



January - February - March 2019

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INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

IIT Bombay Celebrates 60th Foundation Day

Institute releases Diamond Jubilee Brochure, Book on Chair Professors and Infrastructure Calendar

- * 14 received Distinguished Alumnus Awards
- * 8 honored with Young Alumnus Achiever Awards
- * 2 faculty members awarded for excellence in research work



Dignitaries along with the recipients of awards during 60th Foundation Day Celebrations

Indian Institute of Technology Bombay (IIT Bombay) celebrated its 60th Foundation Day on March 8, 2019. The foundation stone for the internationally-recognized Institute was laid by Pandit Jawaharlal Nehru, then Prime Minister of India on March 10, 1959. IIT Bombay was the second IIT to be established in the country and the first one to be established with a foreign aid received from UNESCO. Since then, the Institute has grown from strength to strength and is now counted among the best engineering institutions across the globe.

The ceremony commenced with a welcome address by the former Director of IIT Bombay Professor Devang Khakhar, highlighting key milestones achieved by the Institute in 60 years. Welcoming the guests, he said, *"The biggest change in the Institute is the trend of faculty from different Departments collaborating to form large multidisciplinary Centres to address particular areas. I am happy to announce that we have placed an order for a new supercomputer 'Space Time' that will provide a visible leap forward in our computer capabilities"*. He also spoke about increased industry interactions, international engagements, entrepreneurship and increased alumni engagements".

On the occasion, the Chief Guest for the function former Director **Prof. S.P. Sukhatme** released the Diamond Jubilee Brochure, Book on Chair Professors and Infrastructure Calendar.

The Institute celebrated 60th anniversary of its inception by honouring its select alumni for their achievements in diverse fields ranging from academics, research and entrepreneurship. The '**Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences**' and '**Prof. H.H. Mathur Award for Excellence in Research in Applied Sciences**, and the **Distinguished Alumnus Awards and Young Alumnus Achiever Awards**' were given away by Prof. Sukhatme.

The Institute had long felt the need to recognize the alumni of IIT Bombay, who have excelled in their field of work and made the Institute proud. With this intention, the Distinguished Alumnus Awards (DAA) have been instituted.

The awardees this year include:

- Mr. Raj Nair
- Prof. Das Narayandas
- Prof. Kaivan Munshi
- Dr. Shashidhar Thakur
- Prof. Vishal Misra
- Prof. Nitin Samarth
- Mr. Kaizad Mistry
- Vice Admiral Gurtej Singh Pabby
- Prof. Amol Dighe
- Prof. Nikhil Ashok Koratkar
- Dr. Ajei Gopal
- Dr. U. Kamachi Mudali
- Dr. Lalitesh Katragadda
- Mr. Rizwan Koita

The 'Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences' was conferred on Prof. M. Ravikanth, Department of Chemistry. The 'Prof. H.H. Mathur Award for Excellence in Research in Applied Sciences' was conferred on Prof. Ashwin Gumaste, Department of Computer Science & Engineering.

The Young Alumnus Achiever Awards (YAAA) are for alumni who have made outstanding achievements in their chosen field of work and are below 40 years of age. These awards were instituted in the year 2011. The awardees this year include:

- Dr. Ameet Jain
- Mr. Sourabh Pagaria
- Mr. Manoj Meena
- Mr. Shantanu Rastogi
- Mr. Pranay Jivrajka
- Ms. Suhani Mohan
- Dr. Parag Agrawal
- Mr. Ankit Bhati

About Book On Chair Professors:

The Chair Professorships have a rich history and prestige that has remained unchanged over the years. The Named Chair Professorship encourages faculty excellence and sparks innovation in teaching, research and scholarship. It is one of the highest honours awarded in the academic arena. It is reserved for the top faculty members as an acknowledgement of their contributions to research and teaching. The prestige of a Named Chair also lends an additional cachet to the departments. It helps attract the brightest students and investigators thus securing the future of the Institution. Through these chair professorships, the recruitment of accomplished researchers in specific areas of study will also usher in new areas of specialization.



Mr. Abhay Pandey, IIT Bombay alumnus presenting a cheque of Rs. 10 crore to former Director Prof. Devang Khakhar in support of the construction of the Humanities & Social Sciences (HSS) Annex building at IIT Bombay



Dr. Veena Joshi, IIT Bombay alumnus presenting a cheque of Rs. 2 crore to former Director Prof. Devang Khakhar for setting up the Dhananjay Joshi Endowment Fund, that aims to breed research scholars through fundamental research

Appointments to the Chairs are made by a committee headed by the Director of IIT Bombay, with field experts and Institute functionaries as members and a nominee of the donor as an observer in case of named chairs. Selection is based on peer reviews of the overall research achievements and other achievements in the recent past. Contributions made to the growth of the Institute are given due weightage.

About Infrastructure Calendar:

The Diamond Jubilee Infrastructure Calendar of IIT Bombay provides a glimpse of the landmark buildings on campus that have recently been completed like Hostel 10, Hostel 15 & 16 and Padmavihar guest house. Some other buildings like Research Park Building, Rahul Bajaj Technology Innovation Centre, Hostels 17 & 18, B25 Residential Building, Married Students Accommodation and Centre for Excellence in Steel Technology will adorn the campus soon.

About Diamond Jubilee Brochure:

The brochure on Diamond Jubilee provides a glimpse of all the activities and projects undertaken by various Task Forces during the year. Messages from the Hon'ble President of India, Prime Minister of India, Governor of Maharashtra, Chief Minister of Maharashtra, Chairman of Board of Governors Mr. Dilip Shanghvi, former Directors of IIT Bombay Prof. A.K. De and Prof. Ashok Misra will continue to inspire us all.

57th Interim Convocation Ceremony



Former Director IIT Bombay Prof. D.V. Khakhar presenting the progress report during Interim Convocation



Chairman of BoG, IIT Bombay Mr. Dilip Shanghvi addressing the audience



Prof. Mark Taylor, Dean, Olin Business School, Washington University in St. Louis addressing the audience



Graduating students taking pledge during Interim Convocation

IIT Bombay awarded degrees to 168 students at interim session of its 57th Convocation on February 23, 2019. Total degrees awarded were 195, which include 118 PhD, 1 Joint PhD degree of IIT Bombay and National University of Singapore, 54 Dual Degrees (27 MTech/ MSc + 27 PhD) awarded to 27 students and 22 E-MBA degrees. The joint E-MBA degrees, in association with Washington University in St. Louis (WUSTL), were conferred by Prof. Mark Taylor, Dean, Olin Business School, Washington University in St. Louis.

The degrees were conferred upon those PhD students who have completed all the requirements during the period from August 2018 to January 2019 and have requested for the degree to be awarded earlier than the 57th Convocation. The function was presided by Mr. Dilip Shanghvi, Chairman of the Board of Governors, IIT Bombay and Prof. Devang V. Khakhar, former Director, IIT Bombay among others.

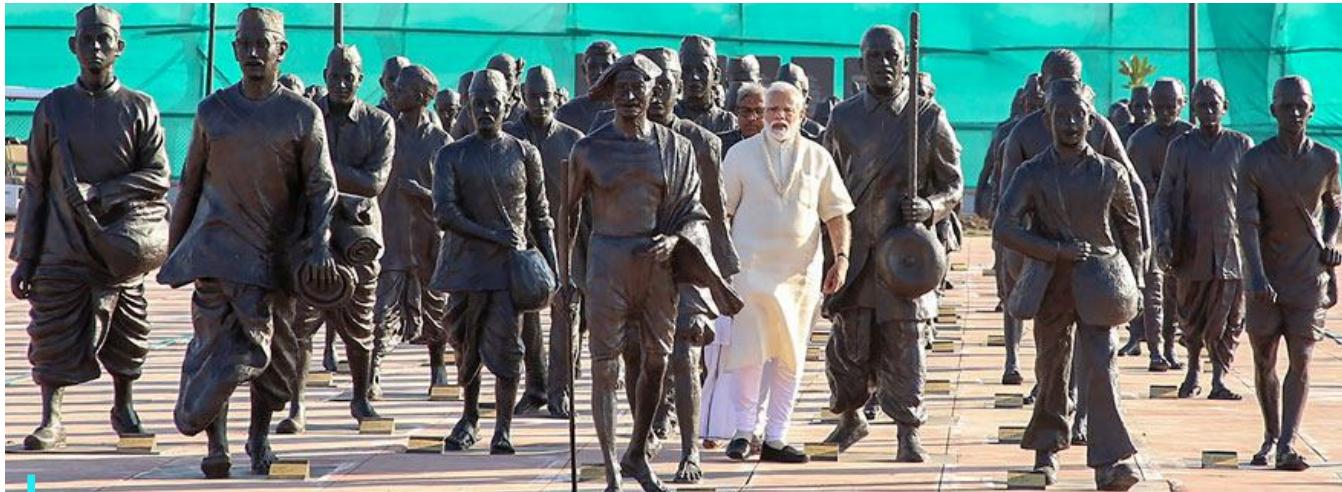
There is a steady increase observed in the number of PhD students at IIT Bombay. While there were only 771 PhD students on roll in the academic year 2001-02, the number increased to 3083 in 2017- 18. The number of PhD students at the Institute has increased to 3171 in 2018-19.

In his address, Chairman of the Board of Governors, IIT Bombay Mr. Dilip Shanghvi said, *"You are graduating from a top-ranking Institute of the world. The time you have spent here has enriched you in many ways and now you are going to carve your way in the outside world. Wherever you go, I hope you will excel in life. I'm confident that the training and education you have received here will help you to face all the challenges outside."*

Congratulating the graduating students, former Director of IIT Bombay Prof. Devang Khakhar said, *"IIT Bombay continues to be most sought-after destination for undergraduate and postgraduate studies. I'm really happy to see you ready to start a new and exciting phase of life. We congratulate all the parents and acknowledge the sacrifices they have made. It is also a day of joy and satisfaction for my colleagues among the faculty and staff".*

Apart from the students and faculty members of the Institute, the ceremony was attended by the families and friends of the students.

Hon'ble Prime Minister of India Inaugurates National Salt Satyagraha Memorial



Hon'ble Prime Minister Shri Narendra Modi at the inauguration of National Salt Satyagraha Memorial at Dandi on the occasion of the 71st death anniversary of Mahatma Gandhi

Hon'ble Prime Minister of India **Shri Narendra Modi** dedicated the Salt Satyagraha Memorial (NSSM) in Dandi, Gujarat to the nation on January 30, 2019. At the memorial site, he also unveiled statues of Mahatma Gandhi and 80 Satyagrahis who had marched with him during the historic Dandi Salt March in 1930 to make salt from sea water against the British law.

IIT Bombay's association with the NSSM began because of IIT Bombay's pioneering research in renewable energy. The Memorial is being powered by solar energy and is a Zero Energy project in keeping with the Gandhian ideal of sustainability. **Prof. Juzer Vasi** initiated IIT Bombay's contribution towards the solar energy needs of the project and **Prof. Kirti Trivedi** conceptualized the design and ably guided the art aspects of the NSSM. Several other members of the faculty, students and staff at IIT Bombay made key contributions in this collaborative effort.

Key Highlights:

- * The memorial has 24-narrative murals depicting various events and stories from the historic 1930 Dandi March
- * Besides, solar trees are installed around the site to meet the energy requirements of the memorial complex
- * The memorial aims to serve as a reminder of the great sacrifices made by the people of the nation for the cause of freedom
- * It is a tribute to the Satyagrahis led by Gandhiji who worked for India's freedom and is expected to be a major attraction for the tourists.
- * The memorial encapsulates the ideals of Mahatma Gandhi- Agraah for Swadeshi, Swatchagrah and Satyagraha

Design and Engineering Excellence:

Professors from IIT Bombay put in their years of research and experience to work on the various components of the monument in a spirit of shamdaan to conceive and build a monument of National importance. Professors from the IDC School of Design worked and coordinated all the art components, the sculpture of the marchers, the Glass Cube on the 40 meter A-pillar and the narrative murals while the Professors from the Electrical Engineering Department worked on the aspects of 'the net-zero energy consumption' Solar Trees. The team from the Civil Engineering Department worked on the 'non-permeable' and 'geotextile' Artificial Lake and the structures, the Professors from the Physics Department worked on the lasers for lighting the glass crystal, Professors from the Metallurgical Engineering and Materials Science Department suggested materials and coatings for the memorial to make it rust-proof and durable and finally, the Professors from the Earth Sciences Department worked on the quality and longevity of the various rocks used in the memorial.



