

IIT Bombay Celebrates 64th Foundation Day

- * Prof. S. C. Sahasrabudhe Lifetime Achievement Award (2022-2023)
conferred on Prof Devang V. Khakhar
- * 'Prof. S. C. Bhattacharya Award for Excellence in Pure Sciences' for 2022
conferred on Prof. Samir Maji and Prof. Debabrata Maiti
- * 'Prof. H. H. Mathur Award for Excellence in Applied Sciences' for 2022
conferred on Prof. V. S. Raja
- * 11 Distinguished Alumnus Awards and 4 Young Alumni Achiever Awards



From (L- R) Dean (Research and Development) Prof. Milind Atrey; Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi; Director Prof. Subhasis Chaudhuri; Chief Guest Mr. Sajjan Jindal; and former IIT Bombay Director Prof. S.P. Sukhatme on the dais during the celebrations



The Indian Institute of Technology Bombay celebrated its **64th Foundation Day** on March 10, 2023 by honouring the contributions of its faculty members as well as alumni who have left their mark in their chosen fields of profession.

The foundation day ceremony started with a welcome address by the Director of IIT Bombay **Prof. Subhasis Chaudhuri**. In his welcome address, Prof. Chaudhuri highlighting the key milestones achieved by the Institute in the past 64 years said, “The strong foundation that IIT Bombay builds among its students helps create an alumni base that provides leadership role, no matter what career profession they select in their life”.

Director of IIT Bombay Prof. Subhasis Chaudhuri addressing the audience during the 64th Foundation Day

The Chief Guest of the function **Mr. Sajjan Jindal**, Chairman, JSW Group of Companies, in his address said, *"The future belongs to those who dream big and work tirelessly to achieve their goals. It is important to remember that success is not just about personal achievements but also about making a positive impact on the world around. IIT Bombay can be the catalyst in the development of our great nation. As alumni of IIT Bombay, you have a duty to give back to the institution and the nation that gave you so much. Whether through financial support or by sharing our knowledge and expertise with current students, we can help ensure that future generations of IIT Bombay graduates continue to be among the best and brightest in the world"*.



Chief Guest of the function Mr. Sajjan Jindal, Chairman, JSW Group addressing the audience



Former Director of IIT Bombay Prof. Devang V. Khakhar (C) receiving Prof. S.C. Sahasrabudhe Lifetime Achievement Award 2022-23

The IIT Bombay Prof. S.C. Sahasrabudhe Lifetime Achievement Award recognizes outstanding individuals whose pioneering spirit and demonstrated inventiveness throughout their careers has improved society and inspired others. IIT Bombay conferred the **Prof. S.C. Sahasrabudhe Lifetime Achievement Award (2022-2023)** on **Prof. Devang V. Khakhar**, former Head of Department of Chemical Engineering (2002–04) and Director of IIT Bombay from 2009 - 2019, in recognition of his outstanding contributions as teacher, researcher and administrator, during the Foundation Day celebration.

The Institute also honoured its faculty for their research achievements. The '**Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences (2022)**' was conferred on **Prof. Samir Maji**, Department of Biosciences and Bioengineering for his outstanding contributions in the area of Protein aggregation, Biochemistry and Biophysics; and **Prof. Debabrata Maiti**, Department of Chemistry, for his outstanding contributions in the area of Bio-inspired catalysis, Green Synthesis, C-H activation, Photocatalysis.



Prof. Samir Maji, Department of Biosciences and Bioengineering receiving 'Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences' 2022



Prof. Debabrata Maiti, Department of Chemistry receiving 'Prof. S.C. Bhattacharya Award for Excellence in Research in Pure Sciences' 2022



The 'Prof. H.H. Mathur Award for Excellence in Research in Applied Sciences (2022)' was conferred on **Prof. V.S. Raja**, Department of Metallurgical Engineering and Materials Science, for his outstanding contributions in the area of Corrosion Mechanisms and Materials Development.

Prof. V. S. Raja, Department of Metallurgical Engineering and Materials Science, receiving 'Prof. H.H. Mathur Award for Excellence in Research in Applied Sciences' 2022

The Institute recognised select alumni of IIT Bombay, who have excelled in their field of work and made the Institute proud with the **Distinguished Alumnus Awards (DAA)**. The awardees for this year (2023) include:

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| ■ Prof. Kishor Trivedi | ■ Mr. Ramanan Ramanathan, |
| ■ Mr. Salil Parekh | ■ Mr. Rangarajan (Raghu) Raghuram |
| ■ Prof. Vikram Sadanand Adve | ■ Prof. Sarita Adve |
| ■ Dr. Divesh Srivastava | ■ Mr. Beerud Sheth |
| ■ Mr. Abhijit Dubey | ■ Prof. Sanjit Arunkumar Seshia |
| ■ Mr. Mohana Krishna Lakhamraju | |

The Young Alumni Achiever Awards (YAAA) are for alumni who have made outstanding achievements in their chosen field of work and are below 40 years of age. The awardees for Young Alumni Achiever Awards 2023 include:

- | | |
|-------------------------------------|---------------------------------|
| ■ Mr. Vijay Krishnan | ■ Mr. Akshay Saxena |
| ■ Prof. Srikanth Jagabathula | ■ Prof. Sushant Sachdeva |

The function was held in the physical presence of the awardees, their families, Institute functionaries and invited dignitaries and was live broadcast on IIT Bombay's YouTube channel: **IITBombayOfficialChannel**.



Awardees of DAA, YAAA, Rakesh Mathur Research Excellence Awards and Prof. S.C. Sahasrabudhe Lifetime Achievement Award along with Chief Guest Sajjan Jindal (C) and IIT Bombay dignitaries during 64th Foundation Day celebration

Presentation By Rakesh Mathur Research Awardees

The Office of Dean (Research and Development) organised a presentation by the recipients of the Rakesh Mathur Awards for Excellence in Research - 2022 of their work for the IIT Bombay academic community on March 8, 2023. The presentations were focused on the significance of the work leading to these research awards. Prof. Milind D. Atrey, Dean (Research and Development) gave introductory remarks about the programme.

Details of presentations by the awardees are as follows:



Prof. Samir Maji

Speaker: Prof. Samir Maji, Department of Biosciences and Bioengineering

Award: Recipient of Prof. S.C. Bhattacharya Award for Excellence in Pure Sciences 2022

Presentation Title: "Amyloids: from human disease to technological applications"

Prof. V. S. Raja

Speaker: Prof. V. S. Raja, Department of Metallurgical Engineering and Materials Science

Award: Recipient of Prof. H.H. Mathur Award for Excellence in Applied Sciences 2022

Presentation Title: "Empowering Metals for Structural Applications in Hostile Environments"



Prof. Debabrata Maiti

Speaker: Prof. Debabrata Maiti, Department of Chemistry

Award: Recipient of Prof. S.C. Bhattacharya Award for Excellence in Pure Sciences 2022

Presentation Title: "Green and Greener Synthesis"

312 Students Receive Degrees During Institute's Interim Session of 61st Convocation Ceremony



From (L - R) Chairperson of the Board of Governors, IIT Bombay Dr. Sharad Saraf, Chief Guest Dr. Anand Deshpande and Director Prof. Subhasis Chaudhuri on the dais during the 61st interim convocation of the Institute

IIT Bombay Conferred degrees to 312 students during the interim session of its 61st Convocation held on February 25, 2023 at the Institute's Convocation Hall.

Of **333 degrees** conferred, 184 were given to PhD students (a total of 200 degrees including 32 dual degrees). For the first time, IIT Bombay awarded B.Sc. (3-year) degrees to 18 students who preferred an early exit as per **National Education Policy (NEP) 2020**. In addition, 133 degrees including 39 EMBA degrees were awarded to students of various other programmes.



Chief Guest Dr. Anand Deshpande addressing the audience

Addressing the graduates, **Dr. Deshpande** said, "...getting a job is the first order of business for many of you, I am sure that your training at IIT will help you get there, but I expect all of you in the room not to be job seekers but become job creators. I would like to share four specific ideas that could help you thrive in a fast-evolving world viz. Dream big, Focus on the power of compounding, Make Friends and Learn to Network, and be persistent".

The Chairman of the Board of Governors (BoG), IIT Bombay **Dr. Sharad Kumar Saraf**, in his address,

The degrees were bestowed upon those students who completed all the requirements from August 2022 to January 2023 and requested that the degree be awarded earlier than the 61st Convocation.

Dr. Anand Deshpande, Founder, Chairman and Managing Director of Persistent Systems Limited, was the Chief Guest at the function. **Dr. Sharad Kumar Saraf**, Chairman of the Board of Governors, IIT Bombay presided over the function and Director **Prof. Subhasis Chaudhuri** gave away the degrees.



Chairperson of BoG, IIT Bombay Dr. Sharad Saraf addressing the audience

said, “The experience of your stay at IIT Bombay forms the foundation of your future career. Here you have not only got a high-quality education in technology but also learned to participate in various events and sports which have contributed in your all-round development. I urge you to make use of the support provided by ‘IIT Bombay Research Park’ and ‘Society for Innovation and Entrepreneurship (SINE)’ in building a start-up”.

Congratulating the graduating students and their families, Director of IIT Bombay **Prof. Subhasis Chaudhuri** said, “You will all soon occupy leadership roles in whatever profession you select in your career, but never forget to give back to the people of our country so that together we all can make an impact on lives of common men”.



Director of IIT Bombay Prof. Subhasis Chaudhuri addressing the students



Ms. Savitri Gupta, a differently-abled student of the Department of Humanities and Social Sciences, received her PhD degree amidst thunderous applause at the Convocation Hall for full 2 minutes. The interim graduation ceremony was attended by the family and friends of the students as well as by the faculty members of the Institute.

