the collaboration in terms of the advancement of high quality research and development"*.

The Institute will receive a financial donation from Ripple for academic research and technical projects in the areas of Blockchain and distributed networks, Cryptocurrency and digital payments, and Cryptography.

In addition to financial resources, Ripple has also committed to provide strategic guidance and technical resources to IIT Bombay as needed.

Ripple is partnering with 17 prestigious institutions across the globe including IIT Bombay to support FinTech workforce. Speaking about this collaboration Eric van Miltenburg, SVP of Global Operations at

Ripple said, "Academia has traditionally been a critical driver of technical innovation. 'University Blockchain Research Initiative' is an acknowledgment of the vital importance of the unique role universities will play in advancing our understanding and application of cryptography and blockchain technology. It also speaks to the reality that university graduates will fuel a continually evolving and maturing financial marketplace and workforce. Much of the enthusiasm and activity to date around blockchain is disconnected from real use cases that result in clear customer benefits. While Ripple won't dictate research parameters, we are excited to play a role in helping to support projects that explore increasingly useful applications of blockchain and cryptocurrencies."

Demand for learning, research and project based experience is at an all-time high among university faculty and students, and the partnership between IIT Bombay and Ripple will go a long way to fulfilling that demand.

About Ripple:

Ripple provides one frictionless experience to send money globally using the power of blockchain. By joining Ripple's growing, global network, financial institutions can process their customers' payments anywhere in the world instantly, reliably and cost-effectively. Banks and payment providers can use the digital asset XRP to further reduce their costs and access new markets. With offices in San Francisco, New York, London, Luxembourg, Mumbai, Singapore and Sydney, Ripple has more than 100 customers around the world.

'Net-Positive Energy House - Project Solarise' Built In IIT Bombay Campus

Prof. Devang Khakhar, Director of IIT Bombay, inaugurated the net-positive energy house named 'Project Solarise' built by Team SHUNYA (Sustainable Habitat for an Urbanising Nation by Young Aspirants) in IIT Bombay campus on May 18, 2018. Sponsors and supporters also attended the function.

Congratulating the student team in their endeavour, Prof. Devang Khakhar said, *"Given rapid urbanization and increasing energy needs of the country, it's a great contribution towards the society. Building energy-efficient houses is the need of the hour. Many new things have been incorporated in the house. It will*

Prof. Devang Khakhar, Director of IIT Bombay, inaugurating the net-positive energy house named 'Project Solarise' built by Team SHUNYA

inspire construction of similar houses in large scale. Each team of these 70 students has gone into great detail of engineering from calculation to design for making this project successful".

The team from IIT Bombay has successfully built a G+1 storeyed 1800 square feet house, fully-functional, well-furnished house with three rooms, a kitchen, sufficient lighting and air conditioning. The house runs on solar energy using rooftop solar panels. The house is capable of generating and feeding excess energy to the grid.

As Team SHUNYA represents India in International Solar Decathlon to be held during July-August 2018 in China, it will be yet another feather of success in the technological advancement of the country in solar housing with its rich scientific minds.

Prof. Devang Khakhar, Director of IIT Bombay, Prof. A. K. Suresh, Dy. Director (AIA) along with Team SHUNYA

This is going to be a proud moment for India as 60+ passionate young engineering students from IIT Bombay, guided by more than nine professors, will fight with the best technocrats of the world.

Apart from the construction of the house, the team has also been engaging in awareness activities to promote sustainable construction in India through its website, social media platforms and by participating in lectures, workshops and various conferences. If the dreams of Team SHUNYA gain wings in implementation and replication, it would surely transform the Indian building industry by demonstrating efficiency of sustainable housing.

Celebration of World Environment Day- 'Beat Plastic Pollution'

IIT Bombay had organised a Photography Competition on theme 'Beat Plastic Pollution' on the occasion of the celebration of World Environment Day on June 5, 2018 for its Faculty, Students, Staff and their dependents.

Prof. Devang Khakhar, Director, IIT Bombay felicitated the winners and participants of this competition in a prize distribution ceremony organized at Jalvihar Guest House of IIT Bombay on June 21, 2018. The winners were felicitated with memento and certificates while the participants were honored with Certificate of Participation. Prof. A. K. Suresh, Deputy Director, (Academic and Infrastructure Affairs), Prof. Soumyo Mukherji, Dean (Student Affairs) were present on the occasion among others.

Winners of the photography competition along with the dignitaries

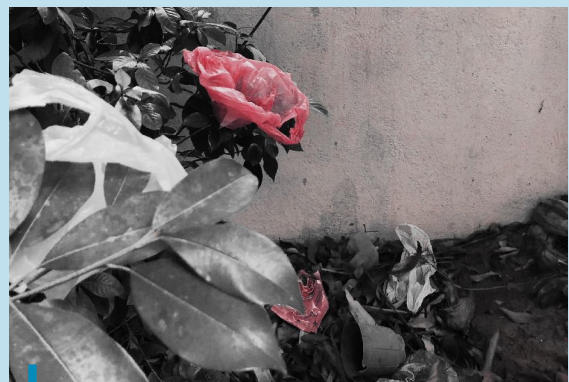## Photographs of the Winning Entries

First prize - Mr. Chintamani Joglekar, Jt. Deputy Registrar, Hostel Coordinating Unit

Second prize - Mr. Siddharth Aredath, Student, IDC School of Design

Third prize - Mr. Vipin Shukla, Student, Department of Electrical Engineering

Consolation Prize - Ms. Vibha Srinidhi, Student, Department of Met. Engg. and Mat. Science

A total of 53 entries were received during the competition. The first prize was bagged by Mr. Chintamani Joglekar, Jt. Deputy Registrar, Hostel Coordinating Unit; second prize by Mr. Siddharth Aredath, Student, IDC School of Design; third prize by Mr. Vipin Shukla, Student, Department of Electrical Engineering and the consolation Prize by Ms. Vibha Srinidhi, Student, Department of Met. Engg. and Mat. Science, IIT Bombay.

