

Indian Institute of Technology Bombay Celebrates International Day of Yoga 2022

The International Day of Yoga is celebrated throughout the world every year on June 21 to raise awareness about the benefits of yoga in daily life. Yoga brings balance between body, soul and mind. Yogastha, IIT Bombay organizes regular yoga sessions, workshops, yoga competitions and various lecture sessions at the IIT Bombay campus. These sessions help students, faculty and campus residents to live stress-free, help nurture the yogic practice and develop a healthy lifestyle.



IIT Bombay celebrated the **8th International Yoga Day** on June 21, 2022. The event witnessed the participation of all the members of the IIT Bombay community, including 258 students, 65 faculty and staff along with their family members. IIT Bombay Dean (Student Affairs) **Prof. Tapanendu Kundu** welcomed the participants and the Chief Guest Neurosurgeon and Ayush Ministry certified Yoga Therapist **Dr. Mayur V. Kaku**.

The flagship event of Yogastha on the eve of IDY, Yogathon:108 Suryanamaskar Challenge, was organized in the evening where **Mrs. Shammi Gupta**, Yoga Practitioner, Yoga Mentor, Counsellor and Life Coach and yoga therapist graced the event.

Following events were organized by the Yogastha team in the run-up to the International Day of Yoga:



A 'Dynamic Flow Yoga' workshop was conducted on February 12, 2022 by **Dr. Yogi Sumit Thalwal**, a multi-style teacher with certifications in Hatha, Vinyasa, Ashtanga, Yin and Iyengar styles of Yoga. He is an E-RYT 200, RTY 500 Yoga Alliance Certified teacher and is leading 200, 300 and 500 programmes at Maa Shakti Yog. The workshop focused on looking within and finding the inner peace that is not ruffled and riled by constant stresses and struggles of life. The Instructor helped to understand the intricacies of the proper techniques, postures, asanas and much more.

Yogastha organized a three-day **Hatha Yoga and Pranayama** workshop by **Mr. Dinesh Srichand Mulchandani**, a certified yoga instructor during May 17-19, 2022. Hatha Yoga practice helps in building strength and concentration. This workshop focussed on asanas with hold and in sync with the breath. It also included Sukshma Vyayama, Surya Namaskar, asanas from the intermediate to the advanced level and pranayama.

A mini-yogathon was conducted before the International Day of Yoga, where participants took part in **the 54 Surya Namaskar Challenge** on May 22, 2022. This initiative promoted Yoga and established a regular practice for a healthier lifestyle.

An **Acu-Yoga** workshop was organized for the IIT Bombay community based on the concept and application of acupressure. The workshop was held on May 21, 2022 by **Mr. Shrikant Kshirsagar**, Co-founder of *Yoga Sanjeevani*, a Ph.D. research scholar in yoga, with over 12 years of experience in health and wellness facilitation. Another speaker at the workshop was

Mr. Mangesh Sardeshpande of Sreeram Acupressure Centre and author of the book "*Arogya Sampada*," having more than 8 years of experience in acupressure therapy and facilitation. The interactive session included demonstrating acupressure points, which help maintain good blood circulation and muscular tension release, along with some tips to take care of the body.



Yogastha organized a 5-day **yoga camp** during May 23-27, 2022 that focused on yoga asanas (basic and intermediate), including sukshma vyayam, breathing exercises, suryanamaskar and relaxation techniques. The yoga camp sessions helped increase flexibility, improve stamina, build full-body strength and improve concentration.

A two-day workshop on spine care and women's wellness was conducted during May 31-June 1, 2022 by **Dr. Kalpana Godbole**, a wellness consultant with more than 25 years of experience specializing in spine and joint pain management and infertility.



A two-day '**Yoga for Wellbeing**' workshop was conducted during June 4-5, 2022 by **Ms. Savita Pareek**, a Ph.D. scholar at IIT Bombay and Ayush Ministry certified trainer. The workshop aimed at core strengthening and flexibility, breathing exercises and animal asanas.

Another workshop on the '**Use of Mudras in Pranayama**' was organized on June 12, 2022. The use of Mudra enhances the effect of pranayama. It not only works on the respiratory system but also helps the nervous system. The session was taken by **Mr. Devang C. Shah**, a yoga teacher and yoga therapist certified by the Ayush Ministry and lead yoga examiner for the Ministry of Ayush, Government of India.

Yogastha organised a 3-day general yoga class for the IIT Bombay community. These classes were taken by **Mr. Deepak Parmar**, an Institute Yoga trainer at IIT Bombay. He has been a yoga trainer for more than 28 years. He is also the head of the spiritual research centre of the Swaminarayan temple.

The following events were conducted online by the Yogastha team using social media and other technologies:

An '**Online Quiz Series**' was conducted on the theme *Yoga for Humanity and International Day of Yoga (IDY)* during June 6-19, 2022 and several members of the IIT Bombay community participated in it.

A '**2-minute Yoga Challenge series**' was conducted during June 6-19, 2022. The participants were requested to post their pictures and videos of standing, sitting and on-spine asanas on social media platforms.

A **slogan competition** on the theme '*Yoga for Humanity*' was conducted and participants were encouraged to share their slogan on their social media platforms.

Poster-making competition on the theme '*Yoga for Humanity*' was conducted where the participants submitted painted/sketched posters and were also encouraged to publicize them on their social media sites.

Dr. R. A. Mashelkar Inaugurates Rahul Bajaj Technology Innovation Centre At IIT Bombay



(From L to R) Director of IIT Bombay Prof. Subhasis Chaudhuri; Chairman of Bajaj Auto Mr. Niraj Bajaj; Former Director General, Council of Scientific and Industrial Research (CSIR) Dr. R. A. Mashelkar, sister of late Mr. Rahul Bajaj, Mrs. Suman Jain and Chairman and Managing Director of Bajaj Electricals Mr. Shekhar Bajaj during ribbon cutting ceremony of Rahul Bajaj Technology Innovation Centre, IIT Bombay

The **Rahul Bajaj Technology Innovation Centre (RBTIC)** at the Indian Institute of Technology Bombay was inaugurated on June 10, 2022 by the Chief Guest **Dr. R. A. Mashelkar**, former Director General, Council of Scientific and Industrial Research (CSIR), in the presence of **Mr. Niraj Bajaj**, Chairman, Bajaj Auto Limited, Director of Bajaj Group of companies and CMD of Mukand Limited and Director of IIT Bombay **Prof. Subhasis Chaudhuri**. Several members of the Bajaj family also attended the function.

The foundation stone of the Rahul Bajaj Technology Innovation Centre was laid on November 14, 2018 by the then Chairman of Bajaj Groups, Padmabhushan late **Mr. Rahul Bajaj**. His generous donation has helped the Institute to build a Centre that brings together all of Innovation, Entrepreneurship and R&D activities, under one roof, in a modern building 'RBTIC'.



(From L to R) Chairman and Managing Director, Bajaj Electricals Mr. Shekhar Bajaj; sister of late Mr. Rahul Bajaj, Mrs. Suman Jain; Chairman, Bajaj Auto, Mr. Niraj Bajaj; Director of IIT Bombay Prof. Subhasis Chaudhuri and Former Director General, Council of Scientific and Industrial Research (CSIR) Dr. R. A. Mashelkar during unveiling of the plaque of Rahul Bajaj Technology Innovation Centre, IIT Bombay

Congratulating the Institute on the new RBTIC building, **Dr. Mashelkar** said, "*Rahul Bajaj was known for his bold visionary thinking and a big compassionate heart. I am sure that RBTIC, inspired by this legendary icon of our times, will be a thriving platform for nourishing NextGen innovation led world class game changing entrepreneurs*".

Director of IIT Bombay Prof. Subhasis Chaudhuri presented before the guests an overview of the Institute and its growth over the years. In his address, **Prof. Subhasis Chaudhuri** said, "*Technology innovation being the key to the progress of the country, IIT Bombay lays a lot of emphasis*



Former Director General, Council of Scientific and Industrial Research (CSIR) Dr. R. A. Mashelkar addressing the audience during the inauguration ceremony of Rahul Bajaj Technology Innovation Centre, IIT Bombay

on innovation and I am sure that the vision of late Shri Rahul Bajaj will take us much further in our journey towards meeting that goal”.

Speaking on the occasion, the Chairman, Bajaj Auto Limited, Promoter/ Director of Bajaj Group of companies and CMD of Mukand Limited, **Mr. Niraj Bajaj** said, “On behalf of the Bajaj family, our heartiest compliments to IIT Bombay and its team for building such an iconic technology innovation centre. Shri. Rahul Bajaj’s dream of establishing state-of-the-art research and innovation facility for igniting the minds of budding students and for the benefit of society at large has come true. Innovation, entrepreneurship and R&D were always close to his heart. Future

belongs to the young. Our best wishes to them and RBTIC (Rahul Bajaj Technology and Innovation Centre) which will support them. Once again our most humble gratitude to IIT Bombay for honouring Late Shri. Rahul Bajaj by naming this Centre after him”.



Director of IIT Bombay Prof. Subhasis Chaudhuri, Former Director General, Council of Scientific and Industrial Research (CSIR) Dr. R. A. Mashelkar and Chairman of Bajaj Auto Mr. Niraj Bajaj during book launch event of Industrial Research and Consultancy Centre (IRCC)

A technology brochure titled ‘IIT Bombay’s Ideas and Innovations for Society (IBIS)’ by the Industrial Research and Consultancy Centre (IRCC) was released by Dr. Mashelkar and Mr. Niraj Bajaj during the function. The book highlights more than 100 technologies developed in-house which are at various levels of technology readiness. Showcased technologies span from defense to healthcare, robotics to environment and sustainability, communication to clean energy etc. The inauguration ceremony celebrated the late Mr. Rahul Bajaj’s immense contributions to IIT Bombay in the presence of his family members.