A 15-feet high bronze statue of Mahatma Gandhi created by eminent sculptor Mr Sadashiv Sathe



The sculptures of 80 full-size Dandi Marchers' were created through the voluntary combined efforts of the creative community – both national and international. It included 48 sculptors, selected through a world-wide call for participation who worked together during the workshops at IIT Bombay under the guidance of IDC and experienced resource persons

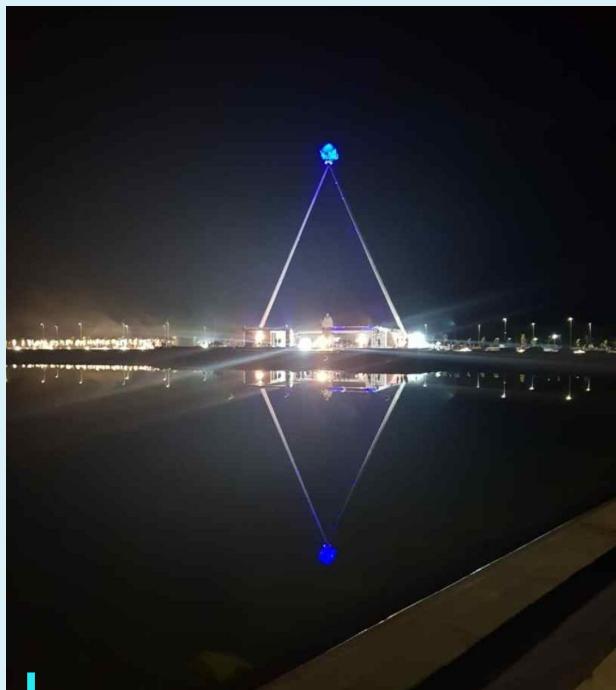


Salt-making pans designed by IIT Bombay in collaboration with potter Abbas Grawani, at Kumbharwada, Dharavi would enable visitors to make a pinch of salt and take it along as a memory of their visit to the NSSM



The NSSM also has 24 narrative murals depicting the march from Sabarmati to Dandi

The murals were created with guidance by a team of sculptors led by Prof. Shanthi Swaroopini, JNAFAU, Hyderabad and cast in silicon bronze by Studio Sukriti, Jaipur



The salt crystal come alive with laser lights



Energy for the entire memorial is generated from 41 solar trees developed by IIT Bombay and installed at the site. The energy generated would be fed into the grid during the day and the Memorial would then draw power from the grid at night, making it a Zero Energy initiative



RSS 2019 Brings Together Research Scholars On Same Platform



Key note speaker Dr. S Majumdar, Chief Sustainability Officer, JSW Group



Dr. Mahesh Patankar, MP Ensystems Advisory Pvt. Ltd speaking during panel discussion on "Challenges for Sustainable Energy"

Research Scholar's Symposium (RSS) the annual research festival of Department of Chemical Engineering, popularly known as RSS fosters an apt blend of participation from academia and industry. An annual Departmental event since 2007, the RSS aims to promote industry-academia research interaction, through invited talks by eminent industry professionals and acclaimed academics, along with show-casing of Departmental research outputs in the form of oral and poster presentations by the research scholars. In addition, panel discussions by experts on emerging areas of application also featured in the event which focus on socio-economic impacts of technologies and attendant policy-making.

This year RSS was co-ordinated by **Prof. Sandip Roy** and **Prof. Ratul Dasgupta** along with strong support from the RSS team led by the research scholar Naveen Rohilla. This year's symposium theme was "*Challenges of Sustainable Development*". The key individual speakers were Prof Arieh Ben-Naim (Hebrew University of Jerusalem); Dr. S. Majumdar (Chief Sustainability Officer, JSW Group); Prof. Ganesh Subramanian (Jawaharlal Nehru Centre for Advanced Scientific Research), Dr. Dietmar Hueglin (BASF Chemicals India Pvt Ltd) and Dr. Shirish Garud (The Energy and Resources Institute). The panelists for the discussion on the "Challenges for Sustainable Energy" were Dr. Mahesh Patankar (MP Ensystems Advisory Pvt. Ltd), Mr. Karthik Ganesan (Council on Energy, Environment and Water), and Dr. Shirish Garud (The Energy And Resources Institute).

E-Shuttle service launch



IIT Bombay along with M/s. Maini Materials Movement Pvt Ltd; Bangalore launched eco-friendly E-Shuttle service on January 22, 2019.

Conferment of Padma Shri On IIT Bombay Alumni Prof. Rohini M. Godbole And Prof. Sharada Srinivasan

The Ministry of Home Affairs, Government of India has conferred the prestigious Padma Shri award on IIT Bombay alumnus and Member of Board of Governors, IIT Bombay **Prof. Rohini M. Godbole** from the Indian Institute of Science (IISc) and **Prof. Sharada Srinivasan**, National Institute of Advanced Studies (NIAS) during the 70th Republic Day on January 26, 2019.

Padma Shri is the fourth highest civilian award in the country awarded for notable contributions in various disciplines by the Government of India, every year on Republic Day. This year, the President of India has approved conferment of 94 Padma Shri Awards, out of which two of the awards have been conferred on IIT Bombay alumni.



Prof. Rohini Godbole, a 1974 silver medalist and Distinguished Alumnus of IIT Bombay, has made outstanding contributions to fundamental scientific research, specifically the theory of elementary particle physics. Her work on high energy photons could form the basis for the next generation of particle colliders, used to study the fabric and composition of the Universe.

Prof. Godbole has been on the Board of Governors of IIT Bombay since June 2015. She is a part of the International Detector Advisory Group for the International Linear Collider (ILC) at CERN, which monitors the design and working of the ILC detector. For the past three decades, her work has resulted in more than 300 research publications. She is a member of the High Energy Physics Advisory Panel, USA, and is a recipient of many national and international awards, besides being the fellow of all three prestigious science academies in India.

Prof. Godbole is also the Chairperson of the 'Panel for Women in Science' initiative of the Indian Academy of Sciences. She is very vocal about gender equity in scientific careers. She has edited the book 'Lilavati's Daughters', a biographical essay collection on Indian women scientists. She is also a renowned science communicator who enjoys talking about physics and delivering talks to students, researchers and scientists.

Prof. Sharada Srinivasan is a Professor at the National Institute of Advanced Studies (NIAS), Bengaluru. She has made pioneering contributions to the study of archaeology and history of art from the perspective of exploring engineering applications in these disciplines. She has earned her PhD from the Institute of Archaeology, University College London (1996) on Archaeometallurgy of South Indian bronzes; MA from School of Oriental & African Studies, London (1989) and BTech in Engineering Physics from IIT Bombay (1987).

Prof. Sharada Srinivasan's landmark contributions include archaeometric characterisation of bronzes of South India using lead isotope analysis, archaeometallurgical studies on ancient mining and metallurgy in southern India, studies on wootz steel and documenting artisanal technologies such as mirror making and bronze casting at Swamimalai and so on, having worked on artefacts in the British Museum, Victoria and Albert Museum, London, Government Museum, Chennai and so on.

Prof. Sharada Srinivasan is a Fellow of the Royal Asiatic Society of Great Britain and World Academy of Art and Science. She has many awards to her credit, few of the prominent ones include the Dr. Kalpana Chawla Young Women Scientist Award for 2011, the Indian Institute of Metals, Certificate of Excellence 2007 and Materials Research Society of India Medal 2006, the Malti B. Nagar Ethnoarchaeology Award (2005), and the DST-SERC Young Scientist Fellowship, the Flinders Petrie Medal 1989 from University of London, the Materials Research Society Graduate Student Award 1996, the DST Nurture Scheme and Young Scientist Awards. She has been a Forbes Research Associate at the Department of Scientific Research and Conservation, Freer Gallery of Art, Smithsonian Institution, USA in 1999 and Homi Bhabha Fellow at Indian Institute of Science, Bangalore from 1996-98.

She is first author of the book 'India's Legendary Wootz Steel: An advanced material of the ancient world' and author of more than 60 research papers. She is also an acclaimed performer of Bharata Natyam and has given numerous lecture-demonstrations such as the artistic and scientific perspectives on the Nataraja bronze.

Minister Of Road Transport And Highways Addresses Pre-Summit 2019

The Entrepreneurship Cell, IIT Bombay organised Pre-Summit 2019 "Transforming India" on January 5, 2019. E-Cell hosted **Mr. Nitin Gadkari**, Union Minister of Road, Transport and Highways in a fireside chat with **Mr. Rajeev Chandrasekhar**, Member of Parliament on January 5, 2019. The Union Minister shared his ideas on flagship programmes like Start-up India, Mudra, and Skill India Mission. Veteran Industrialist and BJP Rajya Sabha MP Mr. Rajeev Chandrasekhar moderated the interactive session. The event was organized by the Entrepreneurship Cell, a non-profit student forum of IIT Bombay.

Mr. Nitin Gadkari said, *"India is a rich country with poor population.*

India has the potential to become no. 1 economic power in the world". He encouraged the idea of rewarding people who work efficiently and penalize people for their insincere work. According to him, fast-track decision-making, transparency, teamwork and appropriate leadership are more important than technology and resources which can be bought, in transforming an innovative idea into a successful business.

Entrepreneurial spirit in India can be boosted by providing funds to every capable person. Mr. Gadkari quoted, *"You can donate an eye but not vision"*. He advised young students to focus on their strength and overcome weakness, if any, to develop a positive attitude towards life.

The other two speakers were actor **Mr. Kunal Kapoor** and **Mr. Zaheer Adenwala** - the co-founders of 'Ketto', an online crowd funding platform. Crowd funding is the process of collecting small amount of money from large amount of people for social, entrepreneurial, creative and many other causes. Some basic problems of the offline money raising by NGOs are high cost of fund raising, serious attitude of ecosystem towards social causes and difficulties in reaching out to the people. Now, the online cost of fund raising has been decreased to 8%.



Mr. Rajeev Chandrasekhar, Member of Parliament moderating fireside chat with Mr. Nitin Gadkari



Keynote session by actor Kunal Kapoor and Zaheer Adenwala (co-founders of Ketto)

'Ketto' is an online bridge between people who can help and people that needs help. It is mainly used for medical causes. There are around 10,000 campaigns active at a time on 'Ketto'. It has successfully raised 300 crores of funds in last 6 years. It works with hospitals directly in case of medical purposes. It is mandatory for the person who is raising money through 'Ketto' to submit all documents of hospital and doctor to validate the claim made by the person. 'Ketto' is also used to raise funds for start-ups. Mr. Kunal Kapoor said, *"It is very heartening to see young people involve in social causes"*. The basis of 'Ketto' is donation and not loan. So there is no need to pay back the money.

Start-Up Ideas Get Wings At IIT Bombay's E-Summit

The E-Cell, IIT Bombay organised the 14th edition of E-Summit during January 19-20, 2019. E-Summit was a potpourri of events comprised of job fair, a start-up expo, competitions, workshops and sessions with prominent speakers, investors, industrialists and professionals from all over India, that came together for the passion of entrepreneurship.

The two-day event saw speeches from prominent personalities like Mr. Madhukar Parekh (Chairman of Pidilite Industries), Mr. Niranjan Hiranandani (MD Hiranandani Group), Mr. Suresh Prabhu (Minister of Commerce, Industry and Civil Aviation, Government of India), Mr. Gautam Singhania (Chairman and Managing Director of the Raymond Group), Mr. Guenter Butschek (Global CEO of TATA motors), Mr. Rajen Vagadia (Vice President and President of Qualcomm India and SAARC) and Mr. Kris Gopalakrishnan (Chairman of Axilor Ventures).

“Fall in love with problems”, the summit started with these words from **Dr. Gururaj Deshpande**, Co-founder



Talk by Mr. Suresh Prabhu, Minister of Commerce and Civil Aviation on topic “Vision 2030”



Bank of Baroda's Managing Director and Chief Executive Officer Mr. P.S. Jaykumar during the E-Summit

of Deshpande Foundation. The Indian American venture capitalist and entrepreneur spoke at length about why India needs more entrepreneurs and thus companies for development of this country. The Ten Minute Million, a competition where start-ups got ten minutes to pitch their ideas to a panel of investors, was a huge success. 3 out of 8 startups got on-the-spot funding. CrossForge Solutions raised INR 147 lakhs, rePurpose Solution raised INR 101 lakhs and Giscle System raised INR 63 lakhs. Eco, a startup working on friendly water retention polymer, bagged INR 5 lakhs in Eureka! - Asia's largest business model competition. Augle AI, a startup from IIT Bombay, won IIT Bombay track.

