



भारतीय प्रौद्योगिकी संस्थान मुंबई
INDIAN INSTITUTE OF TECHNOLOGY BOMBAY



ANNUAL REPORT
2023-24



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Mumbai - 400076



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Principal Secretary
Higher and Technical
Education,
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(From 01.01.2024),
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(Upto 31.12.2023),
Department of Electrical
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Secretary



Mr. Ganesh Bhorkade
Registrar
(From 06.05.2024),
Indian Institute of
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By
Prof. Subhasis Chaudhuri
Ex-Director, IIT Bombay

Indian Institute of Technology Bombay (IIT Bombay) has a rich tradition of pursuing excellence and has continually re-invented itself in terms of academic programmes and research infrastructure. Students are exposed to challenging, research-based academics and a host of sports, cultural and organizational activities on its vibrant campus. The presence of world-class research facilities, vigorous institute-industry collaborations, international exchange programmes, interdisciplinary research collaborations and industrial training opportunities help the students of IIT Bombay to excel and be ahead in the competitive professional environment.

IIT Bombay has raised the quality of its research and training to greater heights and is focused on improving its research output further and having more social engagements to help the country benefit in socially relevant problems. The Institute has received funds to the tune of Rs. 428 crores in the financial year 2023-24 from external agencies, an increase of 15% in receipts over the last financial year. Non-government agencies including industries (both Indian and foreign) contributed almost 40% of these receipts. 335 R&D projects were initiated with a sanctioned outlay of Rs. 389 crores. Consultancy projects worth Rs. 170 crores were also initiated during this period.

IIT Bombay conducted an extensive Institute-wide Review for the period 2018 - 2022 in two phases. In phase one, conducted over several months in 2023, specialized external committees reviewed various academic units individually. In phase two, the institutional review committee, consisting of eminent experts from India and abroad assessed the overall progress of the Institute.

The Institute Review was conducted during February 21 - 23, 2024. The committee members observed the campus infrastructure and interacted with all the stakeholders, including faculty, students, staff and alumni. They visited laboratories, classrooms and interacted with faculties, students, staff as well as startups at IIT Bombay. They compiled a comprehensive set of observations and offered valuable insights in the form of actionable suggestions and recommendations.

The review committee acknowledged IIT Bombay as a flag-bearer of excellence in higher education, with its sharp focus on teaching, research, technology advancement and entrepreneurial endeavours. While acknowledging the achievable targets set by IIT Bombay, the committee gave valuable advice and suggestions to address the current challenges and to help the Institute assume a leadership role as a model institution.

IIT Bombay aims to be among the top 50 institutions globally and will keep its unrelenting focus on teaching, providing excellent learning opportunities, cutting edge research, developing world-class infrastructure, forging deeper ties between academia, industry and alumni; digitization and enhancing welfare support systems.

This review gives an impetus to IIT Bombay's vision and mission.

<https://drive.google.com/file/d/1Ky0Z-xpaVUx7Bd9Dn7621qmhjG8OrV2/view>

The progress of IIT Bombay on all fronts has been creditable in the past years. I would like to place on record the outstanding work delivered by the faculty and the staff members of the Institute in strengthening teaching, research and outreach programmes.



By
Prof. Shireesh B. Kedare,
Director, IIT Bombay

IIT Bombay is a vibrant place for students, budding entrepreneurs, excellent researchers and exceptional teachers who find continuous inspiration and guidance in its motto **ज्ञानम् परमम् ध्येयम्** (Knowledge is the supreme goal) and have lived up to it since its inception.

The Institute relentlessly pursues excellence and keeps up with changing times with updating academic programmes and curriculum, research infrastructure, and mental and physical well-being of its stakeholders to drive knowledge creation and sharing. IIT Bombay continues to be the most sought-after destination for undergraduate (UG) and postgraduate (PG) students and attracts the top performers in national examinations such as GATE, CEED, UCEED, NET, JAM and JEE. Among all other IITs in the country, 47 out of top 50 rankers and 72 of top 100 rankers in JEE 2024 have joined IIT Bombay.

At its 62nd Convocation and Departmental Degree Award Function (DDAF), held during August 24-25, 2024, the Institute awarded 3303 degrees (including 498 PhD degrees along with undergraduate and postgraduate degrees) to its students who have completed all their degree requirements during 2023-24.

IIT Bombay provides a challenging and nurturing environment for research with state-of-the-art research facilities, strong academia-industry linkages, creative interdisciplinary research, robust international exchange programs, industrial training opportunities, and an inclusive campus free of all forms of discrimination, the Institute shapes the mind and heart of its young students and faculty. The R&D revenues for the financial year 2023-24 was Rs. 428 crores.

IIT Bombay is proud to celebrate the remarkable achievements of two of its esteemed faculty members, Prof. Rohit Srivastava and Prof. Vikram Vishal, who were recently honoured with distinguished national awards, underscoring their exceptional contributions to science and technology. In a grand ceremony at Rashtrapati Bhavan in August, 2024, the Hon'ble President of India, Smt. Droupadi Murmu conferred the prestigious Rashtriya Vigyan Puraskar – Vigyan Shri award upon Prof. Rohit Srivastava for his groundbreaking research and unwavering commitment to advancing technology in the medical sciences and the National Geoscience Award -2023 upon Prof. Vikram Vishal in the field of Applied Geology.

IIT Bombay's historic Main Building is renamed the 'Nandan Nilekani Main Building' in honour of its distinguished alumnus Mr. Nandan Nilekani for his landmark donation towards the renovation of the building. This iconic structure of the 'Main Building', which has stood as a symbol of academic excellence for 65 years, is undergoing an extensive revitalization. The renovation blends the building's rich heritage with cutting-edge facilities, transforming it into a modern symbol of IIT Bombay's ascent to international prominence in technical education. IIT Bombay also remains deeply appreciative of its broader alumni community for their invaluable contributions and commitment to their alma mater.

ACADEMIC PROGRAMMES

IIT Bombay continues to make forays into newer territories pertinent to undergraduate and postgraduate education. At the undergraduate level, IIT Bombay has introduced a 4-year BTech programme in Industrial Engineering and Operations Research (IEOR). Admissions for this undergraduate programme in IEOR is through JEE (Advanced). At the postgraduate level, IIT Bombay has introduced a 2-year MSc programme in IEOR, MDes by Research in the IDC School of Design, MS by Research in 'Healthcare Informatics' in Koita Centre for Digital Health (KCDH) and PhD in 'Innovation and Entrepreneurship'.

Comprehensive and flexible undergraduate curriculum at IIT Bombay

The undergraduate programme at the Institute aims to provide comprehensive engineering training. The undergraduate programme curriculum includes department core, department electives, engineering sciences and skills, HASMED core, HASMED elective, flexible elective, STEM elective and basic sciences and mathematics courses.

The HASMED component includes compulsory and optional courses from the fields of Humanities, Arts, Social Sciences, Management, Entrepreneurship and Design. During the programme, the students are required to complete a minimum of 20 core and 12 elective credits in HASMED to obtain an undergraduate degree.

The BTech in IEOR programme includes 6 core labs. This includes four computational labs on algorithms and programming, optimisation, data analytics and AI/ ML, and simulation; and two hardware labs on industrial engineering and digital enterprise systems. The computational labs will teach modeling and analysis skills using

various tools and techniques. The hardware labs will have a modern twist to them and are meant to teach how data is collected and the various tools around it. These include but are not limited to IoT tools. The labs also aim to impart AR/ VR experience. (details available on: <https://www.ieor.iitb.ac.in/btech>)

Launch of new PhD programme:

The Desai Sethi School of Entrepreneurship (DSSE), IIT Bombay, launched PhD programme in Innovation and Entrepreneurship on March 15, 2024 and has invited applications from prospective doctoral students who are keen to undertake research on any of the following broad themes as part of their PhD thesis:

- Elements of Entrepreneurship Ecosystem
- Entrepreneurial Behaviour and Ethics
- Inclusive Innovation & Social Entrepreneurship
- Indigenous and Rural Entrepreneurship
- Innovation and Product Development
- Lab to Market Translation
- University Entrepreneurship and Entrepreneurship Education

The programme will start from the academic year 2024-25.

Commencement 2024

IIT Bombay held Commencement 2024 on May 3, 2024 at the Institute's Convocation Hall. Mr. Natarajan Chandrasekaran, the Chairman of Tata Sons, the holding company and promoter of all Tata Group companies, was the Chief Guest at the ceremony and delivered the Commencement Address. During the afternoon session, about 2489 students who were likely to graduate, were invited for a photo opportunity

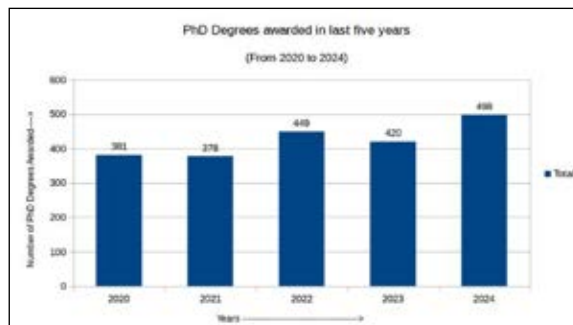
with the Director on the dais. The students included (approx) 1249 undergraduate, 1005 postgraduate and 235 PhDs.

Department Degree Distribution Function (61st Convocation)

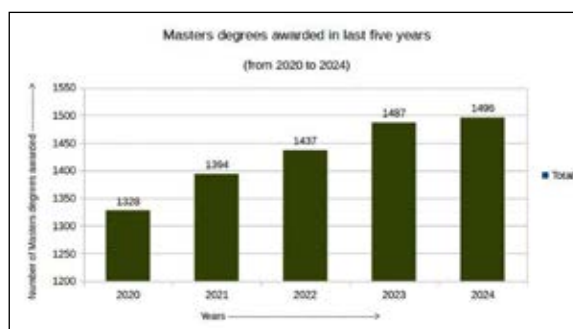
IIT Bombay held its Department Degree Distribution Function (DDDF) of the 61st Convocation on two consecutive days viz. August 19 - 20, 2023. The DDDFs of the 61st Convocation were presided over by a Departmental Chief Guest, Head of Department and faculty members of the Department. A total of 3077 degrees were awarded to 2799 students during the academic year 2022-23, including 420 PhD degrees.

During the function, the President of India Gold Medal was bestowed on Harshit Gupta, a BTech student from the Department of Computer Science and Engineering. The Institute Gold Medal was awarded to Anish Shivamani, a Bachelor of Science student from the Department of Chemistry, and the Dr. Shankar Dayal Sharma Gold Medal was conferred on Akshat Shirish Zalte, a BTech student from the Department of Chemical Engineering. Additionally, many more students were presented other gold and silver medals to recognize their excellent performance.

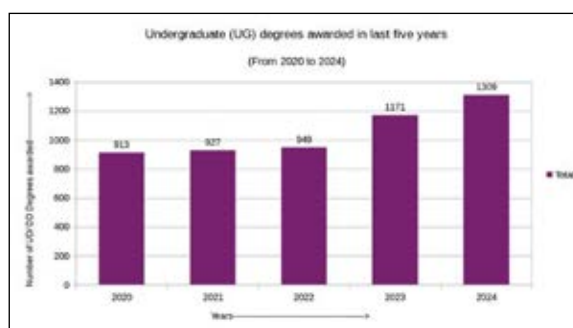
Graph 1: PhD Degrees awarded in last five years (2020-2024)



Graph 2: Masters Degrees awarded in last five years (2020-2024)



Graph 3: Undergraduate (UG) Degrees awarded in last five years (2020-2024)



GRADUATION STATISTICS

Year	UG/ DD			Masters			Ph.D.			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
2024	1,047	261	1,308	1,225	271	1,496	308	193	499	2,578	725	3,303
2023	968	208	1,171	1,191	296	1,487	296	124	420	2,450	628	3,078
2022	820	129	949	1,192	245	1,437	309	140	449	2,321	514	2,835
2021	820	107	927	1,123	271	1,394	249	129	378	2,192	507	2,699
2020	840	73	913	1,088	240	1,328	261	120	381	2,189	433	2,622

*Number of degrees.

IIT BOMBAY IN NATIONAL AND INTERNATIONAL RANKINGS

The National Institutional Ranking Framework (NIRF) was approved by the Ministry of Education (then MHRD) and launched by former Honourable Minister of Human Resource Development Smt. Smriti Irani in September 2015. This framework outlines a methodology to rank institutions across the country. The methodology draws from the overall recommendations and broad understanding arrived at by a Core Committee set up by MoE to identify the broad parameters for ranking various universities and institutions. The parameters broadly cover “Teaching, Learning and Resources”, “Research and Professional Practices”, “Graduation Outcomes”, “Outreach and Inclusivity” and “Perception”.