IIT Bombay's Technocraft Center For Applied Artificial Intelligence (TCA2I) Makes Foray Into The Defense Sector



(Left to right) Prof. Subhasis Chaudhuri, Director, IIT Bombay; Mr. Sudarshan Saraf, Distinguished Alumnus, IIT Bombay; acclaimed nuclear physicist Dr. Anil Kakodkar and Mr. Sharad Saraf, Distinguished Alumnus, IIT Bombay during the inaugural ceremony of TCA2I

Artificial Intelligence/ Machine Learning (AI/ ML) techniques are finding applications across all domains. With an aim to become a global leader in the Applied Artificial Intelligence space and to actively engage with various defense sectors, IIT Bombay's newly inaugurated **Technocraft Center for Applied Artificial Intelligence (TCA2I)** has undertaken joint projects with industry and the defense sector.

To solve grand challenges of societal importance, TCA2I will undertake projects where AI/ ML can be leveraged to improve the overall planning and decision-making process. The Center aims to build strong synergy with the defense agencies to provide full-fledged AI/ ML-based solutions to improve the operational efficiency of our defense forces.

IIT Bombay signed a Memorandum of Understanding (MoU) with the Institute's distinguished alumni and donors of the Center - **Mr. Sharad Kumar Saraf** (B. Tech, Electrical Engineering, 1969) and **Mr. Sudarshan Kumar Saraf** (B.Tech., Mechanical Engineering and Manufacturing Engineering, 1970) in June 2021 to start TCA2I. The Center's objective is to foster collaboration between industry and academia in AI/ ML through various outreach programs and teaching activities.

TCA2I at IIT Bombay was inaugurated on April 8, 2022 at a highly celebrated event held on campus. The Center was inaugurated by several respected

guests, most notably Chief Guest Padma Vibhushan **Dr. Anil Kakodkar**, Chancellor of the Homi Bhabha National Institute, Chairman of the Rajiv Gandhi Science and Technology Commission and Member of the Atomic Energy Commission. Dr. Kakodkar was accompanied by the Director of IIT Bombay **Prof. Subhasis Chaudhuri** and the Saraf brothers. Other esteemed dignitaries present were **Prof. Manoj Singh Gaur**, Director, IIT Jammu; **Dr. Subrata Rakshit**, Director, Centre for Artificial Intelligence and Robotics (CAIR) and Vice Admiral (Retd) **Mr. Raman Puri**, Indian Navy.

TCA2I primarily aims to help academia and industry leverage the immense power and potential of AI/ ML, Data Sciences and Optimisation at IIT Bombay to solve pressing challenges across various sectors, including healthcare, education, automation and cybersecurity. The Center will facilitate interdisciplinary projects from all the Departments and Centers of IIT Bombay. TCA2I has already funded several projects in the areas of medical imaging, supply chain logistics, cybersecurity, beyond 5G technologies, electricity distribution and biological drug discovery that are undertaken jointly with industry partners.

While giving his keynote address, **Dr. Kakodkar** said, "To say that AI is a powerful technology that can create revolutionary results is not an exaggeration and to learn that TCA2I is dedicated to

applications of AI is important in more than one way. I thank the Saraf brothers for their excellent gesture in creating this Center and IIT Bombay for this new initiative which certainly would result in a much larger impact in years to come”.

During the inauguration, **Mr. Sudarshan Saraf** said, “The Center’s strong focus will be on the defense sector. Though it is early for the Center, its endeavour is to develop technologies and AI-enabled military equipment. I am certain that in the near future, TCA21 will collaborate with other departments within IIT Bombay to significantly contribute to our country’s security”.

Mr. Sharad Saraf said, “We are grateful to IIT Bombay for giving us the opportunity to not only payback to our alma mater but do something in line with advancements in technology”.

Speaking on the occasion, **Prof. Chaudhuri**, Director, IIT Bombay said, “We wanted to set up a Center in Applied AI that would help the industry and various government agencies, including defense among other sectors. We want to ensure that the knowledge generated by IIT Bombay’s faculty members, researchers and students is translational

by leveraging the huge industrial ecosystem that is in and around IIT Bombay as well as other parts of India. We are thankful to the Saraf brothers for their generosity and gratefully acknowledge their contributions towards their alma mater”.

TCA21 will operate from a new upcoming building at IIT Bombay that will be equipped with state-of-the-art labs and a computation facility. Currently, the Center is operating from a temporary space at the Industrial Engineering and Operations Research (IEOR) department at IIT Bombay.

IIT Bombay alumnus **Mr. Rajendra Gandhi** (B.Tech., Metallurgical Engineering and Material Sciences, 1971) has graciously committed to a scholarship endowment for women students at IIT Bombay. Mr. Gandhi’s contribution is aimed to help women students, who are facing financial constraints and are often discouraged to pursue STEM education. The scholarship is titled ‘**Bhanu**’ in memory of Mr. Gandhi’s mother. As a way of giving back, he wishes to support deserving students at his alma mater. Mr. Gandhi’s generous donation contributes to IIT Bombay’s overall mission of providing world-class education to meritorious students.

IIT Bombay Sets Up Chair Professorship in Climate Studies

IIT Bombay has set up the first-ever Chair Professorship in Climate Studies titled ‘**Vinaya and Samir Kapoor Chair in Climate Studies**’. The Chair has been set up with a generous donation from IIT Bombay’s alumni **Ms. Vinaya Kapoor** (B.Tech., Chemical Engineering, 1992) and **Mr. Samir Kapoor** (B. Tech., Electrical Engineering, 1992) and a Memorandum of Understanding (MoU) was signed on March 31, 2022 for the same. This Chair is expected to greatly benefit the Centre for Climate Studies as well as the Interdisciplinary Programme in Climate Studies (IDPCS) at IIT Bombay by promoting increased participation of students and faculty in climate research. In addition, it is envisioned that the Chair will play a key role in enabling IIT Bombay’s increased participation in state, national and international bodies on climate change assessment and mitigation.



(Left to right) Prof. Subimal Ghosh, Institute Chair Professor in the Department of Civil Engineering, IIT Bombay and Convener of IDPCS, IIT Bombay; Prof. Ravindra D. Gudi, Dean (Alumni and Corporate Relations) IIT Bombay; Ms. Vinaya Kapoor, IIT Bombay alumnus (B. Tech., Chemical Engineering, 1992); Mr. Samir Kapoor, IIT Bombay alumnus (B. Tech., Electrical Engineering, 1992) during signing of the MOU

Speaking of the Chair Professorship in particular, **Ms. Vinaya Kapoor** said, “Advancement in climate studies is one of the grand challenges of our time. To address this challenge, the new Chair will build upon a decade of leadership by IDPCS and help attract talented faculty and students”.

Speaking about the initiative, **Mr. Samir Kapoor** said, “It is imperative that IDPCS and IIT Bombay lead the development of innovative climate solutions in collaboration with industry and government. On the occasion of the 10th anniversary of IDPCS, we are delighted to be able to further the Institute’s mission”.

Director of IIT Bombay **Prof. Subhasis Chaudhuri** said, “Our partnership with the establishment of the first ever Chair Professorship in Climate Studies will be a big step forward in our endeavour to lead India’s fight against climate change. I am grateful to Ms. Vinaya and Mr. Samir Kapoor for joining hands with IIT Bombay, an ‘Institution of Eminence’. This collaboration will contribute significantly to our global goal of ranking amongst the top 50 institutions in the world within the next decade”.

IIT Bombay Signs MOU With IMD For Developing User-Friendly Weather Forecasting Applications

The Indian Institute of Technology Bombay has tied up with the **India Meteorological Department (IMD) of the Ministry of Earth Sciences (MoES), Government of India**, to develop climate solutions for the stakeholder at the village, city and district levels. The collaboration will help the institute to develop sensors and drone-based smart monitoring systems, climate-smart agriculture technology for water and food security, intelligent and automated early warning systems, climate and health, smart power grid management, wind energy and heat wave forecasts.



(Left) Prof. Milind Atrey, Dean, (Research and Development), IIT Bombay; (Right) Mr. K S Hosalikar, Head of IMD's Climate Research and Services in Pune during signing of the MOU



(Left) Dr. M. Ravichandran, Secretary to the Government of India, Ministry of Earth Sciences, India Meteorological Department, addressing the audience during the 10-year anniversary celebration of IDPCS. Seen along with (Right) Prof. Subimal Ghosh, Institute Chair Professor in the Department of Civil Engineering, IIT Bombay and Convener of IDPCS, IIT Bombay

The partnership is also expected to yield climate forecast and information-based smart applications for different sectors such as agriculture, farming and irrigation, health, etc. using technologies such as AI and ML, etc.; meteorological aviation, observational and instrumentation applications; and climate change policy information and human resource development.

Dr. M. Ravichandran, Secretary to the Government of India, Ministry of Earth Sciences, India Meteorological Department, spoke about this collaboration during the 10-year anniversary celebration of IDPCS held on May 02, 2022 at the IIT Bombay campus, where he

was the chief guest. *"It is my great pleasure to be a part of the 10th year anniversary celebration of IDPCS," he said adding, "I congratulate the department for making this 10-year programme successful. IDPCS is a very good initiative by IIT Bombay as it is important for studies of climate science. Science itself is interdisciplinary as it involves mathematics, engineering solutions and social sciences amongst other disciplines and these are required to understand the discipline of climate studies as well. Interdisciplinary academia has immense potential and I look forward to the ministry working collaboratively with IIT Bombay".*

Given the country's ambitious target of reaching net-zero by 2070, IIT Bombay aims to establish a Centre of Excellence (CoE) in Climate Services and Solutions within the Interdisciplinary Program in Climate Studies (IDPCS).

