

## IIT Bombay Celebrates Foundation Day

- \* 7 received Distinguished Alumnus Awards
- \* 4 honored with Young Alumnus Achiever Awards
- \* 2 faculty members awarded for Excellence in Research Work
- \* 12 faculty members awarded IIT Bombay Research Awards for 2018
- \* 1 faculty member awarded Prof. Krithi Ramamritham Award for Creative Research for 2018



Director of IIT Bombay Professor Subhasis Chaudhuri highlighting key milestones achieved by the Institute in 61 years

The Indian Institute of Technology Bombay (IIT Bombay) celebrated its Foundation Day, the 61<sup>st</sup> anniversary of its inception, on March 11, 2020, by honouring the contributions of its faculty members as well as erstwhile students, who as alumni have left their indelible imprint on their chosen fields of profession.

The ceremony commenced with a welcome address by the Director of IIT Bombay Professor Subhasis Chaudhuri highlighting key milestones achieved by the Institute in 61 years. Welcoming the guests, Prof. Chaudhuri said, *"IIT Bombay stood 1<sup>st</sup> in India and 44<sup>th</sup> in the world in the recently released QS World University Rankings 2020 by Subject. We are proud that IIT Bombay has provided quality education to thousands of students. Over the years, we have also enhanced our presence in research. Today, more than 30 percent of our students are enrolled in PhD programmes. We are proud that IIT is contributing to society with the efforts of its faculty members and students"*.

The chief guest of the function Prof. Ashutosh Sharma, Secretary, Department of Science and Technology, Government of India, in his address said, *"IIT Bombay has made rapid progress in 61 years. The Institute is showing an upward performance and we should further aim to be one of the top 20 institutions in the world in the next 10 years. More and more bright students are opting for PhD programmes and research. Students should give real contributions to the society, which will contribute towards problem solving. IIT Bombay is going in the right direction and in the right speed."*



Prof. Krithi Ramamritham Award for Creative Research for the year 2018 was presented to Prof. Sujit S. Jogwar



The Institute, on the occasion, honoured 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, IIT Bombay Research Awards for the year 2018, the Distinguished Alumnus Awards and Young Alumnus Achiever Awards were given away by Prof. Sharma.

The 'Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences' was conferred on Prof. Kanchan Pande, Department of Earth Sciences. The 'Prof. H.H. Mathur Award for Excellence in Research in Applied Sciences' was conferred on Prof. Sunita Sarawagi, Department of Computer Science & Engineering.

The IIT Bombay Research Awards 2018 including Research Publication Awards, Impactful Research Award, Research Dissemination Award, Early Research Achiever Awards and Prof. Krithi Ramamritham Award for Creative Research for the year 2018 were also presented during the function.

Chief guest of the function Prof. Ashutosh Sharma, Secretary, Department of Science and Technology, Government of India addressed the audience

The awardees included :

**Research Publication Award 2018**

- Prof. Ranjith Padinhateeri, Department of Biosciences and Bioengineering
- Prof. Pradeepkumar P. I., Department of Chemistry
- Prof. Santanu Banerjee, Department of Earth Sciences
- Prof. S. S. Pande, Department of Mechanical Engineering
- Prof. Indrajit Mukherjee, Shailesh J. Mehta School of Management

**Impactful Research Award 2018**

- Prof. Anil Kumar, Department of Chemistry
- Prof. Om Damani, Department of Computer Science and Engineering

**Research Dissemination Award 2018**

- Prof. Narayan S. Puneekar, Department of Bioscience and Bioengineering
- Prof. Amartya Mukhopadhyay, Department of Metallurgical Engineering and Materials Science

**Early Research Achiever Award 2018**

- Prof. Kamendra P. Sharma, Department of Chemistry
- Prof. Vikram Vishal, Department of Earth Sciences
- Prof. (Ms.) Aswani Yella, Department of Metallurgical Engineering and Materials Science

**Prof. Krithi Ramamritham Award for Creative Research 2018**

- Prof. Sujit S. Jogwar, Department of Chemical Engineering

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:

- |                                 |                           |
|---------------------------------|---------------------------|
| • Prof. Varadarajan V. Chari    | • Prof. Janat Shah        |
| • Mr. Surendra Murlidhar Vaidya | • Dr. Mayuresh V. Kothare |
| • Prof. Gaurav S. Sukhatme      | • Prof. Kavita Ramanan    |
| • Mr. Abidali Z. Neemuchwala    |                           |

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:

- |                        |                   |
|------------------------|-------------------|
| • Mr. Shaikh Shahnawaz | • Mr. Ankit Mehta |
| • Mr. Rahul Singh      | • Mr. Ashish Bhat |

**IIT Bombay Ranked 1st In India In QS World University Rankings By Subject 2020**



IIT Bombay has been ranked 1st in India and has moved significantly up from 53rd rank last year to 44th rank this year in the Quacquarelli Symonds (QS) World University Rankings by Subject 2020.

Overall, the Institution improved on its 2019 performance by 9 places. The results were released on Wednesday, March 4, 2020, by QS, a British company. The overall score is 49.4 out of 100. The Institute has a score of 54.2 in academic reputation, 71.2 in employer reputation, 3.4 in citation per faculty, 45.8 in faculty-student ratio and 1.6 in international students, all scores out of a maximum of 100 points.



## 192 Students Awarded 211 Degrees During 58<sup>th</sup> Interim Convocation



Chief Guest Dr. Lalit S. Kanodia addressed the audience

The Indian Institute of Technology Bombay (IIT Bombay) awarded degrees to 192 students at the interim session of its 58th Convocation on February 28, 2020. Total degrees awarded to the students were 211, which include - 152 PhD, 19 Dual Degrees (M.Tech/ M.Sc + PhD), 2 B.Des degrees, 1 B.Tech and 18 E-MBA degrees. The joint E-MBA degrees are in association with Washington University in St. Louis (WUSTL). These were conferred by Prof. Mahendra Gupta, Former Dean of Olin Business School.

The degrees were presented to graduating students who have completed all the requirements during the period from August 2019 to January 2020 and have requested for the degree to be awarded earlier than the 58th Convocation in August. Dr. Lalit S. Kanodia, Chairman, Datamatics Global Services Limited was the chief guest for the interim convocation function.

There is a steady increase observed in the number of PhD students at IIT Bombay. While there were 771 PhD students on roll in the academic year 2001-02, the number increased to 3171 in 2018-19. The number of PhD students at the Institute has increased to 3310 in 2019-20.