E-Cell, IIT Bombay works for visionaries who share a crazy desire to revolt against the usual stereotyped life and create a niche for themselves. If their ideas are supported and they are encouraged, these visionaries can entirely change the future course of India's growth chart.



Speaker session by Mr. Niranjan Hiranandani, MD Hiranandani Group, on topic “The Journey of Building Extraordinary”



Speaker session by Dr. Gururaj Deshpande, Co-Founder of Deshpande Foundation, on topic “Why India needs more entrepreneurs?”

IIT Bombay Celebrates Republic Day



Prof. D.V. Khakhar, former Director, IIT Bombay during the Republic Day Celebrations 2019

IIT Bombay celebrated the 70th Republic Day of the nation on January 26, 2019. It was on this day in the year 1950 that the Constitution of India came into effect, thereby, cementing India's status as a sovereign socialist secular democratic republic. The day began with the unfurling of the national flag by the Institute's former Director **Prof. Devang Khakhar** at the gymkhana grounds. IIT Guard of Honour from NCC gave the salute to the flag. The celebrations witnessed march past by the students of Campus School and Kendriya Vidyalaya (KV), Security team, NCC cadets and guides.

The bands of Kendriya Vidyalaya and Campus School were the main attraction of the march past. As gratitude of appreciation, certificates, awards and cash prizes were given to meritorious staff, students of IIT Bombay, Campus School, Kendriya Vidyalaya, KG School, winners of Essay Writing Competition held during Vigilance Awareness Week, Aman Day Care Centre and NCC. Former Director of IIT Bombay Prof. Devang Khakhar addressed the gathering and shared his best wishes with IIT Bombay community on the occasion of Republic Day.

The volunteers of NSS, IIT Bombay presented a skit 'Ek Prayas 'Hum' Ki Aur'. This is to the social reformers who are involved in social reforms aiming to improve the quality of life, correct any injustices etc. The cadets of NCC, IIT Bombay participated in drills, sports and cultural events.

NSO cultural students presented three patriotic songs to remember and pay homage to the freedom fighters who fought for India's freedom. A variety of cultural programmes mesmerised the audience. The students of Campus School performed a drill followed by a traditional dance of Goa by the students of Kendriya Vidyalaya. The children of Aman Day Care Centre too presented a dance performance.

Celebration Of Matribhasha Diwas



Glimpses of Matribhasha Diwas (Mother Tongue Day) celebration

As per directives of Ministry of Human Resource Development, IIT Bombay celebrated Matribhasha Diwas (Mother Tongue Day) on February 21, 2019 to promote the use of mother tongue in the educational institution.

Prof. A.K. Suresh, Dy. Director (Academic and Infrastructural Affairs), Prof. Soumyo Mukherji, Dean (Student Affairs), Dr. R. Premkumar, Registrar, Ms. Vaishali Bahulkar, Hindi Officer & Mrs. A. Bhagawat, Principal, Campus School graced the occasion.

Dr. Anita Agnihotri, renowned Bengali writer and IAS Officer, was the Chief Guest of the function. Dr. Agnihotri spoke about the importance of “Matribhasha Diwas” and elaborated the historical background of the International observance of the day.

On this occasion, language associations of the Institute like Kannad Association, Odiya Association, presented the social, cultural, historical, literary diversity of their mother tongue. Marathi programme was performed by the Campus school children and a staff performed a dance on a Bengali song. Faculty members, students and staff participated in the event with lot of enthusiasm.

International Women's Day Celebration

Gender Cell of IIT Bombay organized an event on March 7, 2019 to celebrate International Women's Day. The theme this year was *Gender Amity*. Prof. Devang Khakhar, former Director, IIT Bombay was the Chief Guest on the occasion and unveiled the new logo and website of the Gender Cell. The Director felicitated staff and students who made exemplary contribution to the activities of the Gender Cell. The event included a short cultural program by IIT Bombay students and staff, and an interview of Ms. Sheela Gaikwad, a woman auto-rickshaw driver on campus. Panel display on "*The daily narratives of the Naari*" designed by Ms. Urmila Banerjee, a 4th year B. Des. student (IDC), were exhibited outside the venue during the event.



Celebrating HER On International Women's Day

In today's time, society is majorly concerned about the education of women. Abhyuday, the social body of IIT Bombay organised a panel discussion on March 8, 2019 for an event themed **Celebrating HER** on the occasion of International Women's Day. The event featured a lively discussion with the dignitaries **Mrs. Durga Shakti Nagpal**, Indian Administrative Service Officer & Officer on Special Duty, Ministry of Agriculture Govt. India, **Prof. Brishti Guha**, Jawaharlal Nehru University Delhi and **Prof. K. Ramsubramanyan**, Department of Humanities and Social Sciences, IIT Bombay. With the introduction of the panelists and their journey towards women empowerment till date, the discussions were about the basic problem of all the inequalities and injustice towards women and the opportunities for them.



Women Empowerment event by the social body of IIT Bombay "Abhyuday" on the occasion of International Women's Day*

'Women Entrepreneurship And Empowerment Mentorship Program'



Celebration of Women Entrepreneurship Day

SINE IIT Bombay in collaboration with Women Entrepreneurship and Empowerment (WEE Foundation) and with the support from Department of Science & Technology celebrated **Women Entrepreneurship Day** on March 9, 2019. A cohort of 24 women entrepreneurs from various sectors like nanotechnology, cleantech, textile, AI etc., went through six-months long weekend training and mentoring program. The program introduced them to various topics like Idea validation, business model, business plan, customer segment, value proposition, design thinking, pitch coaching and venture development. It all culminated into a grand presentation on March 9, 2019, where the participants made their final pitches to a grand jury consisting of 16 member-experts from various field.

The WEE team engaged the jury in a panel discussion on **Gender Equality; Inclusiveness of Women in Senior Leadership Roles in Corporates**. **Dr. Sarandeep Singh**, CEO and chairman, WEE Foundation mentioned, *"Less than 10% women in corporates senior management roles; gender pay gap is still high. There is an opportunity for corporates which have business performance goals to align with government's focus on women economic empowerment for gender parity."*

"Mentoring women entrepreneurs who are at different maturity level really enables them to support and hand hold each other creating pipeline of successful women entrepreneurs who are becoming each other's customer, partner, co-founder," said Pojni Bhatt, CEO, SINE, IIT Bombay.

The jury selected 7 winners out of the 24 women entrepreneurs and awarded top 3 winners with Rs 5 lac and remain 4 winners with Rs 2.5 lac award money. The day concluded with firm commitment from all participants to contribute towards women empowerment.

Diamond Jubilee Workshop On Future Of Energy Research And Education



The energy sector is in transition – moving away from fossil fuels to low carbon energy technologies – renewables and energy efficiency. There are several challenges associated with the energy sector. As a part of the Diamond Jubilee celebration, Department of Energy Science and Engineering, IIT Bombay organized a workshop on the *future of energy research and education* on December 13 and 14, 2018. This workshop brought together leaders from industry, research organisations, and academia to discuss the challenges and opportunities in the energy sector and create roadmaps and shared vision for the future. The first day of the workshop focused on energy research

while the second day focused on energy education. The workshop included state-of-the-art presentations from 15 invited speakers (10 from industry) followed by open discussions and panel discussions. The outcomes from the workshop include recommendations on (1) research gaps and research priorities, (2) R&D infrastructure in academia, research organizations, and industry, and (3) various aspects of human resource development (education goals, framework for training of faculty members and technical staff, etc.) **Prof. Anish Modi**, Department of Energy Science and Engineering co-ordinated the workshop.

The New India Manthan - Leadership Talk



Mr. Mohandas Pai, Co-Founder and Chairman, Aarin Capital delivering talk on 'New India Manthan - Leadership Talk on India@2030'

IIT Bombay held the New India Manthan - Leadership Talk on 'India@2030: How Tech Entrepreneurship will create a \$10 Trillion Economy' on March 1, 2019. The talk was delivered by **Mr. Mohandas Pai**, Co-Founder and Chairman, Aarin Capital.

Speaking on 'India@2030: How Tech Entrepreneurship will create a \$10 Trillion Economy', Mr. Pai delineated India's growth trajectory towards becoming an innovation powerhouse in the coming decade. In the recent past, the country's tremendous growth potential has been handicapped by a low productivity rate. However, Mr. Pai elucidated that the advent of tech-entrepreneurship would help the country overcome this hurdle, bringing the costs of doing business down, employing millions, and lifting 30 million SMEs off the ground. It was supported by a plethora of hard numbers

and facts around India's sound economic & industrial fundamentals, its burgeoning entrepreneurial culture, along with an ecosystem being built to scale it. Mr. Pai said, *"India has begun optimizing to empower problem solvers and startups will be the force-multiplier to catapult the country into a \$10 trillion economy by 2030"*.

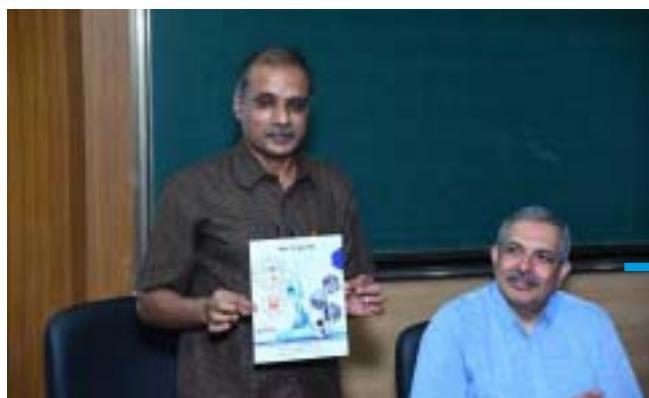
Inauguration Of Multi Institutional Department Of Science And Technology Sponsored Water Innovation Centre: Technology, Research And Education (WICTRE)

Water Innovation Centre Technology, Research and Education (WICTRE) was inaugurated by IIT Bombay former Director Prof. Devang V. Khakhar in the presence of the Head of the Department of Science and Technology, Dr. Sanjay Bajpai, Head, Department of Science and Technology. The WICTRE has been funded by the Department of Science and Technology, Ministry of Science of Technology. The WICTRE is envisioned to develop academia - industry partnership and undertake foundational research

activities in various areas of water purification to address the societal needs in Indian as well as in global scenario. It has been set up to study rivers and industrial effluents and to develop a model for purification and desalination of water bodies. A compendium on the research activities of the newly-established WICTRE was released by Prof. P. V. Balaji, Dean of Research and Development, IIT Bombay



WICTRE team along with dignitaries at the unveiling ceremony at IIT Bombay



Release of compendium of research activities of the Centre "Way to WICTRE" at IIT Bombay.

IIT Bombay Announces New M.Tech Degree Program In Educational Technology

Educational Technology (ET) is an interdisciplinary field, which lends itself to collaboration with researchers from varied disciplines to develop technologies supporting existing educational practices as well as to create technology-enhanced learning. IIT Bombay (IIT Bombay) is one of the few premier institutes in the country with a strong ET program, working towards improving teaching and learning in education.

Explaining the role of his department, Prof. Sridhar Iyer, Head of the Department at ET shared, *"With a strong interdisciplinary focus, our Department contributes towards developing innovative research-based solutions for improving student learning and engagement. We emphasize on learning of abstract thinking skills, creation of large-scale blended and online learning programs, development of emerging technologies for education, and learning analytics; all grounded in theories of learning sciences."*

With the PhD program well established since 2010, the Interdisciplinary Programme (IDP) in ET at IIT Bombay has announced the launch of a new M.Tech degree program, and will welcome their first Masters students in the Fall of 2019. The program will screen learners from diverse background with serious and core interest in improving learning and teaching using technology. The broad objective of the M.Tech program is to build specialized ET workforce with student expertise in theories of learning and pedagogy; analysis, design, effective implementation and evaluation of learning environments; instructional design; research methodologies; translating research into practice; and working collaboratively on complex interdisciplinary projects.