The Institute has displayed posters on its campus to create awareness on Plastic Pollution and encourage discontinuity of single-utility plastics like water bottle, take-away coffee cups etc., among the campus residents.

Abhyuday, the social body of IIT Bombay also organized a campaign on the occasion of World Environment Day to support Plastic Ban by Maharashtra Government. The Abhyuday team visited 7 NGOs and conducted various activities with a vision of effectively and efficiently using plastic waste already present in the surroundings. Abyuday conducted a workshop with the NGOs in which they were taught to design paper bags which is a good replacement of Polyethene bags and NGOs were also informed about the helpful and harmful activities related to environmental problems.

The visits were conducted during June 2-5, 2018 at different locations of Mumbai. More than 40 volunteers joined hands with 20 Abhyuday team members to support the campaign. During the campaign more than 350 paper bags were designed with the help of 200+ children from different NGOs and distributed these bags among 15 vendors. These volunteers were honored with Certificates of Appreciation from Abhyuday, IIT Bombay.

Abhyuday volunteers with participants from different NGOs in a workshop for designing paper bags

R&D Expo at 4th Global Exhibition on Services

IIT Bombay participated in the Research & Development (R&D) Exhibition, '4th Global Exhibition on Services (GES)' organised by the Department of Commerce, Ministry of Commerce & Industry, Government of India, in association with the Government of Maharashtra, Services Export Promotion Council (SEPC) and the Confederation of Indian Industry (CII). GES was held at the Bombay Exhibition Centre, Goregaon (East), Mumbai during May 15-18, 2018.

GES is India's flagship global services conclave that brings together Indian and International players in the services sector with the objective of enhancing trade

Stalls exhibiting R&D activities of IIT Bombay

and strategic cooperation in services. The 4th edition of GES showcased 22 sectors such as IT, Telecom, Banking and Financial Services, Education, Environment Healthcare, Yoga & Wellness, Skilling, Logistics and Tourism & Hospitality. IIT Bombay was part of the focused pavilion on educational services.

The event was inaugurated by the Hon'ble President of India, Shri. Ram Nath Kovind on May 15 , 2018 in the presence of Shri. Ch. Vidyasagar Rao, the Hon'ble Governor of Maharashtra, Shri. Suresh Prabhu, the Hon'ble Union Minister of Commerce & Industry, Shri. Devendra Fadnavis, Hon'ble Chief Minister of Maharashtra and other dignitaries. Over 600 exhibitors across the world and about 500 foreign participants from 100 countries participated in the event. About 50,000 visitors from trade organisations, industry, government and general public, from both India and abroad, visited the Exhibition.

IIT Bombay exhibited posters signifying a glimpse of the R&D activities at IIT Bombay, Academic Programmes, Industry Interactions and Technology Transfers. Posters and videos on technology developed in the Institute were showcased. 'R&D Highlights', 'Partner with Us', 'Academic Programs', 'Glimpses of Research' and 'Research Facilities' were distributed to visitors for information dissemination. IIT Bombay stall attracted an overwhelming response and posters/brochures were very well received. IRCC interacted with visitors on all four days giving information about the exhibits, potential applications and other queries. IIT Bombay's exhibition was coordinated by Dr. V. Arumugam, IRCC and his team.

R&D Expo at 'India Intellectual Property Convention'

Mr. Suresh Prabhu, Hon'ble Union Minister of Commerce and Industry addressing the gathering

IIT Bombay participated in the Research & Development (R&D) Exhibition organized by the Confederation of Indian Industry and the Department of Industrial Policy an Promotion, Ministry of Commerce and Industry, Government of India in conjugation with the 'India Intellectual Property convention' on April 26, 2018 at Hotel Le-Meridien, New Delhi. The convention was organized on the occasion of World Intellectual Property Day, aimed to showcase India's Intellectual Property (IP) prowess to the global community.

The convention had focused sessions on case study presentations of IP creators and owners, IP administrators, IP legal service providers, IP enforcers and IP educators. There was also a session on IP Challenges and opportunities, for women in India. The Convention was attended by professionals concerned with IP-Academics, Legal and enforcement officials.

The event was inaugurated by Hon'ble Justice Arjan Kumar Sikri, Judge, Supreme Court of India and the concluding address was delivered by Mr. Suresh Prabhu, Hon'ble Minister of Commerce and Industry, Government of India. A galaxy of speakers from varied areas such as Justice, Government services, Academics, Legal and Private Industry gave talks and shared their views on IP.

IIT Bombay exhibited posters (digital) and videos giving a glimpse of the R&D activists at IIT Bombay and Ips developed in the Institute. 'R&D Highlights', 'Partner with Us', Glimpses of Research' were distributed to visitors for information dissemination. IIT Bombay attracted a good number of participants. IRCC staff interacted with visitors giving information about the available Ips for licensing, its potential applications, existing process of technology transfer and answering other related queries, IIT Bombay exhibition was organized by Dr. V. Arumugam and Ms. Rusheeda Rajamohanan, IRCC.

Swimathon 2018 Witnesses Massive Participation

IIT Bombay Sports council organised Swimathon 2018 during May 5-6, 2018. The event witnessed a overwhelming participation from both the students and campus community. A total of 68 people took part in the Swimathon and completed the challenge of 12km/ 12 hours of swimming. Out of the total 68 participants, 38 completed the challenge and 26 of these 38 swam for the entire 12 hours in the pool.

Old records made way for some new ones. Ms. Kavya Susir, the girls' champion, showed an outstanding performance by beating the previous all-time girl's record by 900 m and completed the event by covering 22.2 km. Mr. Kushal Dhinoja covered a remarkable distance of 28.2 km and was declared the Overall Champion

The constant motivation and encouragement by the audience and the perseverance of the participants made the event a big success.