Ms. Savitri Gupta (C), a differently-abled student of the Department of Humanities and Social Sciences, while receiving her PhD degree



Graduating students taking pledge during interim convocation

IIT Bombay Celebrates 74th Republic Day



Republic Day celebrations at the Institute's Gymkhana ground



The Indian Institute of Technology Bombay celebrated the **74th Republic Day** on January 26, 2023. The celebration began with the unfurling of the National Flag by the Institute's Director **Prof. Subhasis Chaudhuri** at the Institute's Gymkhana ground. IIT Bombay security staff and NCC gave a salute to the National Flag. Prof. Subhasis Chaudhuri addressed the gathering and shared his best wishes with the IIT Bombay community during the 74th Republic Day.

On this occasion, the Director awarded certificates to winners of an **essay writing competition** on **"Corruption Free India: Steps Ahead for Developed India"** held during **Vigilance Awareness Week 2022**. Security Officers, guards, staff from IIT Bombay and NCC cadets were felicitated during the event. Certificates were also presented to students for securing prizes in the **"Strokes of Strength"** poster-making competition conducted by the **Gender Cell** under the **Elimination of Violence against Women Pakhwada 2022**.

The entire programme was broadcast live on the Institute's YouTube channel.

Winners of Essay Competition (Vigilance Awareness Week 2022)

Employees	
First Prize	Ms. Sangita Kanjibilliya Office of Dean (International Relations)
Second Prize	Mr. D. Abhishek IIT Bombay Hospital
Third Prize	Prof. Rajkumar S. Pant Department of Aerospace Engineering
Students	
First Prize	Ms. Malvika Jayakumar Second year, Ph.D., Department of Humanities and Social Sciences
Second Prize	Mr. B. H. Umashankar Fifth year, Ph.D., Department of Earth Sciences Mr. Baksheesh Sachar Second year, Master's in Public Policy, Akash Desai Centre for Policy Studies
Third Prize	Ms. Sakshi Rajawat Fourth year, Dual Degree (B.Tech. + M.Tech.), Environmental Science and Engineering Department

QS World University Rankings By Subject 2023: IIT Bombay Ranks 1st In India

IIT Bombay has been ranked **first** in India and **47th** globally in Engineering and Technology with an overall score of 80.4 out of 100 in the **Quacquarelli Symonds (QS) World University Rankings by Subject for 2023**. The Institute has been ranked in four out of five broad subject areas, which include Engineering & Technology, Natural Sciences, Social Sciences and Management, and Arts and Humanities. Overall, the Institution improved on its 2022 performance by 18 places.

The Institute has been ranked 51–100 for Art and Design, 66th for Computer Science & Information Technology, 51–100 for Civil & Structural Engineering, 77th for Chemical Engineering, 54th for Electrical & Electronics Engineering, 68th for Mechanical, Aeronautical & Manufacturing Engineering, and 37th for Minerals & Mining. The results were released on March 22, 2023, by QS, a British company.



On the performance in the QS Subject Rankings, Director **Prof. Subhasis Chaudhuri** said, *"We are indeed delighted that IIT Bombay continues to excel in providing a strong leadership role in engineering education in India. Our efforts shall continue in further improving the standing of Indian higher education globally. I congratulate all our students, staff, faculty and alumni for their contributions in achieving this recognition"*.

The QS World University Rankings by Subject identify the best universities in the world in 54 different subject areas. This year, IIT Bombay has performed best in **Engineering-Mineral and Mining**.

IIT Bombay Launches Department Of Economics

IIT Bombay is glad to announce the launch of its **new Economics Department** with 13 faculty across varied specializations. The Department is formed in the background of the growing importance of Economics as a discipline over the years and its emphasis on rigorous quantitative and analytical reasoning.

The Department's objective is to be attuned to the latest developments in the field, produce high-quality research and graduate well-trained students. Cutting-edge research conducted in the Department will also help enhance policy-making for

government and government bodies as well as decision-making for businesses. Previously, the Economics faculty was housed at the Department of Humanities and Social Sciences (HSS) within the Institute. **Professor K. Narayanan** is the first Head of this new Department.

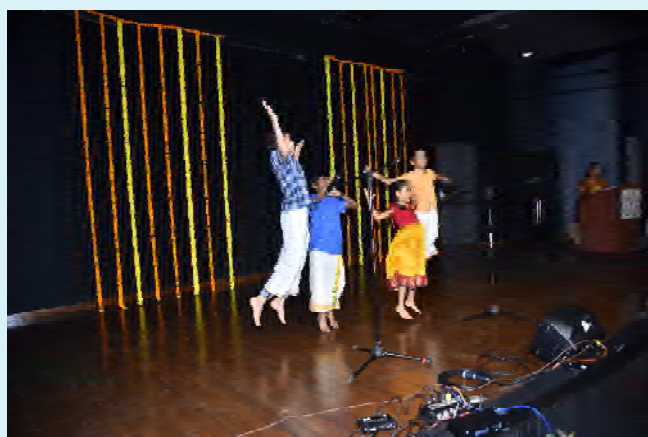
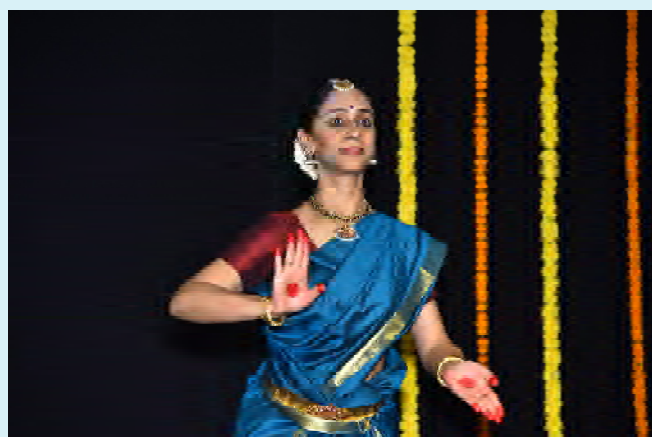
The new Department will significantly increase interest from prospective faculty members and PhD scholars. It will also give a focussed identity to faculties and students while applying for research grants, internships, exchange programmes and higher studies as well as enhance IIT Bombay's global presence in the area of Economics.

The economics group has already launched a four-year BS (Economics) degree programme in 2017 that has successfully attracted top IIT Joint Entrance Exam (JEE) rankers. In addition, the Department will offer a Minor specialization in economics, an Inter-Disciplinary Dual Degree Programme (IDDDP) for undergraduate students and an MS degree in economics in the near future.



Faculty members and Professor K. Narayanan (third from right), the first Head of the newly launched Department of Economics

IIT Bombay Celebrates Matribhasha Diwas



Members of IIT Bombay community during the presentation of their performances on the occasion of Matribhasha Diwas

The Indian Institute of Technology Bombay celebrated **Matribhasha Diwas (International Mother Language Day)** on February 21, 2023 by organising a cultural programme at P.C. Saxena Auditorium. Over 40 participants, including students of IIT Campus School and members of various cultural associations of the Institute, performed different art forms during the cultural programme highlighting the rich heritage of their respective mother languages.

A video recording of the event is available at: <https://www.cdeep.iitb.ac.in/events.php>

E-Cell Organizes 18th Edition of E-Summit



From (L-R): Mr. Ashok Khemka, IAS Officer; Mr. Ankit Bhati, Co-founder Amnic, OLA; Mr. Neelendra Singh, General Manager and MD, Adidas India; and Prof. V Ramgopal Rao, Ex-Director, IIT Delhi during a panel discussion on Job v/s Entrepreneurship v/s Higher Studies

E-Cell hosted the 18th edition of **E-Summit**, IIT Bombay's annual entrepreneurship summit, during January 28-29, 2023. The event drew participants from across the country, including students, entrepreneurs, industry leaders, investors and aspiring entrepreneurs, making it a national event. The event's footfall was estimated to be 45,000 over the two days, with the highlighted events being streamed live on JioTV.



Ms. Jaya Kishori, Spiritual Orator, while speaking with the audience during Content Creation Conclave



Ms. Barkha Dutt, journalist, author and Founder-Editor of Mojo Story in conversation with the audience during Media Conclave at E-Summit '23

A series of speaker sessions with esteemed personalities included **Mr. Kishore Jayaraman**, president of *Rolls-Royce* for India and South Asia; **Mr Lalit Keshre**, Co-Founder & Chief Executive Officer at *Groww*; **Ashneer Grover**, Co-founder of *BharatPe*, **Mr. Asit Kumarr Modi**, creator of the famous show *Taarak Mehta ka Ooltah Chashmah*, **Jaya Kishori**, Spiritual Orator; **Shri Gauranga Das**, *ISKCON GBC* and Director of *Govardhan Eco Village (GEV)*, actor **Amrita Arora** and **RJ Anmol** of *Couple of Things* fame, CEOs of over ten Indian unicorns,



Mr. Ashneer Grover, co-founder of BharatPe during Highlight Sessions of E-Summit '23

among many others. Their talks were incredibly motivating that provided valuable insights and knowledge to young, new and budding entrepreneurs.

The E-summit saw a plethora of events, including workshops, networking, on-spot funding events, competitions, and a startup expo. The workshops provided attendees with hands-on experience in finance and marketing. The networking opportunities allowed participants to interact and connect with other entrepreneurs, investors and industry professionals, fostering collaboration and growth.