Speaking of the collaboration, **Prof. Subhasis Chaudhuri**, Director, IIT Bombay said, *"It is crucial now more than ever for us to develop actionable and sustainable solutions that can combat the climate crisis. IIT Bombay's mission is to be a thought-leader in Climate Studies and make a difference with its cutting-edge research and industry collaborations. Our partnership with the IMD will be a big step forward in our endeavour to lead India's fight against climate change. I am grateful to IMD for joining hands with IIT Bombay, an Institution of Eminence".*

International RB Memorial Conference On Translational Research In Medicine (TRIM)



At VMCC, from left – Prof. Sanjeeva Srivastava (Convener, TRIM-2022), Dr. Bhagwati Prasad (Late Prof. Rinti's husband), Raammy Shrivastav (Director of film Rinti), Spruha Joshi (renowned actor who portrayed Prof. Rinti's role in film) and rest of the Bollywood film crew.

The **Department of Biosciences and Bioengineering (BSBE)** organized the **Translational Research in Medicine (TRIM)**, a one-day online international conference in memory of Distinguished Institute Chair **Late Prof. Rinti Banerjee**, on her birth anniversary, April 19, 2022.

The conference had the overarching theme of Translational Research in Medicine, covering Nanomedicine, Drug Delivery Biomaterials, Proteomics and Digital Health. Over 800 delegates took part in this day-long event convened by **Prof. Sanjeeva Srivastava** of Proteomics Lab, BSBE and students of the erstwhile Nanomedicine lab, headed by the late Prof. Banerjee.

<https://www.youtube.com/watch?v=cfDCIRElvWY>

Director of IIT Bombay **Prof. Subhasis Chaudhuri** inaugurated the event in the presence of the Director of IIT Indore **Prof. Suhas Joshi**; Senior Program Officer, Chemistry Manufacturing & Controls, Gates Foundation, USA, **Dr. Dennis Lee**; and Professor-in-Charge, Koita Centre for Digital Health (KCDH) and Institute Chair Professor, Department of Computer Science Engineering, IIT Bombay **Prof. Ganesh Ramakrishnan**.

Over 20 keynote speakers from the world working on the advanced translational health sciences, including the likes of **Prof. Kazunori Kataoka** from Japan, **Dr. Ali Khademhosseini**, **Prof. Tejal Desai**, **Prof. Nicholas A. Kotov**, **Prof. Darrell Irvine**,

Prof. Robert T. Chang, **Prof. Justin Hanes** from the USA and **Prof. Molly Stevens** from the UK among others shared their insights on cutting-edge nanomedicine and health research with the delegates. Student participants also presented their work in poster and pitch talks.

Experts from India like Padmashree **Prof. Sujoy K. Guha** from IIT Delhi and Shanti Swarup Bhatnagar awardees **Prof. Rohit Srivastava**, IIT Bombay; **Prof. Bikramjit Basu**, Indian Institute of Science, Bengaluru and **Dr. Amit Dutt**, Principal Investigator, Scientist G, ACTREC, Tata Memorial Centre, delivered lectures. Scientists and academics around the world delivered over 30 lectures. Also, scientists from leading R&D labs from India and abroad like *Qure.ai*, *RIA*, *Cytiva*, *Octet*, *Merck* and *Thermo* shared their ideas with the delegates.

This event also marked the screening of a documentary feature on Prof. Rinti named **Rinti** enacted by actor **Ms. Spruha Joshi**; written and directed by **Rammy Shrivastav**. The Creative Director was Prof. Sanjeeva Srivastava.

Prof. Rinti was one of IIT Bombay's most prolific translational biomedical scientists. As the Madhuri Sinha Chair Professor at the Department of Bioscience and Bioengineering at the IIT Bombay, Prof. Banerjee played a crucial and leading role in translational research by creating advanced yet affordable healthcare solutions. She passed away due to post COVID-19 complications on July 8, 2021.

QS World University Rankings 2023: IIT Bombay 2nd Best In India

IIT Bombay has secured **second position** in India and 172nd rank this year in the **Quacquarelli Symonds (QS) World University Rankings (2023)**. Overall, the Institute has improved on its 2022 performance by five places.

The results were released on June 8, 2022 by QS, a British company. IIT Bombay secured an overall score of 46.7 out of 100. The Institute has a score of 53.3 in academic reputation, 86.5 in employer reputation, 55.1 in citation per faculty, 25.8 in faculty student ratio, 3.9 in international faculty and 1.6 in international students, all scores out of a maximum of 100 points. Among these six parameters, Employer Reputation indicated the strongest one for IIT Bombay with a rank of 59 globally.

The Director of the Institute **Prof. Subhasis Chaudhuri** in his remark said, *"While it is good to know that IIT Bombay has further improved in international ranking, our collective effort in achieving excellence in teaching, research and industry outreach continues. I do see a good future ahead for IIT Bombay"*.

In the 2023 edition, the Institute performed among the top 12% in the QS World University Rankings.



Khasdar Khel Mahotsav - Cyclothon 2022



NCC volunteers participated with 'Save Environment' placards



Member of Parliament Mr. Manoj Kotak flagging off the Khasdar Khel Mahotsav - Cyclothon 2022

As a part of **Azadi ka Amrit Mahotsav** and to promote physical fitness and demonstrate the vibrant sports culture of the Institute, the Khasdar Khel Mahotsav collaborated with IIT Bombay to organize a cyclothon on June 5, 2022. **Mr. Manoj Kotak**, a Member of Parliament, graced the occasion.

The event kicked off in front of the New SAC Building at 7:45 am, where more than a hundred participants lined up to complete a 3.5 km circuit with a climb of over 100 feet and comprising more than 15 turns. A mud track to test the contestants' abilities was also a part of the circuit. Participants received refreshments at the end of the event.

One of the highlights was strong participation from about twenty-five NCC cadets, who cycled with various placards with environment-related slogans such as ***'The Most Important Part of the Circle of Life is the Selfless Act of a Well-Nurtured Tree'***.

The event had a good turnout with people cycling for a cause.

IIT Bombay Celebrates World Environment Day



Registrar of IIT Bombay
Mr. Ganesh Bhorkade planted a
sapling in the campus on World
Environment Day

The Institute community came together to participate in various initiatives to mark the occasion of World Environment Day. The Registrar of IIT Bombay **Mr. Ganesh Bhorkade** and other IIT Bombay staff along with students of Kendriya Vidyalaya School, IIT Powai planted saplings in the campus on June 5, 2022.



Abhyudaya volunteers participated in Powai lake cleanup on
World Environment Day

Approximately 70 residents and the National Cadets Corps (NCC), IIT Bombay cleaned the Powai lake bed along the lake fringe road of 2.5 km starting from the Padmavati temple to H17 on June 4, 2022. They collected nearly 100 bags of plastic bottles and 50 bags of glass bottles from the lake bed. This event was organized as part of the number of activities IIT Bombay conducts to protect and conserve Powai lake, such as regular documentation of resident and migratory birds which visit Powai lake, protection of flora and fauna along the lakefront, documentation of bio-diversity along the lakefront, conducting bird walks, etc.

The Institute appeals to campus residents to dispose of bottles and plastic material only in dustbins and not throw them anywhere else to protect our beautiful lake. IIT Bombay also encourages residents to help restore Powai lake and its surrounding environment to a natural and clean state and help in other conservation efforts.

More than 300 volunteers from IIT Bombay cleared approximately 2.5 tonnes of garbage on a 2-km stretch along Powai Lake on June 5, 2022 to mark World Environment Day.

The drive was a collaborative effort by Abhyudaya, IIT Bombay's social body and Project Mumbai. Abhyudaya IIT Bombay was conceived in 2014 with the vision to channel the youth toward India's social challenges. The Powai Lake CleanUp and Awareness Campaign is one of its flagship projects. The cleanup started at 7:30 am followed by an awareness speech delivered by **Mr. Subhash Dalvi**, Officer on Special Duty (Solid Waste Management), Brihanmumbai Municipal Corporation. The event concluded with an oath to protect the city, nation and the planet administered by the BMC commissioner.



Volunteers from IIT Bombay's National Cadet Corps (NCC)
took part in the Powai lake bed cleanup

L&T to Collaborate with IIT Bombay For Green Hydrogen Technology Development



(Left to right) IIT Bombay Director Prof. Subhasis Chaudhuri; Dean (Research & Development), IIT Bombay Prof. Milind D. Atrey; whole-time Director and Sr. Executive Vice President (Energy), Larsen & Toubro Limited Mr. Subramanian Sarma; Chief Executive Officer and Managing Director, Larsen & Toubro Limited Mr. S. N. Subrahmanyam

Larsen and Toubro (L&T), an Indian multinational engaged in EPC Projects, Hi-Tech Manufacturing and Services, signed an agreement with the Indian Institute of Technology Bombay, the nation's premier technology and research institution to jointly pursue research and development work in the Green Hydrogen value chain.

Both the institutions have joined hands to contribute towards development of the Green Hydrogen industry in India and to develop next-generation technology in this emerging field.

L&T's engineering expertise, product scale-up and commercialization know-how and IIT Bombay's cutting-edge research in hydrogen technologies will help this partnership accomplish its goal.

Commenting on the occasion, **Mr. S N Subrahmanyam**, CEO and MD, L&T said, "L&T has always been in the forefront to drive technological advancements and indigenisation in India across sectors. We are positioning to drive the Green

Hydrogen economy in India together with our partners. This collaboration with IIT Bombay and its world-class technologists will support the cause of developing indigenous globally competitive technologies and nudge India towards AatmaNirbhar in Green Hydrogen technology".

Speaking on the collaboration, **Prof. Subhasis Chaudhuri**, Director, IIT Bombay said, "Given the urgency of the climate crisis and India's own ambitious target of becoming net zero by 2070, transition from fossil fuel to Green Hydrogen will play a key role in this goal. India's National Hydrogen Mission is a step in the right direction and I am confident that our partnership with L&T will result in scalable and cost-effective solutions. IIT Bombay's endeavour is to contribute significantly to challenges of national importance and our association with L&T to develop technologies for Green Hydrogen that can make India self-reliant in this space, is one such example".

Parliamentary Standing Committee Visits IIT Bombay



The Parliamentary Standing Committee for Education, Women, Children, Youth and Sports led by Chairman Hon'ble MP **Mr. Vinay P. Sahasrabudhe** visited IIT Bombay on May 27, 2022.