While addressing the graduating students, Prof. Subhasis Chaudhuri, Director, IIT Bombay said, *"It is a journey for many of the students who have spent last few years at the Institute. At the end of the journey, you have been presented with a degree you truly deserve. The students should relish this special moment that IIT Bombay has to offer. At IIT Bombay, we always aim at the pursuit of happiness and knowledge. IIT Bombay has given the best experience to the students. What the students receive today is a degree but what will stay with the students forever is the knowledge they gain while studying in IIT. The learning will guide the students in their future life."*

He added, "IIT Bombay is a preferred destination across India for undergraduate, postgraduate and masters students. We are thankful to the students to choose this institute. Our job in the institute is to produce manpower that will serve the nation across the sectors."

Congratulating the graduates, the chief guest of the event Dr. Lalit S. Kanodia said, *"IIT students should use their knowledge and education to find solutions*

*for issues such as power shortage, coals and oil, inadequate supply of fresh water and climate change. It is important for our country to create future opportunity whereby the citizens can contribute on the basis of what they know."*

Prof. Mahendra Gupta, Former Dean of Olin Business School said, *"IIT Bombay is one of the most important international partners of Washington University in St. Louis and this partnership has resulted in many different research projects and programs including E-MBA degree programme. The*

*convocation ceremony is an important moment to celebrate for the graduates and faculties of the joint programs. The graduating students have learned from their high-achieving classmates and they have connected with the senior faculties of both the world-class institutes"*.

He added, *"The graduating students are now ready and well-equipped to be leaders"*. Apart from the students and faculty members of the Institute, the ceremony was attended by the families and friends of the students.



Prof. Subhasis Chaudhuri, Director, IIT Bombay with the chief guest



One of the graduating students awarded his degree certificate by Prof. Subhasis Chaudhuri, Director, IIT Bombay



Prof. Mahendra Gupta, Former Dean of Olin Business School addressed the students



## IIT Bombay Celebrates Republic Day



*Prof. Subhasis Chaudhuri, Institute's Director, addressed the gathering on the occasion of Republic Day*



*Director Prof. Subhasis Chaudhuri hoisted the National Flag at the gymkhana ground*



*Republic Day celebration witnessed march past by the students of Campus School and Kendriya Vidyalaya (KV)*



*NCC cadets participated in parade*





NSS volunteers performed a street play 'Bheja fry' to highlight the mental health issues



Aman Day Care Centre's children performed a puppet show to give out a social message - 'say no to plastic'

The 71st Republic Day was celebrated at The Indian Institute of Technology Bombay (IIT Bombay) campus on January 26, 2020. The day began with the unfurling of the national flag by the Institute's Director Prof. Subhasis Chaudhuri at the gymkhana ground. IIT Guard of Honour from NCC gave the salute to the flag. Prof. Subhasis Chaudhuri addressed the gathering and shared his best wishes with the IIT Bombay community on the occasion of Republic Day.

While the celebrations began with march past by the students of Campus School and Kendriya Vidyalaya (KV), Security team, NCC cadets and guides, as a gratitude of appreciation, certificates, awards, and cash prizes were distributed to meritorious staff members and 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.

Various types of performing arts activities highlighting social messages were performed by different student groups. The volunteers of the National Service Scheme (NSS), IIT Bombay presented a street play 'Bheja fry' with an aim to emphasize on the mental health issues and how little stress bursts are leading to a bigger problem. The children of Aman Day Care Centre performed a dance and a puppet show based on "no plastic".

While the students of Kendriya Vidyalaya performed Lezim, folk dance from the state of Maharashtra, the students of Campus School performed ballet (on Nrutya Natika) titled 'One who has never been defeated'.

### SJSOM Conducts 4<sup>th</sup> Doctoral Consortium 2020

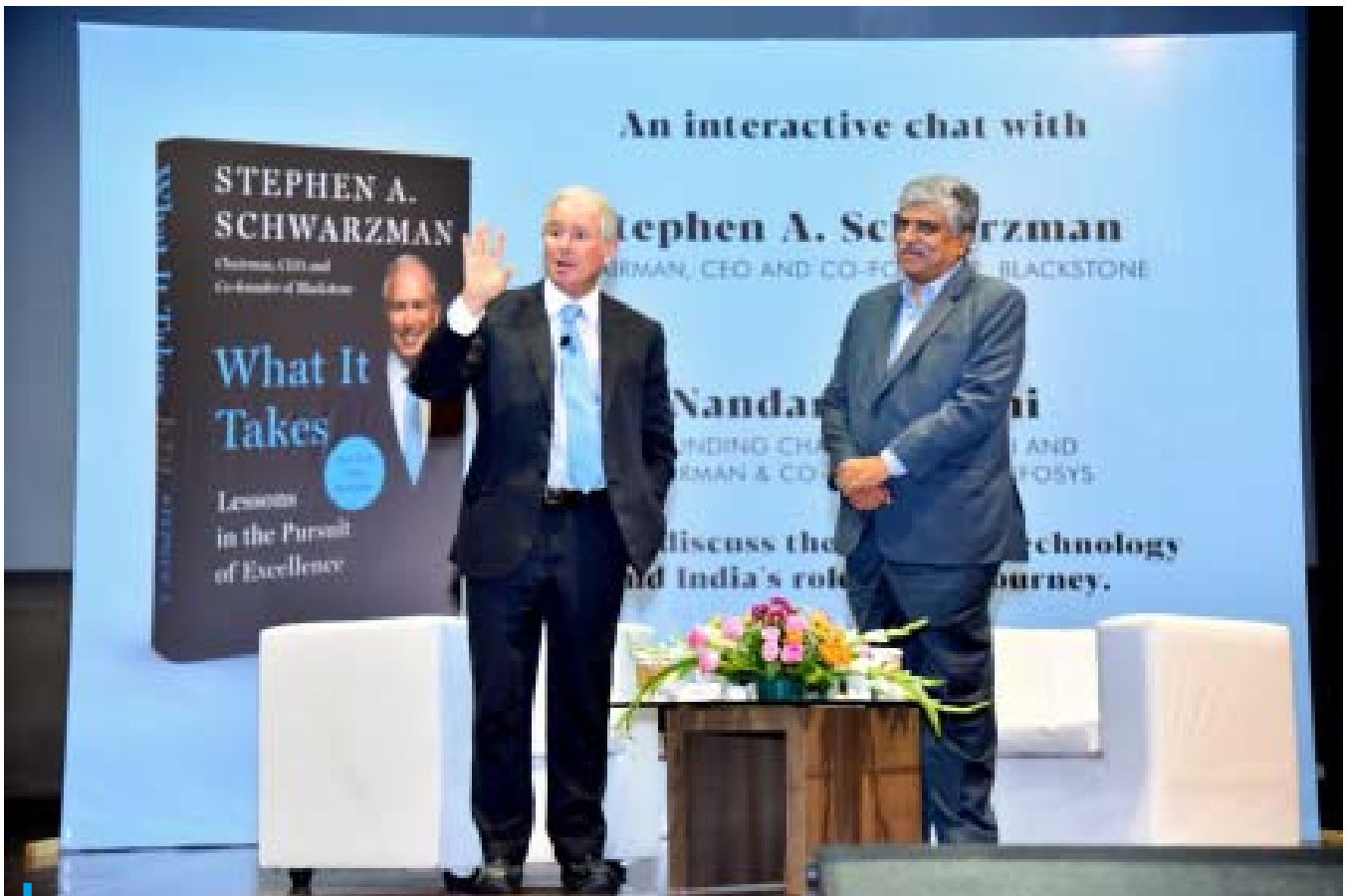
The Shailesh J. Mehta School of Management at IIT Bombay successfully organized its 4th Doctoral Consortium on February 21 and 22, 2020. The theme of the Consortium was 'Advances in Management Research: Role in Emerging Economies'. 40 PhD scholars from several premier academic institutes in India attended the consortium.