TTMM (The Ten Minute Million), Networking Arena (NA),

Seedstars, I-Hack, Incubators Summit, Startup Expo, RND Conclave, Internship and Job Fair, and numerous others were some of the events that were conducted each specifically designed to cater to a certain audience.

One of the key highlights of the E-Summit was **The Ten Minute Million (TTMM)**, an on-the-spot funding event where startups could pitch their ideas to investors and secure funding for their ventures, was Many talented entrepreneurs presented their ideas during the 10th edition of the competition, in a bid to make their ideas into reality. Four of the eight pitching startups that received funding include *Kapow, Cheerio, Ironbox, and Sypto.*

The **Startup Expo** showcased several innovative products and services from startups spanning beginners to those well-established in the market. The expo gave attendees the



Mr. Gauranga Das, ISKCON GBC and Director of Govardhan Eco Village (GEV) addressing the audience during his keynote session

opportunity to interact with the founders and understand their products, services and business models as well as a platform for the startups to interact and gain feedback with potential customers.



From (L-R): Mr. Suraj Saharan, co-founder of Delhivery; Mr. Ankit Mehrotra, co-founder of Dineout; Mr. Saurabh Garg, co-founder and CBO of NoBroker and Mr. Aloke Bajpai, co-founder and CEO of ixigo interacting with the audience during Unicorn Summit

IIT Bombay's Abhyuday Hosts Its Annual Social Festival



Glimpses of various events held as part of Abhyuday festival at IIT Bombay campus

Abhyuday, the social body of IIT Bombay, held the 10th edition of its annual social festival, “**Socio-Weekend**”, during January 21–22, 2023, based on the theme “**A Locus of Resilience**”.

Prominent personalities from various walks of life graced the festival, including **Mr. Ajay Kumar Reddy**, Captain of the World Cup-winning Indian Blind Cricket Team, where he shared his experience of overcoming all odds to achieve his goals in his cricketing journey; **Mr. Sushant Sinha**, the Consulting Editor of *Times Now NavBharat*, spoke in the *Media Conclave*; **Dr. Anjali Kumar**, a well-known gynaecologist in India, talked on women's health in the *Her Health Demystified* session; **Mr. Ritesh Bhatia**, a renowned cybercrime investigator, spoke on the latest trends in cybercrime and ways to protect data and social media privacy, among others.

Mumbai Police and the Academy of Self-Defense organised a self-defence workshop with more than 100 participants learning new self-defence techniques. Clinical psychologist **Ms. Pragya Lodha** conducted an emotional quotient workshop where she spoke on ways to improve emotional health. The *Rap Battle* event had artists sharing their struggles through the modern art of rap and hip-hop.

A free health check-up camp was also conducted for all as a part of the festival, with an overwhelming response of more than 300 people. More than 300 underprivileged kids presented their talent in dancing and singing.

The fest concluded with ‘*Concert for a Cause*’ with young sensation singer/ songwriter **Ms. Anumita Nadesan** headlining with her melodious voice, along with the performances by artists of The *Dharavi Dream Project*.

IIT Bombay Racing Organises Red Bull RB7 Showcase

IIT Bombay Racing organized the **Red Bull RB7 Showcase** featuring the iconic **Sebastian Vettel's Formula One** car that dominated the 2011 season on March 9, 2023, at the Open Air Theatre (OAT), IIT Bombay. The event also hosted **Chris Gregory** and **Oscar Cooper**, members of the **Oracle Red Bull Racing Engineering team**, where they presented a talk on their experiences and insights into the world of Formula One. Over 2000 people attended the event, including members of the IIT Bombay community and Formula Student teams from across the country.



Sebastian Vettel's Formula One car at the Red Bull RB7 Showcase event held at IIT Bombay

The Red Bull RB7 was unveiled to the public, and attendees were given a complete run-through of the engineering that goes into building such a machine. The ignition sequence was performed, and the car was taken to the 7th shift, leaving the crowd in awe. The crowd's energy and enthusiasm were palpable, making it an event to remember!

In addition to the main event, a **simulator laptime contest** was organized, which saw a massive turnout of over 350 people. The winner of the contest received a VIP pass to the Red Bull show at Bandra. The event was a huge success, leaving an indelible impression on everyone who attended.

IIT Bombay Launches Kshitij G20 Magazine

Prof. Krishna P. Kaliappan, Dean (Strategy), released a special G20 issue of '**Kshitij**', the in-house Hindi magazine of IIT Bombay, on March 9, 2023 at the Shailesh J. Mehta Management School (SoM) auditorium. **Prof. S.V. Kulkarni**, Dean (Administration Affairs) and **Mr. Ganesh Bhorkade**, Registrar, graced the occasion. The programme was co-ordinated by **Dr. Ranjit Kumar Das**, Assistant Librarian, Central Library, IIT Bombay. Prof. Kaliappan addressed the audience and congratulated the editorial board of Kshitij magazine. Prof. Kulkarni delivered a lecture on G20 and related activities of the Institute. **Dr. Vinod Prasad**, Sr. Assistant Registrar and editor of



From (L-R) Dr. Ranjit Kumar Das, Assistant Librarian, Central Library; Dr. Vinod Prasad, Sr. Assistant Registrar, Industrial Research and Consultancy Centre (IRCC); Prof. K. P. Kaliappan, Dean (Strategy); Prof. S. V. Kulkarni, Dean (Administrative Affairs); Mr. Ganesh Bhorkade, Registrar; and Mrs. Vaishali Bahulkar, Hindi Officer during the launch of Kshitij G20 special edition

Kshitij G20 Special Issue, discussed the G20 theme in detail. The function ended with a vote of thanks by **Mrs. Vaishali Bahulkar**, Hindi Officer.

IIT Bombay Fourthwall Organises Theatre Fest 2023



Glimpses of TheatreFest 2023 held at IIT Bombay campus

Fourthwall, the Dramatics club of IIT Bombay, in collaboration with the ICC, organised a **Theatre Fest** during January 22–24, 2023, in the Convocation Hall of the Institute. Over 3500 young theatre enthusiasts attended the Fest.

The three-day event kicked off with “*Khushhiya*”, a monologue written by the legendary *Saadat Hasan Manto*. **Mr. Prashant Jorwal** and **Mr. Arpit Shashwat**, both Institute alumni, directed and performed the act.

On the second day, IPTA (one of India’s oldest theatre groups) presented “*Tajmahal Ka Tender*”, a comic play starring acting veterans **Rakesh Bedi**, **Avtar Gill** and the team. The play explores Shah Jahan’s desires in the twenty-first century.

The final day featured “*Gandhi*”, a classic by theatre stalwart **Makarand Deshpande** and Ansh Theatre Group. The play depicts the meeting of Bahubali and a poet and the things that unravel between violence and non-violence.

On all three days, the audience had one-on-one interactions with all of the artists from the respective plays to familiarise them with the nuances of theatre acting.

IIT Bombay Signs MoU With Maharashtra Government For Udaan Project



IIT Bombay Director Prof. Subhasis Chaudhuri (third from left); Principal Secretary - Directorate Of Higher Education Mr. Vikas Chandra Rastogi (fourth from left); Minister of Education Mr. Chandrakant Patil (C); former Honorable Governor of Maharashtra Mr. Bhagat Singh Koshyari (second from right) and Dean (Research and Development) Prof. Milind Atrey (first from right) along with other dignitaries during signing of MoU

An MoU was signed on January 5, 2023, between Directorate of Higher Education and Director of Technical Education, Government of Maharashtra and the Indian Institute of Technology Bombay in the presence of former Honorable Governor of Maharashtra **Mr. Bhagat Singh Koshyari**; Minister of Education **Mr. Chandrakant Patil**; Principal Secretary - Directorate Of Higher Education **Mr. Vikas Chandra Rastogi**; IIT Bombay's Director

Prof. Subhasis Chaudhuri and Dean (Research and Development) **Prof. Milind Atrey**. The collaboration aims to facilitate efficient and effective translation of all books and publications concerning conventional as well as professional courses into Marathi language as outlined in the National Education Policy 2020 using the **UDAAN project** (<https://www.udaanproject.org/>) led by **Prof. Ganesh Ramakrishnan** at IIT Bombay.

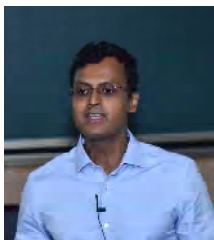
Prof. Ganesh Ramakrishnan Showcases Project Udaan In Fiji



Prof. Ganesh Ramakrishnan, Department of Computer Science and Engineering, IIT Bombay attended and spoke about the Hindi Translation tool '**Udaan**' at the **12th World Hindi Conference** held during February 15-17, 2023 at Nadi, Fiji. IIT Bombay's Project Udaan is an end-to-end ecosystem that translates scientific and technical content from English to Hindi and all other Indian languages. The 12th conference was organized by Ministry of External Affairs, Government of India in association with Government of Fiji.

Prof. Ganesh Ramakrishnan while presenting Hindi Translation tool 'Udaan' at the 12th World Hindi Conference held at Nadi, Fiji

Celebration of National Science Day



IIT Bombay celebrated **National Science Day** to commemorate the discovery of the 'Raman Effect' by Sir C.V. Raman for which, he was awarded the Nobel Prize in Physics in 1930. As part of this celebration, the Institute organized a lecture on **"Bioinspired**

synthesis of organic molecules" by

Prof. Debabrata Maiti, Department of Chemistry on February 28, 2023.

Joint-Workshop On Millets



To commemorate the **International Year of Millets (2023)**, IIT Bombay and India Tourism Mumbai organized a joint workshop on February 28, 2023 at P.C. Saxena Auditorium. Students from various Mumbai colleges attended the workshop

in large numbers. **Mr. Jerson Fernandes**, Executive Chef at *Novotel* Mumbai, hosted the session. **Mr. D. Venkatesan**, Regional Director (West and Central Region), *India Tourism*, welcomed everyone and introduced the guest speaker.