The Director of IIT Bombay **Prof. Subhasis Chaudhuri** presented an overview of the Institute's progress and new initiatives over the years. The Committee also had an interaction with key IIT Bombay functionaries.



Media Delegation From Maldives Visits IIT Bombay

A delegation comprising 20 journalists/ editors from Maldives visited IIT Bombay on May 30, 2022 as a part of the familiarization programme organized by the Ministry of External Affairs, Government of India for foreign media.

Dean (Research and Development), IIT Bombay **Prof. Milind Atrey** interacted with the delegation and presented an overview of the various activities and projects at IIT Bombay.



IIT Bombay Signs Two MOUs With Causis E-Mobility



Deputy Director (Finance and External Affairs), IIT Bombay Prof. K. V. Krishna Rao and Chairman of the Board, Causis E-Mobility Pvt. Ltd Prof. Peter Knez along with other dignitaries during the MOU signing ceremony

The Indian Institute of Technology Bombay signed a Memorandum of Understanding with UK-based **Causis E-Mobility Pvt. Ltd. (Causis)** on June 14, 2022 for collaboration in R&D, training and education in related areas of e-mobility. The MoU was signed by **Prof. K. V. Krishna Rao**, Deputy Director (Finance and External Affairs), IIT Bombay and **Mr. Ravi Panga**, Chief Executive Officer, Causis. During the same ceremony, Causis signed another MoU with IIT Bombay Research Park to join as an Associate Member to identify mutual synergies between the industry and academia. On behalf of the IIT Bombay Research Park, **Ms. M. Kameshwari**, Chief Operating Officer, signed the MoU.

During the signing ceremony, both sides discussed the tremendous scope that lies ahead by combining the intellectual capital at IIT Bombay with the translational prowess at Causis, collaborating for a cleaner globe.

Prof. Peter Knez, Chairman of the Board and **Mr. Ram Tumuluri**, Founder and CEO, were present on behalf of Causis Group. Prof. Knez emphasized transforming mass transit by combining research with practice through industry and academia collaboration.

Prof. K. V. Krishna Rao expressed his pleasure at this association and highlighted that price sensitivity is

prevalent in India and solutions need to be designed around it. **Mr. Ram Tumuluri** said, “*Price sensitivity should belong with the consumer and that uncompromised quality and affordable pricing is Causis’ target for an emerging market like India*”.

Prof. Upendra Bhandarkar, Associate Dean (Research and Development), IIT Bombay, welcomed research interaction across all areas of e-mobility; **Prof. Sandeep Anand**, from the Department of Electrical Engineering, gave an overview of the upcoming Centre for e-mobility at IIT Bombay. **Prof. Ardeshir Contractor**, the Ohio State University (OSU) lead for the IIT Bombay-OSU Frontier Centre joined the meeting virtually. He introduced this vehicle for binational research collaboration and the parallel Causis engagement with OSU. **Prof. Juzer Vasi**, Professor Emeritus at IIT Bombay and **Prof. Swaroop Ganguly**, Professor-in-Charge of the IIT Bombay Research Park, also attended and welcomed this new collaboration.

The ceremony concluded on the note that the ultimate target of the envisaged collaboration is research, training and entrepreneurship between the two parties to bring mass transit solutions to the market.

An Interactive Session On Liberal Education

The newly established **Center for Liberal Education (CLE)** organized an interactive session titled '**How does liberal education work, for work?**' at VMCC on June 5, 2022.

Ms. Nanda Majumdar, Chief Human Resources Officer, Waterfield Advisors Private Limited and **Mr. Samik Basu**, Chief Human Resources Officer, Hindalco Industries were the speakers at the event. They spoke on the importance of a well-rounded education for leadership in the corporate world. They emphasized on passion as a more enduring basis for educational and career choices, rather than just the 'package' one might be able to obtain on Day One of placement.

They also spoke of the shift in corporate thinking in recent times which is a result of the changing dynamic world of work today, wherein one needs far more than core disciplinary skills; required flexibility, understanding of history, politics and context and the ability to communicate and converse about one's ideas effectively.

Appreciating the LASE programme, **Mr. Basu** said, *"You can spend more time understanding where your passion really is before you specialize and that is definitely a big, big step forward in terms of allowing people to get into their area of passion"*. He further said, *"I think the quality of life changes if your work can be in the area of your passion and this programme allows you to do that"*.

IIT Bombay has set up a Center for Liberal Education which is rolling out the Undergraduate programme in Liberal Arts, Science and Engineering (LASE) from the year 2022.

How does liberal education work, for work?



Hear about careers in person from HR leaders in finance and engineering!

Nanda Majumdar
Chief Human Resources Officer
Waterfield Advisors Private Limited
Currently the Chief Human Resources Officer at Waterfield Advisors Pvt Ltd, Nanda began her career in Human Resources consulting in 1999 at Mercer Consulting. She has experience leading the Human Resource function in SAP India, Universal Masi Group, Manpower India and Wiscraft Intl Entertainment. She started her career as a business journalist with publications such as the Economic Times, Business Standard and Business Today.

Samik Basu
Chief Human Resources Officer
Hindalco Industries
Samik joined the Aditya Birla Group as the Chief Human Resources Officer of Hindalco Industries Ltd in 2015. Prior to this, he was Vice President and Chief Human Resource Officer for PepsiCo India Region for 15 years. A Post Graduate in Human Resources from XLRI Jamshedpur, Samik started his career with VIF Industries Ltd as a Management Trainee and joined Unilever India in 1993.

When?!
5:30 PM
Sunday, June 5th

Where?!
Seminar Room 2
VMCC Ground Floor

**IIT BOMBAY
Centre for
Liberal Education**

Scholarship Endowment For Women Students



Dean (Alumni and Corporate Relations), IIT Bombay Prof. Ravindra Gudi and IIT Bombay alumnus Mr. Rajendra Gandhi while signing of the MoU

IIT Bombay is deeply grateful to its alumnus **Mr. Rajendra Gandhi** (B.Tech., Metallurgical Engineering and Material Sciences, 1971) who has graciously committed to a scholarship endowment for women students at IIT Bombay. Mr. Gandhi's contribution is aimed to help women students, who are facing financial constraints and are often discouraged to pursue STEM education. The scholarship is titled '**Bhanu**' in memory of Mr. Gandhi's mother symbolizes brilliance as well as positive energy which were qualities he saw in her.

Mr. Gandhi credits his personal and professional growth to the top quality education and experiences at IIT Bombay. In addition, for the success of the company GRP Ltd. promoted by Mr. Gandhi, he gives credit to his degree from IIT Bombay. As a way of giving back, he wishes to support deserving students at his alma mater. Mr. Gandhi's generous donation contributes to IIT Bombay's overall mission of providing world-class education to meritorious students.

IIT Bombay Launches A New 'Master in Development Practice' (MDP) Programme

Centre for Technology Alternatives for Rural Areas (CTARA), IIT Bombay has launched a new one-year academic programme titled '**Master in Development Practice**' in July 2022. This is in response to the demands from the stakeholders in the development sector for an academic programme for professionals who are interested in the development sector. CTARA has a long experience of training development professionals and practitioners. It has been conducting the M. Tech. in Technology and Development programme since 2007.

Eligibility: The new programme is meant for professionals with a minimum four-year degree in engineering, technology, planning and architecture or a master's degree in the physical sciences and who have a total cumulative field-based work-experience of at least 24 months in the development sector. A certificate of experience and NOC from the employer (if employed) are needed.

Programme Structure: This one-year long programme will be conducted primarily in the online and interactive mode, with some in-person modules for a few weeks at the campus. The classes will be conducted in the evenings and on weekends over two semesters of about 14 weeks each semester. There

will also be a summer term (about 6 weeks) for a field-based project.

Fees and Other Logistics Details: The fee of the entire program is Rupees 3,00,000/- to be paid in two installments at the beginning of each of the two semesters. Students of this programme will not receive any financial support or hostel accommodation from IIT Bombay. The students will not be eligible for the regular placement program of IIT Bombay. The programme is likely to begin in the last week of July 2022, provided minimum 10 students confirm enrolment.

Important Dates:

- **Application process opens:** May 18, 2022
- **Last date for submitting applications:** June 19, 2022
- **Selection Tests/ Interviews:** July 1 and 2, 2022
- **Announcement of results:** July 08, 2022
- **Payment of fees:** July 15, 2022

To apply and for more information check:

<https://www.iitb.ac.in/newacadhome/mdp.jsp>

Contact number and email: 022-25767871 and ctaramdp2022@gmail.com

IIT Bombay Racing Launches EvoLV

The students of **IIT Bombay Racing** have successfully launched **EvoLV**, their 12th electric race car on April 10, 2022 at PC Saxena Auditorium, IIT Bombay.

EvoLV is the culmination of 10 years of technical knowledge and innovation and two years of intense hard work of more than 100 students. It is powered with 80 kW motors, titanium uprights, a self-developed Battery Management System and a powertrain that can take one from 0 to 100 in just 3.1 seconds.

It will race in Formula Student UK competition in July 2022. It is the international parallel of Formula One at the engineering college level. The team has secured overall 1st position with 1st and 4th in engineering design and business plan presentation in Formula Student UK Concept class 2021. The team has also secured 1st place in Formula Student Electric Vehicle Concept Challenge. The designing and manufacturing was possible with the constant support from sponsors NRB Bearings, MAHLE, IIT Bombay Faculty Advisors **Prof. Amber Srivastava** from Department of Mechanical Engineering and **Prof. Sandeep Anand** from Department of Electrical Engineering.

IIT Bombay Racing is a team of 100 enthusiastic undergraduate students from various departments of IIT Bombay which designs, manufactures and validates an electric race car. The team started in 2008 by building combustion engine race cars and then shifted to electric race cars in 2012 with Evo-1, which is the first Indian electric race car, thus bringing a revolution in electric mobility and motorsport industry in India.