Eminent scholars like Prof. M. K. Tiwari Prof. I. M. Pandey, Prof. Moutusy Maity, Prof. D. M. Nachane and Prof. R. C. Tripathi in the areas of Operations Management, Finance, Marketing, Economics and Organizational Behavior and Human Resource Management and respectively were invited as key speakers. The unique feature of this edition of consortium was the panel on "Job market". Job market panel discussion gave seminal inputs to the doctoral students for opportunities in academia and industry post their thesis submission.

The consortium offered a platform for young scholars from all over the country to interact with eminent scholars in academia as well as industry experts in understanding the advances in theory and applications in management.

## Mr. Stephen Schwarzman In Interactive Chat With Mr. Nandan Nilekani



*The two entrepreneurs Co-Founder of Blackstone Mr. Stephen Schwarzman and IIT Bombay alumnus, Chairman and Co-Founder of Infosys Mr. Nandan Nilekani discussed the evolution of technology and India's growing importance in this field*

The Indian Institute of Technology Bombay (IIT Bombay) along with Blackstone, one of the world's leading investment firms, had organized an interactive chat of two stalwarts from the entrepreneurial world on Wednesday, March 4 at the institute's Convocation Hall.

The two entrepreneurs IIT Bombay alumnus, Founding Chairman of UIDAI, Chairman and Co-Founder of Infosys & Padma Bhushan awardee Mr. Nandan Nilekani with Chairman, CEO, and Co-Founder of Blackstone Mr. Stephen Schwarzman had an interactive discussion about the advances in technology and India's role in this journey.



Mr. Stephen Schwarzman has a keen interest in future technology and artificial intelligence (AI) and has been wholeheartedly donating in this field. Recently, he published his first book 'What It Takes: Lessons in the Pursuit of Excellence', a New York Times bestseller. The book describes challenges Schwarzman faced and his life's success stories which will inspire others to build, transform and lead an organization.

The event saw a footfall of 1500 people who were enthusiastic to hear the two hard-working entrepreneurs and their views on future technology.



## Ek Bharat Shrestha Bharat Events Showcase Cultural Diversity

As part of the MHRD initiative “Ek Bharat Shrestha Bharat” (EBSB), various events were organized in the Indian Institute of Technology Bombay (IIT Bombay) from January to March. Events such as lectures by an expert, book discussion and theatre play were held.

The Institute Cultural Council and Fourthwall, the dramatics club of IIT Bombay organized a theatre event ‘Annprod’ on February 14, 2020. The event showed the rich cultural diversity present among the students. EBSB promotes the idea of cultural connect between denizens of different regions.



BMC's Municipal Commissioner IAS Praveen Pardeshi gave a lecture on “Youth in Governance”.



The Institute Cultural Council and Fourthwall - the dramatics club of IIT Bombay organized a theatre event ‘Annprod’

Through this theatre event, two states Maharashtra and Goa were represented. The plays showcased the current cultural scenario of these two states.

On the occasion of the year-long celebration of Constitution Day, on January 18, 2020, BMC's Municipal Commissioner IAS Praveen Pardeshi conveyed the ample opportunities available around us through which we can strengthen our nation through a smooth working system.

Besides this, a book discussion on the great poets from Haryana, Kashmiri Lal Zakir & Altaf Hussain Hali was organized on January 10, 2020. The event witnessed the participation of a large number of IIT Bombay community members who spoke about the legendary poets of Haryana.



Plays such as Alazia, Saanp, Death Note, The Final Draft, Chitthi and a Mono Act by Arpit Shashwat were performed during the event



The plays represented the current cultural scenario of Maharashtra and Goa

## Matribhasha Diwas Highlights Linguistic Diversity

Various cultural associations in the Indian Institute of Technology Bombay (IIT Bombay) promoted the use of mother language by celebrating Matribhasha Diwas (Mother Tongue Day) on February 20, 2020, organized by the Hindi Cell of IIT Bombay, under the guidance of Hindi officer.

Faculty, staff and postgraduate students participated in the event by performing different art forms. The event was organized under the chairmanship of Prof. Tapanendu Kundu, Dean (Student Affairs).

Various linguistic associations of the Institute showcased the importance of different languages spoken across India. The program was attended by Prof. Tapanendu Kundu, Dean (Student Affairs), Dr. Prem Kumar, Registrar, Mr. Chintamani Joglekar, Jt. Deputy Registrar, Mr. Ganesh Borkhar, Joint Registrar, Mrs. Prajakta Juvekar, Deputy Registrar, Mr. Yogesh Patil, Assistant Registrar, other officers and faculty members.

The linguistic associations presented the linguistic diversity of our country, culture, historical, literary, social progress to the audience and performed songs on the background of very melodious music in their respective languages.

The said cultural program was attended with great enthusiasm by faculty members, postgraduate (PG) students of the Institute, residents of the campus, school students and staff of the Institute.



*Various Cultural Associations' members performed to promote the use of mother tongue during Matribhasha Diwas celebration*

## Marathi Rajbhasha Day Celebrated At IIT Bombay



*Welcoming chief guest Padmashree awardee Dr. Vijaya Wad*

IIT Bombay celebrated "Marathi Rajbhasha Day" on February 28, 2020, as a part of the "Ek Bharat Shreshtha Bharat" event. The celebrations included a lecture on "Experiencing Marathi culture through its literature" organized by Marathi Sanskrutik Mandal of IIT Bombay. The lecture was delivered by renowned Marathi writer, Editor-in-chief for the Marathi Encyclopaedia and Padmashree awardee Dr. Vijaya Wad. Padmashree Prof. D. B. Phatak, Chairman, Board of Governors, IIT Indore and former faculty, IIT Bombay graced the occasion as a special guest. This day is celebrated as the birth anniversary of eminent Marathi Poet Kusumagraj for his contribution towards the Marathi literature.