NIRF Innovation Ranking 2024 [former Atal Ranking of Institutions on Innovation Achievements (ARIIA)] was initiated by the

Ministry of Education (then Ministry of Human Resources Development (MHRD)), Government of India on August 30, 2018, to systematically rank all major higher educational institutions and universities in India on parameters related to “Innovation and Entrepreneurship Development” amongst students and faculties. The parameters used for consideration for ARIIA rankings include budget, facilities, awareness, entrepreneurship, commercialization, learning methods and governance.

The result of 9th edition of NIRF rankings 2024 was announced by the Hon’ble Union Minister of Education, Government of India Mr. Dharmendra Pradhan on August 12, 2024.

IIT Bombay secured third position in Overall, third in Engineering, tenth in Management, fourth in Research and first position in Innovation categories.

IIT Bombay’s Rank in NIRF

Category \ Year	2020	2021	2022	2023	2024
Overall	4	3	3	4	3
Engineering	3	3	3	3	3
Management	11	10	11	10	10
Research*		3	4	4	4
Innovation#		2	2	7	1

* Research category in NIRF started in 2021.

Atal Ranking of Institutions on Innovation Achievements (ARIIA) is renamed as ‘NIRF-Innovation’ ranking.

Quacquarelli Symonds (QS) Rankings

The QS World University Rankings, inaugurated in 2004, has grown to become the world’s most popular source of comparative data about university performance.

QS World University Rankings 2024:

IIT Bombay has secured first position in India and 149th rank this year in the Quacquarelli Symonds (QS) World University Rankings (2024). Overall, the Institute has improved on

its 2023 performance by 23 places.

QS World University Rankings by Subject 2024:

IIT Bombay has been ranked 45th globally in Engineering and Technology with an overall score of 79.1 out of 100 in the Quacquarelli Symonds (QS) World University Rankings by Subject for 2024. The Institute has been ranked in 4 out of 5 broad subject areas, which includes Engineering & Technology, Natural Sciences, Social Sciences and Management, and Arts and Humanities. Overall, the Institution improved on its 2023 performance by two places in Engineering and Technology.

QS Asia University Rankings 2024

Indian Institute of Technology Bombay (IIT Bombay) secured the first position in India and 40th rank this year in the QS Asia University Rankings 2024.



QS Sustainability Ranking 2024

IIT Bombay secured second place in India and is ranked 303rd overall globally and 50th in Asia, in the QS Sustainability Ranking 2024. The Institute is ranked 218th in the 'Environmental Impact Performance' and 439th in the 'Social Impact Performance' and 655th in the 'Governance' category of the QS Sustainability Ranking 2024. The result was released on December 5, 2023.

IIT Bombay's Rank in QS Rankings:

Sr. No.	2021		2022		2023		2024		2025	
	Int.	Nat.	Int.	Nat.	Int.	Nat.	Int.	Nat.	Int.	Nat.
	QS World University Rankings									
1	172	1	177	1	172	1	149	1	118	1
	QS World University Rankings by Subject									
2	49	1	49	1	47	1	45	1	45	1
	QS University Rankings - Asia									
3	37	1	42	1	40	1	40	1	-	-

Int. = International, Nat. = National

RESEARCH AND DEVELOPMENT ACTIVITIES

In the Financial Year (FY) 2023-24, IIT Bombay received funds to the tune of Rs. 428 crores from external agencies, an increase of 15% in receipts over the last financial year. Non-government agencies including industries (both Indian and foreign) contributed almost 40% of these receipts. 335 R&D projects were initiated with a sanctioned outlay of Rs. 389 crores. Consultancy projects worth Rs. 170 crores were also initiated during this period. Overall, project outlays have seen an increase of 25% as compared to FY 2022-23.

R&D ACTIVITIES

The Office of Dean (R&D) continued to engage and facilitate research and development initiatives at IIT Bombay by administering R&D projects, facilitating industry interactions, managing intellectual property and licensing activities, reviewing and finalizing R&D related agreements and contracts, supporting high-end research infrastructure and disseminating R&D related information in various fora, amongst other roles. Many new R&D projects and related activities were undertaken during the year 2023-24.

R&D projects, both as short-duration consultancy projects and long-duration sponsored research projects, were initiated (Table 1).

Table 1: Information on new projects sanctioned during last three years

Financial Year	Sponsored Projects		Consultancy Projects	
	Number	Sanctioned outlay (Rs. in crores)*	Number	Projects outlay (Rs. in crores)*
2023-24	335	389.32	779	170.66
2022-23	280	330.66	776	111.39
2021-22	242	220.29	648	79.95

*: includes GST for Indian party/ clients

EXTERNAL GRANTS FOR R&D

IIT Bombay received funds to the tune of Rs. 428 crores in FY 2023-24 from external agencies. This includes funds for new as well as ongoing projects as indicated in Table 2.

Table 2: Funds received for R&D in 2023-24

Project Type	Funds received (Rs. in crores)
Sponsored Projects	290.90
Consultancy Projects	126.07
Royalty	3.35
Equipment usage	8.04
Total	428.36



This year, apart from funds received from government agencies, IIT Bombay received a sizeable contribution from industries (both Indian and foreign) as well as trusts, societies etc. The percentage contribution of different types of funding agencies is shown in Figure 1.

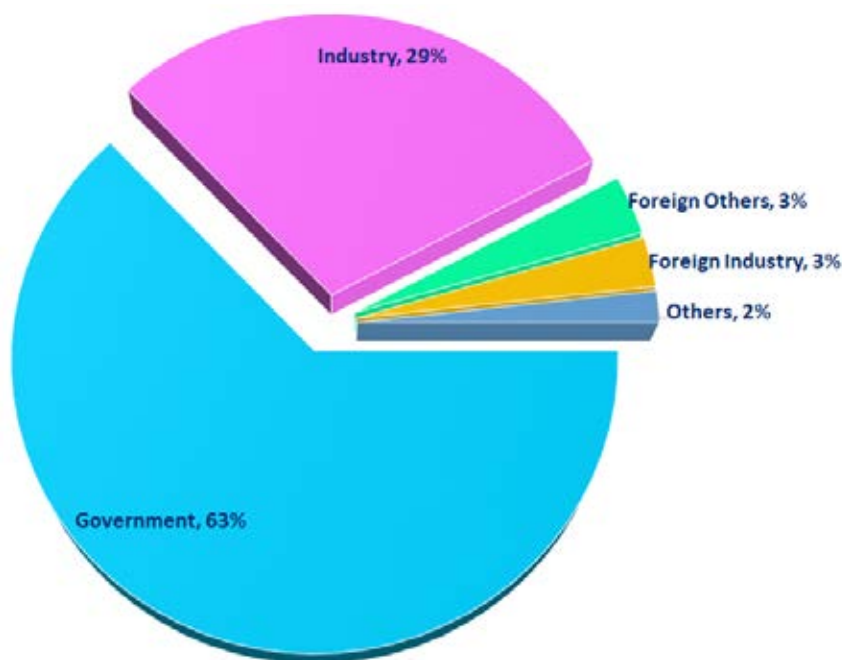


Figure 1: Types of funding agencies and percentage contribution for R&D receipts (Sponsored Projects + Consultancy Projects) in FY 2023-24

In FY 2023-24, IIT Bombay initiated 335 R&D projects with sanctioned outlay of Rs.389 crores out of which more than 90 projects were funded by industries (both Indian and global) with a sanctioned outlay of Rs. 68 crore. These projects span various domains of research in science and engineering – both applied and basic as well as humanities, social sciences and management studies. Some highlights are given below:

- CAR-T Cell Therapy:** IIT Bombay reached a major R&D milestone this year, when its technology CAR-T received regulatory approval for commercialization in October 2023.
- Maharashtra Drone Mission:** The Technical Education Department (Government of Maharashtra) has funded a project with an outlay of Rs. 151.8 crores (over 5 years) to foster indigenous technology development and establish Maharashtra as a global leader in drone technology.
- Hydrogen pressure vessel manufacturing using Textile based composites TeCoPV India:** The Ministry of Textiles has funded a project with an outlay of Rs. 24.3 crores (over 3 years). The project will establish a platform for indigenous, cost-effective, and safe gaseous hydrogen storage potential, risk assessment and life cycle analysis.
- Assessment of CO₂ Storage Potential Uncertainty and Life Cycle Analysis:** IIT Bombay's collaboration with various PSUs is also increasing day by day. This year, the Oil and Natural Gas Commission (ONGC) has funded a project with an outlay of Rs.9.9 crores (over 3 years) in select fields of ONGC. This project proposes assessing reservoirs against the possible scope of the CCUS workflow, with special emphasis on storage potential, risk assessment and life cycle analysis

- **Asian Development Bank Institute, the Université de Versailles Saint-Quentin-en-Yvelines and United Nations Children’s Fund:** This year, IIT Bombay collaborated with international universities and organisations, including projects with the Asian Development Bank Institute on Technologies for Urban Transit to enhance mobility and safe accessibility; with the Université de Versailles Saint-Quentin-en-Yvelines on unleashing the potential of real-time high-resolution carbon emission data for more than 100 cities in India; and with United Nations Children’s Fund on monitoring and mentorship initiative for the Universal Immunization Program.
- **Setting up of Livelihood Centre and Design Innovation and Training Workshops on Water Hyacinth Craft and Setting up a Centre of Excellence for Bamboo Infrastructure Technology:** IIT Bombay took up a novel project this year with support from the Ministry of Development of North Eastern Region for setting up of Livelihood Centre and Design Innovation and Training Workshops on Water Hyacinth Craft in Purasinggha South West Garo Hills District Meghalaya. The emphasis of this project is for the local youth to get employment and local entrepreneurship opportunities for sustainable livelihoods in their village. The setting up of a Centre of Excellence for Bamboo Infrastructure Technology and the development of a water budget-based geospatial planning framework for Himachal Pradesh are a few more examples of socially relevant projects undertaken by IIT Bombay this year.
- **Scale up and demonstration of mechanical chemical and thermal reclamation facility for waste foundry sand**
Funding Agency: Rajiv Gandhi Science and Technology Commission
Sanctioned Outlay: Rs. 8.2 crores over 3 years
- **Blue Energy from Salinity Gradient: A laboratory-scale technology demonstration project**
Funding Agency: Ministry of Earth Sciences
Sanctioned Outlay: Rs. 5.8 crores over 2 years
- **Global Navigation Receiver System-On-Chip for NAVIC and GPS**
Funding Agency: Ministry of Electronics and Information Technology
Sanctioned Outlay: Rs. 4.5 crores over 3 years
- **Symphony of cytosolic defence mechanisms in pathogen clearance and host protection**
Funding Agency: DBT/ Wellcome Trust India Alliance
Sanctioned Outlay: Rs. 4.4 crores over 6 years
- **TUTEM: Technologies for Urban Transit to Enhance Mobility and Safe Accessibility**
Funding Agency: Asian Development Bank
Sanctioned Outlay: Rs. 3.3 crores over 3 years
- **Enabling Electric Cooking Ecosystem in Rural India: Phase II**
Funding Agency: Loughborough University
Sanctioned Outlay: Rs. 3.1 crores over 1.5 years

Some major sponsored projects initiated in FY 2023-24:

- **Bi-facial Perovskite Module Leading to 4-T Perovskite-Si Tandem Structure**
Funding Agency: Central Mine Planning & Design Institute Ltd.
Sanctioned Outlay: Rs. 17.7 crores over 3 years

Along with sponsored R&D efforts, consultancy activities were taken up this year for different government, public sector and industries, both Indian and international. The types of consultancy provided included expert advice, retainership, product/ process/ software development, analysis, evaluation, image reconstruction and stress testing.



Some representative consultancy project areas are listed:

- Composite design
- Nutrition and nutraceutical evaluation
- Technical and Research Advisory
- Electrochemical modelling
- Climate Risk Analysis
- Battery technology
- Water audit
- Impurity analysis
- Study of carbon footprints
- Structural audits

Internal Funding for R&D

The Institute released funds to the tune of Rs. 43 crores in total for R&D related activities. The Institute provided internal funding for supporting faculty research. Of these funds, Rs. 6.4 crores were sanctioned as seed grant and augmented seed grant for initiation of research for new faculty members.