The Electric Race Car "EvoLV"

IIT Bombay Inaugurates Tinkerers' Lab At Department of Chemical Engineering



(Left to right) Executive Director of Alkyl Amines Chemicals Limited Mr. Kirat M. Patel; Chairman and Managing Director of Alkyl Amines Chemicals Limited Mr. Yogesh M. Kothari; Head of Department of Chemical Engineering Prof. Madhu Vinjamur; Padma Vibhushan and Emeritus Professor of Eminence, Institute of Chemical Technology Prof. M. M. Sharma during the inauguration of Tinkerers' Lab at Department of Chemical Engineering

IIT Bombay inaugurated the **Tinkerers' Lab** at its **Department of Chemical Engineering** on June 13, 2022, with an official ceremony. Padma Vibhushan and Emeritus Professor of Eminence, Institute of Chemical Technology, **Prof. M. M. Sharma** graced the occasion as the Chief Guest.

The event began with a warm welcome address by **Prof. Ravindra D. Gudi**, Dean (Alumni and Corporate Relations), IIT Bombay, where he thanked *Alkyl Amines Chemicals Limited* for funding the Lab through their CSR initiative. He highlighted the key role the lab will play in facilitating experiential learning for IIT Bombay's engineering students and how the lab will contribute significantly to their academic and research pursuits. **Prof. Devang Khakhar**, former Director, IIT Bombay, thanked all the stakeholders

who made Tinkerers' Lab on campus a reality. Students from the ChemE Dept. presented some of the innovative projects they are currently pursuing. This was followed by an inspiring speech by the Chief Guest Prof. M.M Sharma on how perseverance and innovation are key to success. He also spoke about specific areas related to catalyst development, process intensification and urged the students for out-of-box thinking to solve important chemical engineering problems.

Mr. Yogesh M. Kothari, Chairman and Managing Director of Alkyl Amines Chemicals Limited, presented the CSR funding cheque to Prof. Ravindra D. Gudi. **Prof. Madhu Vinjamur**, HoD, Department of Chemical Engineering delivered the vote of thanks. The event concluded with Prof. Sharma cutting the ribbon of the ChemE Tinkerers' Lab.

Abhyuday Organizes Blood Donation Drive



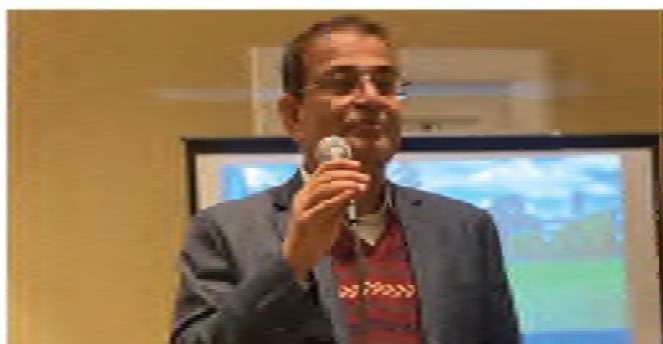
In collaboration with Sthaniya Lokadhikar Samiti and TATA Memorial Hospital, Abhyuday, the social body of IIT Bombay, organised a blood donation drive on April 9, 2022 at Lecture Hall Complex Foyer, IIT Bombay. The drive witnessed huge participation from the students, faculty, staff and residents. About 316 units of blood were collected, which has the potential to save a whopping 948 lives.

Campus Resident Clinches 4 Gold Medals In Swimming



IIT Bombay campus resident **Ms. Apeksha Fernandes** has won 4 gold medals in individual events, one gold and a silver medal in two team events in the recently concluded **Khelo India Youth Games 2022** held at Ambala. In one of the individual events (200 m butterfly), she clocked the 'Indian best timing'.

IIT Bombay Holds Interactive Session In Boston For Alumni



Delegates at the alumni interactive session hosted by IIT Bombay in collaboration with IIT Bombay Heritage Foundation Boston Chapter

IIT Bombay in collaboration with the **IIT Bombay Heritage Foundation Boston Chapter** held an alumni interactive session in Boston, US, on May 19, 2022. A large number of IIT Bombay's illustrious alumni participated in this exciting event. IIT Bombay's Director **Prof. Subhasis Chaudhuri** reiterated the Institute's commitment to excellence in research and innovation and to achieve leadership in engineering and technology. Prof. Chaudhuri emphasized IIT Bombay's commitment in addressing important global challenges such as healthcare and

climate change. The interactions during the session churned several new ideas and identified opportunities to strengthen alumni's participation in the Institute's growth.

The informal dinner was a highly nostalgic experience for the alumni comprising members from 1966 to 2021 in attendance, as they socialized and reminisced about their student life and committed to supporting IIT Bombay's vision. IIT Bombay is grateful to the Heritage Foundation for their support in curating this successful event.

WRCB Organizes One-Day Summit On Affordable Healthcare

'Low-cost diagnostics for affordable healthcare' - an event organised by IIT Bombay's **Wadhvani Research Centre for Bioengineering (WRCB)** on June 03, 2022 was a huge success! The occasion witnessed a huge turnout by IIT Bombay's faculty members and students, as well as R&D representatives from the industry, clinicians and startups.

The one-day in-person event featured informative talks and thought-provoking discussions by the invited speakers and panelists.

Innovative projects in the healthcare space being conducted both by IIT Bombay and start ups across India were showcased in the form of posters displayed at the venue.



Dr. Debojyoti Chakraborty, Senior Scientist, Institute of Genomics and Integrative Biology, Council of Scientific and Industrial Research, delivered the keynote speech on '*Reading and Writing the Genome with Precision*'. **Dr. Satya Dash**, scientist, Toronto General Hospital Research Institute (TGHRI) shared his insights on different ways the diagnostics startup space can be leveraged to reduce fatalities, while **Prof. Ravi Elangovan**, IIT Delhi and **Prof. Mudrika Khandelwal**, IIT Hyderabad gave an overview of their research pursuits. The event also featured presentations by not-for-profit organizations including PATH and the Bill and Melinda Gates Foundation on their inspiring work in the social development sector. **Mr. Anurag Meena**, the co-founder of NeoDocs, shared his experiences as a student entrepreneur.

Panel Discussion On 'Changing Role Of Chemical Engineers'

The Indian Institute of Technology Bombay held an online panel discussion on '**Future of Medical Technologies**' as a part of the series '**Changing Role of Chemical Engineers**' organized by the **Department of Chemical Engineering (ChE)** in collaboration with the Department's alumni on May 21, 2022.

The panel explored recent developments in medical device technology and its implications for India and the world. The panelists of the webinar featured Chemical Engineering alumni along with eminent experts in medical technologies, namely, **Dr. Kalyan Handique** ('95 and VP, Adv Tech, BioRad Laboratories); **Dr. Nirupama Kenkare** ('92 and Head of MS&T, Alcon); **Dr. Joydeep Goswami** ('93 and Chief Strategy and CDO, Illumina) and **Prof. Santosh Noronha** (Professor, Chemical Engineering, IIT Bombay). The discussion was moderated by **Dr. Sanat Mohanty** ('95 and VP, Operations, Senseonics).

Students, faculty members and alumni turned out in large numbers for the webinar and were engaged in a lively discussion on the topic.

The Indian Institute of Technology Bombay cordially invites you to

A panel discussion by IIT Bombay Chemical Engineering Alumni on

'Future of Medical Technologies'

PANELISTS

- DR. KALYAN HANDIQUE**
VP Adv Tech, BioRad Laboratories
(ChE, 1995)
- DR. NIRUPAMA KENKARE**
Head of MS&T, Alcon
(ChE, 1992)
- DR. JOYDEEP GOSWAMI**
Chief Strategy & CDO Illumina
(ChE, 1993)
- PROF. SANTOSH NORONHA**
Professor, Chemical Engineering, IIT Bombay

MODERATOR

- DR. SANAT MOHANTY**
VP Operations, Senseonics
(ChE, 1995)

Day & Date: Saturday, May 21, 2022 **Time 7:00 pm - 8:30 pm (IST)**

Poster of Panel Discussion on Future of Medical Technologies

IIT Bombay Hosts Performing Arts Festival 2022



The Institute Cultural Council of IIT Bombay hosted the **Performing Arts Festival 2022** popularly known as "PAF," on April 10, 2022 in the Open Air Theatre (OAT), Student Activity Centre (SAC).

The event was an amalgamation of different performances by IIT Bombay students, including music, dance, theater, film and fine arts. This year's PAF, which took place after three long years, was a turning point in the revival of the institute's illustrious offline culture.

A Glimpse of Performing Arts Festival 2022

The Astronomical Meet



Astronaut Ms. Sirisha Bandla in conversation with Prof. Arindrajit Chowdhury, Department of Mechanical Engineering, IIT Bombay

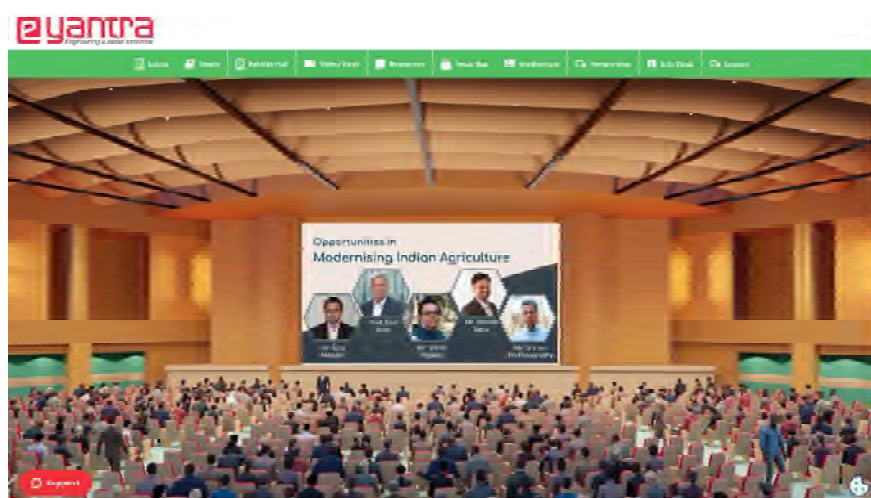
The **Society for Innovation & Entrepreneurship (SINE)**, IIT Bombay hosted an interactive session for all spacetechn enthusiasts with **Ms. Sirisha Bandla**, Astronaut and VP, Government Affairs & Research Operations at Virgin Galactic on June 27, 2022 at Shailesh Mehta School of Management (SJMSOM)

Auditorium. Sirisha is only the third Indian-origin woman to fly into space.