## SINE & DSSE Connects Stakeholders To Promote Entrepreneurship



*More than 300 stakeholders attended to exchange their experience*

In order to promote entrepreneurship among the student community, the Society for Innovation and Entrepreneurship (SINE) along with Desai Sethi School of Entrepreneurship (DSSE) organized 'Dialogue with Stakeholders' event on February 15, 2020.

The eCell, a student body, has been creating awareness about entrepreneurship among the student community. To recognize the contribution of the stakeholders, an event to build a communication with the stakeholders was organized. Different stakeholders from various professional backgrounds such as academicians, policy-makers, industry leaders, investors, business incubators and aspiring entrepreneurs from across the country participated in the event.

More than 300 stakeholders attended to exchange their experience and network with each other. Prominent individuals discussed and offered their insights as part of keynotes, panel discussions and chats by industry stalwarts like Mr. R. Gopalakrishnan, author, corporate advisor, and former ED, Tata Sons and Mr. Hemant Luthra, Advisor, Clayton Dubilier & Rice Former Chairman, Mahindra CIE.

The event helped to give insight on various aspects related to the Indian start-up ecosystems like innovations and entrepreneurship: Looking beyond business goals; Government, as an enabler for the conducive environment; Developing entrepreneurial culture in academia; Startup funding: looking beyond trends and Is entrepreneurship in India becoming mainstream for economic development? to name a few.

Mr. R. Gopalakrishnan pointed out the need for a startup to become an initial public offering (IPOs) in order to be marked as a true success and how it must transition in its growth path from startup to a company to an institution.

The event marked the completion of 15 years of SINE and 5 years of DSSE and their immense contributions to the emergence and growth of a thriving entrepreneurial ecosystem inside IIT Bombay.





## TCTD Symposium 2020



*Glimpses of Symposium's interactive Sessions and exhibition*

Tata Centre for Technology and Design (TCTD) Symposium 2020 at IIT Bombay brought together stakeholders such as academic researchers, field implementation agencies, social entrepreneurs, NGOs, government policymakers and CSR partners, who could initiate and continue dialogue to plan better social impact with the developed technologies. This year, the TCTD Symposium 2020 with the theme 'Take Ideas to Scale', was organized on January 9. During the event, many expert speakers and panelists discussed relevant challenges and alternatives to overcome them. Later on, TCTD, IIT Bombay will reach out to the delegates and bring the circle of innovators and implementation agencies closer.

The highlight of the event was the posters and prototypes exhibition which displayed almost all of TCTD's research projects and their readiness for field test or market connect. Tata Fellows and project staff presented the work on the social interventions they had been involved with, and how ably they had been assisting the faculty members all through.

## PhD Student To Represent India At Lindau Nobel Laureates Meeting



**Ms. Jayeeta Saha**, a PhD student of the Chemistry Department has been selected to represent India at the Lindau Nobel Laureates Meeting 2020, which will be held from June 28 to July 3, 2020, in Lindau, Germany.

The Lindau Nobel Laureates Meeting brings together nearly 70 Nobel laureates in various disciplines for both technical and non-technical interactions with over 600 students and early-stage researchers.

## Abhyuday Fest Brings Eminent Personalities To IIT Bombay



A fire safety workshop held by the Fire & Security Association of India during the fest



Changemaker Series discussion at the fest

The 7th edition of IIT Bombay's annual social festival Abhyuday, was celebrated on January 18 and 19, 2020. This year, the fest was based on the theme 'The Gen-Z Spark'.

The annual social fest is celebrated with the purpose of providing opportunities to the Institute's students, who wish to work for a better society. The fest has been receiving tremendous impact and reach. The team members are also responsible for conducting events throughout the year, which includes blood donation campaigns. A self - defense workshop was also held.

This year, some of the events organized included 'Kala Manch', the online art competition, the 'Youth Delegate Program' and 'Profectus', the fellowship program. A variety of lectures by eminent personalities like Padma Bhushan recipient Dr. K. K. Talwar and Innovation Ambassador at the UN Dr. Sheetal Amte were organized during the fest.

## EU Day Observed in IIT Bombay



In collaboration with the office of the Dean IR, IDP in Climate Studies had organized an EU Day event focusing on 'EU Policies and EU-INDIA Engagement on Sustainability, Environment, Climate Policies'. The event was held on February 27, 2020. Presentations were made about different EU scholarships (ERASMUS) to the students.

The Ambassador of the European Union to India graced the event. Four faculty members of IDP made presentations on climate studies with a view to showcasing research activities and areas of specialization. In addition to the EU delegates, two other Consul Generals of EU countries based in Mumbai joined the event.

Prior to this, the EU delegates had a brief meeting with the Director, IIT Bombay The Heads and faculty of Energy Science and Engineering, Environmental Science and Engineering, Civil Engineering, Climate Studies, and Urban Science and Engineering also joined this meeting along with the Associate Dean R&D, IIT Bombay.



## Glimpse of Futuristic Technology During Techfest 2020



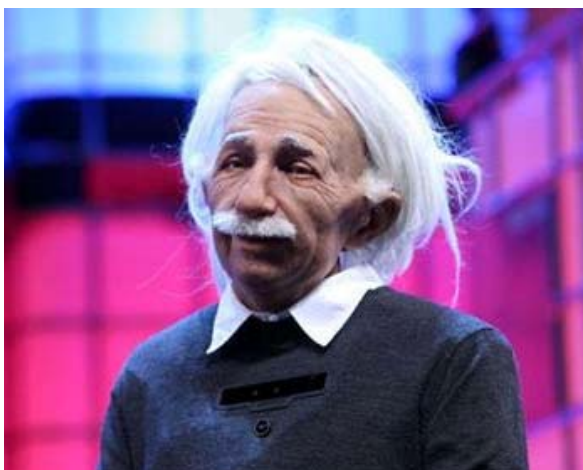
The Indian Institute of Technology Bombay (IIT Bombay) hosted the 23rd edition of the Techfest, Asia's largest science and technology festival, during January 3-5, 2020. The technology festival gave a glimpse of future technology to the students. The highlight of the festival included the world's first 'Professional Actor Robot – Robo Thespian' who visited for the first time in India and an 'Einstein Robot' which gave a glimpse of the genius of Albert Einstein, a German-born theoretical physicist who developed the theory of relativity.