The 2-year program will constitute :

- a) course work, covering some integral areas of study such as emerging educational technologies, research methods & statistics, designing learning environments, adaptive learning;
- b) an 8-week long summer field work for a holistic perspective of various disciplines involved in the domain, and understand their interplay through practical experience
- c) project work

The research goals at IDP in ET, IIT Bombay have been categorized into four thrust areas, namely TELoTS (Technology-enhanced learning of thinking skills), TUET (Teacher use of educational technologies), EDA (Educational data analytics) and EmergE (Emerging technologies). As part of their M.Tech projects, the students will be working on some of these research areas to explore and use new technologies for designing innovative learning solutions to existing educational challenges.

Addressing the growing demand for non-traditional education, ET is an emerging field with great opportunities of research and development both in academic institutions as well as industry.

"Through our M.Tech program, we hope to contribute towards meeting the escalated need of qualified ET experts in research labs, curriculum design roles in schools/ colleges, industries for creating educational applications, training departments for online and remote trainings, and content creator industries for creation of technology-enhanced learning material and field implementation works," shared Prof. Sridhar Iyer, HOD, IIT Bombay.

AZeotropy: India's Largest Chemical Engineering Symposium

IIT Bombay presented AZeotropy, the Annual Chemical Engineering Symposium organised on March 16 and 17, 2019 by the students of Chemical Engineering. Established in 2007 with an aim to bring together students, industry and academia, the symposium comprises of diverse events involving a unique blend of Chemical Engineering-based competitions, lecture series, panel discussions, exhibitions, workshops and informal events.

AZeotropy is now recognized as the leading Chemical Engineering symposium organized in India with yearly participation of over 4000 students from over 300 different engineering colleges all over India and more than 50 corporate personalities working in the field. The 12th edition of AZeotropy came up with workshops like ASPEN, ANSYS Fluent, COMSOL, MATLAB, DWSIM, which saw a huge participation of students of colleges from all over India.

Flipping 12 golden editions of the symposium, the 13th edition is all set to take place on 16-17 March 2019. AZeotropy 2019 highlights the theme, Nanotechcellence- demystifying the nanoworld. By bringing together academic and industrial research, we make an effort to zoom into the invisible. We present to you groundbreaking panel discussion probing into the applications of nanotechnology and a plethora of competitions which would further consolidate the knowledge of budding engineering enthusiasts. The event will witness eminent personalities and professionals in that field to enlighten the young minds.

AZeotropy 2019 serves as a platform for students to showcase their enthusiasm and prowess through the plethora of exciting events and competitions that we have in store encompassing the different elements that appear under the purview of Chemical Engineering. The mind boggling workshops on ASPEN PLUS, ANSYS Fluent, COMSOL, MATLAB, DWSIM, HAZOP, OPEN Life Cycle Assessment, Open FOAM will be conducted in the campus. Some of the competitions released this year are ChemRover, Pump-it, Viscometer, Chem-o-Philia, Nano-Invento, Affiche, Q-Viz-It, IDP, Chemathon, Cipher.

The total prize money for the competitions announced was INR 2.46 lakhs.

Fourth World Congress On Disaster Management



Chief Minister Mr. Devendra Fadnavis inaugurating the Fourth World Congress On Disaster Management. Mr. Vinod Tawde, Minister Of Higher & Technical Education, Prof. Devang V. Khakhar, former Director, IIT Bombay and other dignitaries during the inauguration

The fourth World Congress on Disaster Management (WCDM-2019) was organised during January 29-February 1, 2019 to deliberate on some of the most critical issues and challenges of implementation of the global frameworks on building resilience to disasters.

Organised jointly by the Government of Maharashtra, Disaster Management Initiatives and Convergence Society (DMICS), IIT Bombay and Tata Institute of Social Sciences (TISS) Mumbai, WCDM-2019 had been designed to be the largest assembly on disaster management outside the UN system.

Over 1,100 registered participants attended the event. This included around 900 delegates and invitees. Over 400 papers were presented, of which around 370 were peer-reviewed, while the remaining were invited presentations by world-renowned experts. Interestingly, over 500 registered delegates were government officials from different states in India, and a few from other countries. Many of them mentioned that the participation was a life-changing experience. International participants from 30 countries attended the Congress.

IIT Bombay was able to bring several unique features to the Congress. In partnership with SINE, we

conducted a national competition of startups relevant to disaster management. The best 16 startups were invited to pitching/ mentoring session during the Congress. The top 3 startups selected during this session will receive prize of Rs. 1 lakh, Rs. 50,000 and Rs. 25,000 from Government of Maharashtra. In addition, free stalls in the Exhibition Hall were provided to the best 10 startups.

A very important part of WCDM was the Exhibition of Disaster Management products, services and capabilities. The Exhibition Hall was set up in partnership with FICCI at KV Grounds of IIT Bombay. Nearly 70 companies and organisations set up their displays. Important highlights included the National Disaster Response Force, which showcased several important equipments used for this purpose, the State Disaster Response Force of Maharashtra, and Municipal Corporation of Greater Mumbai (both Disaster Management Department and Mumbai Fire Brigade).

A Start-up Zone was also set up where startups with products for disaster management were specially selected with assistance of SINE for showcasing.

National Symposium On Cryogenics And Superconductivity (NSCS-27)



Prof. M.D. Atrey (on the podium) (L-R) Prof. Devang V. Khakar, former Director, IIT Bombay, Mr. Srikrishna Chervu, Executive Director (Cryogenics), IOCL, Mr. Prabhat Singh, MD & CEO, Petronet LNG Ltd., Dr. T. S. Datta, Head, Cryogenics and Applied Superconductivity group, IUAC on the dais

production and behaviour of materials at very low temperatures. This symposium was aimed to provide opportunity for the professionals in the field of cryogenics and superconductivity to discuss latest trends and activities. Talks on making an indigenous MRI machine and helium liquifier were part of the symposium.

ISRO brought a prototype of cryogenic engine for display at its stall at the symposium. ISRO's Cryogenic Upper Stage Project (CUSP) envisaged the design and development of the indigenous Cryogenic Upper Stage to replace the stage procured from Russia and used in GSLV flights. The main engine and two smaller steering engines of CUS together develop a nominal thrust of 73.55 kN in vacuum. During the flight, CUS fires for a nominal duration of 720 seconds.

A day of short courses as pre-conference activity in this 27th edition was also held. The participants presented their latest research work in the form of invited talks, contributed lectures and poster presentations.

More than 300 participants attended the symposium and more than 175 papers were presented during the symposium. Besides 10 invited talks, four plenary speakers were invited. Prof. V Selvamanickam, M.D. Anderson Chair Professor of Mechanical Engineering, University of Houston, USA spoke on *"High Performance Superconductor Tapes and Wires for High Magnetic Field Applications"*. Dr. Tripti Sekhar Datta, Head of Cryogenics and Applied Superconductivity group, IUAC, India spoke on *"Cryogenics and Superconductivity In Accelerators and Medical Systems: Scenario in India and the world"*.

Dr. Ziad Ahmed Melham, Strategic Business Development Manager, Oxford Instruments Nanoscience, UK spoke on *"Superconducting and Cryogenic Technologies for Quantum Applications"* and Mr. Parag P Kulkarni, Director, INOX India Pvt. Ltd spoke on *"LNG Opportunity in India"*.

The 27th National Symposium on Cryogenics and Superconductivity (NSCS-27) was jointly organized by Indian Cryogenics Council and IIT Bombay during January 16-18, 2019 at IIT Bombay. The bi-annual symposium provided an important platform for young researchers, scientists and technologists to interact closely with the experts and practicing engineers from diverse background. Prof. M.D. Atrey, Department of Mechanical Engineering and Prof. H.J. Bahirat, Department of Electrical Engineering were the Chair and Co-chair of the symposium.

Cryogenics and Superconductivity play pivotal roles in modern scientific applications starting from modern accelerators to medical diagnostics. Cryogenics is the



Cryogenic engine for display at the stall of the symposium brought from LPSC / ISRO

Aiming For A Healthy Campus



Yogastha - The Wellness Club organizes regular yoga sessions, workshops, yoga competitions and various lecture sessions at IIT Bombay campus. The events are organized to help students, faculties and campus residents to live stress-free and develop healthy life style. The session also help to nurture the yogic practice among the IIT Bombay community. Following events were organised by the Yogastha team :

Dr. Sat Bir Singh Khalsa, PhD, Research Director for the Yoga Alliance and the Kundalini Research Institute and also Assistant Professor of Medicine at Harvard Medical School delivered a talk on *“Yoga Sutra and World Peace: Four Decades of Research”* on January 7, 2019.

Dr. Anil Maheshwari, PhD, Professor of Management at the Maharishi University of Management, Fairfield, Iowa delivered a talk on *“Yoga Sutra and World Peace: Four Decades of Research”* on January 8, 2019.

Ms. Rujuta Diwekar, India's leading speaker on nutrition and a writer of various well-acclaimed books, delivered a talk on *“FITNESS Beyond Numbers”* on January 28, 2019.

Yogastha conducted the 2nd edition of **Yog Pratiyogita** on March 23, 2019 for the campus residents. It witnessed a participation of 35 yoga enthusiasts competitors under three different age group for both male and female categories.

Some of the important asanas performed were shirasasana, mayurasana, Sarvagasana, vimanasana and dhanurasana among others. **Prof. Atul Srivastava and Prof. Neeraj Kumbhakarna** addressed the gathering and distributed prizes for the winners.

Research in focus

Research Group From IIT Bombay Recognised For Their Work That Shows A Scientific Basis For Homoeopathic Medicines And Its Connection To Nanotechnology

In the recently announced AYUSH awards presented by the Central Council for Research in Ayurvedic Sciences (CCRAS), an autonomous body of the Ministry of AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy), a research group from the Indian Institute of Technology Bombay has won two top prestigious awards.

The Vice President of India, Shri Venkaiah Naidu, conferred the Lifetime Achievement award on Prof. Jayesh Bellare, a Professor in the Department of Chemical Engineering at IIT Bombay in an event organised to mark the World Homeopathy Day. In the same event, one of Prof. Bellare's student, Prashant Chikramane, has been awarded the AYUSH Young Scientist Award for his work on providing a scientific basis for homoeopathic medicines. Both awards consist of a certificate, a memento and a cash award.

The awards recognised their path-breaking research on the structure of homoeopathic remedies in the realm of nanotechnology and the extensive studies on the hormetic biological effects of nanoparticles. The research group, along with the two awardees, includes Prof. A K Suresh, Dr. S G Kane, Dr. Mayur Temgire, Abhirup Basu, Neha, Neelakshi, Dhrub and others.

Contributions by the award winners:

The research by this group at IIT Bombay, over the last decade, has shown that drug delivery through nanoparticles is efficient and is important in allopathy, as well as in Ayurveda and Homoeopathy. In one such research on the application of nanobiology in allopathy, Dr. Bellare and his colleagues (Kalita, Shome, Honavar and others) have used nanoparticles of carboplatin—a drug commonly used to treat ovarian cancer—to show how quickly they could reach the retina of the eyes in humans. This work could inspire new drugs to treat retinal tumours (retinoblastoma).

Extending their interest into alternative medicinal systems, the research group led by Prof. Bellare in another study has shown the nanotechnology basis for Ayurvedic bhasma and has demonstrated that nano-particulates are present in bhasma (an ash-like Ayurvedic medicine), are much more active biologically.

Curious to apply their findings in the field of Homoeopathy, Prof. Bellare's research group used



electron microscopy to show the presence of nanoparticles in homoeopathic medicines—a proof that could put to rest some of the debate in this controversial field of medicine. Their findings provide a material basis for their therapeutic action, without needing recourse to any mystic energy or supernatural powers that some believe. In a series of five internationally published papers in peer-reviewed journals, they have shown that despite the apparent extreme dilution used in preparing homoeopathic medicines, there are detectable amounts of original drugs present in the form of nanoparticles. They have also demonstrated that the concentration of these drugs, though small, is measurable.

Also, Prof. Bellare's group has been successful in demonstrating that the coating of silica used in homoeopathic medicines may provide a controlled-release mechanism—a widely exploited mechanism in new forms of drug delivery. The researchers have also studied the process of manufacture and have provided an engineering perspective on how the process generates, stabilises and retains nanoparticles. Interestingly, these nanoparticles, when fed to cell lines, have biologically stimulating effects that can be explained as a hormetic or biphasic response in which small doses stimulate whereas large doses inhibit.

The research outputs from Prof. Bellare's lab has created a broader impact globally and have inspired independent medical practitioners and regulators to use randomised clinical studies and other clinical research to see if the group's fundamental research can impact medical practice and the manufacture and regulation of such medicines.