Glimpses of Swimathon 2018

National Cube Championship 2018

Glimpses of National Cube Championship 2018

IIT Bombay Sports council and World Cube Association (WCA) jointly organized National Cube Championship 2018 at IIT Bombay during May 25-27, 2018. Three delegates from the World Cube Association were present during the event. The championship attracted speedcubers from all over the country who demonstrated magnificent talent and maneuvers in all the categories.

Mr. Anish Ranjan bagged three national records to his credit by putting up marvelous display of cubing skills in 5x5x5, 6x6x6 and 7x7x7 cube category. Mr. Nikhil Soares made a new national record in the Megaminx category by finishing in 40.92 seconds and Mr. Shivam Bansal soving a staggering 44/48 3x3x3 cubes blindfolded, breaking the previous international record of 43/48. IIT Bombay Sports and WCA volunteers, made the event a huge success.

Design And Degree Show 2018

IDC School of Design, the design department within IIT Bombay celebrated its annual exhibition 'Design & Degree Show 2018, fondly referred to as DDS, during June 23-24, 2018. The event featured graduate projects of the outgoing batch of Masters students at the department from five disciplines, namely Industrial Design, Communication Design, Mobility and Vehicle Design, Interaction Design and Animation & Film Design. Simultaneously, there were talks by invited guests in the field of design education and practice, speaking on a wide range of subjects.

The event was inaugurated by Prof. Vikas Satwalekar, ex-Director of NID, Ahmedabad and renowned design academic, in presence of Prof. Devang Khakkar, Director, IIT Bombay and Prof. GV Sreekumar, Head, IDC School of Design, on June 23, 2018. In his inaugural speech Prof. Khakhar lauded the value IDC plays in fostering

Prof Devang V. Khakhar, Director, IIT Bombay, Institute functionaries, and Invited guests interacting with students

Exhibition of the Projects by graduating students at Design & Degree Show 2018

design thinking among engineering populace and the IIT ecosystem, and appreciated the work done by the department as a whole. The distinguished guests visited the student panels, looked at the designed products, and interacted with the students to know more of their work and processes. Following that, the conference took off with invited speakers delivering talks.

Prof. D. Udayakumar, Department of Design, IIT Guwahati started off as invited speaker, elucidating his work on designing the Indian rupee symbol, alongside his work on Tamil letterforms, that he undertook during his doctoral research at IDC. Mr. Sourabh Srivastava, senior scientist and manager of Design & UX group in Conduent Labs, spoke about innovation in the field of user interface and experience and how technology is playing an important part in influencing current trends in design. Ms. Priyanka Bhasin and Mr. Anoop Patnaik, alumnus of NID

and founding partners of Design Stack, showcased their significant work of rebranding State Bank of India, detailing out the entire design process. Founder festival director of Kashish Mumbai International Queer Film Festival and IDC alumnus Mr. Sridhar Rangayan spoke about his time at IDC as student and his current work in flimmaking and activism revolving around gay rights and issues. Industrial designer and Red Dot Design awardee Ms. Devina Kothari talked about her work in design interventions in agricultural domain, healthcare and routine immunization programs through digital technology. Automotive styling lead at Mahindra and design strategist Mr. Anand Gawade walked us through his design journey from IDC and further, talking about projects implemented during academic time as well as in professional capacity in Bajaj Auto and Mahindra. Among the IDC faculty members, Prof. Sumant Rao from Animation discipline and Prof. Sandesh R. of Industrial Design spoke about their projects. Prof. Rao's work on preserving the heritage site of Ajanta Caves by virtual tour using new media and Prof. Sandesh's interventions in

social entrepreneurship to enable livlihood opportunities among tribals were illuminating.

The second day started off with a talk by Prof. Deepak John Matthew, head of the design discipline of IIT Hyderabad, who spoke on his work on digital preservation of historical heritage in and around Hyderabad. Virtual Reality realization of heritage sites, 360° photography of historical monuments and implications of Augmented Reality in education were key focus of his talk. Mr. Harshavardhan Kadam, alumnus of IDC and a renowned street artist and illustrator, showed his acclaimed work in depiction of mythology and wall graffiti. Among his prominent works are those commissioned by Bengaluru Metro and India's largest mural on the walls of Yerwada Jail, Pune. He took through the processes and challenges in his unique body of work. Mr. Pankaj Dhamane, working with Renault Design, with vast experience in automotive design field, spoke next. He dwelt upon the design processes and workflows in the vehicle design industry and threw light upon those undertaken for car design at Renault. Prof. Anil Gupta, associated with Honeybee

Network, National Innovation Foundation and IIM Ahmedabad and an Distinguished Visiting Professor at IIT Bombay, reminded designers of their relevance in constructing the future society, of easing out the path of 'agony to agency' for several pressing issues in society at large and the importance of grassroots creativity. Film screening of 'Maccher Jhol', National award winning animation short, directed by IDC alumnus Mr. Abhishek Verma took place with the director narrating his motivations and challenges he faced in his creative pursuit of filmmaking. Most of the alumnus-speakers spoke fondly of their association with the Institute during their times and how it affected their work and life in the longer run. An alumni meet and interaction was also arranged for, in prelude to the upcoming Golden Jubilee celebrations of the department in the year 2019.

A minute's silence was observed for Mr. Sudarshan Dheer, eminent graphic designer and academic closely associated with the department, who has recently passed away. The two-day event saw a close with handing out awards for the best projects, a vote of thanks and closing speech by HoD, IDC.