The fest saw students' participation from across the world. Techfest has always been an ideal platform for every tech-savvy person, irrespective of whether the person wishes to display his expertise or gain from the intricate details about the technology on display. The fest saw a footfall of over 1.75 lakh people this year.

Techconnect exhibited the development and research activities of IIT Bombay's students. The festival witnessed exhibitions, the war of robots, sessions, talks on the advancement of science and technology, gaming competitions and a display of various creations and experiments.

### Other major attractions showcased during Techfest this year:

- EsoGLOVE, Singapore - It is one of the world's lightest hand rehabilitation and exoskeleton devices
- AeroHans, India - It is India's first indigenous electric vertical takeoff and landing air taxi
- NHK Enterprises, Japan - They have built the world's first VR time machine using the 2D photos of Tokyo from the year 1964



**Einstein Robot's** first visit to India and the one at Techfest was among his very rare public appearances.

The Einstein robot built by Hanson Robotics is the future of Artificial Intelligence and can interact with people in a human manner. This Einstein Robot is capable of understanding the facial expressions of people and can respond accordingly.

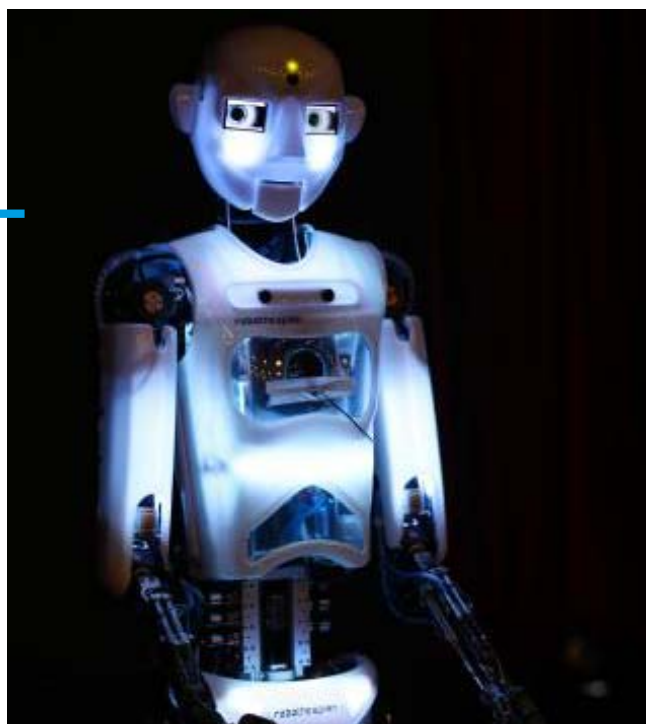
The Einstein Robot's facial recognition software was trained on more than 10 lakh facial images and can understand all the expressions and emotions like fear, anger, sadness, happiness, confusion and can also tell the gender and age of the person standing in front by studying facial features.



On his first visit to India, **RoboThespian** presented this year's theme "DaVincian Spectacle: A Fusion of Art and Science" and captured the imagination of both tech-savvy students and aspiring actors across the country.

RoboThespian is the ultimate acting humanoid designed for human interaction in a public environment. He can also recognize faces and track people in a crowd.

As an international citizen, the RoboThespian is fluent in more than 30 languages and can speak 70+ voices.



Former Prime Minister of Bhutan **Dasho Tshering Tobgay** spoke on the pressing issue of environmental conservation and what steps does the youth need to take to save the world. He gave an insight into how Bhutan stood against the pollution and how the other nations could take a lead from them.

Bollywood actress **Vidya Balan**, spoke on the topic of women empowerment in Indian cinema. She further shared her experiences from the upcoming movie on the mathematical genius, Shakuntala Devi, who was famously known as the 'Human Computer'.



### TechConnect 2019-20

With an aim to showcase IIT Bombay's R&D achievements in reaching out to critical societal needs and industry requirements, TechConnect 2019-20, R&D Exhibition was held by IRCC during Techfest during January 3 to January 5, 2020.

This year, the Techconnect 2019-20 had more reach in comparison to the previous year. Over 110 stalls showcasing around 281 exhibits in the form of working models / demos / products disseminating IIT Bombay's R&D activities were installed. These were demonstrated by more than 500 volunteers (faculty members/ students/staff). A few faculty of the CSE department conducted periodic shows on the research activities.

TechConnect stalls attracted a large number of audiences both from IIT Bombay and outside; mostly students. The crowd gathered at the stalls to see the working models and demonstrations.

## Consortium To Boost Indian Entrepreneurship Ecosystem



(L\_R) Prof. Santosh J. Gharpure, Professor in Charge, SINE, and Professor, IIT Bombay, Prof. B. Ravi, Institute Chair Professor of IIT Bombay and Chairperson, Desai Sethi Centre for Entrepreneurship, IIT Bombay, Prof. Thillai Rajan A., Department of Management Studies, IIT Madras, and Prof. Venkatesh Panchapagesan, Chairperson - NSRCEL and Professor, IIM Bangalore

Top IITs and IIMs launch Consortium to boost Indian Entrepreneurship Ecosystem Institutions to set up “iVEIN” or ‘Innovation, Venturing & Entrepreneurship in India Network’ to promote research and collaboration around innovation and entrepreneurship

Premier technical and management institutions in the country have joined hands to launch a consortium to boost Indian entrepreneurship ecosystem through high quality research in innovation, venturing and entrepreneurship. Called ‘Innovation-Venturing and Entrepreneurship in India Network (iVEIN),’ its founding members are faculty at IIT Madras, IIT Bombay, IIM Bangalore, IIM Calcutta and IIM Kozhikode. This network of institutions will leverage strengths of the partners and would work with other stakeholders such as incubators, government and investors to generate and disseminate knowledge.

iVEIN was launched on 15th February, 2020 along the side-lines of ‘Dialogue with Stakeholders’ event held by SINE (Society for Innovation and Entrepreneurship) at IIT Bombay. Highlighting the salient features of this initiative, **Prof. A. Thillai Rajan**, Department of Management Studies, IIT Madras, who is coordinating the initiative, said, *“Innovation, venturing and entrepreneurship are getting increasing attention from policymakers. These three areas are expected to play a key role in the economic growth of the country in addition to strengthening India’s position as an innovation country”*. The iVEIN network will facilitate high-quality research in this field among the academic fraternity in India and create avenues for dissemination of the relevant knowledge through conferences and journal publications. Further, **Prof. B. Ravi**, who heads the Desai Sethi School of

Entrepreneurship at IIT Bombay, said, *“Top educational institutions including IITs and IIMs have been active in nurturing innovation and entrepreneurship. The proposed network will create a strategic bridge between various stakeholders, strengthen the ecosystem and synthesize the knowledge that exist in silos among different groups.”*

Prof. Venkatesh Panchapagesan, Chair, NSRCEL, the innovation and entrepreneurship cell of IIM Bangalore, added, *“Academic incubators play a critical role and that iVEIN will help create a stronger platform for them to share best practices and take lead in promoting activities like research that are often neglected by the private ecosystem.”*

*“iVEIN aims at playing a larger, strategic role in the start-up ecosystem building beyond incubating start-ups. The network backed by academic rigour of premier institutions would help formulate knowledge in the fast-evolving entrepreneurial ecosystem in the country,”* said **Keyoor Purani**, Professor IIM Kozhikode and Executive Director, IIMK LIVE.