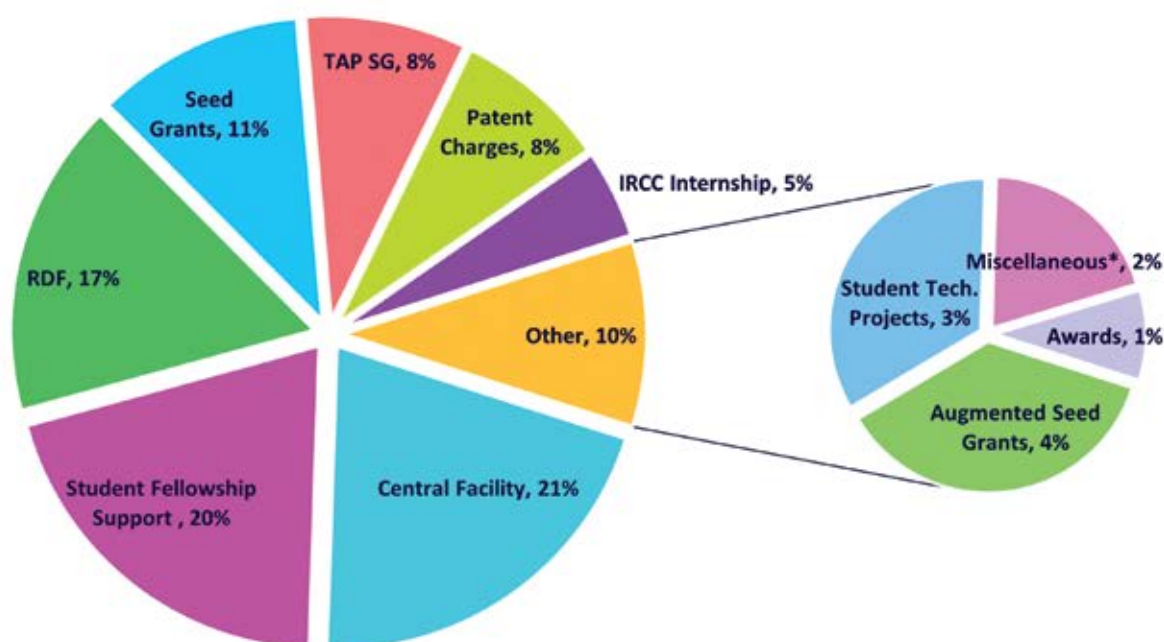


Figure 2: Percentage distribution of Institute funding related to R&D activities

The funds released by the Institute during the FY 2023-24 were distributed across the following areas:

- Seed grant for initiation of research for new faculty
- TAP seed grant
- Maintenance of central and national research facilities
- Awards and recognition
- Facilitating grants to faculty members for filing patents, research publications and/ or international travel
- Student fellowship support
- Research Development Fund
- IRCC Internship
- Student Technical Projects

Some glimpses of Student Technical Project activities in FY 2023-24:

- IIT Bombay Rocket Team:**



First position among all the teams from India in Techexpo 2023



Overall score in Spaceport America Cup 2023

- Mars Rover Team:**



6th place in the Bio-Science Mission; overall 19th place globally

- Student Satellite Team**



The Student Satellite Team receiving the Best Paper Award in SMOPS 2023 for the papers on ‘Parameter optimization of the optical subsystem of a CubeSat compatible star tracker’ and ‘Astronomical Image Simulation Framework (AstrIS)’ in their respective categories

- Team Shunya:



1. US Department of Energy Solar Decathlon Build Challenge 2023 - Overall runner-ups
2. US Department of Energy Solar Decathlon Design Challenge 24- Winners, Multifamily Building Division



Shunya House

Augmentation of Research Infrastructure:

As part of creating and upgrading infrastructure for enabling R&D, the Institute provided support of approximately Rs. 27 crore for setting up various research facilities and approximately Rs. 9 crore was allocated for the maintenance of research facilities.

Institute Central Research Facilities (ICRF) in collaboration with IRCC organised several meetings to deliberate on various aspects of maintenance and operation of research facilities.

IIT Bombay – Industry Interactions for R&D

The Institute continued its efforts to enhance

interaction with its industry collaborators.

Around 300 Indian and international industries approached IIT Bombay for partnership through collaborative R&D projects and consultancy services. The interactions were managed seamlessly by facilitating exploratory meetings and technical discussions with faculty members in areas of mutual interest. Around 150+ meetings, in both physical and virtual modes, were coordinated by the Industrial Research Consultancy Centre (IRCC) during the year 2023-24. Agreements were entered into to establish a formal association. A break-up of requests from different types of industries is given in Figure 3:

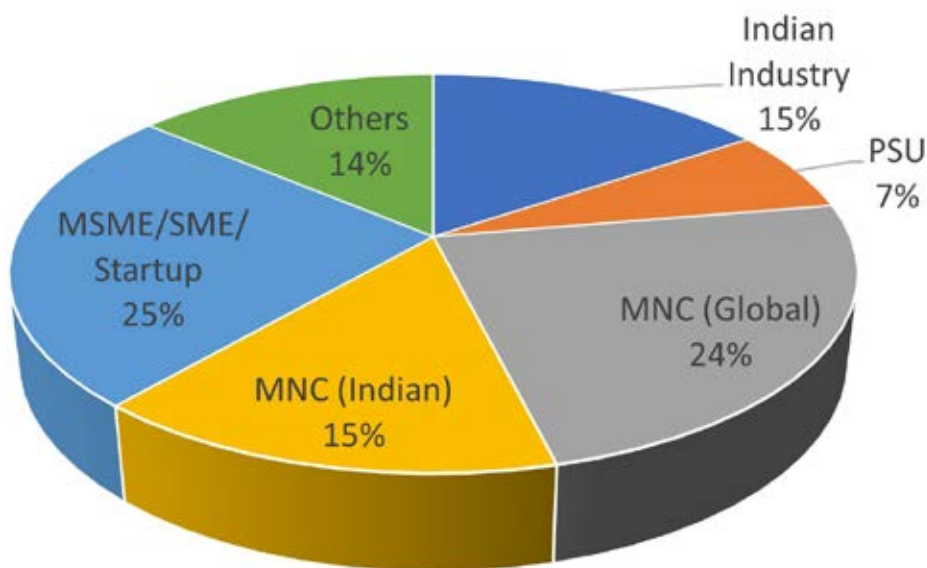


Figure 3: Number of requests from different types of industries in FY 2023-24

Some of the industries and PSUs that visited and/ or approached the Institute to explore research collaborations include:

- Accura Pharmaquip
- Adani New Industries Ltd
- Adhyatm Parivar
- Aditya Birla
- Alpha Equipments
- Amazon
- Bauer
- Bradken
- Croda International
- Daimler Truck Innovation Center
- Eaton
- EMD Performance Materials Corp
- Google
- HAL
- Hero MotoCorp
- Hitachi Energy
- IBM
- Jindal Biotech
- Jindal Steel & Power
- Kirloskar Oil Engines

- Knorr Bremse
- L'Oreal
- Lam Research
- Larsen & Toubro
- Mahindra & Mahindra
- Mazagon Dock Shipbuilders
- Michelin
- Mondelez International
- Nokia
- Reliance Industries
- Saarloha
- Samsung
- SGX Minerals
- Sharp
- Siemens

- Sony
- Sulzer
- TATA Consumer Products
- TATA Motors
- TATA Steel
- Thermax
- V-Guard
- Voltas
- Wipro3D
- World Bank
- Zydus
- Life

Discussions with many of these industries are currently ongoing, and some have resulted in projects.



Meeting with Sony



Meeting with L'Oreal



Meeting with Central Railways



Meeting with delegation of College of Engineering, Pune

R&D Related Agreements

More than 325 agreements were finalized and signed during the year including those for research collaboration, setting up consortia/ centres of excellence, licensing, non-disclosure agreements, IP transfer, student sponsorships, endowment, material transfers, etc. with industries, organizations, universities and government, both national and international.

A break-up of agreements signed with different types of external agencies is given in figure 4:

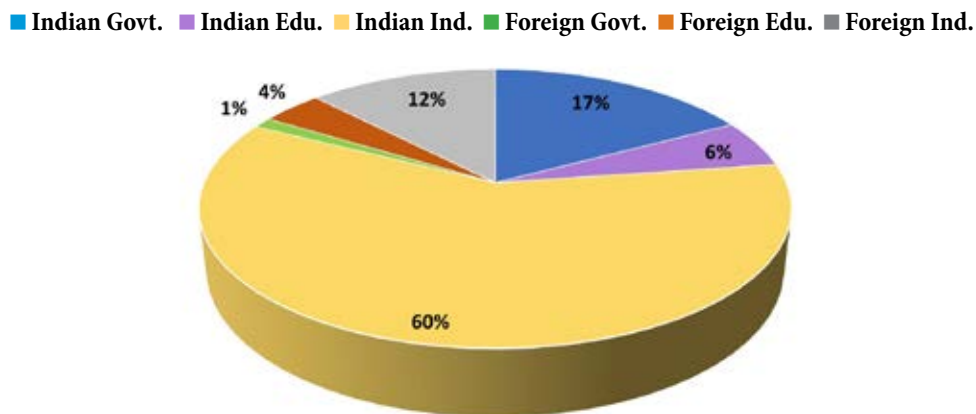


Figure 4: Number of agreements signed with different types of external agencies in FY 2023-24



IIT Bombay and Government of Maharashtra signed an MoU to collaborate on the Maharashtra Drone Mission aiming to revolutionize drone technology applications across the state



IIT Bombay, WIPO, DBT, and IIT Delhi signed an MoU to boost IP knowledge in the Biodesign Program

Intellectual Property (IP) Protection Activities

During FY 2023-24, 175 intellectual property (patent, trademark, design and copyright) applications were filed. The details of all Indian and international IPR filings and grants are given in Table 3.

Table 3: Patents, other IPR Applications filed and granted during FY 2023-24

Type of IP	Applications filed (No.)	Granted (No.)
Indian Patents	131	421
Patent Cooperation Treaty (PCT)	5	NA
US Patents	6	1
Foreign Patents	1	1
Trademark	26	24
Industrial Design	6	18
Copyright	2	2
Total IPs	177	467

Licensing Activities

Support to Entrepreneurship: In FY 2023-24, IIT Bombay provided in principle approvals/ NoCs to 17 IIT Bombay researchers for starting a company/ new venture and for using technologies/ intellectual property created and developed in the Institute.

The start-ups created include:

- AUDOSens Diagnostics Pvt. Ltd
- Zwilling Labs Pvt. Ltd
- Clinicosis Pvt. Ltd
- Inspecity Space Laboratories Lab Pvt. Ltd
- NCF Green Energy Pvt. Ltd
- Proteomica International Pvt. Ltd
- AnDy Materials Pvt. Ltd
- Amyscan Healthcare Pvt. Ltd
- Experiqs Pvt. Ltd
- Instanutrients India Pvt. Ltd

- Rezlabs.AI
- Krishikriti Innovations Pvt. Ltd

Technologies licensed to the industries:

IIT Bombay licensed technologies to various industries and companies. Some of them are:

- Multilingual Translation into Indian Languages Based on Domain-Specific Lexicons
- IoT Based Affordable Point-of-care test kit for the detection of prediabetes and gestational diabetes
- Point of care sickle cell test
- IV fluid alarm system and monitoring system
- WebNetUse Software
- Method of fabrication of metal nanowire film on flexible substrate for bio-signal measurement
- Vestibulator
- 5G Core Binary License
- Software for CV and IV analysis
- A method for preparation of porous hard-carbon nanostructures and applications thereof
- Silver Inks and Pastes
- Improved design of pan coater for pharmaceutical tablets
- Alpha-Synuclein mutants and uses thereof
- Orally administered Myricetin loaded polymeric chitosan nanoparticles for the management of Type 2 Diabetes
- Process for producing recombinant Human Islet amyloid polypeptide (rhIAPP or Amylin)
- Vegan Sprinkler Formulation
- Wind Augmentation and Air Purifying Unit
- Crew Scheduling Software
- Using Policy Search to determine optimal actions in the Indian stock markets
- N3IWF Binary
- Innovative Post-Harvest Storage Space with an Integrated Trailer House for Marginal Indian Farmers
- Fast Charging Lithium-ion cell

Technologies licensed and commercialized

IIT Bombay has licensed its innovative patented technology “ShapeDx: A point-of-care test for sickle cell testing” to a prominent diversified business group for field testing and commercialization. The microscopy-based test developed by Prof. Debjani Paul and her team from the Department of Biosciences & Bioengineering at IIT Bombay can distinguish between healthy, sickle trait, and sickle anaemia blood samples at the point of care. Through this collaboration, the Industry partner is committed to providing innovative and effective solutions to sickle cell testing across India.



License agreement signing with industry partner

IIT Bombay has developed a software to analyse Capacitance Voltage (CV), Current Voltage (IV) and CV Hysteresis experimental Hysteresis experimental data and extraction of the relevant parameters for electrical characterization of MOS capacitors. It has been licensed to large corporation for further use.

IIT Bombay, through Prof. Ganesh Ramakrishnan and his team, has developed a technology related to “Multilingual Translation into Indian Languages based on Domain Specific Lexicons”. IIT Bombay has licensed this innovative Translation Engine software based on Machine Learning technologies to the industry. It enables translation of textbooks and learning materials, across English and all Indian languages. Through this, the Industry partner intends to provide translation services to academic institutions, commercial entities, and government organizations.