Graduating batch, faculty members and invited guests during Design & Degree Show 2018

Research in focus

Ancient Art To Advanced Nanomaterial – Onion-Like Carbons

Onion-Like Carbon

flexible supercapacitor

metal loaded OLC for sensor & electrocatalyst
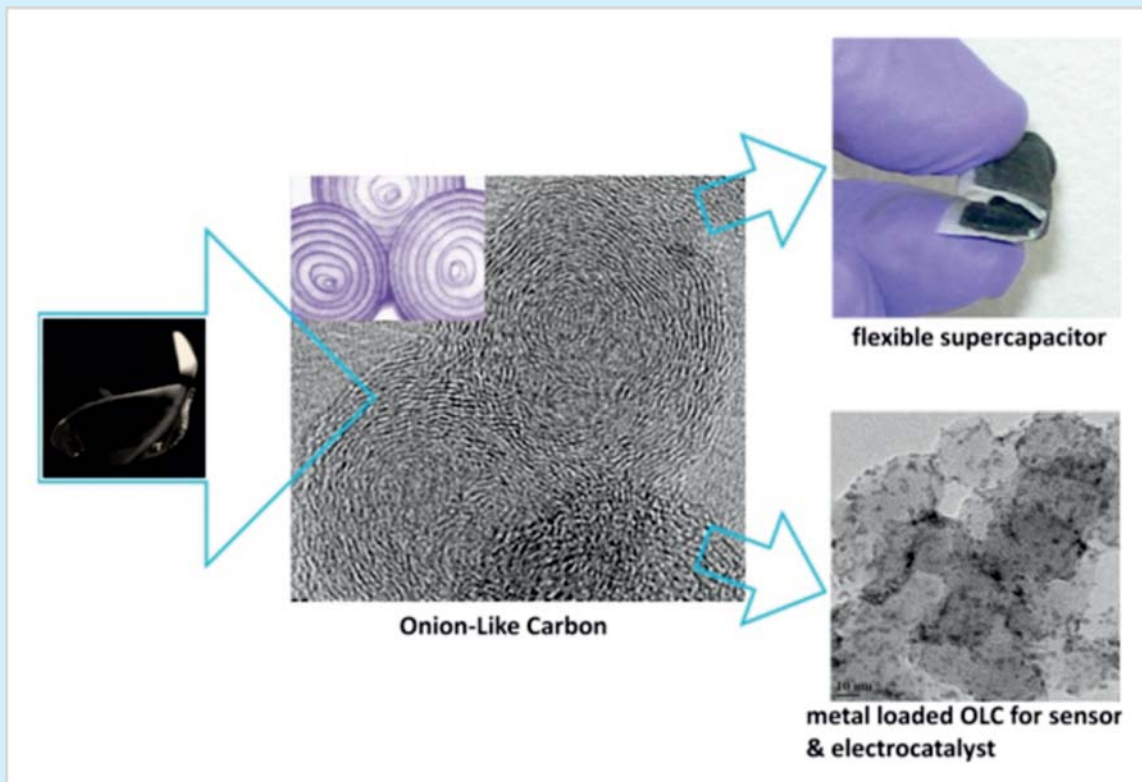
Carbon is increasingly realized as the core material for many advanced technological application. It appear in various forms in the nature such as activated carbon, carbon black, carbides derived carbon, carbon nanotubes and graphene. Each of these forms of carbon has been tested for various technological applications such as energy storage and conversion, medical applications, electronics and strong structural materials like composites. Though there are encouraging lab-scale reports on the excellent properties, the main bottleneck is how to prepare quality carbon material in an economical way with less processing steps and preserving the core properties of any form of carbon. Though graphene has shown tremendous potential in lab-scale, the main challenge is the cost of production. With these challenges, our research group has demonstrated preparation of a different form of the carbon: Onion like carbon (OLC).

OLC is a form of carbon with concentric graphene rings, mimicking the morphology of an onion. Modifying the ancient traditional procedure to prepare 'Kajal', they have derived OLC in its purest form. The procedure is scalable and can produce OLC with an average particle size of 30 nm. With large specific surface area OLC can be used for energy storage, sensors, corrosion protection and environmental remediation. We have demonstrated a flexible super capacitor using OLC, which can cost less than a dollar. Such cost reduction was possible because of the economical synthesis technique and a novel electrode design using fabric. In another demonstration of the potential of the OLC, we have also prepared a hybrid material with ultrafine (2-3 nm) palladium nanoparticle distributed on OLC. We have demonstrated the excellent sensing activity of the hybrid material. These OLC-based hybrid material exhibits superior sensing response current as compared to Vulcan© and MWCNT- based nano catalysts. Our group is actively exploring other functional applications of OLC, from smart anti-corrosion coatings, optical properties to medical applications.

Prof. Smrutiranjan Parida
Department of Metallurgical Engineering and Materials Science, paridasm@iitb.ac.in

Ubisoft® Opens Innovation Unit in IIT Bombay Research Park

Ubisoft inaugurated a signal collaboration with the Indian Institute of Technology Bombay (IIT Bombay) by unveiling the first Ubisoft Innovation Unit in India within the IIT Bombay Research Park on July 22, 2018. The collaboration is to pioneer Game Automation using Machine Learning and Artificial Intelligence through research work.

The event witnessed the presence of eminent guests including the honorable Ambassador of France to India – HE Alexandre Ziegler, the Honorable Consulate General of France in Mumbai – Mr. Yves Perrin, the Director of IIT Bombay Professor Devang Khakhar, along with the Managing Director of Ubisoft India Mr. Jean-Philippe Pieuchot.

Ambassador of France to India – HE Alexandre Ziegler inaugurating the Ubisoft Innovation Unit in IIT Bombay

(L-R) Director Prof. Devang Khakhar, Ambassador HE Alexandre Ziegler and MD of Ubisoft India Mr. Jean-Philippe Pieuchot during the inauguration function

The idea is to connect IIT Bombay talents to the most creative minds in the gaming industry. As elaborated by Professor Devang Khakhar, Director, IIT Bombay - "*We look forward to bringing together the academic expertise that IIT Bombay has to offer with Ubisoft's proven leadership in applying technology into entertaining millions of people all over the world*". He also added that IIT Bombay would soon initiate a multidisciplinary academic program in Data Sciences, Machine Learning and Artificial Intelligence that will be informed by industry needs.