**Prof. Vidyanand Jha**, Professor of Organisational Behaviour at IIM Calcutta said, *“The network would catalyse the much-needed work to document Indian experiences in areas of entrepreneurship and innovation. It would also aid in creation of data-based knowledge and dissemination of such knowledge. This would give a fillip to entrepreneurship in the country.”*

### Objectives of iVEIN network include:

- Create an interdisciplinary body of knowledge synthesizing multiple perspectives, which would meet the requirements of policy makers, academic researchers, students, innovators, entrepreneurs, investors and all those interested in innovation and ventures.
- Track the contours of the vibrant innovation, venturing and entrepreneurship segment in the country and develop a holistic and analytical narrative on the dynamics that drive the development in these areas.
- Help in effective policy formulation at multiple levels; develop thought leadership for practice
- Seed the creation of a society that will organize annual conferences, publish a journal, and architect a data repository in the areas of innovation and entrepreneurship.
- The 2020 India Innovation, Venturing, and Entrepreneurship Report:
- The immediate activity that would be taken up by iVEIN would be to publish the India Innovation, Venture and Entrepreneurship Report. Conceptualized as a biennial publication, the first report would be published in 2020 with the theme: **Creating Successful Ventures.**

## RESEARCHx Connects Students And Industry On A Common Platform



*A group photo of members who organised RESEARCHx*



*More than 15 exhibitors from IIT Bombay student community exhibited their research and technical projects*



*Panelists discussing industry and academia*

The first edition of RESEARCHx organised by the Indian Institute of Technology Bombay (IIT Bombay) Research Park and the Undergraduate Academic Council was held on October 20, 2019. The event aimed to bring the student community and the industry on one common platform and showcase the pioneering research carried out by both.

The one-day event involved the participation of more than 15 exhibitors from the IIT Bombay student community, who exhibited their research and technical projects carried out under professors' guidance or during internships.

Besides the exhibition, two major competitions for the students were organised in which the students had to come up with solutions for the problems faced in IIT Bombay such as the water shortage problem and the unorganised traffic problem outside Main Gate.

Two keynotes were delivered by speakers from Viacom18 (titled Digital Transformation) and Nanosniff (titled Microsensors and Instrumentation for detecting chemicals and biochemicals) respectively.

A panel discussion on the topic 'Industry and Academia' was held during the event with two IIT Bombay professors representing academia and two industrialists from Tata Power SED and ideaForge representing the industry perspective. Another talk on 'Transforming Technology to Business' was also delivered by Sust Labs incubated at SINE, IIT Bombay.



**Research in focus****The Shape Of Dried Paint Or Ink Deposit Is Related To The Concentration And Size Of Particles In These Colloids**

Ever wondered why we use only specific inks for the inkjet printer? Why not any random dye? The wrong ink may result in non-uniform and patchy printing. Printing inks are colloids—tiny solid particles suspended in a liquid. The size and the concentration of the solid particles in the ink specified for printers are designed to deposit uniformly on paper.

Just like ink, paints and some medicines are colloids. One can determine if blood—also a colloid—is healthy or not, by looking at the dried stains. Researchers have studied colloid deposits for decades. Colloids are even used to make electronics. Colloids of copper can be deposited on circuit boards to make tracks. We can control the size and concentration of copper particles to ensure a uniformly thick track.

Prof Rajneesh Bhardwaj and his group at the Indian Institute of Technology Bombay (IIT Bombay) study colloidal deposits and the various factors affecting their characteristics. The deposits formed when colloids dry on a solid surface have specific shapes and thickness. In a recent study in collaboration with Monash University, Prof Bhardwaj and the team investigated how the concentration and the size of the suspended particles in a colloid affected these deposits.

They found that the deposits were more likely to crack for a higher concentration of the solid in the colloid. Many layered deposits would form when the concentration was higher and the size of the suspended particles smaller.

The problem Prof Bhardwaj has addressed is similar to the old coffee-ring problem. You would have noticed that a coffee stain is darker around the periphery and lighter at the center. This is because most of the particles accumulate near the periphery, as the droplet dries. Many colloids form similar ring-shaped stains, irrespective of the solid and liquid materials that form the colloid.

The IIT Bombay researchers used colloidal solutions of polystyrene beads in water and observed how its droplets deposited on clean glass slides. Why polystyrene? “Polystyrene beads are model particles. Their density is equal to that of water,” shares Prof Bhardwaj. Since they have the same density as water, the beads stay uniformly mixed in water and don’t settle down.

The researchers observed that rings were thicker when the colloids had higher concentration. The cracks in the deposits became more prominent with smaller sized particles. “When the droplets begin to dry, the polystyrene particles stick to the glass surface. As they dry further, these particles feel mechanical stresses that lead to cracks in the deposits. Bigger particles have more space between them. So, they feel less stress and don’t crack,” explains Prof Bhardwaj.

Further, the researchers observed three different patterns in the deposits; broken single-layered rings, continuous single-layered rings and multiple-layered rings. Larger particles at lower concentrations form broken single-layered rings, while at higher concentration form continuous single-layered rings. Smaller particles at higher concentration and larger particles at very high concentrations formed rings with multiple layers.



The group explored how the height and width of the deposited rings increased with the increasing concentration of the colloid. They also examined the rate at which the colloidal particles deposited at the periphery. The results fit well with the existing mathematical models.

The boundary of a droplet on sticky, water-attracting surfaces like glass, remains fixed. This is called pinning of the contact line. Water on a nonstick or water-repellent surface does not have a pinned contact line. “Pinning is determined by the friction between the surface and the liquid,” says Prof Bhardwaj. Colloidal deposits are ring-shaped when the contact line is pinned. A droplet is thick at the centre and thin at the periphery. The liquid from the periphery evaporates quickly.