Link to Published work: <http://researchmatters.in/news/research-group-iit-bombay-recognised-their-work-shows-scientific-basis-homoeopathic-medicines>

Deshpande-Gopalakrishnan Symposium Brings Together Like-Minded Experts



Mr Arun Kumar, Chairman and CEO, KPMG India Pvt. Ltd, Mr. Kris Gopalakrishnan, Former Co-Chairman and CEO of Infosys Technologies Limited, Prof. Devang V. Khakhar, former Director IIT Bombay, Dr. Gururaj Deshpande, Co-Founder and Chairman, Deshpande Foundation at the Inaugural Session

Desai Centre for Entrepreneurship, IIT Bombay in collaboration with IIT Madras organized the second Deshpande-Gopalakrishnan Symposium on Innovation and Entrepreneurship in India during January 20-22, 2019. The event was a congregation of like-minded visionary entrepreneurs, innovators, academicians and corporate professionals. **Prof Anand Kusre**, Desai Centre for Entrepreneurship and **Prof Milind Atrey**, Department of Mechanical Engineering co-ordinated the Symposium in collaboration with the management team from IIT Madras and **Gopalakrishnan-Deshpande Center (GDC)**. The core objectives of the symposium were to foster and nurture the entrepreneurial spirit surging across India. The symposium not only served as a platform for facilitating peer learning and interaction among guests and delegates but it also helped them network and learn from each other's experiences. They gained insights from the rich combination of keynote speeches and panel discussions.

The inaugural address was delivered by **Dr Gururaj Deshpande**, Co-Founder and Chairman, Deshpande Foundation and **Mr. Kris Gopalakrishnan**, Former Co-Chairman and CEO, Infosys Technologies Limited. The keynote speakers at the symposium were **Mr. Arun Kumar**, Chairman and CEO, KPMG India

Pvt. Ltd.; **Mr. D. Shivakumar**, Group Executive President (Strategy), Aditya Birla Group; **Dr. Kerry Healey**, President, Babson College, Massachusetts and **Mr. Ashank Desai**, Co-Founder and Director, Mastek Ltd. The themes of the panel discussions were as follows:

- Entrepreneurship and curriculum models
- Building an entrepreneurial ecosystem in academic institutes - challenges and solutions
- The experience of I-NCUBATE participants
- Crossing the valley of death
- Sparking innovation through industry-academia partnerships

The GDC for Innovation & Entrepreneurship at IIT Madras, coordinated the joint effort. GDC facilitates the necessary thought leadership and networking impetus for building the systems and processes that enable innovative and entrepreneurial thinking across the Institute at all levels. GDC helps in the crystallization of out-of-the-box solutions that emerge from the Institutes' research projects undertaken by the faculty and research scholars at IIT Madras. The vision is to encourage research, innovation and entrepreneurship that can create significant economic and social impact at a national and eventually at a global level.

Desai Sethi Centre for Entrepreneurship Organizes The Third Cohort of I-NCUBATE

The Desai Sethi Centre for Entrepreneurship in collaboration with the Gopalakrishnan-Deshpande Centre for Innovation and Entrepreneurship GDC at IIT Madras organized the I-NCUBATE program for research teams from IIT Bombay. The program began with an inaugural session in August 2018 and was concluded with a Finale on January 20, 2019. On behalf of IIT Bombay, the program was led by **Prof. Anand Kusre** and **Prof. Milind Atrey**.

I-NCUBATE is an experiential programme designed along the lines I-CORPS (NSF Innovation Corps) to include faculty lead along with an entrepreneur lead - research team. The teams explored the viability of taking research projects to commercialization stage. This objective is met by a structured programme including interactive sessions and rigorous field work.

The program emphasizes upon an evidence-based validation of their ideas by encouraging them to interact with a sufficiently large number of prospects and potential customers.

The IIT Bombay Cohort comprised faculty-student teams from IIT Bombay, the teams with wide ranging mix of ideas- Reclamation of dumped foundry sand, AI based security and surveillance system, low cost indigenous automated orthosis caliper, unique teaching aid – an app for developing Hindi language skills, water quality monitoring in remote areas, AI based testing for skin care products were some of the ideas that were explored during the cohort.

The projects in this Cohort, the first at IIT Bombay were led by Prof. Soumyo Mukherjee, Prof. Sanjay Mahajani, Prof. Kriti Ramamirtham, Prof. B. Ravi, Prof. Rohit Srivastava, Prof. Malhar Kulkarni, Prof. Bhaskaran Raman and Prof Arjun Jain. The Finale was an exciting opportunity for all the teams to pitch their work and interact with Dr. Gururaj Deshpande, Ms. Jaishree Deshpande, Mr. Kris Gopalakrishnan and the senior management team from GDC, IITM.

DSCE is now gearing up for Cohort V of I-NCUBATE in May-June 2019 where the plan is to roll out across Maharashtra inviting technology innovation and research for participation.



Mr. Kris Gopalakrishnan, former Co-Chairman and CEO of Infosys Technologies Limited, during the final presentation of I-NCUBATE

Vedangi Kulkarni Inspires IITians



Keynote lecture by Ms. Vedangi Kulkarni, the fastest Asian to cycle the globe

Aavhan, the sports fest of IIT Bombay hosted a keynote lecture by **Ms. Vedangi Kulkarni**. Ms. Kulkarni has recently earned the title of fastest Asian to cycle the globe by covering a distance of more than 29,000 km in just 159 days! The session was held on January 10, 2019 and featured Vedangi's record-breaking journey in her own words. She spoke about how she started preparing, her motivation and challenges.

Ms. Vedangi Kulkarni from Pune studied sports management at Bournemouth University, United Kingdom. Preparations for the record attempt began in 2016. The journey began in Perth, Australia in June 2018 and ended in Kolkata, India. It involved cycling a total of 29,000 km in 159 days, pedaling over 300 km a day, spanning 15 countries.

Launch Of Central Online Digital Archive Of Photographs

The Central Online Digital Archive of photographs and videos was launched on January 15, 2019 by Prof. Devang Khakhar, former Director, Prof. A.K. Suresh, Deputy Director (AIA), Prof. P.M. Mujumdar, Deputy Director (FEA), Dr. R. Premkumar (Registrar), Prof. Upendra Bhandarkar (Library Committee member), Dr. Manju Naika (Chief Library Officer) and Ms. Falguni Banerjee Naha (Public Relations Officer) at the Institute's Central library.

This digital archive (Omeka Open Source Content Management system) contains a large collection of old and new photographs and videos of various Institute events such as Convocation, Foundation Day, Teachers Day, Alumni Day, Institute Colloquium, lectures, seminars, workshops, student events etc. The portal is now open to all for use

The photos and the videos from the archive can be downloaded from the link : <http://archive.library.iitb.ac.in/>



Prof. D.V.Khakhar, former Director, IIT Bombay along with the Institute functionaries during the launch

Inauguration Of Children Section At Central Library



During Diamond Jubilee of Indian Institute of Technology Bombay, Central Library has created children section with suitable furniture and reading tables to make Central Library more inclusive in the campus with vision to inculcate reading habits, instill democratic values, social belonging and to ignites the minds of campus children at very young age. Children Section has been created with around 1,500 books and other reading materials to meet the needs of campus school children. Prof. D.V. Khakhar, former Director, IIT Bombay inaugurated the Children's Section on March 7, 2019 at Central Library.

Inauguration Of Institute's Recreational Facility



Glimpses of recreation facilities at the new gymkhana building

Prof. Devang Khakhar, former Director of IIT Bombay inaugurated the Institute's recreational facility for faculty, officers and staff on January 4, 2019 at the fourth floor of the new gymkhana building. The facility provides recreational activities such as badminton, pool table, gym, children's play room, carom, chess, etc. All permanent employees and their dependents, post-doctoral fellows, retired or visiting faculty and temporary employees in officer grade (EO1& above) having a tenure of one year or more can avail this facility.

Autonomous Underwater Vehicles AUV-IIT Bombay Complete 100% Mission in the SAVe 2019

AUV-IIT Bombay is a team of around 40 students ranging from bright-eyed freshmen to driven senior undergraduates spanning various branches of engineering. Matsya, which stands for a fish in Sanskrit, is a series of Autonomous Underwater Vehicles (AUVs) being developed by the team, with the aim of delivering a research platform in the field of underwater robotics and to promote autonomous systems. AUV-IIT Bombay team has developed five vehicles each one more advanced as well as more capable than its predecessor since its inception in 2011.

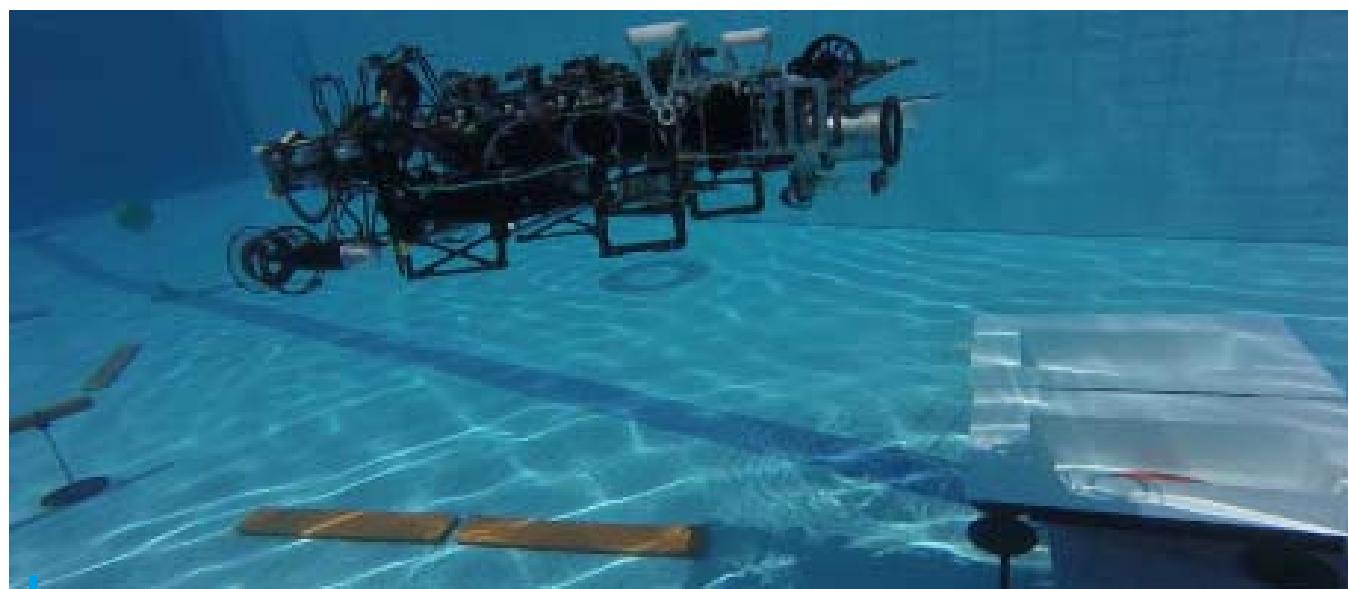
The team has created history by becoming the first ever team to complete 100% of the mission in the Student Autonomous Vehicle

(SAVe) 2019 conducted by National Institute of Ocean Technology (NIOT) Chennai in the semifinals. National Institute of Technology (NIOT), under the Ministry of Earth Sciences, organized the Sixth National Student Autonomous Underwater Vehicle Competition for students pursuing engineering degree to visualize and design an autonomous underwater vehicle. The conceptual basis for Student Autonomous underwater Vehicle (SAVe), is a highly mobile Autonomous Underwater Vehicle (AUV) to be built based on engineering principles.

The competition was held at IIT Madras and 14 teams from across the country participated in the final round of the competition. Five teams: IIT Bombay, MIT Pune, NIT Rourkela, IIT Kanpur and ZHCET Aligarh cleared the semifinals. IIT Bombay's AUV Matsya 5B, also completed most of the tasks in the finals and was declared joint winners with NIT Rourkela. In fact, AUV-IIT Bombay were the defending champions having won the last Student Autonomous Vehicle (SAVe) competition as well.