An IIT Bombay researcher’s startup has commercialized the technology related to a Zonal storage water supply system with a Hydraulic isolation structure (ZS-HIS) for equitable distribution of water. This groundbreaking solution facilitates the equitable distribution of water through the application of low-cost interventions such as multi-outlet storage tanks, shafts, manifolds, and pipe-in-pipe systems. The technology has garnered interest from various government and state bodies for improving the efficiency of Water Supply Systems (WSS).



Installations of shafts based on the ZS-HIS technology

An IIT Bombay researcher’s startup has commercialized the technology related to Portable electroluminescence (EL) cameras. The technology is converted into a commercially viable marketable product and is designed for deployment in solar panel testing. The product is listed on the company website and is available in the market.



Product developed based on Portable Electroluminescence (EL) camera technology

AWARDS AND RECOGNITIONS

IIT Bombay Awards for R&D-related activities:

To commemorate the birth anniversary of India's first Education Minister Maulana Abul Kalam Azad, IIT Bombay celebrated National Education Day on November 11, 2023. Dr. N. Kalaiselvi, Director General, Council of Scientific & Industrial Research and Secretary, Department of Scientific & Industrial Research was the Chief Guest on the occasion.

Various R&D research awards such as Research Publication Awards, Research Dissemination Awards, Early Research Achiever Awards were conferred on the faculty recipients based on a call-for-nominations and selection by a committee appointed by the Director. The following are the award recipients:

IIT Bombay Research Publication Awards 2022

1. Prof. Rochish M. Thaokar, Department of Chemical Engineering
2. Prof. Suvarn S Kulkarni, Department of Chemistry
3. Prof. Krishna Shankara Narayanan, Department of Computer Science and Engineering

4. Prof. Prabhakar Naraga, Department of Earth Sciences
5. Prof. Shaibal K. Sarkar, Department of Energy Science and Engineering
6. Prof. Sudhir R. Ghorpade, Department of Mathematics

IIT Bombay Research Dissemination Awards 2022

1. Prof. Avik Bhattacharya, Centre of Studies in Resources Engineering
2. Prof. Gopalan Rajaraman, Department of Chemistry
3. Prof. Rodney A. Fernandes, Department of Chemistry

IIT Bombay Early Research Achiever Award 2022

1. Prof. Karthikeyan Lanka, Centre of Studies in Resources Engineering
2. Prof. Arnab Dutta, Department of Chemistry
3. Prof. Ankit Jain, Department of Mechanical Engineering



Awardees on National Education Day

Professor Krithi Ramamritham Award for Creative Research 2022

- Prof. Swatantra Pratap Singh, Department of Environmental Science and Engineering, for his creative work on "Environmental Engineering (Desalination and wastewater treatment)"
- Prof. Biswabandan Panda, Department of Computer Science and Engineering, for his creative work on "Computer Architecture"

EXTERNAL R&D AND IP AWARDS

National IP Award 2023



IIT Bombay wins the National IP Award 2023

The Office of the Controller General of Patents, Designs & Trade Marks (CGPDTM) conferred the National IP Award 2023 to IIT Bombay under the category of Best Indian Academic Institution for Patents Filing, Grant

and Commercialization. The trophy and prize money of INR 1,00,000 was presented to IIT Bombay by Shri. Piyush Goyal, Hon. Minister of Commerce and Industry, GoI.



Prof. Amit Arora and his team wins National Grand Onion Challenge 2023



Team Surya Shakthi wins Carbon Zero Challenge 3.0 for its technological innovation



Prof. Zele's PhD student Dr. Vijay Kanchetla's thesis receives Top Ground Breaking Research Award in the Nationwide KPIT Shodh Competition in March 2023



Prof. Darshan Shah (R) received the Developing Countries Grant Competition (DCGC) Award 2023 and his PhD Student Mr. Samrat Sagar (L) received the Economic Developing Countries Travel award at the ISB Congress held in Japan.

Research Internship Awards

This award is given to bright students across the country to undertake research at IIT Bombay for six months, based on national advertisement and selection process. Each selected intern gets a monthly stipend of Rs. 15,000 for six months (subject to them not getting any support from the parent organization/ government (MHRD)).

- Number of applications received: 1666
- Number of Intern joined: 126 + 10 DTE, Maharashtra
- Other contingency expenditure per intern: Rs. 75,000
- Poster presentation: 110 Interns showcased their research work on May 29, 2024

Award Lectures at IIT Bombay

The recipients of various prestigious awards gave talks (details given below) on their research work to the IIT Bombay academic community:

1. Dr. P. K. Patwardhan Award Lecture was held on September 21, 2023 at VMCC
2. Lecture series by the recipients of IRCC Awards and Prof. Krithi Ramamritham Award was conducted between October 25, 2023 and November 1, 2023 at VMCC
3. Rakesh Mathur Award Lectures were conducted on March 13, 2024 at VMCC

R&D DISSEMINATION AND OUTREACH

**IIT Bombay Hydrogen Workshop:
ICONS 2024**

As part of the annual IRCC CONferences on emerging conceptS [ICONS], a two-day workshop on Hydrogen was organized by the Office of the Dean (Research and Development) on February 16-17, 2024.



The workshop showcased a series of talks by eminent speakers from across the spectrum of hydrogen generation, storage, transportation, and application, bringing together experts, scholars, and enthusiasts worldwide. Among these luminaries were Shri Lalit Bohra, Joint Secretary, Ministry of New and Renewable Energy (MNRE) and Dr. V.K. Saraswat, Member, NITI Aayog and former DRDO Secretary. Additionally, the event featured Dr. Anita Gupta, Head of the Scientific Divisions at Department of Science and Technology, Government of India, specializing in Climate, Energy, and Sustainable Technology.



Delving into the forefront of sustainable energy solutions, the workshop provided a platform for in-depth discussions, insightful presentations, and invaluable networking opportunities. The comprehensive agenda encompassed talks by notable representatives from governmental bodies

and industries alike, complemented by insights from esteemed faculty members representing various departments of IIT Bombay. Their presentations spanned the spectrum of hydrogen production and storage methodologies, delving into water electrolysis, biomass gasification, and emerging techniques like photoelectrochemical and photobiological methods. Discussions also addressed storage modalities, including compressed hydrogen, liquid hydrogen, and innovative solutions like liquefied organic hydrogen carriers, highlighting crucial aspects such as cost, efficiency, safety, infrastructure, and environmental impact.



The workshop was attended by nearly 400 participants, including students and faculty members from both IIT Bombay and other industries, institutes, and colleges in the region. With a focus on advancing the understanding and application of green hydrogen technologies, attendees were treated to an enriching experience characterized by thought-provoking dialogues and knowledge exchange. The event not only shed light on the latest developments in the field but also fostered collaborations to drive meaningful progress toward a greener and more sustainable future.



TECHCONNECT 2023

TechConnect 2023, an event which showcases IIT Bombay's R&D activities, was conducted by the Office of the Dean (R&D) during December 27-29, 2023. It was inaugurated by Mr. Harish Mehta, Co-founder and the First Elected Chairman of NASSCOM, Founder of the Onward Group, and author of *The Maverick Effect* and Prof. Subhasis Chaudhuri, the then Director of IIT Bombay, Prof. D.B. Phatak, Prof. M.D. Agrawal and Dean (Student Affairs) Prof. Suryanarayana Doolla joined for the inaugural function of TechConnect 2023.

The main organisers of this event were Prof. Vikram Vishal, Department of Earth Sciences and Prof. Amber Shrivastava (Faculty Coordinators), Mr Gourish Singhal and Mr Ajay Agrawal (Overall Student Coordinators) and Dr Sreelekha P. Gopinathan & Mr Rohan (IRCC Coordinators).

The event showcased exhibits (working models, demonstrations, products) from 26 academic units apart from student tech teams. In addition, IIT Bombay Research Park Foundation (IITBRPF), Industrial Research and Consultancy Centre (IRCC), and Society for Innovation and Entrepreneurship (SINE) had set up stalls to disseminate information about the research facilities available, and the R&D activities of the Institute in general offered by IIT Bombay. Several faculty members, ~450 students and project staff from 28 academic units/ centres interacted with visitors on all three days, giving information about the exhibit's potential applications and answering other queries. The event attracted very large footfalls of students and the general public.



Mr. Harish Mehta delivered a lecture in PC Saxena Auditorium. The title of the talk was 'The Maverick Effect: The Secret Sauce Behind India's IT Revolution'.

The highlight of the second day of the event was the visit by **Dr. S. Somanath**, Chairman of the Indian Space Research Organisation (ISRO). He interacted with the participants at the exhibits and shared his thoughts. The participants were thrilled to have this opportunity to receive his valuable insights. On display were several technical projects focusing on hardware technologies in rockets, rovers, satellites and other projects of interest to ISRO.

Nobel Award Lectures

Lectures by domain experts (faculty members from the Institute and external experts) on the work of winners of the Nobel Prizes 2023 were organised on November 29, 2023 and January 10, 2024 in VMCC. The speakers were **Prof. Kiran Kondabagil**, Department of Biosciences and Bioengineering, **Prof. Rama Pal**, Department of Economics, and **Dr. (Sr.) Ananda Amritmahal**, Sophia College for Women, Mumbai.

Student Event

ENTHUSE - Over 1400 first-year undergraduate students of IIT Bombay attended the event which was organized simultaneously in three venues on campus (viz. VMCC, F.C. Kohli Auditorium and LTPCSA). The students were allocated to venues based on their respective departments. This arrangement allowed for a diverse representation of departments, with eighteen professors and Deans (R&D), each hailing from distinct departments, sharing their research work and offering insights into what newcomers can expect from research opportunities at IIT Bombay. The presentations maintained an informal tone while being captivating and rich with information. Furthermore, this year's edition introduced some captivating activities and quizzes, including Instagram challenges and trivia quizzes, all designed to enthrall the audience.

R&D PUBLICATIONS

A technology booklet titled 'IBIS: Indian Institute of Technology Bombay's Ideas and Innovations for Society', a compendium of about 100 technologies spanning from defense to healthcare, robotics to environment and sustainability, communication to clean energy, etc. developed at the Institute in recent years, was reprinted.

A brochure titled 'R&D Highlights' reporting some of the outcomes of R&D efforts undertaken at the Institute, interactions with the industry and the possible modes of collaboration, was updated and distributed in forums like TechConnect 2023, G20 RIIG Summit Research Ministers' Meeting etc., and to industry partners to disseminate information on the Institute's R&D activities and industry interactions.

FOCUSSED INITIATIVES ON ETHICS AND SAFETY

Institute Ethics Committee (IEC):

During the year 2023-24, the Institute Ethics Committee received 44 new proposals, and 22 proposals were approved in expedited, full board or exempt mode depending on the nature of the proposals.

The Institute Ethics Committee conducted a half-day workshop on May 4, 2023 at VMCC to sensitize the researchers about ethics approval requirements for research proposals. The workshop started with an opening remark by the former Dean (Research and Development) Prof. Milind D. Atrey. The workshop included interactive sessions with expert speakers Dr. Renuka Munshi, Professor and Head, Department of Clinical Pharmacology, TN Medical College and BYL Nair Charitable Hospital, Mumbai; Chairperson IEC-IIT Bombay, Dr. Sadhana Srivastava, Senior Scientist and Head, Innovation and Translation Research Division, Indian Council of Medical Research, New Delhi, Dr. Subodh Sirur, Medico-

Legal Expert, Co-Chair IEC-IIT Bombay. The topics covered in the session were the overview of IEC at IIT Bombay, ICMR Guidelines and IPR in Health Research, Ethical and Regulatory issues in collaborative studies. The session was moderated by Prof. Abhijit Majumder, Department of Chemical Engineering and researchers across the institute attended the workshop.

Institutional Review Board (IRB): The Institutional Review Board (IRB), received 77 new proposals in the FY 2023-24 from various academic units of which 68 proposals were approved and seven were recommended to the Principal Investigator (PI) for submission to IEC. A workshop for IRB members spanning two half-days was held on July 31, 2023, and August 31, 2023, to deliberate on the norms governing the approval process for proposals received for IRB review the IRB was reconstituted in February 2024 for a period of 3 years.

Safety: A workshop on "Safety Aspects in Residential Technical Institutions and Best Practices" was organized on November 3-4, 2023 for the IITs and IISERs.

Training on the use of fire extinguishers was conducted for mess workers and residents in some multistorey buildings. Training sessions were conducted for estate office engineers on safety in construction work and repairs. Laboratory safety orientation sessions were conducted for new students who joined in January 2024. The fire alarm systems were installed in some high-rise residential buildings for early detection in the event of fire incidents.

Safety inspections and audits were conducted for all new construction projects and campus buildings. Based on this, improvements at the sites (e.g., installation of safety signage, refilling of fire extinguishers, etc.) are being done.