"*This year marks the tenth anniversary of Ubisoft's presence in India. Our commitment to India is now strengthened by this new initiative with IIT Bombay. Our ambition in the country is to contribute towards the development of Indian Video Gaming ecosystem by partnering closely with the top colleges and Universities in India – and what better than IIT Bombay who is recognized to produce the best talents in the country. The collaboration with IIT Bombay Research Park is a demonstration of this ambition and we look forward to some great achievements together,*" says Jean-Philippe Pieuchot, MD – Ubisoft India.

France and India have recently been concentrating their efforts into creating strategic partnerships through cooperation in educational fields. We heard HE Alexandre Zielgler, Ambassador of France to India make a note of this and also go on to add that "*by choosing IIT Bombay, Ubisoft has contributed to developing an Indo-French ecosystem towards innovation and creativity and I hope that this enterprise paves the way to many other partnerships.*"

Across the Powai Lake, IIT Bombay has been pursuing enhanced industry interaction by hosting corporate R&D labs on its campus, in its upcoming Research Park. These co-located companies commit to collaborate with IIT Bombay on R&D or education and training. The Research Park is now pleased to welcome Ubisoft as its next client.

Research Scholar Symposium and ChEmference'18

Dignitaries on dais during the Research Scholars Symposium and ChEmference'18

The department of Chemical Engineering organized Research Scholar Symposium and ChEmference'18 at IIT Bombay during May 18-20, 2018. ChEmference'18 is a welt acclaimed, national level Conference in the field of Chemical Engineering and Technology in India. The conference themes were aligned among a quintet of research areas as Biotechnology and bio-systems engineering, Energy and environment, Materials engineering, Process systems engineering and Transport, colloids, and interfacial Science. The keynote address and other invited talks were delivered by reputed scientists and learned professors from the industries and premier institutes of the nation on their current research interests.

The profile of conference delegates comprised of graduate students, research scholars, and faculty from all parts of the country inclusive of IITs, IISERs, NITs, BITS Pilani, ICT Mumbai, state government colleges, as well as industry personnel from different sectors such as petrochemicals, fertilizers, steel, polymers, life sciences, and other related areas. Prof. Ashwini Kumar Nangia, Director, National Chemical Laboratories (NCL), Pune gave the opening keynote lecture on "Sustainable Chemistry and Chemical Engineering in a Circular Economy". Later, Dr. Dietmar Hueglin, Vice President, BASF Mumbai, elaborated on "Green Process Development at BASF". Prominently, Prof. Satyajit Mayor, Director,

Dignitaries and participants during the programme

National Centre for Biological Sciences (NCBS), Bengaluru, shared his recent insights on the topic of "Mechano-Chemical Control of Membrane Composition and Tension in Living Adherent Cells".

During this three day conference, numerous workshops directed towards development of soft skills such as presentation skills and research communication. Prof. Anil Kumar Singh, Chairman of NASI Mumbai and a former Vice-Chancellor, University of Allahabad, explained to the audience the crux of "Effective Project Proposals and Grant Writing". Presenting their research over ten oral and three poster sessions, over 100 researchers from all over the nation actively participated in the oral and poster sessions based on interdisciplinary research themes in chemical engineering and related areas. More than 200 attendees appreciated their innovative ideas and excellent presentation skills. Panel discussions as part of academia-industry interaction unleashed new thoughts on translational research on industrial platforms.

IIT Bombay Gets "Prestigious Brands Of India And Brands Of The Decade 2018" Award

IIT Bombay was bestowed the "Prestigious Brands of India and Brands of the Decade 2018" award on May 12, 2018. Mr. N. S. Dabholkar, Chief Manager Hospitality received the award on behalf of IIT Bombay. The award was presented by Mr. Saimik Sen, Editor-in-Chief, Herald Global, ERTC Media. Famous playback singer Mr. Udit Narayan Jha also graced the occasion. Many other awards were also distributed during the event.

Mr. N.S. Dabholkar, Chief Manager Hospitality receiving the award from Mr. Saimik Sen

"GROWTH-India" - A New Telescope

In the second week of June, India's first fully robotic optical telescope opened its eyes to the night sky for the first time. This moment marked the culmination of several years of efforts by a joint team from IIT Bombay viz. Prof. Varun Bhalerao, Department of Physics, Mr. Shubham Srivastav (Postdoc) and Mr. Atharva Patil (Research Staff) and the Indian Institute of Astrophysics Bangalore. The new "GROWTH-India" telescope, located at the picturesque Indian Astronomical Observatory in Ladakh, is part of the international "GROWTH" collaboration: a Global Relay of Observatories Watching Transients Happen. GROWTH seeks out and studies astronomical transients - a diverse class of ephemeral sources in the night sky that could last from a few seconds to several years. Of prime interest for this collaboration are electromagnetic flashes associated with gravitational wave events, young supernovae, and near-earth asteroids. In addition, GROWTH-India will work in partnership with two Indian astrophysical mega-projects: LIGO-India and AstroSat observatories.

The key innovation in GROWTH-India is the complete automation of operations. The robotic software - developed by team of IIT Bombay students, postdocs and faculty - monitors weather, plans observing schedules, undertakes observations, processes all observed images, and finally provides astronomers with ready-to-use data. This automation ensures rapid response time, reliable observations, and robust, repeatable data analysis: thereby boosting the scientific impact. It allows the science team to focus on interpreting the results rather than being up all night supervising data collection. The

operations server and data storage for this observatory will be hosted by IIT Bombay.