Students of AUV-IIT Bombay with their AUV, Matsya 5B



AUV Matsya 5B performing a task

UMIC IIT Bombay Win ASME SDC Asia Pacific 2019



UMIC Team, IIT Bombay win ASME SDC Asia Pacific 2019



A team of 14 BTech students working with the Unmesh Mashruwala Innovation Cell (UMIC), IIT Bombay won the Asia Pacific regionals of Student Design Competition (SDC) organized by American Society of Mechanical Engineering (ASME). The team comprised of one fourth year student, two third year students and 11 freshmen. The team was guided by **Prof. Abhishek Gupta** from the Mechanical Engineering Department.

The competition was held in VIT, Vellore during Feb 1 to 3, 2019. This year's problem statement was to make a robot capable of picking

and placing balls of different diameters (ranging from ping pong to basketball) placed on a pipe 3-5 cm in diameter and 20 cm in height. There were 1 on 1 matches and the team with higher score won the round.

UMIC, IIT Bombay came first in the competition in which a total of 21 teams, including IIT Roorkee, IIT Indore, 3 NITs, one international team from Hong Kong Polytechnic University and VIT participated. Second place was secured by VIT Vellore, which scored 24 points against 26 points of the team UMIC in the finals.

UMIC, IIT BOMBAY will now represent India and Asia-Pacific region in the world finals of ASME-SDC,19' to be held in November 2019 in Utah, USA.

Previously, team UMIC had won the world finals of ASME-SDC, 17'. Apart from ASME-SDC, UMIC also participates in two other competitions - Mahindra RISE: Self Driving Car competition and International Aerial Robotics Competition.

The team is looking for new opportunities to help the society while participating in these competitions to get as much experience as they can and be sharp. Also, these kinds of competitions teach the students how to think in a stressful environment and make fast and good decisions when on the edge.

Abhyuday's Annual Social Festival 2019

The annual social fest of Abhyuday on the theme '**Engage, Encourage, Empower**' was held on January 12 and 13, 2019. The event counted on a bunch of philanthropic hearts to raise funds for social causes. In collaboration with Nayan Foundation which is working towards simplifying the education of differently-abled youth, Abhyuday arranged a musical night to provide a platform for a band of differently-abled persons with hidden talents.

Ms. Ritu Pathak, Ms. Pawni Pandey, Mr. Pranav Chandran, Ms. Neha Bhanushali and Mr. Jiten Singh presented the musical night '**Concert for a Cause**' with an amazing setup to support the differently-abled talents. The panel discussion saw CEO Ms. Anchal Arora of the company 1702 Digital, winner of Femina Miss India 2014, Ms. Koyal Rana, Project director of Dimagi India, Ms. Neelima Dhingra, TEDx speaker and model Nikita Sharma, journalist Ms. Alka Dhupkar and child champion from "**Save the Child**" organisation Ms. Rizwana discussed on "**Women Empowerment**".

- A **self-defense workshop** was held in collaboration with the Mumbai Police, Also, a menstrual hygiene workshop was conducted. Ira Singhal, the first differently-able woman to achieve the first rank in civil services exam, was invited for an inspirational talk.
- Speakers of **Manual Scavenging** session were Mr. Bezwada Wilson, a social activist and Raman Magsaysay awardee along with Ms. Keerthi Sagathia, renowned singer and musician. Both of them raised their voice against manual scavenging prevalent in India.
- To create a powerful impact and spread awareness about the emerging social issues in the society, panel discussion on **road safety** and **E-waste**, workshop on **health nutrition** by Tasneem Shaikh, talk on youth empowerment by Himeesh Madan were held. Stories of Indian social entrepreneurs were shared by Rashmi Bansal. The event "**Role of an individual**" was attended by Mr. D. Sivanandhan, Former DGP of Maharashtra and Mr. Dilip Kulkarni, environmentalist. An event on **rural health development** by Dr. Abhay Bang, LGBTQ by Mr Nakshatra Bagwe, trending hashtags by Justice BN Srikrishna, success stories by Murlikant Petkar were held. Virdhawal Khade, Olympian and Asian games medalist also participated.
- Along with these events, URI movie was screened. Theatre Play, Poetry Slam by Bikram Bumrah and Dushyant Singh, Wajood Street Play, workshops on I-POLICY, UN Global Goals, Zero Budget Politics were held. Few documents were screened and health check-ups were held.



Mr. Bezwada Wilson, social activist and Ramon Magsaysay awardee speaking on root causes of manual scavenging and its link to the caste system, in the event "*Eradicating Manual Scavenging*"



Addressing the role of individual by IPS officer, former DGP of Maharashtra **Mr. Sivanandhan** spoke about building city's defences post 26/11



"Socio Sports" :- A Padma Shri awardee and India's first paralympic gold medallist **Mr. Murlikant Petkar** and Arjuna Awardee Virdhawal Khade in "Socio-X" series of events.

Abhyuday Holds Career Counselling Campaign



Abhyuday, along with more than 300 students of IIT Bombay, conducted Career Counselling Campaign (CCC) in 60 schools of BMC and private schools across Mumbai. The campaign covered around 10,000 students on November 26, 2019. Their helpline number 1800-200-2090 provides career guidance to the students in every corner of the country.

Tsinghua University Delegation Visits IIT Bombay



A senior delegation from Tsinghua University led by Prof. Wang Xiqin, Executive Vice President and including Prof. Wang Youqiang, Tsinghua Library Director, Dr. Zhang Chuanjie, Asian University Alliance (AUA) Secretary and Ms. Wang Yaqian, Administrator (Policy & Programs), AUA Secretariat visited IIT Bombay on January 21, 2019.

From IIT Bombay former Director Prof. Devang Khakhar, Deputy Director (FEA) Prof. P M Mujumdar and Dean of International Relations Prof. Swati Patankar interacted with the delegation. This visit was to further deepen the relations between the two universities, both of which have very strong engineering faculties, exchange ideas regarding the development of AUA and discuss collaboration opportunities in the framework of AUA and to promote cooperation between the libraries of AUA universities. This visit was organised by Office of International Relations.

Study in India - Bangladesh Education Fair



IIT Bombay participated in the educational fair in Chittagong, Bangladesh on February 26 and 27, 2019, and in Dhaka, Bangladesh on March 1 and 2, 2019. The fair was organized by 'Study in India', an initiative by the Ministry of Human Resource Development (MHRD), Government of India. The 'Study in India' initiative aims to make India a preferred education hub for students from across the globe, by elevating its position in the global educational landscape.

Along with IIT Bombay, IIT Madras, IISER Kolkata and IIM Bangalore also participated in the said fair.

Prof. Kishore Chatterjee from the Department of Electrical Engineering and **Mr. Arnab Das**, Executive Officer (International Relations) represented

IIT Bombay in the fair. The team was accompanied by the alumni of IIT Bombay from Bangladesh. In Chittagong, Mr. Avishek Ghosh, MTech, Civil Engg. (2018), and Mr. Ayon Das, MTech, Civil Engg. (2018) were present in the stall of IIT Bombay. In Dhaka, Mr. Sohel Rana, MTech, Civil Engg (2018) and Mr. Apurba Karmakar, MTech, Electrical Engg. (2018) were present in the stall. The presence of the alumni of IIT Bombay instilled a sense of confidence and enthusiasm among the visitors.

The IIT Bombay team along with the alumni from Bangladesh interacted effectively with Mr. Jishnu Prasad Mukherjee, First Officer, Education, High Commission of India, Dhaka, to encourage more students from Bangladesh to join various academic programs at IIT Bombay.

'International Vision Zero Conference' on Occupational, Safety and Health

Three days International Conference on the VISION ZERO and its relevance to Occupational Safety and Health was held during February 18-20, 2019 in Mumbai. It was organized by Directorate General Factory Advice and Labour Institutes (DGFASLI), Government of India, Ministry of Labour and Employment, German Social Accident Insurance (DGUV), Germany in association with Indian Institute of Technology Bombay and International Social Security Association - Manufacturing, Construction and Mining. **Prof. Sandip Roy**, Department of Chemical Engineering, IIT Bombay was the Convener of the Conference.

The concept of 'Vision Zero' is fast gaining international acceptance and is expected to leverage the efforts of the Government of India to raise the occupational safety and health standards in the country so as to improve the occupational safety and health situation. The participants attending the conference from various sectors across a wide variety of industries are expected to be benefited by the common platform provided by the conference through sharing of best practices both nationally and internationally. On the other hand, the international community will get an appraisal of the occupational safety and health status in India, thereby exposing the Indian industrial occupational safety and health scenario to the international community.

The conference provided a forum for promoting safety and health at work by exchanging knowledge, practices and experience. Experts in the field of Occupational Safety and Health reinforce and build networks and alliances while laying the groundwork for cooperation and strengthening relationships. More than 1200 national and international delegates comprising of occupational safety and health professionals from the manufacturing, mining and construction sectors participated in the conference. The speakers segment comprised of international speakers from Germany, France, Chile and

many more European countries. The speakers from India include top OSH executives and professionals, government officials expert in the field of OSH.

The Ministry of Labour and Employment has ventured into making international collaborations to further strengthen the labour standards in the country. One such action was an Memorandum of Understanding entered between (DGFASLI), an attached office of the Ministry of Labour and Employment and the German Social Accident Insurance (DGUV) that seeks to enhance safety and health at work, to reduce the occurrence of work related accidents and diseases and to promote social protection.

Keeping in tune with the changing industrial scenario, the recommendations of the conference are very vital in achieving sustainable economic progress, in consonance with the changing requirements of safety, health and environment aspects in the country.

An exhibition showcasing personal protective equipments (PPEs) manufactured in India under "Make In India" movement, Occupational Health, High Risk Prevention, Work Environmental Protection etc., was held on the side of the conference by Safety Appliances Manufacture Association (SAMA), all under one roof. The exhibition provided the most efficient platform to support technological communication and business trade. About 100 leading manufacturers / suppliers from India participated in the exhibition.

Mr. Heeralal Samariya, Secretary, Minister of Labour and Employment, Government of India, inaugurated the Conference on February 18, 2019 at IIT Bombay. Mr. Devender Singh, Economic Advisor of Ministry of Labour and Employment, Prof. Devang V. Khakhar, former Director, Indian Institute of Technology Bombay and Dr. Avneesh Singh, Director General, DGFASLI also graced the occasion.

Blood Donation Camp



Sthaniya Lokadhikar Samiti in collaboration with Abhyudaya IIT Bombay organised blood donation camp on March 16, 2019.

It was organized with the association of Blood Bank of KEM hospital. Faculty, staff, students and their family members participated in the event and a total of 352 bottles of blood were collected for this noble cause.

Dedicated efforts of the team of KEM Hospital along with Sthaniya Lokadhikar Samiti, Abhyudaya team and Institute authorities made it a successful drive.

NGO Workshop By RuTAG



A one day NGO workshop was organized by Rural Technology Action Group (RuTAG) IIT Bombay on January 12, 2019 at the campus of K.S. Wani Institute of advanced studies in Marathi, Dhule, Maharashtra. RuTAG is a project initiated and funded by O/o Principal Scientific Advisor to the Government of India with objective of achieving rural development through science and technology based interventions. The main objective of this workshop was to interact with grass root level NGOs who work in rural areas of Khandesh region of Maharashtra to identify potential projects (demand driven S&T interventions) to

address the issues faced by them. The workshop was attended by 36 participants from 12 NGOs from Khandesh. The participating NGOs included well established names such as – Lupin foundation, Ashwamegh Sanstha, Vasudha, Gayatri foundation, PRINCE, MAVIM, BAIF MITTRA, Krishi Vigyan Kendra (KVK), and Grassroot Innovation Augmentation Network (GIAN). Faculty members from local education institutes such as Shri Shivaji Vidya Prasarak Sanstha's Bapusaheb Shivajirao Deore College of Engineering (SSVP) and Dr. Babasaheb Ambedkar college of Social work (MSW College) also participated during the workshop. Prof. Anand B. Rao, Professor CTARA and PI RuTAG IIT Bombay along with Dr. Rupali Khanolkar, Project Manager, RuTAG IIT Bombay participated during the workshop. The main problem areas highlighted by the NGOs during the workshop were related to processing of local produce (post –harvest technologies) such as Custard apples, raw Mangoes, Onions, Chironji, Cotton, Minor millets etc. Problems regarding drudgery in making of copper and brass articles and drudgery in Jin (Ghongadi) making process were also discussed. SSVP and PRINCE have expressed keen interest in working in collaboration with RuTAG IIT Bombay in future.