National Safety Week was observed from March 4-10, 2024, and awareness activities were organized among the Institute community.





A new website for the fire and safety section was created to provide information on related aspects and events.

ONLINE PROCESSES:

The following activities were undertaken by the software team in its efforts to make online interface for R&D activities (in the Drone and IRCC websites) more user-friendly:

- Developed an online interface for license agreements. This interface will create a central repository of all license agreements and revenue-related information. Each license will be uniquely coded and linked to the respective Invention Disclosure Form to give quick access to inventor details
- Set up a new module to upload and archive details of various committee meetings
- Developed and released the revised CPRN (2023) Drona interface with more features
- Developed a new facility on Drona to generate an internship certificate

- Developed an internal and external registration form for five more new central facilities
- The dynamic report for the fellowship payments done in SAP has been made available
- Developed the online dynamic report for the project details with receipts, spent amounts, blocked amounts, and closing balances with +/- and -/- balances
- Bilingual offer letters are generated for project staff, and provisions are made to maintain the history of qualifications acquired by project staff
- Provision to capture PFMS details (Ministry name, scheme name, scheme number, etc.) of funds received through PFMS is done

Project manpower

Number of Project staff/ Fellows working in various projects as on March 31, 2024 is 1546. Among them, 880 joined during the FY 2023-24.

EDUCATIONAL OUTREACH

The Educational Outreach (EO) Office is an umbrella body comprising of erstwhile Continuing Education and Quality Improvement Programme (CE&QIP) along with Pramod Chaudhari Alumni Continuing Education Centre (PCACEC), Centre for Distance Engineering Education Program (CDEEP) and National Programme on Technology Enhanced Learning (NPTEL)/ SWAYAM - a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality.

Many of the Institute's outreach courses for the industry, government and PSUs are well established worldwide and continue to attract large participation from India and abroad.

The courses on "Artificial Intelligence and Machine Learning (AL/ML)", "Design Thinking", "Supply Chain Management", "Electric Vehicles", "Digital Transformation", "Technical Writing", "Energy Storage", "Highways and Transportation", "Renewable Energy", "Green Hydrogen", "Cyber Security", and several in-house courses are well-received. The EO's Office has successfully conducted the first run of the year-long Chief Minister Fellowship programme with the Government of Maharashtra.

A total of 67 continuing education courses (including two GIAN courses) were conducted with about 1286 participants from industries, organizations and institutions, with a revenue of about Rs. 7.64 crore.

Three online/ offline course and master services agreements were signed with EdTech Service Providers Coursera, Great Learning and Simplilearn for offering outreach courses for the next three years. The first of such courses was

launched in May 2024 with other open courses lined up to be offered through these partners.

Under the QIP category, seven PhD students from AICTE-approved engineering colleges were admitted in 2023. In addition, three college teachers were inducted into PhD programme under the advance admission scheme. They will join the Institute for the regular programme from July 2024.

The Pramod Chaudhari Alumni Continuing Education Centre (PCACEC) offers courses exclusively to IIT Bombay alumni. One course on "Artificial Intelligence and Machine Learning (AL/ML)" was offered by PCACEC in 2023-24. This course was attended by 65 participants from various domains and sectors.

The Centre for Distance Engineering Education Programme (CDEEP) continued its functioning as a support unit for various outreach activities of the Institute. During the year 2023-24, CDEEP recorded 25 courses, covering 11 disciplines at IIT Bombay. The last academic year saw 6320 enrollment to 390 active CDEEP courses. During the year, CDEEP also added six new semester-long courses to its archive of 524 courses for the National Programme on Technology Enhanced Learning (NPTEL). Additionally, CDEEP recorded and live-streamed important Institute events such as the Convocation, Interim session of the 62nd Convocation, and Foundation Day, viewed by more than 30,000 viewers.

The NPTEL/ SWAYAM programme at IIT Bombay offered a total of 123 courses in the last two semesters (July 2023 and January 2024). These courses saw total enrollments and registrations of 2,48,528 and 51,369 learners through the SWAYAM platform.

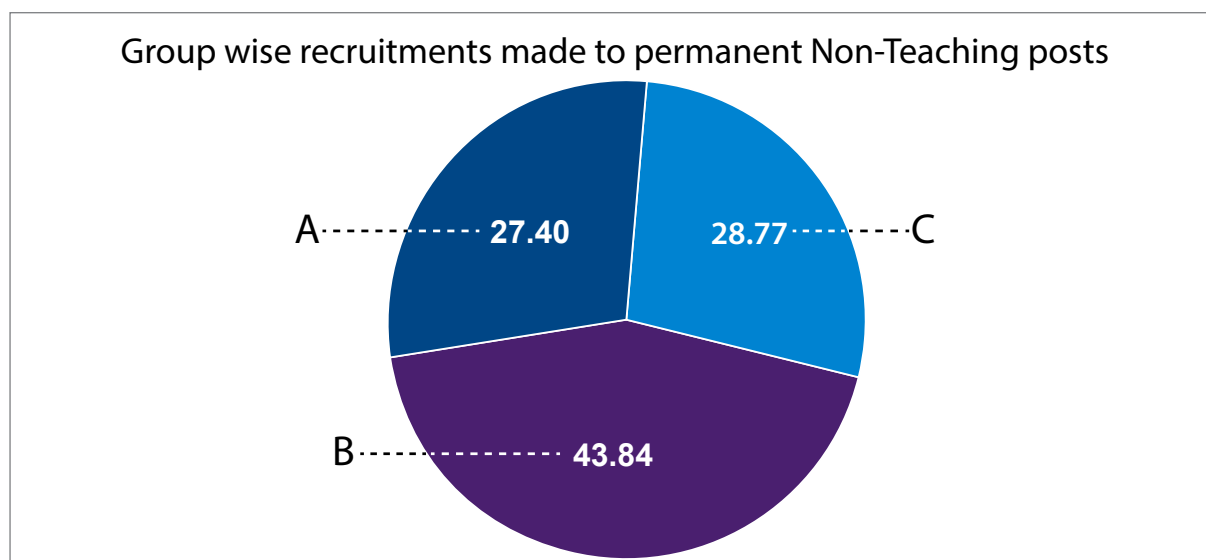


ADMINISTRATIVE AFFAIRS

The Office of Dean (Administrative Affairs) deals with manpower management non-faculty and non-project staff (permanent, temporary, and out-sourced)) and administrative processes/ services for the Institute. Accordingly, the office is responsible for the formulation of policies regarding administrative structures/ links, assessment of staffing/ manpower needs at different levels, defining duties/ responsibilities and authority levels, job functions/ profiles, recruitment policies, career/ promotion stages, and allocation and sanctioning of optimal manpower resources to different units and related staff hiring/ recruitment.

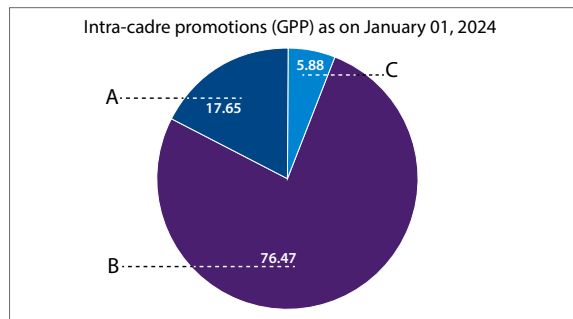
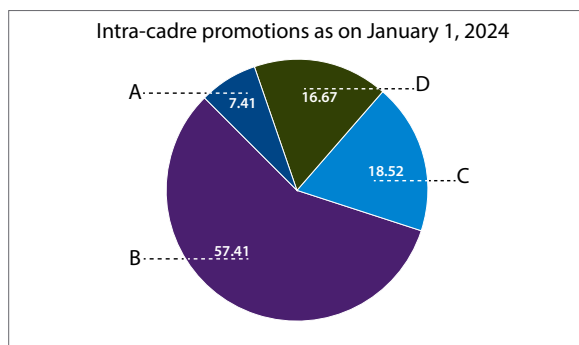
For effective implementation of revised/ new policies, the office is supported by the concerned units of the Registrar and Applications Software Cell (ASC).

Following is the summarised report on Direct Recruitment for the year 2023-24:



Name of the Post	No. of Appointments Made	Group	Total
Technical Officer (Scale-I)	2	A	21
Sr. Technical Officer (Scale-A)	2		
Deputy Registrar	3		
Student Counselor (Scale-I)	1		
Assistant Registrar	8		
Deputy Executive Engineer	3		
Medical Officer (Scale-I)	1		
Deputy Registrar (F&A)	1		
Technical Superintendent	8	B	32
Jr. Engineer	12		
Administrative Superintendent	12		
Jr. Mechanic	4	C	20
Jr. Sanitary Inspector	2		
Jr. Administrative Assistant	14		
Total	73	A+B+C	73

Following is the summarised report on promotions for the year 2023-24:



Name of the Post	No. of Appointments Made	Group	Total
Technical Officer Scale-III – A/ B (P)	1	A	4
Technical Officer Scale – II – A/ B (P)	1		
Sr. Assistant Registrar (P)	1		
Training and Placement Officer (Scale-II)	1		
Assistant Technical Officer	7	B	31
Assistant Executive Engineer	1		
Sr. Library Information Superintendent	2		
Trained Graduate Teacher	2		
Staff Nurse	4		
Assistant Administrative Officer	4		
Sr. Administrative Superintendent	11		
Sr. Mechanic	1	C	10
Laboratory Assistant	2		
Technician (Medical)	2		
Administrative Assistant	2		
Sr. Mechanic (P)	1		
Administrative Associate (P)	2		
Sr. Multiskilled Assistant	3	D	9
Multiskilled Assistant C	6		
Total	54	A+B+C+D	54

Name of the Post	No. of Appointments Made	Group	Total
Sr. Technical Officer (Scale-A) – B (P)	1	A	3
Technical Officer (Scale-I) – A (P)	2		
Sr. Administrative Superintendent (P)	1	B	13
Technical Superintendent (P)	1		
Administrative Superintendent (P)	11		
Administrative Associate (P)	1	C	1
Total	17	A+B+C	17

FACULTY ACHIEVEMENTS AND RECOGNITIONS

During the year, 31 faculty members (15 Assistant Professors Grade II, 12 Assistant Professors Grade I, 02 Associate Professors, 01 Associate Professor (contract), and 01 Professor) joined the Institute. The number of full-time faculty members on the roll of the Institute has risen to 727 comprising 399 Professors, 01 Professor (contract), 173 Associate Professors, 02 Associate Professors (contract), 124 Assistant Professors (Grade-I), and 28 Assistant Professors (Grade-II).

In addition, there are 81 adjunct faculty members and 301 post doctoral fellows on the roll. Around 16 faculty members retired – 11 of whom were re-employed, 01 voluntarily retired and 04 resigned during the year.

The Institute provided financial assistance to 411 faculty members for participating in international conferences.

Apart from educational and research pursuits, the faculty of the Institute meet national and global obligations in diverse ways. Many of them have accepted membership of various national committees and editorship of journals. They also review manuscripts for publications. We are proud that their efforts have received recognition in the form of many awards and distinctions, some of which are listed below:

Shanti Swarup Bhatnagar Prize:

Prof. Debabrata Maiti, Department of Chemistry, has been awarded the Shanti Swarup Bhatnagar Prize for Science and Technology 2022 award for his significant contributions to developing transition metal catalysis for transforming organic molecules to prepare value-added materials by site-selective functionalization, leading impact on agrochemicals and pharmaceuticals industry

Fellow of Indian National Science Academy, New Delhi. (FNA):

(Retd.) Prof. Bijnan Bandyopadhyay, IDP in Systems and Control Engineering, has been elected as a Fellow of Indian National Science Academy 2024.

Prof. Ruchi Anand, Department of Chemistry, has been elected as a Fellow of Indian National Science Academy 2024.

INSA Associate Fellows:

Prof. Sandeep Anand, Department of Electrical Engineering, has been elected as INSA Associate Fellow 2023.

Prof. Achintya Kumar Dutta, Department of Chemistry, has been elected as INSA Associate Fellow 2023.

Prof. Ankit Jain, Department of Mechanical Engineering, has been elected as INSA Associate Fellow 2023.

Prof. Shyamprasad Karagadde, Department of Mechanical Engineering, has been elected as INSA Associate Fellow 2023.

Prof. Mayukh Mukherjee, Department of Mathematics, has been elected as INSA Associate Fellow 2023.

Prof. Kasturi Saha, Department of Electrical Engineering, has been elected as INSA Associate Fellow 2023.

Prof. Aparna Singh, Department of Metallurgical Engineering and Materials Science, has been elected as INSA Associate Fellow 2023.

Prof. Vikram Vishal, Department of Earth Science, has been elected as INSA Associate Fellow 2023.

Fellow of Indian Academy of Sciences (FASc), Bangalore:

Prof. U. K. Anandavardhanan, Department of Mathematics, has been elected as a Fellow of the Indian Academy of Sciences.