The telescope, camera, and observing site were selected to be best-suited for the class of sources to be studied. The telescope is a "Planewave CDK 700" with a 0.7-meter wide primary mirror. It boasts of a wider field of view than all other telescopes in the country, and is capable of slewing from one target to another in just seconds. The "ANDOR iKon-XL 230" camera is a 16.8 megapixel device that complements the telescope to obtain half-square-degree images. The camera has high quantum efficiency and low noise, allowing us to image objects that are billions of light years away. At 4500 m above sea level, the Indian Astronomical Observatory (IAO) is one of the highest observatories in the world, and arguably the best observing site in India. The location is longitudinally well-separated from major observatories in the world, and thus has exclusive visibility of the sky when it is daytime at those locations. This combination of the perfect location, equipment, and software give us a solid edge in the study of transient sources.

The GROWTH-India project is funded by the Science and Engineering Board of the Department of Science and Technology, Government of India, and the Indo-US Science and Technology Forum. More details about the project along with pictures and videos can be found at:

https://sites.google.com/view/growthindia/first-light< https://sites.google.com/view/growthindia/first-light>

Trials of Aerostat System for Last Mile Connectivity

An aerostat platform was recently deployed successfully in Dehradun, Uttarakhand by a team from Lighter-Than-Air Systems Laboratory, Aerospace Engineering Department of our institute, from June 4-9, 2018, under the guidance of Prof. Rajkumar S. Pant. The purpose of this deployment was to raise communication devices to enable last mile connectivity in the state of Uttarakhand especially in the shadow region of the hills. Hon'ble Chief Minister of the state of Uttarakhand Mr. Trivendra Singh Rawat inaugurated the project. This R&D project was sponsored by Information Technology Development Agency, Uttarakhand.
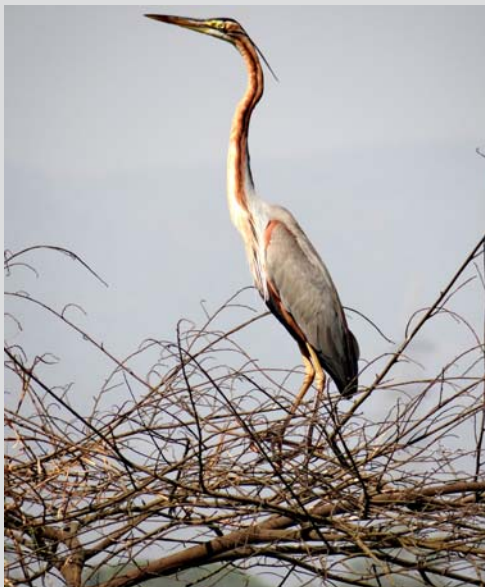

System deployed near ITDA premises
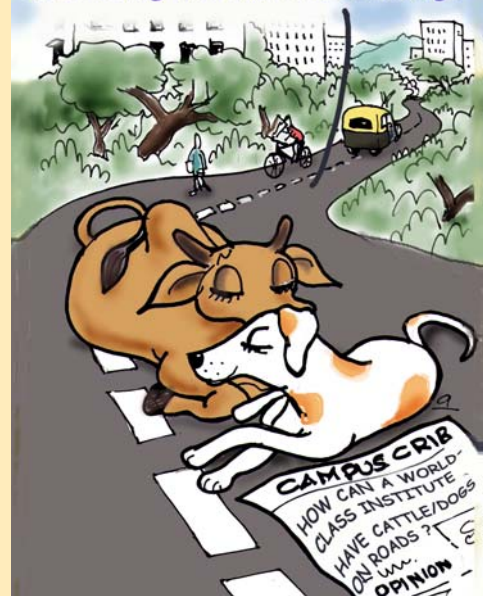

System deployed near ITDA premises

In the Wilderness

Photo Credit :

by Mr. Batu S. Kamble
Hospital, IIT Bombay

Salt'n Pepper

by Dr. Arun Inamdar

" Never thought it could get that desperate..now they want our help in boosting the Institute ranking!"

Phonathon - Calling the Future

With an intention of maintaining a stronger alumni relation and keeping in touch with the alumni of the Institute, Student Alumni Relations Cell (SARC) organised Phonathon - a telephonic marathon to connect with alumni, at IIT Bombay during June 1-10, 2018.

The event provided a common interactive platform for students and alumni over direct telephonic conversations. The students not only learned about alumni's career but also got an opportunity to get insight on topics ranging from career streams to institute's cafes.

The entire conversation between a volunteer and alumnus started with a formal 'good afternoon' and ended with the casual greetings.

The year 2018 witnessed a phoneomental increment in the number of volunteers in the 30th Phonathon. During these tend days time span around 12500 alumni were contacted. Beyond the incalculable benefit of experience, the voulnteers were also awarded different prizes like 'Caller of the day', 'Caller of the event' and 'Lucky Draw'.

Departmental Lectures

Department of Biosciences & Bioengineering

Dr. Anand Ballal, Molecular Biology Division, Bhabha Atomic Research Centre, Trombay, Mumbai, delivered a talk on "*Mn-catalase "KatB": The Guardian that defends the cyanobacterium Anabaena from salinity stress*" on June 11, 2018

Department of Chemical Engineering

Dr. Prerna Gera, SUNY Buffalo, USA, delivered a talk on "*Dynamics of three-dimensional multicomponent vesicles and influence of material properties*" on June 11, 2018

Department of Computer Science and Engineering

Dr. Nipun Batra, University of Virginia, gave a talk on "*The Billion Building Challenge*" on May 7, 2018

Mr. Deepak Vasisht, Massachusetts Institute of Technology, delivered a talk on "*Intelligent Environments Using IoT Systems*" on May 18, 2018