Mr. Fernandes spoke about the importance of millet and why they are referred to as a superfood. He even conducted an on-the-spot quiz at the end of the workshop. Students, staff and faculty from the Institute also took part in the workshop.

IIT Bombay Renames Its Basketball Court To Honour Batch Of '95's Generous Contribution!



IIT Bombay inaugurated **"Arena 95- Class of 1995 Basketball Court"**, on December 27, 2022. The court has been renamed to honour the generous contribution made to the Institute by the '95 batch as part of their legacy project.

The inauguration was part of the '95 batch's silver jubilee reunion and was attended by several of the class members as well as the Institute dignitaries. The event began with a formal ribbon-cutting ceremony, followed by a friendly game of shooting hoops by the class members!

The class of '95 are thorough team players who exemplify the true meaning of team spirit. Their generous philanthropic pledge has invigorated the Institute and made it even more determined to emerge as one of the top science and technology institutes worldwide.

IIT Bombay is grateful to the '95 batch for their generosity and support

IIT Bombay Signs MoU With Maharashtra University of Health Sciences (MUHS)



From (L-R): Dr. Rajendra Shivaji Bangal, Registrar–MUHS; Dr. Milind Nikumbh, Pro-Vice Chancellor–MUHS; Lt. Gen. Dr. Madhuri Kanitkar, Vice Chancellor–MUHS; IIT Bombay Director Prof. Subhasis Chaudhuri; Dean (Research and Development) Prof. Milind Atrey and Prof. Ganesh Ramakrishnan, Professor-in-Charge, KCDH, IIT Bombay during the signing of the MoU

In a one-of-a-kind collaboration, IIT Bombay and **Maharashtra University of Health Sciences (MUHS)**, Nashik signed a **Memorandum of Understanding (MoU)** towards promoting interaction between the technology institute and the health sciences university. On February 2, 2023. The MoU enables both institutions to share resources for academics and R&D in diverse areas of mutual interest.

Prof. Subhasis Chaudhuri, Director of IIT Bombay and **Lt. Gen. Dr. Madhuri Kanitkar**, Vice Chancellor – MUHS signed the MoU. Other dignitaries who graced the occasion included **Dr. Milind Nikumbh**, Pro-Vice

Chancellor – MUHS; **Prof. Milind Atrey**, Dean (R&D) in IIT Bombay; **Prof. Ganesh Ramakrishnan**, Professor-in-Charge, Koita Centre for Digital Health, IIT Bombay; **Prof. Samir Maji**, Professor-in-Charge, Sunita Sanghi Center for Ageing and Neurodegenerative Diseases, IIT Bombay; **Dr. Rajendra Shivaji Bangal**, Registrar, MUHS; **Ms. Surabhi Goel**, COO, Koita Foundation and several others.

Speaking on the occasion, Prof. Chaudhuri encouraged the exchange of faculty and students between the two institutes and Dr. Kanitkar said that out-of-the-box thinking was the need of the hour and the MoU was a symbol of such an innovative approach.

MoU To Establish A High-Speed Flow Diagnostics Lab



From (L-R) IIT Bombay Development and Relations Foundation (DRF) CEO Ravishankar Gedela; IIT Bombay Director Prof. Subhasis Chaudhuri; alumnus Dr. Jaynarayan Lala and Dean (Alumni and Corporate Relations) Prof. Ravi Gudi during the signing of the MoU

The Institute signed an MoU with its alumnus **Dr. Jaynarayan Hotchand Lala (B.Tech, Aerospace Engineering, 1971)**, Principal Technical Fellow (Honors), **Raytheon Technologies**, to build a **high-speed Flow Diagnostics Lab**. This state-of-the-art facility will consist of a **Stereo Particle Image Velocimetry (SPIV) system**, which will perform flow diagnostic experiments in a wide range of aerospace flow systems. The Lab will be housed at the Institute's **Department of Aerospace Engineering**.

IIT Bombay is grateful to Dr. Jaynarayan Lala for his generous contribution which will play an instrumental role in the advancement of Aerospace Engineering research in India.

IIT Bombay Signs MoU To Promote Women Faculty In Chair Professorship

The Institute signed an MoU with alumnus **Mr. Bala Chandrasekharan** (B.Tech, Civil Engineering, 1997) and his wife **Mrs. Jayashree Subramanian** to promote excellence in research and teaching in Chemistry for women faculty through an establishment of a Chair Professorship. The Chair shall be called **“Dr. P.R. Sharadamani Chemistry Chair Professorship”** to honour Mr. Chandrasekharan’s late aunt, who was a professor in Chemistry and enabled his understanding of this discipline during his early years.

This Chair will support and encourage women faculty to make outstanding contributions to make advances in Chemistry with a focus on energy, the environment and its societal impact. The Chair

will aim to facilitate the improved understanding of how chemical elements/ pollution impact climate change and how to mitigate its effects while continuing to support India’s growth and development.

The establishment of this Chair is a step forward in IIT Bombay’s endeavour to foster top-quality research and teaching for IIT Bombay women faculty. The Institute is thankful to Mr. Bala Chandrasekharan and Mrs. Jayashree Subramanian for their generous contribution.



From (sitting L-R): Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi, IIT Bombay Director Prof. Subhasis Chaudhuri, alumnus Mr. Bala Chandrasekharan and Chairperson of BoG, IIT Bombay Dr. Sharad Saraf along with other dignitaries during the signing of the MoU

Four IIT Bombay Student Researchers Awarded AIRS Fellowships

Four students from IIT Bombay have been awarded the prestigious **“Australia India Research Students” (AIRS) Fellowship** program. Out of 537 applications, 35 Fellows from India and 28 Fellows from Australia were selected for the research program. Congratulations to Mr. Ishan Phansalkar, Department of Electrical Engineering; Mr. Ramengmawia Bawitlung, Department of Humanities and Social Sciences; Mr. Sujit Chauhan, Department of Economics; Mr. Yagya Narayan, Department of Mechanical Engineering



IIT Bombay Launches A Foundational Initiative To Combat Neurodegenerative Diseases



From (L-R) IIT Bombay Director Prof. Subhasis Chaudhuri; Mr. Shyam Sanghi and Dr. Pratima Murthy, Director of the National Institute of Mental Health and Neurosciences (NIMHANS) during the launch ceremony of Sunita Sanghi Centre of Ageing and Neurodegenerative Diseases (SCAN) at IIT Bombay

The Indian Institute of Technology Bombay launched the **Sunita Sanghi Centre of Ageing and Neurodegenerative Diseases (SCAN)** on January 9, 2023. The Centre has been set up with a generous donation from our alumnus **Mr. Sharad Sanghi** (B.Tech., Electrical Engineering, 1989) and his family, in memory of his late mother, **Mrs. Sunita Sanghi**.

The Centre was inaugurated with a special ceremony held on campus. It was presided over by

Dr. Pratima Murthy, Director of the *National Institute of Mental Health and Neurosciences* (NIMHANS). Dr. Murthy delivered

an insightful keynote, drawing on her 30+ years of extensive experience in the field of mental health.

The gathering also witnessed a well-rounded panel discussion on the challenges and solutions of healthy ageing and combating neurodegenerative diseases, moderated by **Prof. Samir Maji**, Professor-In-Charge, SCAN. The panelists included: **Prof. Vidita Vaidya**, Department of Biological Sciences, Tata Institute of Fundamental Research; **Prof. Sangeeta Ravat**, HoD, Neurology at Seth G. S. Medical College and KEM Hospital; **Prof. Prabhvir Vishnu Poruthiyil**, Assistant Professor, Ashank Desai Centre for Policy Studies, IIT Bombay, in addition to Dr. Pratima Murthy.

IIT Bombay is grateful to Mr. Sharad Sanghi and his family for their generosity, Dr. Murthy for her time and expertise, and the panelists who made this event a success.



From (L-R) IIT Bombay Director Prof. Subhasis Chaudhuri; Mr. Shyam Sanghi and Dr. Pratima Murthy, Director of the National Institute of Mental Health and Neurosciences (NIMHANS) during ribbon cutting of SCAN

Dr. V. K. Saraswat Inaugurates NCoE-CCU At IIT Bombay



From (L-R) Prof. Vikram Vishal, Department of Earth Sciences and Convenor of NCoE-CCU; Hon'ble Member, NITI Aayog, Govt. of India Dr. Vijay Kumar Saraswat and IIT Bombay Director Prof. Subhasis Chaudhuri during the inaugural ceremony of National Centre of Excellence in Carbon Capture and Utilization (NCoE-CCU) at IIT Bombay

The **DST-sponsored National Centre of Excellence in Carbon Capture and Utilization (NCoE-CCU)** was formally inaugurated by **Dr. Vijay Kumar Saraswat**, Hon'ble Member, NITI Aayog, Govt. of India on February 11, 2023 at IIT Bombay, in the presence of the Director, **Prof. Subhasis Chaudhuri**, among other dignitaries from the academia, government and industry.

IIT Bombay Partners With HQMC IAF Nagpur

On January 9, 2023, **IIT Bombay** signed a **Memorandum of Understanding (MoU)** with **Headquarters Maintenance Command, Indian Air Force (IAF), Nagpur** to promote research and development for critical technologies required by the Indian Air Force for aircraft maintenance.