Prof. Deepankar Choudhury, Department of Civil Engineering, has been elected as a Fellow of the Indian Academy of Sciences.

Fellow of the National Academy of Sciences, India (FNASc):

Prof. K. G. Suresh, Department of Physics, has been elected as a Fellow (FNASc) of the National Academy of Sciences, India (NASI), Prayagraj.

Prof. Subimal Ghosh, Department of Civil Engineering, has been elected as a Fellow (FNASc) of the National Academy of Sciences, India (NASI), Prayagraj.

Prof. Suparna Mukherji, Environmental Science and Engineering Department, has been elected as a Fellow (FNASc) of The National Academy of Sciences, India (NASI), Prayagraj.

Prof. Vivek Agarwal, Department of Electrical Engineering, has been elected as a Fellow (FNASc) of the National Academy of Sciences, India (NASI), Prayagraj.

Fellow of the Indian National Academy of Engineering (FNAE):

Prof. Kishore Chatterjee, Department of Electrical Engineering, has been elected as a Fellow of the Indian National Academy of Engineering (INAE).

Prof. Deepankar Choudhury, Department of Civil Engineering, has been elected as a Fellow of the Indian National Academy of Engineering (INAE).

Prof. Sanjay Mahajani, Department of Chemical Engineering, has been elected as a Fellow of the Indian National Academy of Engineering (INAE).

Other Fellowships:

Prof. Anirban Banerjee, Department of Biosciences and Bioengineering, has been awarded the Wellcome Trust/ DBT-India Alliance Senior Fellowship and the DST-SERB Star Award.

Prof. Mahesh S. Tirumkudulu, Department of Chemical Engineering, has been selected for INAE-SERB, DST Abdul Kalam Technology Innovation National Fellowship.

Prof. Anurag Garg, Environmental Science and Engineering Department, has been elected as a Fellow of the International Society for Energy, Environment and Sustainability (ISEES).

Prof. Subhananda Chakrabarti, Department of Electrical Engineering, has been elected as a Fellow of OPTICA (formerly Optical Society Of America (OSA)).

Prof. Samir K. Maji, Department of Biosciences and Bioengineering, has been selected to receive the J.C. Bose Fellowship.

Prof. Amit Agrawal, Department of Mechanical Engineering, has been selected as a J.C. Bose Fellow.

Prof. Ruchi Anand, Department of Chemistry, has been selected for Sun Pharma Science Foundation Research Fellowship, 2023.

Editorial Boards:

Prof. Arindam Chowdhury, Department of Chemistry, has been appointed as a member of the Board of Editorial Advisory of ACS Journal of Chemical and Biomedical Imaging (CBMI).

Prof. Pennan Chinnasamy, Centre for Technology Alternatives for Rural Areas, has been invited to join the Editorial Board of the International Water Association's (IWA) Hydrology Research Journal.

Prof. Ashish Singh, Shailesh J. Mehta School of Management (SJMSOM) has joined the Editorial

Board of the International Journal for Equity in Health published by Springer Nature as Associate Editor and Archives of Public Health published by Springer Nature as a Section Editor.

Prof. Sai Vinjanampathy, Department of Physics, has joined the editorial board of the New Journal of Physics.

Prof. Arpita Mondal, Department of Civil Engineering, has been invited to join the Editorial Board of two prestigious journals, the Journal of Hydrology and Hydrological Sciences Journal.

Prof. Tabish Nawaz, Environmental Science and Engineering Department, has joined the Editorial Board of Scientific Reports of Nature Publishing Group.

Prof. Vishal Dixit, Interdisciplinary Programme in Climate Studies, has been selected as Associate Editor of the Journal of Atmospheric Sciences (JAS).

Prof. Raghavan B. Sunoj, Department of Chemistry, has been inducted as an Associate Editor of J. Org. Chem. published by the American Chemical Society.

Prof. Himanshu Burte, Centre for Urban Science and Engineering, has been invited to join the editorial board of Urban Studies, as International Corresponding Editor.

Prof. Sarika Mehra, Department of Chemical Engineering, has been invited to join the Editorial Advisory Board of the American Chemical Society (ACS) journal ACS Infectious Diseases.

Prof. Anirban Banerjee, Department of Biosciences and Bioengineering, has been invited to serve as a member on the editorial board of the Journal of Bacteriology.

Prof. Rajesh Zele, Department of Electrical Engineering, has been invited to join as the Associate Editor and Editorial Board member

for the IEEE Open Journal of Circuits and Systems (OJCAS) for the next two years.

Prof. J. K. Verma, Department of Mathematics, has joined as a member of the editorial review board of the Journal of the Indian Mathematical Society.

Prof. Shyamprasad Karagadde, Department of Mechanical Engineering, has joined as a Key Reader on the board of review for Metallurgical and Materials Transactions.

Prof. Santanu Banerjee, Department of Earth Sciences, has joined as a member of the editorial review board of the Journal Sedimentary Geology-Elsevier.

Prof. Sandip Kar, Department of Chemistry, has been included as an editorial board member of “Systems Biology and Applications” of the Nature Publishing Group.

Prof. Rajarshi Chakrabarti, Department of Chemistry, has been invited to join the member of the editorial board of the Journal of Physics: A Mathematical and Theoretical.

Prof. Rajneesh Bhardwaj, Department of Mechanical Engineering, has been selected for SERB Science and Technology Award for Research (SERB-STAR).

Prof. Himadri Shekhar Dhar, Department of Physics, has joined the editorial board of the Journal Quantum.

Prof. Suddhaseel Sen, Department of Humanities and Social Sciences, has been invited to join the editorial board of Acta Musicologica, which is one of the world’s oldest and most renowned journals in the field of musicology, published by the International Musicological Society (IMS).

Other Recognitions:

Prof. Abhay Karandikar, Department of Electrical Engineering, (former Director of Indian Institute of Technology Kanpur) has been

appointed as Secretary, Department of Science and Technology, Government of India.



Prof. R. Sunoj receives National Award to Teachers 2023

Prof. Raghavan B Sunoj, Department of Chemistry, has been awarded the National Award to Teachers 2023 for Higher Education by the Hon'ble President of India Smt. Droupadi Murmu on the occasion of Teachers' Day on September 5, 2023, at a ceremony held at Vigyan Bhawan, New Delhi.

Prof. Krishna Jonnalagadda, Department of Mechanical Engineering, has been awarded the DRDO Academy Excellence Award for the year 2020.

Prof. Rajkumar S. Pant, Department of Aerospace Engineering, has been awarded the Lighter-Than-Air (LTA) Systems Technical Committee (TC) Lifetime Achievement Award 2023 by the American Institute of Aeronautics and Astronautics (AIAA).

Prof. Darshan S. Shah, Department of Mechanical Engineering, has been selected to receive the Developing Countries Grant Competition (DCGC) Award by the International Society of Biomechanics (ISB) for the project 'Development of an Active Artificial Human Knee Joint'.

Prof. Ruchi Anand, Department of Chemistry,

has been awarded the N. R. Dhar Lecture Award by the Indian Photobiology Society.

Prof. Bellie Sivakumar, Department of Civil Engineering, has been selected to receive the Asia-Oceania Geosciences Society (AOGS) Fellows Award.

Prof. Maheshwaran Shanmugan, Department of Chemistry, has been selected to receive the CRSI Bronze Medal for the year 2024 in recognition of his significant contributions to research in Chemistry.

Prof. Swatantra Pratap Singh, Environmental Science and Engineering Department, has been selected to receive the Best Oral Presentation Award (2nd Prize) under the young investigator's category at the 13th International Congress on Membranes and Membrane Processes (ICOM) 2023, held at Chiba, Japan.

Prof. Anirban Banerjee, Department of Biosciences and Bioengineering, has been awarded the S. Ramachandran National Bioscience Award for Career Development of the Department of Biotechnology, Government of India.

Prof. Prasanna S. Gandhi, Department of Mechanical Engineering, has been selected for Er. M.P. Baya National Award 2023.

Prof. Subimal Ghosh, Department of Civil Engineering, has been selected for the European Geosciences Union Alexander Von Humboldt Medal 2024.

Prof. Deepankar Choudhury, Department of Civil Engineering, has been awarded the "Best Teacher of Geotechnical Engineering Award" in the Annual Indian Geotechnical Conference IGC-2023.

Prof. S. Akshay, Department of Computer Science and Engineering, has been selected to receive the Google India Research Award.



Prof. Nutan Limaye, Department of Computer Science and Engineering, has been selected to receive the ACM India Outstanding Contributions in Computing by a Woman (OCCW) 2023 Award.

Prof. Siddavatam Ravi Prakash Reddy, Department of Energy Science & Engineering; **Prof. Azizuddin Khan**, Department of Humanities and Social Sciences; **Prof. Bellie Sivakumar**, Department of Civil Engineering; **Prof. Shiladri Chakraborty**, Department of Electrical Engineering; **Prof. S. Akshay**, Department of Computer Science and Engineering; **Prof. Srineesh V.K.**, Department of Civil Engineering; **Prof. Zakir Hussain Rather**, Department of Energy Science and Engineering; and **Prof. Parinda Vasa**, Department of Physics, have been selected for the AUA Scholars Award Program 2023-24.

Prof. Abhay Karandikar, Department of Electrical Engineering Department, (and Secretary SERB, Government of India) was awarded the honorary degree, Doctor of Science (*Honoris Causa*) by King George's Medical University (KGMU).

Prof. Vikram Vishal, Department of Earth Sciences, has been selected to receive the Franklin Lecturer Award 2024.

Prof. Shobhna Kapoor, Department of Chemistry, has been selected to receive the Young Investigator Award, 2024 under the ACS Infectious Diseases/ ACS Division of Biological Chemistry of the American Chemical Society.

Prof. Nutan Limaye, Department of Computer Science and Engineering, has been featured in 'Future Hopes - Vigyan Vidushi-75 Women Trailblazers of Science', a resource book on profiles of Indian women scientists by the Department of Science and Technology (DST), Government of India.

Prof. Vikram Vishal, Department of Earth Sciences and **Prof. Arnab Dutta**, Department of Chemistry and their student team have won the 2023 Global Carbon Removal challenge of the Open Air Collective, USA with the superlative of 'Best Research' at the final showcase event, held in New York.

The research work by **Prof. Dinesh Kabra**, Department of Physics, is highlighted at NCPRE in global PV-Magazine news.

The essay of **Prof. S. Shankaranarayanan**, Department of Physics and his team (including Ph.D. Student, Ashu Kushawaha and Post-doctoral fellow Sunil Malik) has earned an honourable mention in the 2023 Gravity Research Foundation's essay competition.

Prof. Ganesh Ramakrishnan, Department of Computer Science and Engineering, has been appointed a disease and economic modelling expert member of the Standing Technical Sub Committee (STSC) as well as an expert member of the Standing Working Group – Immunization and Vaccine Research and Capacity Building (SWG-IVRCB) as part of National Technical Advisory Group on Immunization (NTAGI), Ministry of Health and Family Welfare, Government of India.

The work of **Prof. Samir Maji**, Department of Biosciences and Bioengineering and his team, has been discussed in the article "How high-impact papers from Indian researchers are shaping science" which is a part of Nature Spotlight: India.

Cell and gene therapy, NexCAR19, developed by **Prof. Rahul Purwar**, Department of Biosciences and Bioengineering and his group has received approval from the Central Drugs Standard Control Organization (CDSCO), Government of India, for the treatment of r/r B-cell lymphomas and leukemia.



IIT Bombay has been bestowed the 'Chandrayaan 3' honour to recognise its contribution to the Chandrayaan 3 mission. **Prof. Prasanna Gandhi**, Department of Mechanical Engineering, has received the award on behalf of IIT Bombay from Mr. Pawan Goenka, Chairman of the National Space Promotion and Authorisation Centre (IN-SPACE), in the presence of Mr. J.D. Patil, Chairman of the Indian Space Association (ISPA), and Lt. Gen. A.K. Bhat (Retd), Director General of ISPA.

A team of **Prof. Ganesh Ramakrishnan**, Department of Computer Science and Engineering; **Prof. Kshitij Jadhav**, Koita Centre for Digital Health; Dr. Raghav and JIPMER (Jawaharlal Institute of Post Graduate Medical Education & Research) have been selected to jointly lead a phase 1 proposal as part of the process of setting up the Centre of Excellence in Artificial Intelligence (AI) for Healthcare.

Prof. Sunita Srivastava, Department of Physics, has been awarded the Dr. Srinivasan Rajagopalan Award for 2023 by the IISc Alumni Association (IISCAA).

Prof. Saurabh Lodha, Department of Electrical Engineering, has been awarded the Prof. Kasturi Lal Chopra (KLC) Memorial Distinguished Lecture Award for the year 2023 by the Empowered Committee - Prof. Kasturi Lal Chopra Endowment Fund.