She spoke about her journey into space on the Virgin Galactic spaceship, followed by a fireside chat with **Prof. Arindrajit Chowdhury**, Department of Mechanical Engineering, IIT Bombay.

e-Yantra Holds Various Competitions To An Overwhelming Response

On April 2, 2022, IIT Bombay's **e-Yantra** held its **first Virtual Symposium 2022** that witnessed the biggest gathering of robotics fans in India! An ex-IAS officer turned agribusinessman, **Mr. Pravesh Sharma**, gave a keynote speech about the opportunities in Indian agriculture. Following this, there was a panel discussion on the potential applications of technology in agriculture with investors and agri-experts, followed by a closing ceremony where the winners were announced.



The 10th edition of the **e-Yantra Robotics Competition (eYRC 2021-22)** on the overall theme **agriculture** was held between the months of August 2021 and March 2022, with the Grand Finale hosted online during the last week of March. The competition had six agricultural-related themes: *AgriBot (AB)*, *Berryminator (BM)*, *Dairy Bike (DB)*, *Functional*



Weeder (FW), *Strawberry Stacker (SS)*, and *Soil Monitoring Bot (SM)*. These themes included a variety of technologies (ROS, Computer Vision, Robot and 3D Designing, Pick and Place, FPGA, Verilog HDL, Control Systems, Simulations, Drones, etc.) that were taught in the two stages of the competition. About 1515 teams from across 460 colleges participated in the competition.

IIT Bombay hosted the **e-Yantra Innovation Challenge 2021-22** in collaboration with the Society for Innovation and Entrepreneurship (SINE) and the Desai Sethi School of Entrepreneurship (DSSE), a competition that trains students in innovation and entrepreneurship and helps them to build their own dream start-up.

The challenge was divided into 4 stages in a timeline starting from the third week of October 2021 to the third week of March 2022. Stage one was a **Training Sprint** that trained participants in technologies and assisted them in articulating problems in the agriculture domain. The second stage was a **Prototyping Sprint** in which teams worked with e-Yantra mentors to create a prototype of their proposed solution. The third stage was an **Innovation Sprint** where e-Yantra trained participants in Go To Market (GTM) strategy and Product Management (PM) to prepare them to pitch to an Incubator, in this case the IIT Bombay Incubator SINE. The

last stage was an **Implementation Sprint** where teams refined their Proof-of-Concept (PoC) with the help of e-Yantra mentors. E-yantra provided everything required for experience, including the resources, training and guidance.

About 348 teams from across 184 colleges participated in the Challenge this year. This year's competition focused on developing start-up-worthy solutions for problems in the agricultural domain. The competition was inclusive and accommodated teams having various levels of skills, from beginners to advanced teams who have participated earlier.



The e-Yantra hosted **Virtual Museum Competition 2022** during April 12-June 15, 2022 to teach history to school children by the use of state-of-the-art technology.

Spanning across 7 weeks, the competition saw 242 registrations across 9 schools, with students enrolling from Bhutan too! Students in the grades 7th, 8th and 9th mastered the technology to tell historical stories. They learnt challenging photogrammetry and 3D rendering skills online to create a 3D model of the historical artifacts, designing an exhibition, creating posters, writing a research document and developing a compelling narration over the course of six weeks collaborating and built an online DIY museum showcasing their creative exhibits. The grand finale was held on June 25, 2022. The final list of winners of the e-Yantra Virtual Museum Competition across categories are as follows:

Most Consistent Team - Pazap's Armor by The Royal Academy, Bhutan

Most Innovative Design - Toda Temple by Holy Innocents School and Junior College, Tamil Nadu

Most Dramatic Exhibit - The Statue Of Lhamo Ekajati and The painting of Buddhist Cosmology by The Royal Academy, Bhutan

Best Research - Zhabdrung Ngawang Namgyel Statue by The Royal Academy, Bhutan

Best Narration - Ambernath Temple by Kendriya Vidyalaya IIT Powai, Mumbai

Best Storytelling - Jain Chatustika by Ramakrishna Vidya Mandir (CBSE), Gwalior

Most Dramatic Video - Narsimha Statue by Mayo College Ajmer, Rajasthan

Best Exhibit Design - Lord Vinayagar by Kendriya Vidyalaya New Delhi

Research in focus

A Novel Bandage For Better Healing Of Wounds

Researchers have developed a dermal patch with a blend of natural healing agents and polymers in bilayer structure for improved wound healing

Wound dressings have evolved considerably from the herbal concoctions and magical potions that were popularly accepted as therapy, until the 19th century. Today, wound care is no longer just using a piece of gauze dipped in Dettol. With bioactive agents, nanoparticles, antioxidant agents, growth factors, polymers and more, the science of wound healing is advancing continually.

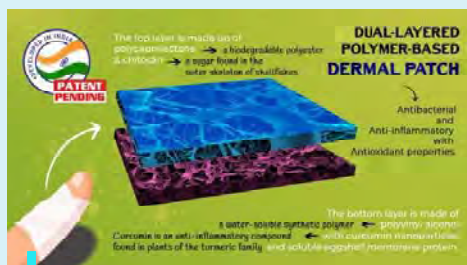


Image Credits: Scientifically

In a recent study, **Prof. Prakriti Tayalia** and her team from Indian Institute of Technology Bombay have developed an affordable bilayered bandage with antibacterial, antioxidant and anti-inflammatory properties. The top layer consists of polycaprolactone (a biodegradable polyester) and chitosan (a sugar found in the outer skeleton of shellfishes). The bottom layer is made of polyvinyl alcohol (a water-soluble synthetic polymer) with curcumin (an anti-inflammatory compound found in plants of the turmeric family) nanoparticles and soluble eggshell membrane protein. Their research was published in the journal *Nanomedicine: Nanotechnology, Biology, and Medicine*, with the lead author being **Dr. Mamatha M. Pillai**, who is a Postdoctoral Fellow in the lab.

There are, currently, more than 3000 different wound healing dressings available in the market, each being appropriate for specific wound types, that is for wounds that are more severe than the average paper cut. But, even with this plethora of choices, wounds such as venous ulcers, pressure ulcers, burn wounds and diabetic wounds are challenging to treat.

The impediment in the case of chronic and acute wounds – that are complex and hence do not progress through a regular sequence of skin repair – is the poor antioxidant and anti-inflammatory properties of the dressing leading to drying up of the wounded area and the requirement for frequent change of the dressings.

Now, it makes sense for a dressing to be antibiotic or antiseptic. But why are the antioxidant and anti-inflammatory properties of a wound dressing so significant? Well, when a body is wounded, it goes into a frenzy of molecular operations to heal itself. An abundance of fighter blood cells, clotting factors and other mediators arrive at the wound site in phases to help. In certain cases such as chronic wounds, the frenzied efforts of the body to heal itself end up being more harmful than beneficial.

Chronic wounds do not easily surpass the inflammatory stage of wound healing, during which the molecular operations focus on removing damaged cells and bacteria from the wound site. This leads chronic wounds to accumulate inflammatory molecules and free radicals at the wound site that prevent it from entering the next stage, which is the reconstruction phase.

In such scenarios, especially with severe wounds, the wounds would benefit from dressings equipped with antioxidant and anti-inflammatory properties, while remaining non-toxic. The dressing must also allow absorption of excess wound discharge while at the same time maintaining a moist milieu for the cells to heal.

The dermal patch proposed by the IIT Bombay team meets all these criteria. It includes in the top layer polycaprolactone and chitosan. Polycaprolactone is commonly used in tissue engineering due to its water repelling, biocompatible and biodegradable properties and is approved by the Food and Drug Administration, United States (FDA). The polymer chitosan, also FDA approved, is antibacterial and biodegradable. The combination of these polymers serves as a moisture-repellent layer for maintaining the fluid balance at the wound site and providing a microbial barrier for advanced wound healing.

For the bottom layer, the team used polyvinyl alcohol, which serves as an aqua sponge embedded with wound healing agents, an absorbent for wound discharge and a moist ambience for the wound. As far as the wound healing agent is concerned, remember the good old days when one would apply turmeric paste on wounds for quick healing? Well, Prof. Prakriti Tayalia and her team used a bioactive component from turmeric – curcumin – for the dermal patch.



A picture of the nanofibrous dermal patch (Copyright - Cell and Tissue Engineering Lab, IIT Bombay)

Curcumin is known to have potent antibacterial and anti-inflammatory properties. They converted the curcumin to nanoparticles to make the curcumin more easily accessible at the wound site. They also used an eggshell membrane – the thin layer that is between the egg white and the shell – which contains a high volume of structural proteins that can expedite wound healing.

“To our knowledge, there are no such wound dressings available that are polymer-based, dual-layered, topical in application with multifunctional properties, namely, antibacterial, anti-inflammatory, antioxidant, leading to better wound healing properties. This invention is innovative and we have filed a patent on it,” says **Prof. Tayalia**.

The researchers have studied and validated the wound healing properties of the dermal patches with multiple lab tests. They also tested the patches on rat models and observed improved wound healing in comparison to other commercially available dressings. Next, the researchers plan to test it on diabetic and other chronic wounds.

Since the materials used to develop the patch are easily accessible, the process can be effectively scaled up for industrial mass-production of the patches for the market. The patches are only a couple of millimeters thick and can be manufactured in any size.