Air Marshal CR Mohan, AVSM, VSM, Senior Maintenance Staff Officer, Headquarters Maintenance Command, Indian Air Force and Director of IIT Bombay **Prof. Subhasis Chaudhuri** signed the MOU.

The partnership includes a strategic collaboration to develop reliability-centred maintenance systems for aerospace platforms and subsystems. The data science-driven approach of Artificial Intelligence (AI), Machine Learning (ML), and Digital Twin are key components of these technologies. These efforts will increase aircraft availability and reliability while reducing maintenance costs and time.

The other members from the Indian Air Force present included **Air Cmde Vikas Dwivedi**, **Air Cmde BVN Shiva**, and **Gp Capt. Janardhan**, and several other IAF officers, enrolled in the Masters's programme at IIT Bombay.

The delegation from IIT Bombay included **Prof. Milind Atrey**, Dean (Research and Development); **Dr. Vikas Kumar**, Chairman of the Aeronautics



From (L-R) Dean (Research and Development) Prof. Milind Atrey, Director of IIT Bombay Prof. Subhasis Chaudhuri, Air Marshal CR Mohan, AVSM, VSM, Senior Maintenance Staff Officer, HQMC, IAF; and Chairman of AR&DB Dr. Vikas Kumar during signing of MoU

Research and Development Board (AR&DB); Profs. from the Department of Mechanical Engineering, including **Prof. Asim Tewari**, **Prof. Makarand Kulkarni**, **Prof. Alankar Alankar**, **Prof. Rakesh Mote**, **Prof. Sushil Mishra**; **Prof. Chandra Sekher Yerramalli**, from the Department of Aerospace Engineering; and **Prof. Indrajit Mukherjee**, from the Shailesh J. Mehta School of Management.

Scholarship To Support One Student Each Year For 25 Years



Mr. Alok Maskara

IIT Bombay alumnus **Mr. Alok Maskara** (B.Tech., Chemical Engineering, 1992) has set up a '**Diamond Level Scholarship**' which will support the tuition, hostel and mess fees for one student per year over a period of 25 years.

The scholarship will be named the "**Annapurna and Hare Narain Maskara Scholarship**" in honour of Mr. Maskara's parents. It will add to IIT Bombay alums' rich legacy of supporting student scholarships at the Institute. Honouring his generosity, IIT Bombay has named Mr. Maskara as a "**Leadership Circle Donor**" as part of a special '**Donor Wall**' featured on the Dean Alumni and Corporate Relations website. Click this link here <https://alumni.acr.iitb.ac.in/donor-wall/#leadership> to have a look.

Providing an equitable launchpad for success to meritorious students is one of IIT Bombay's key priorities. The Institute is grateful to Mr. Maskara for his contribution which will help provide wings to the dreams of India's deserving youth.

Blood-Test To Help Detect Parkinson's Disease Early

A research team from IIT Bombay led by **Prof. Samir Maji** (Department of Biosciences and Bioengineering) has developed a patented technology that can be used to detect Parkinson's disease for early diagnosis or as a confirmatory test. The team has observed a 95% accuracy in detecting the disease in a small patient cohort in collaboration with KEM [King Edward (VII) Memorial] Hospital.

This is a major breakthrough by the Institute in its resolve to develop scalable, affordable and accessible solutions to address the growing challenge of neurological disorders, which are currently the leading cause of disability amongst the ageing population.

The patented technology is currently under process for large-scale clinical trials through the recently inaugurated **Sunita Sanghi Centre of Ageing and Neurodegenerative Diseases (SCAN)** at the Institute.



Prof. Samir Maji

"The protein aggregates sometimes cross the brain-blood barrier and enter the bloodstream in small amounts. Since they enter the blood in small amounts, they are not easy to detect. Our technology helps in amplifying these protein aggregates if they are present in the bloodstream. Once the aggregates amplify, we can easily measure and detect Parkinson's disease after a few cycles of testing, very much like the RT-PCR test," said professor-in-charge of SCAN, **Prof. Samir Maji**.

Speaking on the innovative technology, Director of IIT Bombay **Prof. Subhasis Chaudhuri**, said, *"In many cases, early detection and delaying the progression of the disorders are the only tools available. The Centre's work will cover every facet of such disorders"*.

IIT Bombay takes another step forward as it continues its mission of developing innovative solutions to address national and global challenges with this technology. The Institute congratulates Prof. Maji and his team for this outstanding achievement.

Desai-Sethi School Of Entrepreneurship Hosts Entrepreneurship Summit



Director of IIT Bombay Prof. Subhasis Chaudhuri felicitating Prof. Meric Gertler, President, University of Toronto during DSSE Entrepreneurship Symposium

The **Desai Sethi School of Entrepreneurship (DSSE)** organised an **Entrepreneurship Symposium** on January 31, 2023 at the IIT Bombay campus. The objective of this symposium was to bring together thought leaders in the government, academia and industry to deliberate on relevant and emerging topics related to the growing entrepreneurial ecosystem in India.

The forum was presided over by **Prof. Meric Gertler**, President, University of Toronto. *"It is assumed that research universities and institutes can play a more intentional role in reshaping their local economies. To help build local innovation systems, local firms and organisations such as universities and research institutes need to be encouraged to collaborate and make the boundaries more porous and permeable so that intellectual resources can circulate across these boundaries more freely. This can be achieved by reshaping the relationship between universities and industrial partners and sometimes redefining the very essence of what it means to be a faculty member or a graduate student"*, said Gertler in his keynote speech on the universities' new role in curating local innovation ecosystems.

In addition, the event consisted of two panel discussions on the evolving role of entrepreneurship education and academic incubators as well as fostering entrepreneurship education from research to

impact. The panelists comprised a mix of illustrious faculty from national and international technology institutes (*RMIT, Melbourne; IIT Delhi; IIT Madras*); leadership of tech startups; incubators and venture capitalists; and DSSE faculty amongst others.

Speaking at the event, **Prof. Subhasis Chaudhuri**, Director, IIT Bombay said, *"Nurturing startups and building a robust entrepreneurial ecosystem form an integral part of IIT Bombay's journey of excellence. The Desai Sethi School of Entrepreneurship has played a significant role in our endeavour and has emerged as one of the best feeders for incubators in India today. Entrepreneurship has always been one of India's strongest vehicles for growth. Our students and the youth of this country need to be trained in entrepreneurship. IIT Bombay has delivered and will continue to lead from the front"*.

Prof. Anuradha Narasimhan, Head, DSSE, said, *"It is wonderful to engage with young students brimming with ideas and the desire to change the world. We play a small part in guiding and mentoring them along their entrepreneurial journey"*.

The recording of the event can be viewed at this link here:

<https://youtube.com/live/TM4iR7Q1qyY?si=EnSikalECMiOmarE>

IIT Bombay Hosts Spoken Tutorial Awards 2023



Various stakeholders from institutions, industry leaders, bureaucrats and decision makers during Spoken Tutorials Awards event

IIT Bombay hosted an award ceremony to honour the best performers of the Spoken Tutorial project on March 4, 2023. Around 140 people received the awards under two broad categories, namely, **MASTER (Most Accomplished Spoken Tutorial Educator Resource)**, and **Spoken Tutorial Alumni Resource (STAR)**. The event was attended by Heads of the institutions, industry leaders, bureaucrats, decision makers, in addition to the awardees.

Spoken Tutorial is a flagship IT literacy programme developed at IIT Bombay and established with the generous funding from the Ministry of Education (then MHRD) through NMEICT in the year 2009.

Over the span of 13 years, the project has trained 70+ lakh learners across India, covering all states and union territories, with over 150 state affiliating universities, and 5000+ Colleges using this programme. The Spoken Tutorial project offers more than 90 skill-based IT Literacy courses ranging from basic computer skills, programming languages, domain specific free/ libre open source software, numerical computational tool etc. many of which are also available in 22 Indian languages as per Schedule VIII of the Indian constitution. Many colleges across India have adopted Spoken Tutorial skill oriented courses as part of their curriculum.

Using Spoken Tutorials, one can learn various Free and Open Source Software all by themselves. The self-paced, multilingual features of the project ensure that anybody with a computer and a desire for

learning can learn by themselves from any place, at any time, and in a language of their choice.

Mr. Yogesh Andlay, Co-founder of Nucleus Software, and INSquare, was the Chief Guest. He delivered the keynote address on the '*Role of Education in Nation Building*'. During his speech, he encouraged all the awardees to contribute to the society by becoming leaders in their own right. **Ms. Ashima Mittal**, IAS (C.E.O. Nashik Zilla Parishad & IIT Bombay alumnus) was the guest of honour. She was also the recipient of the MASTER award, as she volunteered to promote Spoken Tutorials during her second year of B.Tech studies at IIT Bombay, back in 2011. She now organises a major training programme for the health workers in Nashik district using the Health Spoken Tutorials.

The event also had a panel discussion on '*Making India a talent powerhouse - The Spoken Tutorial Way*'. The panel included representatives from academia and industry and discussed the way forward for upskilling the Indian population.

Speaking about the event, **Prof. Kannan Moudgalya**, the Principal Investigator of Spoken Tutorials said, "*We started Spoken Tutorial with an intention to take high quality education to India's rural population. We worked tirelessly to build IT literacy modules which would be both low cost and suitable for self-learning. When these awardees spoke about how Spoken Tutorials helped them in their academic performances and in finding jobs, it was an extremely gratifying experience* ".

Workshop On “Critical Minerals Research For Sustainable Transition To Green Energy”



The **Department of Earth Sciences, IIT Bombay**, organized a two-day **India-Australia joint workshop** on “**Critical Minerals Research for Sustainable Transition to Green Energy**” in association with Monash University under the Institute of Eminence (IoE) grant during March 3–4 at VMCC in the Institute.