Prof. Deepankar Choudhury, Department of Civil Engineering, has received the prestigious "Gopal Ranjan Technology Award 2022 of IIT Roorkee".

Prof. K. Ramasubramanian, Cell for Indian Science and Technology in Sanskrit, Department of Humanities and Social Sciences, has received the 19th Annual J.C. Bose Memorial Award for his contribution to the field of Indian Science and Technology based on ancient texts.

Prof. B.V.S. Viswanadham, Department of Civil Engineering and his former PhD student Dr. Ahmad Rajabian, have been awarded the IGS-Shri R.N. Prasad Biennial Award-2023 for their paper "Centrifuge Study of a Retrogressive Seepage-Triggered Landslide in Silty Sand Slopes" published in the Indian Geotechnical Journal.

Prof. B.V.S. Viswanadham, Department of Civil Engineering and his former PhD student Dr. Pankaj Kumar, have been awarded the IGS-Mr. H.C. Verma Diamond Jubilee Award - 2023 for their "Innovation Instrument Design" on "Design and Development of an In-flight Hybrid Loading Simulator for Geotechnical Centrifuge".

Prof. Deepankar Choudhury, Department of Civil Engineering and his former PhD student Dr. Chaidul Haque Chaudhuri, have been awarded for IGS - YGE Best Paper Biennial Award - 2023 for their paper "Buried Pipeline subjected to Static Pipe Bursting Underneath: a closed-form Analytical Solution" published in Geotechnique.

Prof. Debabrata Maiti, Department of Chemistry, has joined as the Editor-in-Chief for Thieme Chemistry journal SYNLETT, He is the first Editor-in-Chief from India in the history of Thieme Chemistry journals.





STUDENT ACTIVITIES

SPORTS COUNCIL

Sports General Championship

The spirit of athleticism once again took center stage at IIT Bombay as the Sports General Championship (GC) unfolded in 2023-24. The Inter-Hostel General Championships in boy's category was won by Hostel 18 and in the girl's category was won by Hostel 11.

The opening ceremony of the inter-hostel General Championship was held on August 30, 2023, For the 2nd time ever, in a display of unity and vibrancy, each hostel marched onto the field, flags held high, led by their spirited Sports Councillors for the Opening Ceremony of the General Championships. The ceremony then took a poignant turn as the previous year's General Championship winners were honoured. The echo of applause filled the air as trophies were hoisted, a testament to the dedication and athletic prowess of those who had stood atop the podium. Yet, amidst the celebrations, a new chapter awaited for who would take the crown this year.

Aavhan 2023: Where Legends Were Forged and Memories Made

Aavhan, IIT Bombay's annual sports festival, was conducted during March 24-26, 2023. This year's online edition transcended geographic boundaries, welcoming over 6,000 participants from 150+ colleges across the nation, proving that passion for sports knows no bounds.

With over 19 diverse sporting events spanning from chess and badminton to football and water polo, Aavhan 2023 unfolded into a tapestry of athletic skill and fierce competition. The sports enthusiasts locked horns in virtual arenas, while track and field champions pushed their limits, their victories echoing across screens. Every match resonated sportsmanship, camaraderie, and the undying pursuit of excellence.

56th Inter-IIT Sports Meet 2023

The Sports Council conducted the 56th Inter-IIT Sports Meet 2023 during December 10-15, 2023 at IIT Bombay campus. The sports meet encompassed an array of thrilling competitions, including badminton, basketball, hockey, table tennis, volleyball and weightlifting, showcasing an intense series of tough fights and immense talent and competitive spirit among the participating teams. IIT Bombay contingent stood 6th overall and 3rd in the Girls' General Championship. With 23 IITs converging for a week of fierce competition and camaraderie, the event proved to be more than just a sporting extravaganza; it became a celebration of unity, passion, and the indomitable spirit of India's brightest minds. As the curtains closed on the meet, the legacy of IIT Bombay's hosting remained. The meticulously organized events, the warm hospitality, and the unwavering dedication of volunteers set a benchmark for future editions. More importantly, the spirit of unity and healthy competition fostered during the week will continue to inspire generations of IITians to push their limits, both on and off the field.

Freshiesta

Freshiesta – A flagship freshmen event organised during November 3-5, 2023 to ease freshers before the start of the semester, saw a spirit of competition which met the fire of Game of Thrones. No longer were the Houses bound by geography, but by the vibrant walls of Hostels 1, 16A, and 16B, each carrying the banner of Lannister, Targaryen and Stark respectively.

In the end, House Lannister emerged victorious with their relentless pursuit of excellence securing the overall trophy. But the true legacy of Freshiesta resides not in the final score, but in the memories etched in the hearts of every participant. For this was a week where

friendships were forged, talents were discovered, and the spirit of IIT Bombay bloomed anew.

Freshie La-Vista: A Farewell Full of Laughter and Light

The 'Freshie La-Vista' was organised on June 3, 2023. This is a farewell sporting event for freshers presenting the essence of the vibrant community that defines the IIT Bombay family. The event is a testimony to the resilience, talent and spirit that the freshers brought to every challenge they faced during their initial period into the Institute. The banners of Hostels 1, 16A, and 16B waved high one last time as we came together to say goodbye to our freshers.

Sports, Reimagined: Sportsapp, Your Gateway to Athletic Glory!

In the fast-paced world of sports and technology, IIT Bombay students launched a groundbreaking sports app that promises to revolutionize the way the user experience and engage with sports. This cutting-edge application, developed by the brilliant minds of IIT Bombay, is set to become a game-changer in the sports app landscape. The app provides updates on all sporting events with real-time coverage, live scores, and in-depth analyses whether it's campus tournaments or Inter IIT which was hosted by IIT Bombay this year. The app also provides detailed information on world-famous athletes with their detailed profiles and comprehensive statistics. One can also enjoy seamless live streaming of matches.

Induction of women

Encouraging girls in sports is the cornerstone of girls' induction programme. The event embarked on a journey to showcase the inclusive and vibrant athletic community within our campus. Through engaging presentations, interactive discussions, and personal testimonies, all women gained insight into the diverse array of sports programs available and the opportunities for female participation. From highlighting the

achievements of female athletes to discussing the resources and support networks in place, the session aimed to inspire girls to actively engage in sports and embrace a culture of inclusivity and empowerment. By fostering a sense of belonging and enthusiasm for athletics, we strive to cultivate a culture where every woman feels valued, supported, and encouraged to pursue her sporting passions to the fullest.

ABHYUDAY

Abhyuday, the social body of IIT Bombay, held the 11th edition of its annual social festival, "Advit-ya", during January 20-21, 2024, based on the theme "A Serenade of Aspirations".

Advitya emerged as a vibrant platform dedicated to fostering awareness about pressing social issues and showcasing innovative solutions that can contribute to a better society. Embracing the theme "A Serenade of Aspirations", the fest celebrated the diverse dreams and ambitions that drive positive change in communities.

A highlight of the fest was the thought-provoking speaker sessions that brought together esteemed personalities and subject matter experts. The Circular Economy Speaker Session featured **Mr. Suresh Prabhu**, former Union Minister, and **Dr. Pankaj Das**, a certified ESG professional, who shed light on the principles and benefits of transitioning to a circular economic model. Other sessions explored topics such as emotional intelligence with **Mr. Vivek Atray**, Ex-IAS Officer, cybersecurity awareness with **Dipanshu Parashar**, Founder of Virtual Cyber Labs, gender masculinity awareness with **Nikhil Taneja**, Co-founder of Yuva, and men's mental health awareness with **Swapnalekha Basak**, Founder of Plug-H.

The fest also hosted conclaves that facilitated dialogue and collaboration among key stakeholders. The Climate Change Conclave, featuring environmentalist **Sumaira Abdulali** and Environmental Architect **Pornima**

Buddhivant, raised awareness about the causes, impacts, and solutions to address this global challenge. The networking arena brought together more than 200 people, including 15+ nationwide CSR heads, 10+ NGO stalls, 30+ NGO heads, and professionals involved in the CSR do-main, providing a platform for networking, partnership building, and sharing best practices in the realm of corporate social responsibility (CSR) and social impact.

Innovative events like the EV Roadshow, in collaboration with brands like Tork Motors and Morrison Garages, aimed to promote the adoption of electric vehicles and contribute to sustainability efforts. The Folk Art Photowalk, organized in partnership with Folk-by Discovery of India, celebrated local craftsmanship and cultural heritage, fostering artistic appreciation and community connection.

Workshops played a vital role in equipping participants with essential skills and knowledge. The self-defense workshop, led by **Salil Sadaphule** (Instructor at Krav Manga Global), empowered individuals with techniques for personal safety. The leadership workshop, conducted by **Yogesh Kabir** (Co-founder of Alternative Leadership & Self School), aimed to inspire confidence and foster a sense of responsibility among youth. Additionally, the emotional intelligence workshop, facilitated by **Raina Khatri Tandon** (CEO of Right2Rise) and **Arun & Varun** (Magic Duo), provided insights into enhancing emotional intelligence.

A standout event was the recreation of the iconic "Satyamev Jayate" show, hosted by Ritwik Dhanjani, a popular host and actor. The powerful episode shed light on the issue of rape, featuring impactful guests like **Taranjit Kaur** (poet addressing feminist issues), **Nivedita Chandra** (storyteller), **Yogita Bhayana** (activist and founder of PARI Organization), and **Abha Singh** (lawyer and former civil servant). The episode provided a platform for victims to share their stories, raised awareness about the societal

repercussions of such incidents, and offered guidance on how to respond and support those affected by these traumatic experience.

Overall, Advitya served as a catalyst for social awareness, fostering dialogue, and inspiring action towards a more equitable and sustainable society, engaging over 50,000+ attendees throughout the fest.

In addition to the above, following year-long activities were conducted by Abhyuday during 2023-24:

Campaigns

Many new campaign initiatives were also observed this year, including educational kit distribution, Family planning campaign, Space Tech Awareness Campaign etc. Overall, Abhyuday was able to impact and cater to a larger pool of people in need this year.



Clean-up Drives:

Students visited Versova Beach, Mithi River and Powai Lake for the Cleanup Campaigns. They conducted these Clean-ups under the leadership of the UN Environment Champion of the Earth 16, Afroz Shah. Catered to 500+ volunteers throughout the year in these campaigns and collected 7+ tonnes of waste.

Career Counselling Campaign (CCC):

Conducted 1-1.5 hour offline sessions on the career opportunities available for students in several BMC schools. Counselling 2,000+ students across 60+ schools.

Robin Hood Army Food Distribution Drives:

The Abhyday team have been able to make a small but meaningful impact in fighting hunger and food waste, while also promoting the values of community service and empathy among people.

Community kitchen campaign:

The team encouraged 100+ people to engage in making food for the poor. Made easy dishes like sandwiches and distributed them among the hungry poor people on the road.

Menstrual Hygiene Campaign:

Educated adolescent girls from orphanages and BMC schools about menstruation and menstrual hygiene and also provided them with free sanitary pads and chamomile tea sachets. Distributed 500+ kits across 5+ venues to underprivileged girls.

Family planning campaign:

The student team distributed informative brochures in English as well as Marathi to 7500+ slum residents in Mumbai in order to educate them about family planning.

Space tech awareness campaign:

Teaming up with IIT Bombay Mars Rover Team, Abyuday conducted educational outreach sessions for students of BMC Schools.

Health checkup camp:

The camp covered all basic checks up including Anthropometry, Blood Pressure, Blood Sugar Level, Dental, and General Examinations. The camp completed 700+ visitor checkups in Advitya 2024.

Educational Kits distribution:

In collaboration with Pranyas Foundation, the student-team distributed 500+ educational kits to the children of staff and various workers of IIT Bombay who were in need.

TECHNICAL AFFAIRS

Institute Technical Summer Projects (ITSP):

ITSP orientation held on August 6, 2023 saw a great number of students reaching the venue with high enthusiasm. They were highly interested in hands-on tech projects. The introduction of the newly formed TEAM GenSUS aroused a different charm in the audience. An impromptu query-solving session was held after the session. ITSP closing ceremony was conducted in October to felicitate top projects of ITSP.

Technovation - Renamed Startup Lab (in collaboration with E-Cell):

The primary aim of Technovation is to take forward the projects made in ITSP during the summer to market-ready products. The ITSP team collaborated with Desai Sethi School of Entrepreneurship to conduct a 3-hours-long Entrepreneurship 101 session which saw the participation of more than 80 enthusiasts. Institute IPs were floated for participants to take up and find a product-market fit.

Inter IIT Tech 12.0:

Inter IIT Tech 12.0 was held during December 19-22, 2023 and hosted by IIT Madras. IIT Bombay secured 3rd position overall with 4 golds (Zelta, Aptos, EC and SAC), 1 silver (Trumio) and 1 bronze among all the participating IITs.