“This patch will undoubtedly be beneficial to people suffering from both chronic and acute wounds and we want to commercialize this product,” **Prof. Tayalia** signs off.

Article written by : Prof. Prakriti Tayalia, Department of Biosciences and Bioengineering, IIT Bombay

Link to published work: [Novel combination of bioactive agents in bilayered dermal patches provides superior wound healing](#)

Alumni News



IIT Bombay alumnus **Mr. Alok Maskara** (B.Tech., Chemical Engineering, 1992) has been

appointed as CEO of Lennox International Inc., a global leader in energy-efficient climate-control solutions.



IIT Bombay' Distinguished alumnus **Mr. Raj Subramaniam** (B.Tech., Chemical Engineering,

1987) has been appointed as the CEO of FedEx, one of the world's largest transportation companies. He will be responsible for providing strategic direction to all of FedEx's operating companies.



IIT Bombay's Distinguished alumna **Dr. Marlene Kanga** (the third woman to graduate in

Chemical Engineering from IIT Bombay) has been appointed as an Officer of the Order of Australia (AO) for distinguished service to engineering during the Queen's birthday honours (2022).

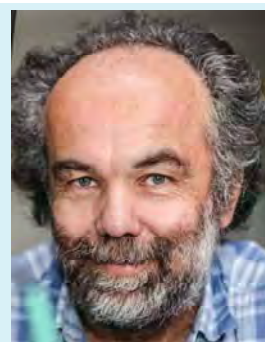


IIT Bombay alumnus **Dr. Yogesh M. Joshi** (Ph.D., ChE, 2001) is the first Indian to be elected as a fellow of the Society of Rheology. The Society of Rheology was founded in the US in 1929 and honors distinguished achievements in science, noteworthy accomplishments in technology, and exceptional scholarship in the field of Rheology. This prestigious fellowship is awarded annually to less than 0.5% of the society's membership in any given year.

Institute Colloquium / Lectures



Prof. Supriyo Bandyopadhyay, Commonwealth Professor of Electrical and Computer Engineering, Virginia Commonwealth University, delivered an Institute Colloquium titled "*Energy-efficient information processing in our information hungry world?*" on June 7, 2022



Prof. Dieter Suter, Department of Physics, Technische Universität Dortmund, delivered the first Colloquium of the newly found Centre of Excellence in Quantum Information, Computing, Science & Technology (CoE QuEST), IIT Bombay titled "*Hybrid quantum registers: Efficient control and protection against environmental*" on June 21, 2022

Notification

Prof. Varsha Apte, has been appointed as Head, Department of Computer Science and Engineering w.e.f. May 2, 2022

Prof. P.V. Balaji, has been appointed as Head, Department of Biosciences and Bioengineering w.e.f. May 23, 2022

Prof. Sahana Murthy, Interdisciplinary Programme in Educational Technology, has been appointed as Head, Parimal and Pramod Chaudhari Centre for Learning and Teaching (PPCCLT) w.e.f. June 27, 2022

Prof. P. Sunthar, Department of Chemical Engineering, has been appointed as Head, Application Software Cell (ASC) w.e.f. June 1, 2022

Prof. M. K. S Mallikarjuna Rao, Industrial Engineering and Operation Research, has been appointed as Warden of Hostel No. 6 w.e.f. April 8, 2022

Prof. RAAJ Ramsankaran, Department of Civil Engineering, has been appointed as Associate Warden of Hostel No. 6 w.e.f. April 8, 2022

Prof. Mythili Vutukuru, Department of Computer Science and Engineering, has been appointed as Associate Warden of Hostel No. 11 w.e.f. May 12, 2022

Highlight Notifications

Prof. Upendra V. Bhandarkar, Department of Mechanical Engineering, has been appointed as Associate Dean (Research and Development) w.e.f. April 29, 2022



Mr. Ganesh K. Bhorkade, has been appointed as Registrar of IIT Bombay w.e.f. May 30, 2022



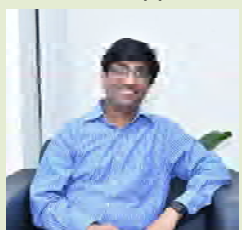
Prof. Suddhasatta Mahapatra, Department of Physics, has been appointed as the first Professor Incharge of the newly established Centre for Quantum Information, Science and Technology (CQIST) of IIT Bombay w.e.f. June 6, 2022



Prof. Siddhartha Ghosh, Department of Civil Engineering, has been appointed as the first Dean (Educational Outreach), a new position created based on the BoG approval w.e.f. June 13, 2022



IEEE has approved a new wireless standard-IEEE 1930.1 led by the research group of **Prof. Abhay Karandikar** (current Director of IIT Kanpur), at IIT Bombay. This is the first-ever IEEE standard coming out of Indian efforts. IIT Bombay's senior research staff **Mr. Pranav Jha** was working group Chair. This is an example of Indian innovation making an impact on global standard. IEEE has standardized many popular wireless standards such as WiFi, Bluetooth, WiMAX etc.



IEEE 1930.1 standard defines Software Defined Networking (SDN) based architecture to facilitate unified control and management of multi-radio access technology (RAT) wireless access networks. It also proposes a novel disaggregated architecture for radio access network (RAN), leading to a modular and flexible multi-RAT RAN that may be better suited for future beyond 5G networks. Congratulations to Prof. Karandikar and his team!

Awards and Distinctions

Prof. Devang V. Khakhar, Department of Chemical Engineering, has been selected as INAE Chair Professor for the period April 1, 2022 to March 31, 2025

Prof. Arpita Mondal, Department of Civil Engineering, has been appointed as an Associate Editor of the journal *Earth's Future* of the American Geophysical Union (AGU) 2022

Prof. Raaj Ramsankaran, Department of Civil Engineering, has been invited to join the Editorial Board of the journal *Earth Science Informatics (ESIN)*, published by Springer

Prof. Guruswamy Kumaraswamy, Department of Chemical Engineering, has been appointed as an Associate Editor of the journal *Soft Matter*, published by the Royal Society of Chemistry

Prof. Naina Manjrekar, Department of Humanities and Social Sciences, has been awarded "**ASSLH/Unions NSW Prize in Labour History: Best Article Overall**" by the Australian Society for the Study of Labour History, published in *Labour History* (Liverpool University Press) for her journal article titled "*Violent and Not Quite Modern?: Lascars and Everyday Resistance Across the Sail-Steam Divide*"

Prof. Sudesh Balan, IDC School of Design directed film '*Saakshatkaaram*', has won the Silver Conch for the Best Short Fiction Film at the Mumbai International Film Festival (MIFF) 2022. The award was presented during the closing ceremony of

the festival at the hands of Hon'ble Governor of Maharashtra **Mr. Bhagat Singh Koshiyari**. The award consists of certificates and a cash prize of Rs. 1,25,000/- for the film director and the producer each. The film has been produced by IIT Bombay and funded by IRCC

Prof. Manish Kumar and **Prof. Prakash Nanthagopalan**, Department of Civil Engineering, have been felicitated at the ARMREB Silver Jubilee Celebrations and Raising Day for jointly executing the project for Armament Research Board (ARMREB) with regard to their outstanding contributions for "Analysis Design and Detailing of Burster Slab Against Missile Impact"

Prof. Subhasis Chaudhuri, Director of IIT Bombay and Department of Electrical Engineering, has been conferred with The Advanced Computing and Communications Society (ACCS) Award for the year 2021. The award recognizes his outstanding research in the area of Computer Vision and Computational Photography

Prof. Gulab Singh, Centre of Studies in Resources Engineering has been recognized by IEEE as a Distinguished Lecturer for GRSS (<https://www.grss-ieee.org/community/distinguished-lecturers/>). Geoscience and Remote Sensing Society (GRSS) is a technical Society of IEEE

Prof. Naina Manjrekar, Department of Humanities and Social Sciences, has been invited to join the Editorial Board of *Adam Matthew Digital*, a SAGE publication

Workshops/ Conferences/
Webinars/ Symposiums

Workshop on Python and Django

A two-day **Python and Django** workshop was conducted during April 8-9, 2022. This workshop was organised by the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMNMTT) and the FOSSEE (Free/Libre Open Source Software for Education) project. Both initiatives are supported by the Ministry of Education, Government of India. The convenor for this workshop was **Prof. Kannan Moudgalya**, Department of Chemical Engineering.

Workshop on AI

The **Technocraft Centre for Applied Artificial Intelligence (TCA2I)** and the **Centre for Machine Intelligence and Data Science (C-MINDS)** at IIT Bombay partnered on a workshop series called '**AI.Impact**,' which were set to feature presentations and discussions on advances in '*Artificial Intelligence (AI) for causes of social impact*'.

As part of this initiative, the Centres conducted their first workshop that explored collaborations with AI for social impact during April 8- 9, 2022. The workshop was a huge success and was attended by several eminent industry experts and academicians.

The four topics covered in the workshop included:

- * Defense and Cybersecurity, exploring academia and industry collaborations to leverage AI/ML for impact in defense and cybersecurity sectors
- * Public Data highlighting research challenges around collecting, cleaning, organizing and integrating multi-modal data from diverse government and public sources

* Indian Language and Speech Technologies inspecting challenges and opportunities in building speech and language technologies for Indian context

* Vision and image processing discussing implementation and challenges of visual recognition and perception algorithms using the recent deep learning techniques for diverse domains

Workshop on Data-Efficient Machine Learning

The **Department of Computer Science and Engineering** held an online workshop for Data-Efficient Machine Learning titled DECILE during April 30 - May 1, 2022. DECILE is a collaboration between CSE group at IIT Bombay and UT Dallas where toolkits are developed and other resources for data and computing efficient deep learning. The workshop was led by **Prof. Ganesh Ramakrishnan**, Institute Chair Professor, Department of Computer Science and Engineering and Professor-in-Charge, Koita Centre for Digital Health.