The workshop was part of an activity of the Australia-India Critical Mineral Research Hub (AICMRH), which is a joint research initiative between Indian and Australian universities to address the critical need for sustainable supply chains of critical minerals for green energy. **Dr. Deependra Singh**, CMD, IREL (India) Ltd., and **Mr. Sanjiva De Silva**, DFAT, Government of Australia, graced the occasion with their presence as guests of honour.

The workshop covered five themes, namely geology and resources, mineral exploration and targeting, mineral processing and recovery, mine waste utilization and recycling, and policy and governance.

Eminent scientists from academia and industry and officers from the corporate and government sectors from both India and Australia participated in the two-day-long deliberations. After the keynote addresses and scientific presentations, comprehensive brainstorming sessions were held to highlight the issues related to critical mineral research and its sustainable supply chains in India. The workshop outcome would be submitted to the Ministry of Education, the Ministry of Mines, the Ministry of External Affairs, and the Ministry of Non-Renewable Energy, Government of India, to attract funds for critical mineral research.

The broad focus of the workshop was to:

- Present understanding of domestic critical mineral resources
- Recovery of critical metals from solid and liquid
- Critical mineral policies and regulations
- Mineral exploration and source diversification wastes
- Mineral processing and recycling technologies
- Impact of critical mineral production on health and the environment

During this workshop, the deliberations focused on the following objectives :

- To work through the opportunities and challenges involved in building sustainable supply chain (s) for critical minerals from both countries
- To identify emerging issues in critical minerals, supply chains, and the nation's current vulnerabilities to potential disruptions
- To identify research themes associated with critical mineral supply through short-, mid-, and long-term action plans in project mode
- To strengthen India's critical mineral supply chains

Women's Day Celebrations At IIT Bombay

The **Gender Cell** at IIT Bombay celebrated **International Women's Day** on March 16, 2023, to raise awareness about the status and dignity of women among the faculty, staff and students, as well as to take forward the ideas of gender equality, equity of resources, and women empowerment.

Two distinguished women, **Prof. Rohini Godbole**, Padma Shri, a physicist, and **Dr. Aparna Hegde**, an internationally renowned urogynecologist and the founder of the maternal and child health care NGO **ARMMAN**, graced the occasion as speakers.

Deputy Director (Academic and Infrastructural Affairs) **Prof. S. Sudarshan**, shared the necessity of



Urogynecologist and founder of NGO ARMMAN Dr. Aparna Hegde addressing the participants during the Women's Day Celebrations

possible actions that not only women but institutions, workplaces, and society as a whole need to take in the context of women in science in India.

Prof. Dr. Hegde spoke about her journey in creating ARMMAN in 2008. ARMMAN is a product of her perseverance to minimise the preventable morbidity and mortality of mothers and children in India. She discussed how the whole system is research-based, leveraging mHealth to create cost-effective, scalable, gender-sensitive, non-linear, systemic solutions to improve the access of pregnant women and mothers to preventive information and services, along with training health workers to reduce maternal and child mortality and morbidity.

The event was a great success and well-attended by students and faculty alike.



Deputy Director (Academic and Infrastructural Affairs) Prof. S. Sudarshan addressing the audience during the Women's Day Celebrations

women empowerment in the current day and age and talked about the increase in female student and faculty engagement on campus, as well as about the steps the institute takes to ensure that women get equal opportunities on campus.

Prof. Godbole spoke about the gender inequity in science that still might be very prevalent in Indian institutes. She shared that while the number of women engaging in science might have increased at college education levels, the drop and inequity of participation are significant in higher education or workplace scenarios. Attributing the gap to the existence of invisible and unconscious bias that can potentially impact the gender imbalance in science, she also presented a possible future road map of



Padma Shri and Physicist Prof. Rohini Godbole joined online during the Women's Day Celebrations

Hindi-Cell Organises Hindi Workshop

The **Hindi Cell** organized a **Hindi workshop** for the Institute staff on February 28, 2023 at IC-1, Shailesh Mehta School of Management Building, IIT Bombay. **Dr. Harshmohan Krishnatray**, a linguistic expert, was the speaker of this workshop.

During the course of the workshop, he gave a brief overview of the various provisions in Hindi based on an exercise on official terminology and phrases to the participants. The objective of the workshop

was to encourage the staff members to use Hindi in official work. Around 15 participants attended the workshop.

Media Delegation From LAC Countries Visits IIT Bombay

A delegation comprising 35 journalists/ editors from **Latin American and Caribbean (LAC)** countries visited IIT Bombay on March 28, 2023, as part of a familiarisation programme organised by the Ministry of External Affairs, Government of India for foreign media. IIT Bombay's Deputy Director (Academic and Infrastructural Affairs) **Prof. S. Sudarshan** and Dean (International Relations) **Prof. Amit Agrawal** interacted with the delegation. The delegation also visited the IDC School of Design to get a broader perspective of the curriculum taught at the School.



Deputy Director (Academic and Infrastructural Affairs) Prof. S. Sudarshan interacting with the media delegation



Prof. B. K. Chakravarthy, IDC School of Design, during an interaction with the visiting media delegation



Dean (International Relations) Prof. Amit Agrawal addressing the media delegation

Students News



Ms. Sayoni Sarkar, a Ph.D. student in the Department of Metallurgical Engineering and Materials Science, has been selected to participate in the *2023 CAS Future Leaders program*. Her research work on developing *novel biofunctional nanostructures for low-cost cancer theranostics, utilizing sustainable flow chemistry platforms* has been recognised by this award. This award also includes a visit to CAS Headquarters in Columbus, Ohio and paper presentation in the ACS Fall 2023 in San Francisco.

Research in focus

Harnessing The Power Of Defects To Improve Metallic Alloys

Learning about dislocations and their interactions within an alloy can help precisely engineer its properties.

Two new studies from the Indian Institute of Technology Bombay (IIT Bombay), Mumbai, show the importance of defects in the arrangement of atoms in a crystal, called dislocations, in shaping the physical properties of metallic alloys.

Crystals are often imagined as perfect arrays of atoms, or molecules arranged in rows and columns. Yet, perfect crystals are rarely seen in reality. Most crystal lattices have defects, and one of the types of defects is called dislocation. A dislocation occurs when there is an irregularity or a break in the periodic arrangement of atoms or molecules in a crystal. Essentially, it is a sheet of missing atoms in the regular crystal pattern, causing the planes of the neighbouring atoms to shift in order to fill up the space left by the missing atoms.

Although a defect, the presence of dislocations alters the physical properties of the material – a fact that material scientists have been exploiting to precisely engineer the physical properties of a material, such as its strength, ductility and electrical conductivity.

In alloys of iron, such as the molybdenum-containing maraging steel, molybdenum atoms are distributed throughout a matrix of iron atoms. When dislocations are present, they act like pipes through which the solute molybdenum atoms can travel much faster as compared to a dislocation-free material, in a process called pipe diffusion. The faster travel of the solute atoms through the dislocations aids in faster ageing of the alloy. Ageing, also called precipitation hardening, is a method of strengthening a material by heating it over long periods until it reaches a desired strength. During the heating, precipitates of the solute atoms (in this case, Fe₂Mo) are formed throughout the solvent material, thus strengthening the alloy. The more the number of dislocations, the faster the solute atoms could diffuse through the material, reducing the amount of time and energy required to achieve the desired level of ageing.

In their first study, the team from IIT Bombay observed that the shape of the precipitates that formed by pipe diffusion had been altered by faster diffusion of the solute. Precipitates are formed by clumps of solute atoms moving through the material. They were no longer their regular spherical shape but were flattened into a plate-like structure. The team used computer models and simulations to show that as the precipitates grew around dislocation forests, their shape was also altered depending on their interaction with the dislocations. *“The change in the morphology of the precipitates causes deterioration in the alloy’s properties, especially its ductility, which is not a good thing. The study gives us clues as to how to control the prior deformation so as to introduce just enough dislocations to gain the benefits of faster ageing while making sure too many flat precipitates are not produced”* explains **Prof. Nagamani Jaya**, who was part of the study.

For their subsequent study, the team wanted to know how a single dislocation interacted with the solutes in the alloy, specifically during phase separation. Phase separation occurs when two phases separate from a single homogenous mixture. For example, when mixing oil and water, the two liquids undergo phase separation to form separate layers of water and oil. The team wanted to study how the presence of a dislocation aided or affected phase separation in metallic alloys. They once again built a computer model to represent a dislocation within a metallic alloy and ran the simulations.

Phase separation usually happens in two ways – nucleation and growth and spinodal decomposition. Nucleation occurs when a small amount of solute atoms of the alloy accumulates at one point within the mixture. Once this accumulating mass reaches a critical size, it starts to grow. For example, considering Fe₂Mo again, molybdenum atoms will



accumulate and grow from a nucleation point within the iron matrix, eventually separating the two. Dislocation networks usually provide a favourable site for the material to start the accumulation and thus start the nucleation and growth process. Spinodal decomposition, on the other hand, happens spontaneously where, at particular compositions, the two components of the alloy phase separate, akin to water and oil separating spontaneously into two distinct layers. Although both are well-known phenomena, it was thought that the two processes never occurred simultaneously in the same material.

In their study, the team from IIT Bombay found that both nucleation and growth and spinodal decomposition could happen at the same time within the material. While a single dislocation aided spinodal decomposition, when there were two intersecting dislocations, it also helped nucleation and growth. *“We observed that beyond a certain level of composition (percentages of the two metals in the alloy), spinodal decomposition can happen along the dislocation line. But when we consider a dislocation network instead of a single dislocation, at the junction where two dislocations intersect, nucleation also happens. This is the first time in literature, to the best of our knowledge, that both spinodal and nucleation are shown to occur at the same time,”* says **Arjun Varma R.**, an author of the study. The team used non-dimensionalized parameters (variables or parameters that are independent of any particular material) for their simulations, which meant the same model could be used to study different metallic alloys.