Prof. Pritam Bhattacharya, Dept. of CSE, IIT Kharagpur, delivered a talk on "*Approximation and Inapproximability of Guarding Polygons*" on June 21, 2018

Department of Electrical Engineering

Dr. Srinjoy Mitra, University of Edinburgh, delivered a talk on "*Electronics for Healthcare and Neuroscience*" on June 7, 2018

Department of Energy Science and Engineering

Prof. Anandh Subramaniam, IIT Kanpur, delivered a talk on "*Surface Stress and Configurational Effects on Dislocations*" on June 12, 2018

Department of Humanities and Social Sciences

Dr. Kaustabh Patil, delivered a talk on "*Machine learning based analysis of bioimaging data*" on June 26, 2018

Mr. Pradyut Kumar Pyne & Prof. Saikat Sinha Roy, delivered a talk on "*Does WTO improve Market Access? May be, but with maturity*" on June 26, 2018

Department of Mechanical Engineering

Mr. Dan Woodman, Associate Director in Core R&D for MEC at Dow Chemical, MI, USA, delivered a talk on "*Customer Centered Advance Product Development*" on May 9, 2018

Dr. Darshan G. Pahinkar, Georgia Institute of Technology, Atlanta, delivered a talk on "*Sustainable Thermal Management*" on June 13, 2018

Dr. David Frazer, University of California, delivered a talk on "*Small Scale Mechanical Testing of Ceramics for Nuclear Applications*" on June 8, 2018

Prof. Ravi Balasubramanian, Oregon State University, delivered a talk on "*Robotics-Inspired Implantable Passive Mechanisms to Surgically Re-Engineer the Human Body*" on July 5, 2018

Department of Metallurgical Engineering & Materials Science

Mr. Ankan Mitra, Vice-President, SMTA India Chapter, delivered a talk on "*Introduction to SMTA (Surface Mount Technology Association) India Chapter*" on May 14, 2018

Dr. Manas Paliwal, IIT Gandhinagar, delivered a talk on "*Microstructural evolution in light alloys at different processing stages: solidification to final aging: modelling and experimental study*" on May 16, 2018

Prof. Subrata Ray, IIT Mandi, delivered a talk on "*Materials Challenges in Electrochemical Energy Storage*" on June 12, 2018

Dr. Ajay Singh, Director's Postdoctoral Fellow, Los Alamos National Laboratory delivered a seminar talk on *"Solution processable multicomponent nanomaterials for next generation transparent electronic / optoelectronic devices"* on June 20, 2018

Department of Physics

Dr. Prasanna Venkatesh, IQOQI Innsbruck, delivered a talk on "*Cooperative Effects in Closely Packed Quantum Emitters with Collective Dephasing*" on May 3, 2018

Mr. Shubhanshu Tiwari, University of Trento, gave a talk on "*Gravitational waves from eccentric BBH : Searches and Astrophysical implications*" on May 9, 2018

Industrial Engineering and Operations Research

Prof. Vijay Chandru, Indian Institute of Science, Bangalore delivered a talk on "*The Future of Genomics: A Case for India*" on June 14, 2018

IDP in Climate Studies

Dr. Alexandra Karambelas, Postdoctoral Research, The Earth Institute at Columbia University, delivered a talk on "*Modeling Air Quality and Health Implications from Energy Resources in India*" on May 25, 2018

Shailesh J.Mehta School of Management

Dr. Ruth Kattumuri, London School of Economics, delivered a talk on "*Skilling for Human Capital Development*" on June 27, 2018

Steel Symposium

Centre of Excellence in Steel Technology, Department of Metallurgical Engineering and Materials Science, organized the Steel Symposium as a part of Institute's Diamond Jubilee celebrations during May 16-17, 2018 here at IIT Bombay. The symposium primarily consisted of presentations by IIT Bombay students (Masters and PhD) working on the various aspects of Steel.In addition, a few selected PhD students from other Institutes in India also presented their respective Steel research in the Symposium. Experts from industry - Mr. Sanjay Chandra, Tata Steel and Mr. S. Manjini, JSW Steel delivered invited lectures during the Symposium. Prof. Somnath Basu was the convener o the Steel Symposium.

Awards / Distinctions

Prof. Suryendu Dutta, Department of Earth Science received the the National Geo-science Award-2017 from the president of India

Prof. G. K. Lahiri, Department of Chemistry, has been invited to join the Editorial Board of Journal of Chemical Sciences as an Associate Editor for a period of three years

Poster titled "Solar Study Lamps target to brighten 1 Million Lives: Experimental evidence from pilot project in India" and presented by Mr. Rohit Sharma, Mr. Deepak Choudhary, Ms. Nikita Arora,

Prof. Jayendran Venkateswaran Industrial Engineering and Operation Research and **Prof. Chetan S. Solanki,** Department of Energy Science and Engineering got the **Best Poster Award** in 7th edition of the World Conference on Photovoltaic Energy Conversion (WCPEC-7), in Hawaii (June 11-15, 2018), USA

Prof. Pusphak Bhattacharyya, Department of Computer Science and Engineering, will be conferred "Distinguished Alumnus of IIT Kharagpur" for 2018. The award conferment ceremony will take place during the 64th Annual Convocation on July 20, 2018

The **'smart stethoscope'** developed at BETiC, IIT Bombay by the team of **Adarsha**, **Tapas** and **Dr. Rupesh** guided by Prof. **B. Ravi**, Department of Mechanical Engineering has won the first prize of INR 1 million at Swissnex-DST AIT Programme in Zurich last month. Their startup company Ayu Devices is incubated in SINE, IIT Bombay. *The story is prominently featured in Forbes India (May 11 issue) in a special report called 'Innovation Nation':*

*http://www.forbesindia.com/article/innovation-nation/the-frugal-innovators-at-iitbombay/50065/1

<http://www.forbesindia.com/article/innovation-nation/the-frugal-innovators-at-iitbombay/50065/1>*

Prof. B.Bandyopadhyay, Convener, Systems and Control, has been appointed as member of IEEE Fellow Evaluation Committee of IEEE Industrial Electronics Society for the year 2018. He also has been appointed as Associate Editor of IET Control Theoty and Application(former IEE Control theory and Application,UK) for a period of three years w.e.f April 2018.