IIT Bombay Hosts University TEDx Event



TEDxIITBombay was a University TEDx event organised with the theme Science (F)or People. This served as a platform to deliberate upon the role of publicly funded educational institutions, innovating affordability and the relevance of traditional practices in contemporary research. Speakers were chosen from among faculty, staff, students and alumni. The event was held on January 19, 2019 at the Open Air Theatre of SAC, IIT Bombay

Washington University in St. Louis Hosts Forum for India: Personalized Medicine and the Future of Healthcare

Washington University in St. Louis Hosts Forum for India: Personalized Medicine and the Future of Healthcare event was held on February 22, 2019. The event brought together leading researchers from Washington University, corporate leaders from India to discuss the opportunity for personalized medicine in the region.

Washington University in St. Louis presented its Forum for India, an event designed to share cutting edge research and discussed the current trends around a vitally important theme: personalized medicine and the future of healthcare. The event will took place on February 22 at the Trident Hotel, Nariman-Point in Mumbai.

Personalized medicine holds great promise for improving the treatment of disease. Rather than a one-size-fits-all approach to a particular illness, personalized medicine is aimed at tailoring treatment to the unique genetic, molecular, clinical, behavioral and environmental profiles of each patient. Washington University is a leader in the emerging field of personalized medicine, which will help doctors become more sophisticated in preventing, diagnosing and treating disease and choosing targeted therapies that are more likely to have successful outcomes.

"The Forum for India showcased Washington University's leadership role in advancing personalized medicine," said Chancellor Mark S. Wrighton. *"The university has been at the forefront of discovery and research when it comes to genetic sequencing, having played an integral role in the Human Genome Project. We continue to push forward this important work and look forward to discussing collaborative approaches with our partners in Mumbai."*

Leading researchers from Washington University's top-ranked School of Medicine—along with corporate leaders and clinicians based in India—discussed their research, share insights and explore collaborative opportunities centered around personalized medicine and healthcare innovations.

The first keynote speaker was **Dr. Rajendra Apte**, the Paul A. Cibis Distinguished Professor at Washington University School of Medicine in St. Louis. Dr. Apte serves as the Director of Translational Research in the Department of Ophthalmology and Visual Sciences and is also a Professor in the departments of Developmental Biology and of Medicine. He is a vitreoretinal surgeon and clinician scientist, whose basic research is focused on inflammation, aging and neurodegeneration. Dr. Apte also explores the pathways and processes from drug discovery and development through to clinical trials.

"As the population ages, we are confronted with diseases reaching epic proportions," said Apte. "The problems associated with aging are immense and acutely felt in Southeast Asia. Alzheimer's disease, glaucoma and diabetes-related retinopathy affect tens of millions of people in India. We want to make meaningful, fundamental discoveries in the lab, then develop individual therapies and cures. It is a bench to bedside approach, and doing it collaboratively—with partners in India and beyond—gives it a lot of power."

The second keynote speaker was **Dr. Philip Payne**, Director of the Institute of Informatics and the Robert J. Terry Professor, Professor of Medicine, Division of General Medical Sciences and Professor of Computer Science and Engineering at the School of Engineering & Applied Science at Washington University. Dr. Payne is an internationally recognized leader in the field of translational bioinformatics and clinical research informatics. These applications harness and manage big data from a variety of sources—including DNA sequences and electronic medical records—leading to a number of benefits, including an accelerated rate of scientific discovery, improved clinical decision making and the ability to promote healthy behaviors at a population level.

"India is making some very interesting moves to implement broader access to health insurance and healthcare for all parts of their population," said Payne. *"Given the size of India's population and the complexity of delivering care at that scale, in many ways, a country like India could leapfrog the United States in terms of thinking about data driven approaches to improve wellness in the population."*

In addition to the keynote speeches, Gerard Baker, Editor-at-Large of the Wall Street Journal, gave a talk discussing the economics of healthcare. There were two panels that addressed the financial and regional impacts of healthcare and personalized medicine during the day.

Business strategies for the future of healthcare in India:

- o Hari Buggana; Managing Director, InvAscent
- o Ramesh Hariharan, CEO and Co-Founder, Strand Life Sciences
- o Adarsh Natarajan, CEO, Aindra
- o Justin Xiang, PhD; CIO & Co-Founder Syno Capital

Innovations and trends of Indian healthcare: Moderated by Ashley Thomas Jacob, MD; Medical Director, Mulamoottil Eye Hospital, Vice-Chairman & CEO Mulamoottil Group:

- o Rajendra Apte, MD, PhD; Paul A. Cibis Distinguished Professor, Washington University in St. Louis
- o Rajendra Badwe, MD; Director, Tata Memorial Centre
- o Rahul Purwar, PhD; Associate Professor, IIT-Bombay
- o Anil Raghavan; CEO, SunPharma Advanced Research Company

Washington University has deep ties to the region. Through the university's McDonnell International Scholars Program, Washington University collaborates with several leading research institutions in India to help address challenges such as environment, agriculture and public health. The Academy's Global Energy and Environment Partnership (MAGEEP) addresses air quality issues—specifically as they pertain to India—via collaborative research and implementation projects. And the IIT-Bombay-Washington University Executive MBA program is the only one in the world to confer a degree from both an Indian and an American university.

National Conference 'Next Frontiers in Civil Engineering: Sustainable and Resilient Infrastructure'



Retired faculty from Department of Civil Engineering, IIT Bombay with Dy. Director (AIA) and Prof. T.I. Eldho, Head, Department of Civil Engineering with current faculty and staff from the department

As part of the Diamond Jubilee celebrations, the Department of Civil Engineering, IIT Bombay organized a National Conference titled 'Next Frontiers in Civil Engineering: Sustainable and Resilient Infrastructure' during November 30-December 1, 2018. The conference aimed to highlight the role of Civil Engineering towards the creation of a sustainable and resilient society. The conference covered all specializations of Civil Engineering, viz. Construction Technology and Management, Geotechnical Engineering, Ocean Engineering, Structural Engineering, Remote Sensing, Transportation Systems Engineering, and Water Resources



Engineering, bringing together a wide range of keynote lectures and presentations dealing with various practical problems related to infrastructure, housing, transport, water and environment that the society faces today. As part of the conference, the following programmes were organized:

- * Inaugural Function and Conference Keynote Lecture
- * Oral and poster presentations on various disciplines of Civil Engineering
- * Keynote lectures by eminent Engineers/ Scientists and Academicians
- * Felicitation of Retired Civil Engineering Faculty



Inaugural Function and Conference Plenary Lecture : The inaugural function was held on November 30, 2018. The inaugural function was presided over by Prof. A. K. Suresh (Deputy Director, IIT Bombay). Padmavibhushan Dr. Anil Kakodkar inaugurated the conference in the presence of the delegates of the conference and the Civil Engineering fraternity of IIT Bombay. He provided his views on how to move towards to a sustainable society and the role Civil Engineers. He stressed on the value of local solutions, such as using bamboo in construction of low-cost housing solutions for populations displaced due to large Civil Engineering

projects. Mr. Achal Khare presented the conference plenary lecture on 'Ushering into New Era of High Speed Railway – Challenges & Opportunities'. Mr. Achal Khare provided numerous challenges faced by ongoing transport related projects that Civil engineers can address by developing adequate technologies. He presented the details of the Mumbai – Ahmedabad high speed rail corridor "Bullet train" project details with all the challenges in front of Civil Engineers. Further he highlighted on the value of using state-of-the-art technology to enable fast project completion such as use of tunnel boring machine, LiDAR imagery for surveying etc.



Oral and Poster Presentations: The conference covered all major disciplines of Civil Engineering: Construction Technology and Management, Geotechnical Engineering, Ocean Engineering, Remote Sensing, Structural Engineering, Transportation Systems Engineering, and Water Resources Engineering. Extended abstracts were invited across all disciplines. The conference was attended by 111 delegates from various institutions across India other than IIT Bombay Faculty and students. A total of 91 papers were presented. Oral presentations were carried out across multiple parallel sessions spread over the two days of the conference.

Keynote lectures : Experts and eminent Scientists/ Engineers were invited from all major disciplines and presented problems faced in practical real world problems, highlighting possible avenues for future research and next frontiers of Civil Engineering. Overall 6 keynote lectures were delivered. They discussed the inherent interdisciplinary nature of the real-world problems they deal with. The keynote speakers were Mr. M.K. Gupta (Director, Mumbai Metro Rail co. Ltd.); Dr. M.A. Atmanand (Director, National Institute of Ocean Technology, Chennai); Mr. A.P. Mull (Former CEO, Tata Consulting Engineers); Mr. Satish Chowdhury (Director, National Remote Sensing Center, Hyderabad, ISRO); Dr. Veeena Srinivasan (Fellow and Convener, Center for Environment and Development, Bangalore), and Dr. Chetan Hazaree (Head R&D, L&T Mumbai).



Felicitation of Retired Civil Engineering Faculty: The felicitation ceremony was the another highlight of the conference aimed to acknowledge the contribution of the efforts of the faculties rendered towards the positive development of the department. Retired Faculty were invited and Head of the Department Prof. Eldho expressed the gratitude for their sincere services and hard work.

Valedictory Function : The Diamond Jubilee National Conference organized by Department of Civil Engineering, IIT Bombay 'Next Frontiers in Civil Engineering: Sustainable and Resilient Infrastructure' was concluded on December 1, 2018. In the valedictory function, the best poster and oral papers presented were awarded with a certificate and memento.

Institute Colloquium / Lectures



Dr. Tim Fox, Chair, IMechE Process Industries Division Board, Royal Academy of Engineering, Independent Consultant Visiting Professor of Clean Energy and Public Engagement at Exeter University, UK delivered Institute Lecture on *“The ‘Cold Economy’: A New Approach to Cooling”* on February 1, 2019



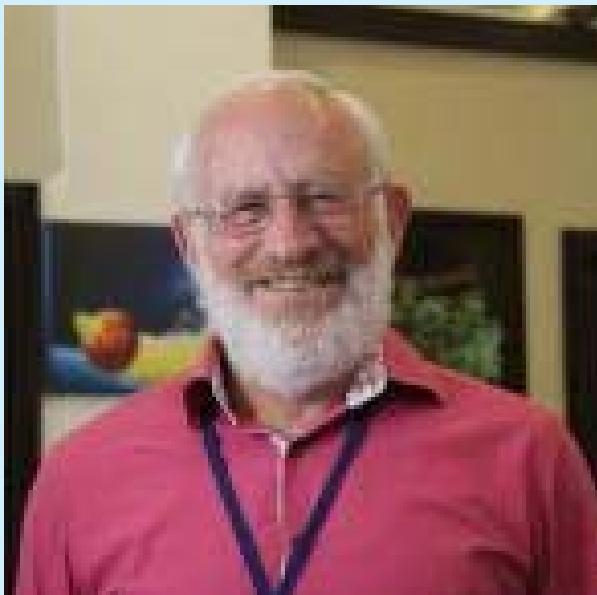
Prof. Dominique Thierry, French Corrosion Institute Brest, France delivered the Steel Colloquium Series on *“Atmospheric Corrosion of Galvanized Steel and Zinc Alloyed Steel”* on February 5, 2019



Prof. Mark D. Zoback, Benjamin M. Page Professor of Geophysics at Stanford University. Director of the Stanford Natural Gas Initiative and Co-Director of the Stanford Center for Induced and Triggered Seismicity, Stanford University, USA delivered Diamond Jubilee Distinguished Lecture on *“What’s New in an Old Industry: Oil & Gas in an Era of Decarbonization”* on February 1, 2019



Prof. Rohini Godbole, FASc, FNA, FNASc, FTWAS, D. Litt. (S.N.D.T. Univ.) Professor, Indian Institute of Science (IISc), Bangalore delivered IIT Bombay Gender Cell Diamond Jubilee Distinguished Lecture on *“Women in Science: status, goals and action plans”* on February 22, 2019.