Seminar on Smart Agriculture Approaches

Prof. Dharmendra Saraswat (<https://dad.saraswat.rcac.purdue.edu/>) from Digital Agriculture Discovery Lab of Department of Agriculture and Bio Engineering/ Purdue University gave a seminar titled '**Smart Agriculture Approaches at Digital Agriculture Discovery (DAD) Lab @ Purdue University**' on May 12, 2022 at Centre of Studies in Resources Engineering (CSRE) Conference Hall. This talk provided a brief overview of the solution-oriented approach being pursued at DAD lab to develop decision-support tools for watersheds, row crops and indoor plants. The seminar was led by **Prof. J. Adinarayana**, Institute

Chair Professor, Centre of Studies in Resources Engineering, IIT Bombay

Conference on DELTAs-2022

The **Department of Aerospace Engineering** organized its first international conference on **Lighter-than-Air Systems** called the **Design and Engineering of Lighter-than-Air Systems: DELTAs-2022** during June 23–24, 2022 at VMCC, IIT Bombay.

DELTAs-2022 presented an international venue for researchers, working engineers, students and scientists to communicate and discuss their ideas and successes pertinent to the development of LTA systems. Several notable academicians, scientists and scholars across the globe who have spearheaded the development of LTA technology were in attendance at the ceremony. A technology showcase was held to enable industry professionals and software vendors to demonstrate the application and efficacy of their products. The conference was led by **Prof. Rajkumar S. Pant**, Department of Aerospace Engineering.

Seminar on Alternative Watershed Management Strategies

The Civil Engineering Association (CEA) hosted a seminar titled '**A large-scale watershed modeling application for the evaluation of watershed management strategies for water resources protection**' on June 29, 2022 at First Floor Seminar Hall, Department of Civil Engineering. The speaker for the seminar was **Prof. Manoj K. Jha**, Professor, North Carolina A&T State University, US. The seminar was led by **Prof. Eldho T.I.**, Department of Civil Engineering.

Students News

Tathagata Pal, a Ph.D. student under the guidance of Prof. Soumyo Mukherji), Department of Biosciences and Bioengineering,

has received the best Poster presentation award from the HOPE program. HOPE Meetings are organized by the Japan Society for the Promotion of Science since 2008.

Indradyumna Roy, a first-year PhD student, Department of Computer Science and Engineering, working on

Representation Learning for Scalable and Multimodal Graph Retrieval (co-advisors Prof. Abir De and Prof. Soumen Chakrabarti) has been awarded the prestigious Prime Minister Research Fellowship for the year 2022.

Rohinee Joshi, a third-year BS Mathematics student at IIT Bombay, was an observer of the Indian team at the European

Girls Mathematical Olympiad 2022 held at Eger, Hungary, during April 6-12, 2022. The team won 4 bronze medals and secured overall 18th rank.

Nihar Ranjan Sahoo, a second-year Ph.D. student, Department of Physics, working on Bias Detection on Data and Model

(advisor Prof. Pushpak Bhattacharyya, Department of Computer Science and Engineering) has been awarded the prestigious Prime Minister Research Fellowship for the year 2022.

Vatsala Sharma, a Ph.D. student supervised by Prof. Suyash Awate, Department of Computer Science and Engineering,

received the Best Paper Award for the paper titled "Semi-Supervised Deep Expectation-Maximization for Low-Dose PET-CT", co-authored with Ansh Khurana and Sriram Yenamandra, at the IEEE International Symposium on Biomedical Imaging (ISBI) 2022. IEEE ISBI is among the top conferences in the field of biomedical image analysis.

Aneesh Bapat, a B.Tech student, Department of Physics has discovered electrostatically tunable topological transitions in a new type of mixed state of

light and matter called "biaxial hyperbolic polaritons". This work has been published in the prestigious journal Nanophotonics (impact factor = 8.45). This work has implications for heat management in electronic chips, radiative cooling, biosensing including vibrational spectroscopy for determining not just the presence but also the orientation of biomolecules and quantum valley interference which will help build valleytronics based quantum circuits. Aneesh has been working with Prof. Anshuman Kumar at the Laboratory of Optics of Quantum Materials (<http://loqm.tech>), IIT Bombay.

Link to paper: <https://doi.org/10.1515/nanoph-2022-0034>

Obituary

Tejas Sanjay Gunaghe, First year M.Tech student, Industrial Engineering and Operation Research, passed away on May 1, 2022. He suffered a sudden massive cardiac arrest. He was working with John Deere and was a sponsored student.

Kapelli Yashwanth Sai, B.Tech student, Department of Computer Science and Engineering, passed away on April 29, 2022 after a fight against cancer.

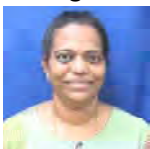
Prof. Gautam Mukhopadhyay, Department of Physics, passed away on May 27, 2022. He was suffering from a heart ailment. He served the Institute from 1980 to 2015. He will be remembered for his many contributions to the Physics Department involving curriculum development and building the electronics laboratory. He had made notable contributions to the band structure theory in solid state physics.

Appointments

Prof. R. K. Shyamasundar, has been appointed as INAE Distinguished Professor in the Department of Computer Science and Engineering w.e.f. April 1, 2022



Dr. Nivethida Thirugnanasambandam, has been appointed as Assistant Professor, Grade I, in the Department of Biosciences and Bioengineering w.e.f. May 04, 2022



Dr. Vibhushan Subba, has been appointed as Assistant Professor, Grade II, in the Department of Humanities and Social Sciences w.e.f. May 04, 2022



Dr. T. Chandra Sekar, has been appointed as Assistant Professor, Grade II, in the Department of Aerospace Engineering w.e.f. May 09, 2022



Dr. Kumhari Malleshham, has been appointed as Assistant Professor, Grade I, in the Department of Mathematics w.e.f. June 1, 2022



Dr. Venkateswarlu Yarlagadda, has been appointed as Assistant Professor, Grade I, in the Department of Chemistry w.e.f. June 6, 2022



Retirements on April 30, 2022

Prof. A. K. Suresh, Department of Chemical Engineering, retired after 34 years of service



Mr. Kishor A. Patil, Assistant Technical Officer, IDC- School of Design, retired after 34 years of service



Retirements on May 31, 2022

Mr. Vittal Govind Goriwale, Multi-Skilled Assistant C, Hostel No. 04, Centralized Hostel Management System, retired after 31 years of service



Mr. Balkrishna Sahadev Ghadi, Multi-Skilled Assistant C, Hostel No - 03, Centralized Hostel Management System, retired after 29 years of service



Mr. Shivaji Tukaram Patil, Multi-Skilled Assistant B, Hostel No - 03, Centralized Hostel Management System, retired after 21 years of service



Mr. Bharat K. Paithankar, Jr.Tech. Supdt., Department of Chemistry, retired after 36 years of service



Mr. Sunil K. Bansode, Senior Draftsman, Department of Aerospace Engineering, retired after 38 years of service



Mr. Karbhari G. Kusher, Sr. Multi-Skilled Assistant, Guest House, retired after 38 years of service



Mr. Thankayyan Steaphen, Sr. Driver, Department of Earth Sciences, retired after 31 years of service



Mr. Bhim B. Palande, Sr. Security Guard, Security Section, retired after 41 years of service



Mr. Popat P. Bade, Sr. Security Guard, Security Section, retired after 32 years of service



Retirements on June 30, 2022

Mr. Shivaji Daulat Palande, Multi-Skilled Assistant C, Hostel No. 04, Centralized Hostel Management System, retired after 35 years of service



Prof. A. K. Pani, Department of Mathematics, retired after 36 years of service



Prof. Girish Kumar, Department of Electrical Engineering, retired after 31 years of service



Mr. Uday J. Jadhav, Assistant Technical Officer, Public Health Office, retired after 26 years of service



Mr. Baban M. Divekar, Jr. Technical Superintendent, IDC School of Design, retired after 36 years of service



CEP courses scheduled in July and August 2022

No	Course Title	Course Coordinator/ Department	Duration
1	Certificate Program In Design Thinking (Batch III)	Prof. Nishant Sharma, IDC School of Design	July 25, 2022 (7 days)
2	Mass Spectrometry Based Proteomics To Metaproteomics	Prof. Sanjeeva Srivastava, Department of Biosciences and Bioengineering	July 25, 2022 (1 days)
3	Highways For 21st Century India - Modern Technologies For Highways	Prof. Ravi Sinha, Department of Civil Engineering	July 25, 2022 (3 days)
4	Operating Principles And Design Of Electrical Machines	Prof. B. G. Fernandes, Department of Electrical Bioengineering	August 15, 2022 (14 day)



In the
Wilderness

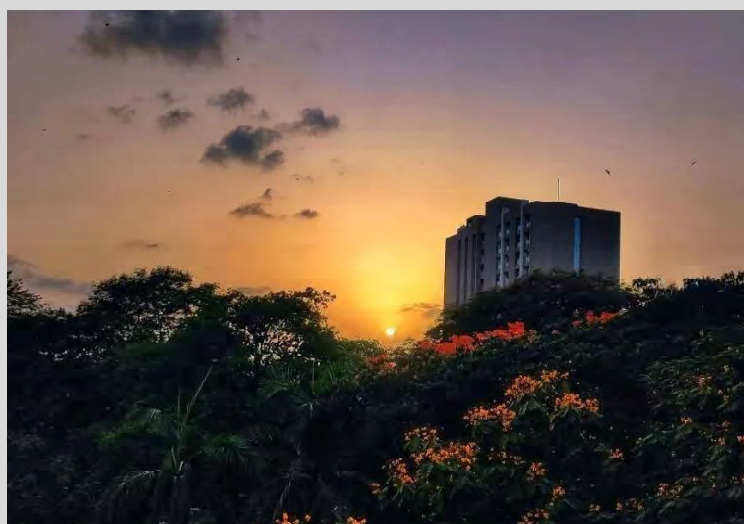


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