Prof. Anirudha Joshi, IDC School of Design has been elected as the VP for Finance in the ACM SIGCHI Executive Committee. SIGCHI is the premier international society for professionals, academics and students in human-technology and human-computer interaction (HCI).

Publications

Prof. B.Bandyopadhyay, Convener, Systems and Control along with his co-worker has published a Research Monograph entitled *'Event-Triggerd Sliding Mode Control : A new Approach to Control System Design'*, Studies in System, Decision and Control, Springer, 2018.

Notification

Prof. Sharat Bhartiya, Department of Chemical Engineering is appointed as the Acting Professor In Charge, New IIT Mentoring Cell (NIMC) w.e.f. May 2, 2018

Prof. K.V. Venkatesh, Department of Chemical Engineering is appointed as the Faculty Advisor (Foreign Students) w.e.f. May 4, 2018

Prof. K.P. Kaliappan, Department of Chemistry is appointed as the Dean (Faculty Affairs) w.e.f. May 10, 2018

Prof. Anindya Dutta, Department of Chemistry has been appointed as Head, Chemistry w.e.f. May 10, 2018

Prof. S.C. Patel, Department of Earth Science has been appointed as the Head, Earth Science w.e.f. May 30, 2018

Prof. Anil Kottantharayil, Department of Electrical Engineering, is appointed as Head, CRNTS & SAIF w.e.f. June 22, 2018

Prof. Pramod P. Wangikar, Department of Chemical Engineering has been appointed as Professor-in-charge, Wadhwani Research Centre in Bioengineering (WRCB) w.e.f. August 11, 2014.

Prof. Rangan Banerjee, has been re-appointed as Head, Department of Energy Science and Engineering w.e.f. June 19, 2018

Appointment

Prof. Albert Thomas, Department of Civil Engineering has been appointed as Assistant Professor w.e.f. May 4, 2018.

Prof. Avishek Ranjan, Department of Mechanical Engineering has been appointed as Assistant Professor w.e.f. May 2, 2018

Prof. Mayukh Mukherjee, Department of Mathematics has been appointed as Assistant Professor w.e.f. May 2, 2018

Prof. Karthik Sasihithlu, Department of Energy Science and Engg. has been appointed as Assistant Prof.

Retirements on May 31, 2018

Mr. A. P. Venkateswaran, Assistant Registrar, Material Management Division, has retired after 36 years of service

Mr. Rama S. Nikam, Assistant Technical Officer, Centre of Studies in Resourses Engineering, has retired after 34 years of service

Mr. Vithoba P. Bansode, Sr. Administrative Assistant, Accounts Section, has retired after 32 years of service

Mr. Arjun V. Khandekar, Assistant Engineer, Dept. of Electrical Engineering, has retired after 27 years of service

Mr. Avinash Y. Surve, Sr. Mech., Estate Office, has retired after 32 years of service

Mr. Rajaram A. Karande, Sr. Multi-skilled Assistant, Director Office, has retired after 38 years of service

Mr. Parshuram B. Ghanekar, Sr. Multi-skilled Assistant, Electrical Maintenance, has retired after 37 years of service

Mr. Devidas J. Bagul, Multi-skilled Assistant C, Department of Electrical Engineering, has retired after 28 years of service

Ms. Dhanya Kairali, Technical Officer Scale 1, Application Software Centre, has resigned w.e.f. May 25, 2018

Retirements on June 30, 2018

Prof. R. Nagarajan, Centre of Studies in Resourses Engineering, has retired after 42 years of service

Ms. Vimala Sadanandan, Superintendent, Centre for Environmental Science and Engineering, has retired after 33 years of service

Mr. Anthony M. Alexander, Jr. Tech. Supdt., Dept. of Civil Engineering, has retired after 35 years of service

Mr. Ananda N. Ramugade, Sr. Administrative Assistant, Hostels, has retired after 40 years of service

Mr. Dilip H. Kadam, Sr. Multi-skilled Assistant, Dept. of Biosciences & Bioengineering, has retired after 35 years of service

		CEP courses scheduled during July - August - September 2018		
Starting Date	**Duration**	**Course Name**	**Faculty**	**Department**
Open Programmes : (July)				
28-7-2018	10 months	16th Batch of Executive Programme in Management (with Specilisation in Marketing & HRM)	Prof. S. Bhargava	School of Management
GIAN Courses :				
2-7-2018	5 days	Advances in Dynamic Transportation Systems	Prof. Gopal R. Patil	Civil Engineering
23-7-2018	5 days	Medical Image Computing: Machine-Learning Methods and Advanced- MRI Applications	Prof.. Suyash P. Awate	Computer Science & Engineering
24-7-2018	11 days	Introduction to Building Information Modelling (BIM) Applications in Construction	Prof. Venkata S. Delhi	Civil Engineering
In House Programmes :(August)				
8-8-2018	3 days	New Product Innovation	Prof. Battula K. Chakravarthy	Industrial Design Centre
18-8-2018	1 day	Demystifying Design	Prof. Purba joshi	Industrial Design Centre
20-8-2018	2 days	3D Printing (A Disruptive Technology of This ERA)	Prof. K.P. Karunakaran	Mechanical Engineering
20-8-2018	5 days	End to End Innovation	Prof. Sanjay Mahajani	Chemical Engineering
23-8-2018	3 days	Expo PDI	Prof. Ravi Poovaiah	Industrial Design Centre

Campus diary

May – June 2018

BOOK POST