“Since the contact line is pinned and the radius of the drop can’t shrink, the liquid from the center flows outwards to the periphery to replenish the liquid. This flow carries with it the solid particles dispersed in the droplet, which make the ring,” explains Prof Bhardwaj.

The researchers created a chart to predict whether a colloid deposit would be single-layered or multiple-layered and cracked or not, based on the colloidal particles’ size and concentration. This chart can be used to fine-tune the colloidal parameters for a particular application. “A long term goal of this project is to fabricate a uniform deposit rather than a coffee ring which is useful for applications in inkjet printing and bioassays,” adds Prof Bhardwaj.

Now the next time you stare at a blank wall and wonder why the paint (a colloid) doesn’t crack, you can guess that the particles in the paint are large enough to ensure that it doesn’t crack and that the concentration adjusted to set the optimum thickness of the coating.

**Interesting fact**

Prof Bhardwaj points out how the coffee-ring problem is mathematically similar to many other everyday questions. If you observe closely, you can see that french fries are darker on the edges. They exchange more heat at the edges when in the hot oil bath. This heat transfer is mathematically similar to how the concentration of liquid vapor outside an evaporating droplet changes. Charge accumulation along the edges of a lightning arrester is also similar. One needs to solve the same “Laplace equation” to find the heat, concentration of vapour and charge density. There is a universality that binds the science used in the very different fields concerning heat, colloids and charges.

Link to published work:

[Analysis of profile and morphology of colloidal deposits obtained from evaporating sessile droplets](#)

## Inaugural Shashwat Panda Memorial Lecture



The Indian Institute of Technology (IIT) Bombay organized Inaugural Shashwat Panda Memorial Lecture by Pureheart Capital on Thursday, February 13, 2020. The lecture titled: "Making a living versus Making a life" was given by the speaker Mr. Gurcharan Das, who is an author, commentator, public intellectual. Mr. Das is known for a much-acclaimed trilogy on the classical Indian ideal of life's goals.

## National Level Awareness Programme On MSME Entrepreneurship Schemes

The Society for Innovation & Entrepreneurship (SINE), IIT Bombay in association with Khadi & Village Industries Commission, Ministry of Micro, Small and Medium Enterprises, Government of India had organized National Level Awareness Programme (NLAP - 2020) on February 20, 2020. The awareness program aimed at spreading information on entrepreneurship schemes implemented by various



departments of the Ministry of MSME. Officials who attended the event included Shailendra Singh, Director, MSME Development Institute, Sakinaka; Mahendra Malviya, Incharge / Branch Head, NSIC, Masjid, Mumbai; Geeta P Bhoir, In-charge Coir Board Showroom & Sales Depot Coir Board, MIDC, Andheri, Mumbai and A.L. Meena, State Director, Khadi & Village Industries Commission, Mumbai, Maharashtra

## IDC School Of Design Showcases Futuristic Vehicles

The students of the Design department exhibited their innovative transport design work by participating in Auto Expo 2020 held in Delhi this year. 10 students of IIT Bombay showcased their work which they have been working on over the last two years.

Amidst the growing focus on electric-powered vehicles and autonomous mobility, the students of IDC School of Design exhibited some of the best transport design works created over the last few years. The exhibits include a wide range of projects ranging from mobility solution for emergency cases in India to Charter yacht designed with traditional crafts to modular future transportation.



*Riot control vehicle to protect armed forces during stone pelting, designed by Vishal Sharma:*

*Some severe problems of riot control vehicles such as their big size, not being bullet and sound resistance make the armed forces weak in front of the protesters. After finalizing the vehicle dimension, body structure, materials, and all other necessary equipment, the final output is a vehicle that will keep the armed forces shielded during riot scenarios.*



*Design of Charter Yacht Experience for tourists in Mumbai, designed by Samyak Khobragade:*

*If the user doesn't need to travel much or stay for weeks in the vessel the layout of the vessel will change significantly and it will provide a different experience that will be oriented towards the users' needs.*



*Design of pushcart for municipal solid waste collection in residential areas, designed by Srinag K A:*

*The newly designed pushcart addresses the problem related to the segregation of waste and its handling to make it more convenient for the collector to handle, further segregate and generate value out of waste.*



*Design of truck interior as living spaces for Indian truck drivers, designed by Rajat Prakash Kushwaha*

*The objective was to study the life of truck drivers, their needs and aspirations, problems they face and hence to design an interior for the Indian trucks.*





*Electric "Drive from a wheelchair" - a microcar for differently-abled people, designed by Yogesh Kumar:*

*This project aims to provide mobility solutions for differently-abled people who use a wheelchair. The car is designed in such a way that it is driven by a wheelchair user without any assistance.*



*Transformable electric motorcycle for 2035, designed by Dheeraj K:*

*A user will not be able to experience a specific ride unless he owns the respective category of the motorcycle with the advanced technologies in the future Transformability of the product can be explored to address these changes.*



*Two-wheeler taxi design, designed by Aiyappa KS:*

*Two-wheeler taxi design is an affordable mobility solution compared to cabs and rickshaws. It is also designed to solve the problems of all age groups by providing weather protection, accessibility to elderly and affordability.*



*Design of next-generation tractor for young farmers in India, designed by R.S.Mahesh:*

*While modern technology is updated in the tractors, young farmers in India wanted to perform multiple applications with comfort using a tractor. This project is to design a next-generation tractor for young farmers satisfying their aesthetic aspirations based on the user research.*



*Design of the delivery vehicle for online grocery portals, designed by Parth Chaudhari:*

*This designing project deals with a new delivery vehicle for online grocery portals. The final design is battery operated which has dedicated compartments for various items, better ergonomics provides security to the orders, and it helps to eliminate weight carried by the delivery person.*

## EdTech Completes A Decade



Group photo of students and faculty with Director Prof. Subhasis Chaudhuri

This year, the Educational Technology completed 10 years in IIT Bombay. Educational Technology is a combination of processes, strategies and tools involved in addressing educational needs and problems, with an emphasis on applying current technological tools.

ET at IIT Bombay has grown from a small program to a robust, interdisciplinary program with international and national students from all over the country enrolled in its PhD and MTech programs.

The department is organising multiple events as a part of this decade of ET celebration. Events including

TechConnect (Jan 2020) and Open House Showcase (Feb 2020) were organised to exhibit their work to the research community, students, teachers and various industry collaborators. Several events are recurring at different time points throughout the year, including Alumni Interaction Series with students to guide them towards diverse career opportunities, Industry Dialogues to enhance interactions between the two silos, educational research seminars etc.

Further, other events including research symposium, EdTech society meeting, EdTech Hackathon, book and movie release, Alumni Day etc will be organised.