“When we first saw spinodal and nucleation happening simultaneously, I thought there must be something wrong with our model since we are not trained to think about alloys like this. It took me some time to accept that this was, in fact, true,” exclaims **Prof. M.P Gururajan**, who was part of both studies. Their models were further validated by comparing atom probe results (a type of microscopy for studying atomic structures) from literature in Iron-Manganese alloy, which showed evidence of spinodal happening at the dislocations. In addition to this, they have also predicted, using this model, the range of compositions at which there is a possibility of spinodal decomposition along dislocations, for different alloys.

Both studies show us how dislocations play an important role in determining the physical properties of alloys. It allows us to precisely engineer the dislocations to benefit from it while taming its drawbacks. Apart from applications, the studies also give us an insight into the fundamental science of the behaviour of dislocations and their interactions with the atoms of metallic alloys.

Moreover, apart from the lessons in metallurgy, the studies also encouraged the in-house development of code and computer models, which can be used to study other metallic systems and alloys. *“Phase field modelling is one of the benchmark problems for high-speed computing. It also takes a long time to run, depending on the type of supercomputer used. Having built the models and written the code ourselves, our group now has the expertise to further improve the understanding of these materials. These skills developed during these studies are one of the most important aspects for us,”* remarks Prof. Gururajan.

Article written by: Dennis C. Joy

Link to published work: <https://www.sciencedirect.com/science/article/pii/S2589152922000448?via%3Dihub>
<https://www.sciencedirect.com/science/article/pii/S1359645422009065?via%3Dihub>

Institute Colloquium /
Lectures



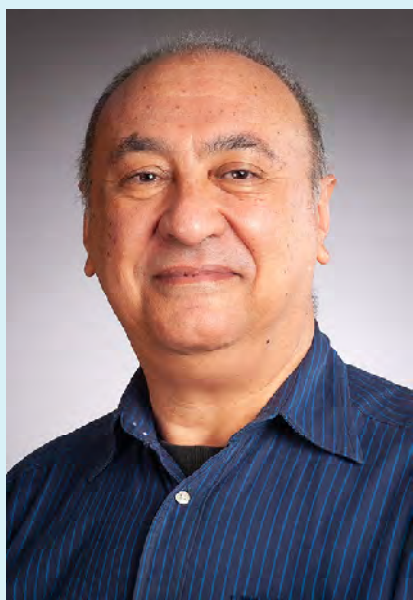
Prof. P. M. Ajayan, Benjamin M. and Mary Greenwood Anderson Professor of Engineering, Department of Materials Science and NanoEngineering, Rice University, Houston, Texas, USA, delivered an Institute lecture titled *"Materials Design through NanoEngineering"* on January 12, 2023



Dr. Ravi M. Shanker, Senior Research Fellow, Pfizer Inc. USA, delivered an Institute distinguished lecture (*in memory of Prof. K. C. Khilar*) titled *"Three Decades of Pharmaceutical Reduction to Practice of Science: Advancement of Novel Drug Delivery Technologies from Benchtop to Commercial Products"* on January 19, 2023



Hon'ble **Mr. Justice Uday Umesh Lalit**, Former Chief Justice of India, delivered an Institute talk titled *"Administrative Law and Policy Framing"* on January 23, 2023



Prof. Alejandro Frery, Professor, Victoria University of Wellington, New Zealand, delivered an Institute lecture titled *"Practical Steps towards Reproducibility and Replicability"* on January 24, 2023



Mr. A. S. Kiran Kumar, Vikram Sarabhai Professor, ISRO, Member, Space Commission and Former Chairman, Indian Space Research Organisation (ISRO), delivered an Institute colloquium titled *"Indian Space Program: Recent Developments"* on January 28, 2023



Prof. Dennis E. Discher, Robert D. Bent chaired Professor and Director of NCI-Physical Sciences Oncology Center-Project, University of Pennsylvania, Philadelphia, PA, delivered an Institute lecture titled *"Universal scaling & mechanisms across tissues, tumors, and nano-materials"* on January 30, 2023



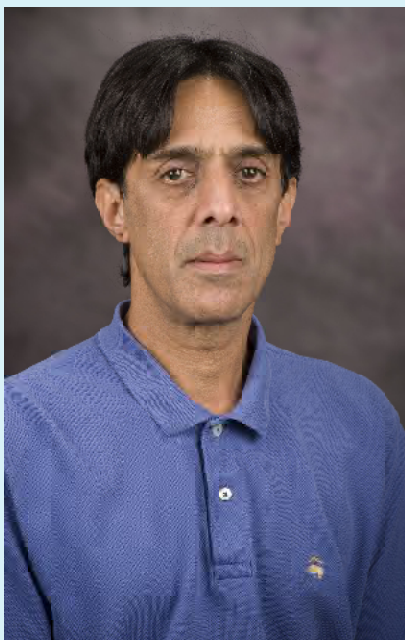
Prof. Serge Haroche, Nobel Laureate in Physics (2012), College de France, Paris, delivered an Institute colloquium titled *"Quantum Science with Rydberg Atoms"* on February 17, 2023



Prof. Rajat Mittal, Professor of Mechanical Engineering and Professor of Medicine, Johns Hopkins University, Baltimore, USA, delivered an Institute lecture titled *"Flow Physics and Computation at the Intersection of Mechanics and Bioengineering"* on February 13, 2023



Prof. Dara Entekhabi, Bacardi and Stockholm Water Foundations Professor, Professor of Civil and Environmental Engineering, Professor of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology (MIT), USA, delivered an Institute lecture titled *"Linkages Between the Water, Energy and Carbon Cycles in the Global Climate System"* on March 13, 2023



Dr. Bharat Ratra, Distinguished Professor of Physics, Kansas State University, USA, delivered an Institute lecture titled *"The Accelerating Expanding Universe: Dark Matter, Dark Energy, And Einstein's Cosmological Constant"* on March 14, 2023



IIT Bombay alumnus **Mr. Ram Kelkar**, delivered the **Shashwat Panda Memorial Lecture** by Pureheart Capital titled, *"A career is a journey – not a destination: Vignettes of IITian career paths"* on March 30, 2023

Awards and Distinctions

Prof. Gopal Dixit, Department of Physics, has been elected as a Fellow of “JSPS Invitational Fellowships for Research in Japan”

Prof. Deepankar Choudhury, Department of Civil Engineering, has elected you as a Fellow of the West Bengal Academy of Science and Technology (WAST)

Prof. Sauvik Banerjee and his PhD student **Mr. Paresh Mirgal**, Department of Civil Engineering, have won the **ISNT-IXAR Best Paper Award** in the Research & Development Category 2022 for their technical paper titled “Acoustic emission source modelling and classification in reinforced concrete beams,” published in JNDE’s Vol. 18, Issue 21, June 2020. The award was presented at the inaugural function of the NDE 2022 Conference (<https://isntnde.in/>) on November 24, 2022, at the Mahatma Mandir Convention and Exhibition Center (MMCEC), Gandhinagar, Gujarat

Prof. Ravi N Banavar and his team, Systems and Control, are featured first (the article appeared (online)) in the IEEE Control Systems magazine series “Institutes in Control”, which will feature about 6 institutes all over the globe that have made an impact in this field <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10015540>

Prof. Debabrata Maiti, Department of Chemistry, has been elected to the fellowship of the Indian Academy of Sciences, Bangalore

Prof. Siddhartha Chaudhuri, Department of Computer Science and Engineering, has been awarded **INSA Medal for Young Scientists 2022** for his

fundamental scientific contributions to scalable computational and data driven approaches towards shape understanding, synthesis and reconstruction of high quality three-dimensional digital object

Prof. Dharamveer Singh, Department of Civil Engineering, has been invited appointed as Associate Editor of International Journal of *Pavement Research and Technology (IJPRT)*, Springer (<https://www.springer.com/journal/42947/editors>)

Prof. Rajesh Zele and his team including his PhD student **Ms. Anamika Sharma** and **Mr. Sachin Divekar**, Department of Electrical Engineering, have won the **A K Chowdhury Best Paper** award at VLSID 2023 Conference for their paper titled “A Portable Ultra-low-cost Multi-Gas Sensing System-on-Module for Wireless Air Quality Monitoring Network”.

Prof. Tathagata Pal, Department of Biosciences and Bioengineering, received the ‘**Best Impact Pitch Award**’ at the Prestigious IEEE Applied Sensing Conference 2023 (<https://2023.ieee-apscon.org/>)

Prof. Dipanshu Bansal, Department of Mechanical Engineering, has been awarded **INSA Medal for Young Scientists 2022** for his fundamental contributions in time-resolved mapping of lattice dynamics in real- and momentum-space for better and accurate depiction of several ubiquitous phenomena such as thermal energy transport, phase transition, thermal conductivity etc.