Prof. Herbert Huppert, Emeritus Professor of Theoretical Geophysics, Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge delivered Diamond Jubilee Distinguished Lecture on “*The fluid mechanics and politics of carbon storage to avert climate catastrophe*” on March 4, 2019



Prof. Dominique Bonvin, Professor, EPFL, Switzerland delivered Institute Distinguished lecture (in memory of Professor K.C. Khilar) on “*Real-Time Optimization – Methods and Applications*” on March 7, 2019



Prof. David Y.H. Pui, Distinguished McKnight University Professor, LM Fingerson/TSI Inc. Chair in Mechanical Engineering, University of Minnesota, Minneapolis, USA delivered Diamond Jubilee Distinguished Lecture on “*Green Technologies & Sustainable Environment*” on March 8, 2019



H. E. Mr. Kenji HIRAMATSU, Ambassador of Japan to India delivered an Institute Lecture on *Transformed partnership between Japan and India “Special Strategic and Global Partnership”* on March 11, 2019



Prof. Shubha Tole, Professor, Department of Biological Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai delivered two lectures as a part of IIT Bombay Gender Cell Diamond Jubilee Lecture Series titled “*Towards a Blueprint for Building the Brain*” and “*What is it like to be a woman in science: a session for men and women*” on March 12, 2019



Prof. Ashoke Sen, Distinguished Professor, Harish-Chandra Research Institute (HRI), Allahabad delivered Diamond Jubilee Distinguished Lecture on “*Can we survive in a metastable universe?*” on March 17, 2019



Prof. Yamuna Krishnan, Department of Chemistry, University of Chicago delivered Infosys Prize Lecture on ‘*DNA Nanotechnology enters the world of Precision Medicine*’ on March 28, 2019

Welcome To The New Director Of IIT Bombay Prof. Subhasis Chaudhuri



The Government of India has appointed Prof. Subhasis Chaudhuri, Department of Electrical Engineering, IIT Bombay as the new Director of IIT Bombay. Prof. Chaudhuri assumed charge as Director, IIT Bombay on April 18, 2019.

Notification

Prof. K. Narasimhan, Department of Metallurgical Engineering & Materials Science (MEMS) has been appointed as Head of MEMS w.e.f. January 18, 2019

Prof. Sharad Bhartiya, Department of Chemical Engineering has been appointed as the Head, Computer Centre w.e.f. March 1, 2019

Ms. Prajakta Juwekar has been appointed as Deputy Registrar (Administration) w.e.f. November 28, 2018

Mr. Ajay Prasad has been appointed as Deputy Registrar (Accounts) w.e.f. November 28, 2018.

Awards and Distinctions

Prof. Bijnan Bandyopadhyay, Convener, Systems and Control Engineering has been awarded Distinguished Lecturer(DL) Award for the IEEE Industrial Electronics Society to lecture on Sliding Mode Control and Event Triggered Sliding Mode control to the IEEE IES/IAS/PELS joint Chapter in Rio de Janeiro, Brazil in April 2019.

Prof. Bandyopadhyay has been invited to deliver a Keynote address in the IEEE International Conference on Mechatronics to be held at Technische University of Ilmenau, March 2019.

Prof. Bandyopadhyay has been invited to serve as one of the Guest Editors for a special issue on **‘Recent Advances in Sliding**

Mode Control under Network Environment’ in ISA Transaction(Elsevier) to be published in early 2020

Prof. Avik Bhattacharya, Centre of Studies in Resources Engineering (CSRE) has been appointed as the Editor-in-Chief of IEEE Geoscience and Remote Sensing Letters (GRSL).

Prof. Maryam Shojaei, Department of Electrical Engineering and her team won the best poster award in International VLSI Design Conference 2019.

Prof. Sujit Jogwar, Department of Chemical Engineering has been appointed as the Associate Editor of the Journal of Process Control (Elsevier Publication) from January 2019.

Prof. G.K. Lahiri, Department of Chemistry has been conferred the

prestigious J.C. Bose fellowship from SERB, New Delhi.

Prof. K. Ramasubramanian, Department of Humanities and Social Sciences has been appointed as the Editor of the Indian Journal of History of Science.

Prof. Rashmi Gupta, Department of Humanities and Social Sciences has been appointed as an Associate Editor of ‘Frontiers in Psychology’ journal.

Prof. Varun Bhalerao, Department of Physics has received the Vainu Bappu Gold Medal for the year 2016 by Astronomical Society of India in the field of astronomy and astrophysics.

Prof. Kirankumar S. Momaya, SJM School of Management has been invited to serve as President-Elect, Global Institute of Flexible Systems Management.

Students News

Dr. Suchibrata Borah, a post-doctoral researcher, Department of Chemistry secured 4th position among top 20 in Department of Science and Technology (DST)-AWSAR science story writing competition conducted by DST in 2018-19 in PDF category. It is a science story writing competition based on published results in an approach to reach the layman public. The top 20 story writers gets a certificate of appreciation, Rs 10,000 and an opportunity to attend Science Film Training Workshop organized by Vigyan Prasar. The result can be viewed at: <https://www.awsar-dst.in/results>

IIT Bombay Student Bags Prestigious S.K. Rangarajan Graduate Student Award



PhD Student Ms. Farjana Sonia receiving the S. K. Rangarajan Graduate Student Award”.

PhD student **Ms. Farjana J. Sonia** (jointly supervised by **Prof. Amartya Mukhopadhyay** of Department of Metallurgical Engineering and Materials Science and **Prof. M. Aslam** of Department of Physics) received the prestigious “*ECS India section S. K. Rangarajan Graduate Student Award*”. It is a very competitive award by The Electrochemical Society (USA - India section). More details regarding the award may be found from the link: <https://www.electrochem.org/rangarajan-award>.

Ms. Farjana received the award certificate and a cheque worth \$500 (USD) as the prize money from the Head of the Department, Metallurgical Engineering and Materials Science on January 29, 2019.

Appointments

Prof. Anshuman Kumar, Department of Physics has been appointed as Assistant Professor w.e.f. January 19, 2019

Prof. Karthikeyan Lanka, Centre of Studies in Resources Engg. has been appointed as Assistant Professor w.e.f. January 23, 2019

Prof. Abhijit Gogulapati, Department of Aerospace Engg. has been appointed as Assistant Professor w.e.f. March 14, 2019

Prof. Saptarshi Prosonno Ghosh, Dept. of Humanities and Social Sciences has been appointed as Asst. Professor w.e.f. March 18, 2019

Prof. Piyush Pandey, Shailesh J. Mehta School of Management has been appointed as Assistant Professor (Grade II) w.e.f. March 25, 2019

Mr. Rohan L. Bagde has been appointed as Astt. Registrar w.e.f. January 2, 2019. Mr. Bagde has been posted in Administration.

Mr. Ritesh Guchhait has been appointed as Sports Officer (Scale-1) w.e.f. March 18, 2019

Mr. Shelendra Rasaniya has been appointed as Sports Officer (Scale-1) w.e.f. March 19, 2019

Mr. Anuj Pratap Singh has been appointed as Sports Officer (Scale-1) w.e.f. March 4, 2019

Ms. Prapti Salunkhe has been appointed as Sports Officer (Scale-1) w.e.f. February 20, 2019

Retirements on January 31, 2019

Prof. Makarand Chintamani Deo, Department of Civil Engineering retired after 36 years of service

Mr. Subhash N. Ghole, Security Officer, Security Section, retired after 39 years of service

Mr. Ashok B. Kamble, Sr. Multi-skilled Assistant, Computer Centre, retired after 39 years of service

Mr. Anil N. Waghmare, Sr. Multi-skilled Assistant, Dept. of Earth Science, retired after 38 years of service

Mr. Satish N. Barge, Sr. Security Guard, Security Section, retired after 38 years of service

Retirements on February 28, 2019

Prof. S.D. Sharma, Department of Aerospace Engineering retired after 30 years of service

Ms. Keerankulangara Girija, Sr. Post Graduate Teacher (Scale II), Campus School retired after 29 years of service

Mr. Dhanai Guptar, Security Guard (SG), Security Section retired after 38 years of service

Retirements on March 31, 2019

Dr. M. Edwin Gnana Raj, Sports Officer (SG), Gymkhana, retired after 35 years of service

Ms. Amita A. Tagare, Student Counsellor (Scale III), Dean SA Office, retired after 29 years of service

Mr. Prabhakaran Kumar, Jr. Technical Supdt., Electrical Maintenance Division, retired after 28 years of service

Mr. Anant K. Mohite, Sr. Mechanic, Department of Electrical Engineering, retired after 33 years of service.

Mr. Sadashiv L. Ramane, Sr. Multi Skilled Assistant, Electrical Maintenance Division, retired after 40 years of service

Ms. Swartha R. Pawar, Multi Skilled Assistant A, Public Health Office, retired after 4 years of service

Golden Jubilee Reunion Class of 1969



Around 170 alumni from the Class of 1969 gathered on the campus on January 19, 2019 to attend the inaugural session of their two-day Golden Jubilee Reunion

Reunion Class of 1973



20 members of the class of 1973 revisited the campus on January 27, 2019 to celebrate their 45th class reunion. They spent the day rediscovering friendships, exploring the campus and reliving their student days

CEP courses scheduled during April - May - June 2019				
Duration	Days	Course Title	Course Coordinator	Department
Open Programmes :				
22-4-2019	5 Days	Hot Rolling Of Steels	Prof. Prasad Manepalli	Metallurgical Engineering & Materials Science
In House Programmes :				
24-4-2019	3 Days	Advanced Techniques In (Teqip) Deep Learning	Prof. Paluri Nataraj Engineering	Systems & Control
Open Programmes :				
3-5-2019	3 Day	Sintroduction To Type Design	Prof. Girish V. Dalvi	Industrial Design Centre
3-5-2019	2 Days	Fundamentals And Applications of Renewable Energy Systems	Prof. Sridhar Balasubramanian	Mechanical Engineering
6-5-2019	2 Days	Introduction To Human Factors Engineering	Prof. Vivek Kant	Industrial Design Centre
8-5-2019	3 Days	Introduction To Advanced Cognitive Systems Design (Cognitive Ergonomics/ Cognitive Systems Engineering)	Prof. Vivek Kant	Industrial Design Centre
11-5-2019	1 Day	Demystifying Design	Prof. Mandar S. Rane	Industrial Design Centre
20-5-2019	5 Days	Finite Element Method & Applications In Civil Engineering	Prof. T I Eldho	Civil Engineering
31-5-2019	3 Days	Artificial Intelligence For Business Managers	Prof. Rajendra Sonar	School of Management
In House Programmes :				
9-5-2019	5 Days	Refresher Course on Construction And Quality Control of Pavements	Prof. Dharamveer Singh	Civil Engineering
16-5-2019	2 Days	Sustainability Assessment: Circular Economy And Life Cycle Assessment	Prof. Pradip P. Kalbar	Center For Urban Science and Engineering
Gian Courses :				
13-5-2019	5 Days	Microwave Heating And Processing of Foods	Prof. Narendra G. Shah	Centre for Technology Alternatives for Rural Areas (CTARA)
Open Programmes :				
3-6-2018	5 Days	Research Approaches And Methods In Management And Social Sciences	Prof. Ashish Pandey	School of Management
3-6-2019	5 Days	Biology For Engineers	Prof. Ambarish Kunwar	Bioscience And Bioengineering
6-6-2019	2 Days	Machinery Vibration And Noise	Prof. Dhanesh Manik	Mechanical Engineering
10-6-2019	5 Days	Laboratory And Ergonomic Safety For Engineers	Prof. Ambarish Kunwar	Bioscience And Bioengineering
17-6-2019	5 Days	Solar Thermal Technologies For Process Heat And Power	Prof. Anish Modi	Energy Systems Engineering
24-6-2019	5 Days	Recent Advances In Pile Foundation Design, Construction And Testing	Prof. Satyanarayana M. Dasaka	Civil Engineering

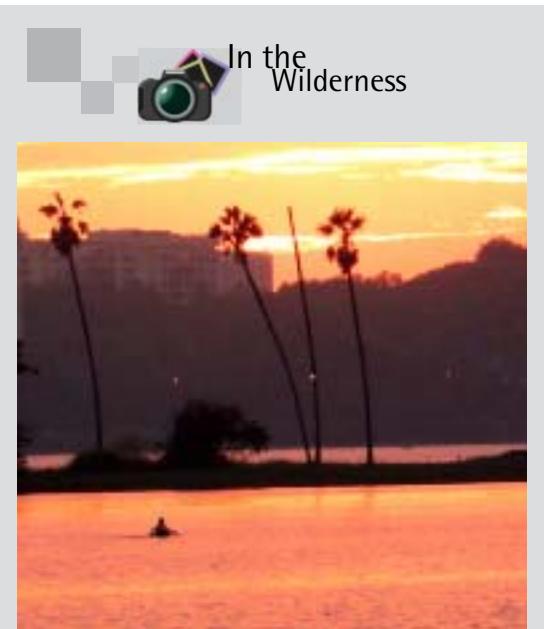


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by Mr. Batu S. kamble,
IIT Hospital