## Wiki Gap Provides Training On Writing Articles On Wikipedia

On the occasion of International Women's Day, the Centre for Policy Studies at IIT Bombay along with Wikimedia India and Consulate General of Sweden, Mumbai had organized an event 'WikiGap' to provide training on writing articles on Wikipedia. 'WikiGap' is a global initiative that aims to strengthen women's rights, representation, and resources on Wikipedia. According to the organizers, the aim of the event includes helping women to write articles on Wikipedia on the theme 'Women in Sciences, Politics and Social empowerment'.



## E-Summit 2020 A Big Success

The flagship event of E-cell, IIT Bombay E-Summit, started on February 1, 2020, with entrepreneurs, investors, businesspersons and students from various fields coming together. Stalwarts in the business world such as **Mr. Bharat Desai**, former Chairman of Syntel, **Mr. Satya Raghavan**, Director of Youtube, India, **Mr. Manish Maheswari**, Twitter India Head and **Mr. Amar Nagaram**, Myntra-Jabong CEO spoke during the sessions held on Day 1 of the two-day event. Internship and Job Fair had a major footfall of over 26,000 students participating. In the 15th edition of E-Summit, the Entrepreneurship Expo hosted 46 startups on the first day.



Balaji Vishwanath, the CEO of Invento Robotics and also the most followed user on the social platform Quora, spoke on the uncertain future of robotics. Investor conclave, Seed Stars and Investor speed dating helped in the networking of start-ups and investors. Besides this, another highlight included 'The Ten minute million Challenge', where the shortlisted startups got a chance to make a 10-minute pitch in front of a panel of India's best angel investors. All the selected startups got a chance to secure the backing of Rs 16 lakh funding each.

### Appointments

**Prof. Archana Bhattacharyya**, has been appointed as a INSA Senior Scientist Fellow in the Center of Studies in Resources Engg. for a period of two years w.e.f. 14.11.2019

**Dr. Abir De**, has been appointed as Assistant Professor (Grade-II) in the Dept. of Computer Sciences and Engineering w.e.f. 06.01.2020

**Prof. Kalyan Das**, has been appointed as Professor (Contract) in the Department of Mathematics for a period of two years w.e.f. 13.01.2020

**Dr. Ishita Sengupta**, has been appointed as Assistant Professor (Grade-I) in the Department of Chemistry w.e.f. 23.01.2020

### Retirements on January 31, 2020

**Prof. Satish B. Agnihotri**, retired after 4 years of service from the Center for Technology Alternatives in Rural Area

**Mr. Sabu John**, Assistant Technical Officer, retired after 37 years of service from the Department of Computer Science and Engineering

**Mr. Tukaram B. Zore**, Senior Administrative Assistant, Hostel No 12, retired after 38 years of service

### Retirements on February 28, 2020

**Prof. Krithivasan Ramamritham**, retired after 22 years of service from the Department of Computer Science and Engineering

**Prof. Amir Athavle**, retired after 29 years of service from the Department of Mathematics

**Mr. Mahadu Y. Sonkamble**, senior driver retired after 37 years of service from Center of Studies and Resource Engineering

**Appointments / Retirements of March will be published in next issue**



Institute Colloquium / Lectures



**Prof. Oliver Hart**, recipient of Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2016, delivered a lecture titled *"A New Approach to Contracts"* on January 14, 2020



**Prof. Joachim Frank**, Nobel laureate in chemistry (2017), Columbia University, New York delivered an institute lecture titled *"Single-particle cryo-EM: Visualization of biological molecules in their native states"* on January 17, 2020



**Dr. Janhavi Raut**, delivered an institute lecture (in memory of Professor K. C. Khilar) titled *"Microbiomics: Role of Microbe-Microbe and Host-Microbe interaction in Shaping Microbial Communities"* on March 12, 2020



**Mr. Frank Riester**, Minister of Culture, France gave a talk on business opportunities while promoting culture titled *"How the economy of culture is reshaping the world"* on January 27, 2020



**Prof. Yann LeCun**, Director, AI Research at Facebook, Silver Professor of Computer Science, Data Science, Neural Science, and Electrical and Computer Engineering, New York University, delivered an Institute lecture titled *"Self-Supervised Learning: the Next Step in AI"* on February 14, 2020

### Awards and Distinctions

**Prof. Kannan Moudgalya**, Department of Chemical Engineering has been acknowledged with "Pt. Deen Dayal Upadhyaya Recognition for Re-Engineering India 2020" in the Farmer Welfare/Industry/ Institutional Category for having paved the path for multi lingualism by envisaging and curating spoken tutorials in various Indian languages for Education, Employment and Empowerment. It was conferred on him by the Vice President of India on February 14, 2020.

**Prof. Deepankar Choudhury**, Department of Civil Engineering has been elected as a Fellow of American Society of Civil Engineers (F.ASCE). He has also been invited to join the Editorial Board of "Soils and Foundations" published by Elsevier.

**Prof. Bhaskaran Muralidharan**, Department of Electrical Engineering has been awarded with the Science and Technology Award for Research (STAR) instituted by Science and

Engineering Research Board (SERB) to recognize and reward outstanding performance of Principal Investigators of SERB projects.

**Prof. Samir Maji**, Department of Biosciences and Engineering has been selected as a fellow for the Tata Innovation Fellowship of the Department of Biotechnology (DBT).

**Prof. Phani Tetali**, IDC, School of Design has been awarded Akhil Bhartiya Kala Gaurav Samman for 'outstanding contributions to Animation Film Design Education' by the Maharashtra Cosmopolitan Education Society, Pune on March 2, 2020.

### Invited Lectures/ Paper Presentation/ Participation in Conferences

**Prof. Santosh Gharpure**, Department of Chemistry, has been invited to join the Editorial Advisory Board of European Journal of Organic Chemistry (Wiley-VCH).

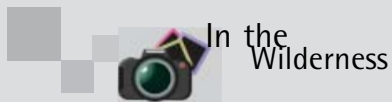
**Prof. Haripriya G**, Department of Humanities and Social Science, has been invited to join as an Associate Editor of the Journal of "Indian Society for Ecological Economics".

### Notification

**Prof. H.S. Pandalai** has been appointed as the Head of Department of Earth Sciences w.e.f. 28.01.2020

**Prof. Sakthi Chinasamy**, Assistant Professor, Department of Earth Sciences has been appointed as an Associate Warden of Hostel No 14 for a period of two years w.e.f. 04.02.2020

**Ms. Sonal Rane** has been appointed as Assistant Registrar w.e.f. 10.02.2020. She has been posted in Finance and Accounts section



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**Jt. Deputy Registrar**

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BOOK POST