Prof. Sandeep Mondal, Department of Electrical Engineering, has been awarded **INSA Medal for Young Scientists 2022** for his research

contribution to studies on spatio-temporal variation of local and regional ecological patterns to examine if local patterns scale up to global patterns. He analyzed different macroecological megatrends to test the established notion that ecological interactions vary predictably with latitudes and through marine molluscs of the last ~200 Ma and established that ecological interaction show neither proportional nor inverse relationship with latitudes

Prof. Riddhi Singh, Department of Civil Engineering, has been selected as one of the 10 **Indian Water Sheroes** to be featured in the third edition of *She Is*, published by *Red Dot Foundation* in partnership with the Office of the Principal Scientific Adviser, Government of India and The Consulate General of Canada in Mumbai

Prof. Ruchi Anand, Department of Chemistry, has been invited to join the Advisory Board of *Chemical Society Reviews* journal of Royal Society of Chemistry (RSC) having very high impact factor (IF: 54.5)

Prof. Ruchi Anand, Department of Chemistry, has been inducted into the editorial advisory board of the most prestigious *American Chemical Society (ACS)* journal, *J. Phys. Chem (A/B/C)*

Prof. Dipendra Prasad, Department of Mathematics, has been appointed as the Chair of the *National Board for Higher Mathematics (NBHM)* by the Department of Atomic Energy (DAE), Govt. of India

The work of **Prof. Sai Vinjanampathy**, Department of Physics, has been accepted in the prestigious *Physical Review A Letters (PRA-L)* and a co-authored manuscript with PhD student in *Physical Review Letters (PRL)*

Prof. Varun Bhalerao, Department of Physics, has been awarded the Zee Yuva Sanman - Science and Technology Award (झी युवा सन्मान - विज्ञान आणि तंत्रज्ञान) for 2023

Prof. Prasenjit Basu, Department of Civil Engineering, has been selected as an "Associate Editor" in *Journal of Geotechnical and Geoenvironmental Engineering (JGGE)-ASCE*, published by American Society of Civil Engineers (ASCE), USA

Prof. Anil Kottantharayil, Department of Electrical Engineering, has been selected to co-lead a task force to advise the Australian and Indian governments on opportunities to accelerate the rollout of solar PV and clean supply chains with the Australian co-lead Prof. Renate Egan of UNSW. The press release from the Australian Prime Ministers' office is available at <https://www.pm.gov.au/media/australia-india-annual-leaders%E2%80%99-summit>

Prof. Ruchi Anand, Department of Chemistry, was interviewed by Professor Erick Carreira, Editor-in-Chief of J. Am. Chem. Soc. (JACS). Watch the video here <https://www.youtube.com/watch?v=KH0c1obHt6g>

Prof. Maryam Shojaei, Department of Electrical Engineering, has been appointed as Associate Editor of IEEE Sensors Journal from February 2023

Conferences/Workshops

Workshop on "Turning Conference Article into a Journal Paper"

The **Geospatial Information Science and Engineering (GISE) Hub**, IIT Bombay organised a workshop on "Turning Conference Article into a

Journal Paper" by **Prof. Alejandro Frery**, Professor of Statistics and Data Science with the Victoria University of Wellington, New Zealand, during January 21-22, 2023

Workshop on Quantum Science & Technology

IIT Bombay conducted a workshop on **Quantum Science and Technology (QST)** along with the recently founded Centre of Excellence in **Quantum Information, Computing, Science and Technology (QulCST)**, as a part of **Industrial Research and Consultancy Centre (IRCC)**'s annual **CONferences on emerging conceptS [ICONS 2023]** during February 17-18, 2023. The workshop featured a distinguished institute lecture by **Prof. Serge Haroche** (the winner of the 2012 Nobel Prize in Physics), organized in cooperation with **CEPIFRA** and the **Ambassade de France en Inde**; two keynote and two plenary seminars; lectures by faculty members of IIT Bombay; and a fire-side chat on the emerging Indian quantum ecosystem

Prof. Suddhasatta Mahapatra, Head, Centre for Quantum Information, Science and Technology (CQulST); **Prof. Kasturi Saha**, Department of Electrical Engineering and **Prof. Siddhartha Santra**, Department of Physics were the conveners for this workshop

Workshop on "Reimagining Risk and Vulnerability in Indian Agriculture"

As an **Institute of Eminence (IoE) outreach activity**, the **Shailesh J. Mehta School of Management** organised a workshop on 'Reimagining Risk and Vulnerability in Indian Agriculture' during March 10-11, 2023. Eminent scholars from Indian and international universities and institutes working on related issues were invited as speakers in the

workshop. **Prof. Sarthak Gaurav**, Shailesh J. Mehta School of Management, IIT Bombay was the convenor of the workshop

Workshop on "Public Procurement Process"

IIT Bombay organised a workshop/ interaction session titled "**Administrative Procedure and Public Procurement processes**" for staff members on March 4, 2023. Registrar **Mr. Ganesh Bhorkade** and other Institute Officers conducted the workshop

Workshop on "Administrative Procedures"

IIT Bombay organised a workshop/ interaction session titled "**General Awareness and Administrative Procedures**" for staff members on March 11, 2023. Registrar **Mr. Ganesh Bhorkade** and other Institute Officers conducted the workshop

Workshop on "FOSS"

Free and Open Source Software for Education (FOSSEE), IIT Bombay organised a **Mumbai FOSS** (Free and Open Source Software) **conference**, in collaboration with **FOSS United** on March 11, 2023. The conference featured a number of talks by invited speakers and was well-attended by FOSS enthusiasts

Workshop on "Patents"

Wadhvani Research Centre for Bioengineering (WRCB) conducted a two-day workshop on "**Understanding Patents**" during March 24-25, 2023. **Prof. Debjani Paul**, Department of Biosciences and Bioengineering was the professor in-charge of this workshop

Appointments

Dr. Anjali Sharma, has been appointed as Assistant Professor (Grade II) in Ashank Desai Centre for Policy Studies



Dr. Avishek Ghosh, has been appointed as Assistant Professor (Grade II) in the Systems and Control Engineering



Prof. Gurminder Singh, has been appointed as Assistant Professor (Grade II) in the Department of Mechanical Engineering



Dr. Siddavatam Ravi Prakash Reddy, has been appointed as Assistant Professor (Grade II) in the Department of Energy Science and Engineering



Retirements on January 31, 2023

Mr. Ramakant P. Katare, Sr. Mechanic, Department of Metallurgical Engineering and Materials Science, retired after 33 years of service



Retirements on February 28, 2023

Prof. Satish Vitta, Department of Metallurgical Engineering and Materials Science, retired after 32 years of service



Prof. Bernard L. Menezes, Department of Computer Science and Engineering, retired after 20 years of service



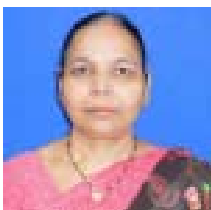
Ms. Sunita M. Singh, Jr. Superintendent, Academic Section, retired after 35 years of service



Mr. Anand Khaiwan, Multi-Skilled A/S C, Hostel No - 01, retired after 25 years of service



Mrs. Bismillah Mukadam, Multi-Skilled A/S B, Hostel No - 11, retired after 19 years of service



Retirements on March 31, 2023

Prof. Kannan Moudgalya, Department of Chemical Engineering, retired after 34 years of service



Prof. Kanchan Pande, Department of Earth Sciences, retired after 19 years of service



Prof. Amitabha Sanyal, Department of Computer Science and Engineering, retired after 34 years of service



Mr. Vishwanath S. Gaikar, Jr. Technical Superintendent, Department of Mechanical Engineering, retired after 41 years of service



Mr. Mahadev G. Samant, Sr. Mechanic, Department of Mechanical Engineering, retired after 37 years of service



Mr. Ramdhani K. Lodh, Sr. Multi-Skilled Assistant, HR-1 (HRM-2), retired after 40 years of service



Obituary



Ms. Meena Manoj, a core team member in Public Relations Office, passed away on March 8, 2023 after a long battle with Cancer.

Notification

Prof. K. G. Suresh, Department of Physics, has been appointed as the Chief Vigilance Officer w.e.f. February 08, 2023

Prof. Satish Maurya, Department of Earth Sciences, has been appointed as a Warden, Tansa House w.e.f. February 24, 2023

Prof. Suryanarayana Doolla, Department of Energy Science and Engineering, has been appointed as the Dean (Student Affairs) w.e.f. March 03, 2023

Prof. Atul Srivastava, Department of Mechanical Engineering, has been appointed as the Associate Dean (Student Affairs) w.e.f. March 03, 2023

CEP courses scheduled during April and May and June 2023

No	Course Title	Course Coordinator/ Department	Duration
Open Programmes : (April 2023)			
1	Statistics For Decision-Making	Prof. Usha Ananthakumar, Shailesh J. Mehta School of Management	April 1, 2023(3 days)
2	GPGPU Programming using CUDA and OPENACC for Industry Professionals	Prof. Shivasubramanian Gopalakrishnan, Department of Mechanical Engineering	April 26, 2023(3 days)
Open Programmes : (May 2023)			
3	MONSOON COURSE ON HCI 2023	Prof. Anirudha Joshi, IDC School of Design	May 31, 2023(15 days)
In House Programmes :			
4	Econometrics Models In Theory And Practice	Prof. Puja Padhi, Department of Humanities and Social Sciences	May 10, 2023(2 days)
Open Programmes : (June 2023)			
5	Biology For Engineers	Prof. Ambarish Kunwar, Department of Biosciences and Bioengineering	June 5, 2023(5 days)
6	Laboratory And Ergonomic Safety For Engineers	Prof. Ambarish Kunwar, Department of Biosciences and Bioengineering	June 12, 2023(5 days)
7	Tractable Techniques For Robust And Explicit Model Predictive Control	Prof. Debasish Chatterjee, Systems and Control Engineering	June 19, 2023(5 days)

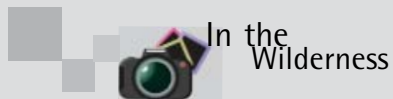


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