Tech General Championships:

General Championships were held on September 9, 2023 and were divided into 4 Genre Cups this year to recognize excellence in particular domains from hostels. This helped increase the participation of postgraduate (PG) students.

Tech RnD Expo:

The Institute Technical Council (ITC) of IIT Bombay hosted its flagship event, the Tech RnD Expo, during November 4-5, 2023. This two-day event showcased a variety of technical projects, ranging from innovative summer projects by freshmen and sophomores to cutting-edge endeavours by Tech teams involving rockets, satellites, racing cars, drones and underwater vehicles. The Expo featured ongoing Department projects, startups under the Centre of Excellence at IIT Bombay and various company stalls, offering a comprehensive display of technological expertise. Students of IIT Bombay and other colleges, along with distinguished dignitaries from the Institute, entrepreneurs, alumni, mentors and angel investors, all participated in the event. One of the highlights of the Expo was the impressive showcase of real-life drones by ideaForge. Other interactive zones included VR gaming, F1 simulators, crime scene investigation and laser mazes.

The BioX Club, a part of the Institute Technical Council, set up an artificial bio-research lab for the interactive zone called 'The Crime Scene Investigation'. Participants had to come in groups of three and find the murderer and motive behind the murder of the virtual scientist. The participants had 15 minutes to complete the task with all the clues present in the artificial lab.

The first-year students at IIT Bombay created a 10x10x3m LaserMaze that was guided by Tinkerers Lab, the innovation hub of the Institute. They achieved multiple innovations, including a 3D-printed model of the Institute,

which amazed the Deans and their peers.

The ITC also organized an Olympiad test at the senior and junior levels, which was attempted by a large number of visiting students. The winners of this Olympiad will have the opportunity to work on a project under the guidance of IIT Bombay experts. Overall, the Tech RnD Expo was a remarkable convergence of innovation, collaboration and technological prowess. It was a celebration of passion, creativity and limitless possibilities in the ever-evolving landscape of technical excellence.

CLUBS

Aeromodelling Club:

Aeromodelling Club conducted RC 3D Airshow and UAV Expo 2K23, work-shop on e-Calc and Flight Controllers, course on Aerial Robotics as a part of Learners' Space, Technical Summer School, Freshie Orientation and Glider Workshop, RC Plane Competition 2023, Hover-craft Workshop, various flying sessions, Whoop and 5-incher Drone Building and Flying session, Whoop Drone Racing and Flight Simulator were a part of Tech R&D Expo 2023. The Aeromodelling club also contributed to the Aerospace Department lab course: AE229. The club participated in various national and international competitions including Flipkart Grid 5.0, Aerophilia 2023, Boeing National Aeromodelling Competition and Vishwakarma Awards by Maker Bhavan Foundation. The Aeromodelling team conducted the Water Rocket GC, showcasing skills in the sky through thrilling launches at the Institute's Gymkhana grounds.

Biox Club:

Biox club conducted a course on computational genomics as a part of technical summer school, arcano (quiz competition and club orientation), crime scene investigation, olympiad in Tech RnD Expo, bioengineering gc, and various

talks and sessions on biochemistry, biophysics and more. The club formed the iGEM Team, the first tech team at IIT Bombay in the field of Bioengineering.

Chemistry Club And ChemETL:

Chemistry Club and ChemETL conducted Heisenberg (Quiz Competition and Club Orientation), Technical Summer School, workshop on Omics to Health analysis, Reactorious, National Competition - AzeoCube 2024, participated in Chem E Car - AIChE International Competition, Alumni Tour - Batch of 1998 - Silver Jubilee Reunion.

Energy and Sustainability Club:

The Energy Club conducted the international Energy Symposium, Climate Clock Workshop, school seminars, Climate Emergency Day, WattWatchers War, 1000 days 1000 Hopes, Technical Summer School (TSS), Energize, a visit to Tarapur, Solar Lamp Making Workshop, EcoLoop GC.

Electronics and Robotics Club (ERC):

ERC conducted WiSE Workshop, ER101 - ITSP Bootcamp, Control Theory Bootcamp, ERC + XLR8 Orientation, XLR8, Showcase in Tech RnD Expo, A fROSty Winter, workshop for underprivileged students in collaboration with GnaanU Foundation, Hello Robot Workshop, PCB101 workshop, IoT workshop, No Way Home, Alumni Talk, Jhatka GC. The team also completed 6 projects under the ERC Project Season.

Maths and Physics (MnP) Club:

MnP conducted Summer of Science (SoS), Technical Summer School (QIC), Marathon, Simon Marais Mathematics Competition (SMMC), Bazinga (Physics), Bazinga (Maths), Sci-comp Blitz GC, Group Discussions, Rube Goldberg GC, Chai and Why?, Trip-Logic GC, Beyond 110, Sci-Fi Writing Competition.

Krittika-The Astronomy Club:

Krittika conducted KSP (Krittika Summer Projects), Learners' Space: Foundations of Astronomy and Astrophysics, Careers in astronomy, START Course, Chandrayaan Landing screening (August 2023) and Aditya-L1 Launch screening (September 2, 2023), Astromania, Astro Theory GC, ProAm Meet with Khagol Mandal and the IAU, K-CAP: Krittika - Computational Astronomy Projects, GnaanU Astronomy Outreach, Talk on Gravitational Wave Astronomy by **Prof. Archana Pai**, Talk on Exoplanets by **Dr Joe Ninan**, Talk on Powering Discovery in Stellar Physics using ML by **Dr Shravan Hanasoge**, Stargazing Sessions, TLS: Telescope Learning Sessions, Talk by **Abhinna**, Chai and Why?, Talk by **Prof. Eric Burns**, Talk by **Prof. Sanjit Mitra**.

Tinkerer's Laboratory (TL):

TL carried out various infrastructural changes and events including floorplan revamp, installing the water cooler, visit of school students, HP AI Hackathon, installed Project Display Cupboard, convener projects, Cozmo-Clench Zonals IITB, installed RFID machines from IOE Funds, Home Automation GC, built Laser Maze, GnaanU Workshop, Rube Goldberg GC, 1st TL's Stakeholders' Meet Launched SANDBOX 2.0, and various TL visits by alumni.

Web And Coding Club (WnCC):

WnCC conducted Technical Summer School (TSS) - Learner's Space 7th Edition, Web3 Workshop by Filecoin Foundation, CP101, Git-101, Algorithmic GC, Web Dev 101, Py-Torch workshop, Intro To Open Source Programming, Bootcamp on Large Language Models in collaboration with Pathway, Hello Foss 2023, Monthly Competitive Programming Calendar Report, Advanced Git and GitHub Workshop, JavaScript Hackathon, Placement Preparation Session for IT/Software, Backend 101 and more.



TECHFEST 2023

IIT Bombay Techfest, the largest science and technology festival in Asia, held the 6th edition of its flagship event, the Cyclothon, after a three-year break on November 5, 2023, in its campus, with a 15-kilometre track traversing scenic locations. This year's event theme was "Pedal for the Planet: Join the Sustainable Revolution".

Over 1800 cyclists from across Mumbai participated in the event, including school children and senior citizens aged 50 and above. The event was flagged off by **Dr. Viswanathan Iyer**, the Bicycle Mayor of Mumbai, appointed by BYCS, a nonprofit organization based in Amsterdam.



Chairman of Reliance Jio Mr. Akash Ambani



Participant at Aeromodelling Competition



International Full Throttle RC nitro buggy in racing competition at TechFest



Indian Army Bofors 40mm automatic Gun L/ 70 FWCS Rader at Defence Expo during TechFest

The flagship event of Techfest features International Robowars with 7.5k+ crowd and 1.3M+ prize money. Techfest conducted the 360-degree EDM concert for the first time ever in India headlined by artists Matisse and Sadko. A major attraction at Techfest are the International

Exhibitions with cutting edge technology. This year they showcased NSG, an elite section of the Indian Armed Special Forces. Along with this, they had exhibits from Switzerland, United States of America, Denmark etc.

During the 3-day fest, the team organized a series of lectures featuring prominent personalities such as Chairman of Reliance Jio Mr. Akash Ambani, ISRO Chairman S. Somnath, the three Chiefs of the Indian Armed Forces and a number of Nobel Laureates.



General Manoj Naravane greeting NCC Cadets during TechFest



(in centre L-R) General Manoj Naravane and Air Chief Marshal Rakesh Kumar Singh Bhadauria during defence symposium on December 28, 2023

Techfest also conducted a plethora of competitions with a prize money over 70 lakhs and 30k+ participants. These include International Drone Racing League, International Full Throttle, Boeing Aeromodelling, AlgoNinja, etc.



Auto expo at TechFest



International Full Throttle RC nitro buggy in racing competition at TechFest



E-CELL

The Entrepreneurship Cell IIT Bombay is among the forerunners in promoting entrepreneurship in the nation. It is Asia's largest non-profit student-run organization that aims at manifesting the latent entrepreneurial spirit among the youth of this country. Some of the initiatives of E-Cell, IIT Bombay include Eureka!, National Entrepreneurship Challenge, Eureka! Junior, E-Summit, among many more.

Eureka!

Being Asia's largest business model competition (accredited by CNN and Thomson Reuters), Eureka! prides itself on providing a 360-degree holistic experience in its five-months span. It holds the title of being the Premiere National Business Model Competition of India. This platform has everything from acknowledging students idea's potential to drafting a B-Model and pitching it to an esteemed panel of investors! E-Cell IIT Bombay initiated a collaboration with Gulf Islamic Investments LLC (GII) to form Eureka! GCC, a model of Eureka! that caters to startups from the GCC region. It is an International Business model competition with prizes and incentives worth more than INR 1.2 crore which has multiple tracks every year. The winners of Eureka! 2023 were Golden Feathers [Mudita and Radhesh Pvt.Ltd.] (Business), DocHome (Healthcare), Mynerva (Fintech), LISSUN (Pan IIT), Teplu Learning Pvt Ltd (Social), InfinityX Innovations Private Limited (Energy). All the winners and runner-ups of Eureka! 2023 were provided a cumulative funding of USD 1 Million by Enrisson Inc. (or Shiru Startup Cafe) with one of the startups securing USD 800K.

E-Summit

The Entrepreneurship Summit is an initiative by E-Cell, IIT Bombay to serve as a platform for bring-ing together budding entrepreneurs, venture capitalists, investors, startups, and other major contribu-tors to the entrepreneurial ecosystem. E-summit being the annual flagship event of E-Cell, accommo-dates both the beginner and the experienced, with events ranging from

lectures to workshops, compe-titions to panel discussions, hackathons to startup Expos. The major events during E-Summit include :

- **TTMM:** The Ten Minute Million provides early-stage startups an opportunity to get funding of Rs. 2.4 million in just 10 minutes. It has been organized successfully with 5 out of 7 startups funded with the highest bid of Rs. 2.86 crores
- **Networking Arena:** Networking Arena in E-Summit 2024 was a huge success, with pre-registrations of over 300 participants in each session, 60+ mentors and 45+ investors

Some other events include Seed Stars, a closed room funding event which consisted of renowned in-vestors like **Vikram Gupta, Rajesh Sehgal** and **Anuj Mehta**; Incubator Summit, an event to fast track the incubation ecosystem with incubators like iCreate, CIBA and SINE, IIT Bombay. The startup expo brings together a diverse range of startups, providing them with an opportunity to exhibit their products, services, and business models to a wider audience. Competitions, Internship and Job Fair, Hackathons, and Influencer Summit are other events conducted as a part of the E-Summit.

E-Cell is known for setting the trends. This year, E-cell conducted the Summit chapters in the megacities of Delhi, Mumbai, Pune, Hyderabad and Bengaluru. The key events that took place in these cities include Networking Arena (for startups) and competitions (for students).

EnB Club

The vision of the EnB Club is to establish a vibrant community of individuals within IIT Bombay who share a passion for entrepreneurship consisting of students, faculty members, and professionals, all coming together to engage in regular interactions that promote knowledge exchange, collaboration, and networking. The EnB club's ultimate goal is to inspire and ignite the entrepreneurial spirit within individuals, essentially "inoculating" them with the passion and drive to pursue entrepreneurial

endeavours. This was achieved through various events held during the year like, EnB Buzz, EnPro, Startup Lab, Meet-ups and Field Trips.

Eureka! Junior

Eureka! Junior provides the perfect platform for young inquisitive minds to solve normal problems in the most innovative and creative way possible. It is a Business Plan Competition that encourages school students of Classes 6th to 12th to bring out their creative ideas and develop an entrepreneurial mindset. The structure of this competition is ideated for the maximum learning of school students. It is a Skill Development Program followed by idea generation, mentorship and pitching. This year an offline bootcamp was also conducted specifically targeting the top 100 student startups of the initiative. An international olympiad (IEntO) is also conducted for school students which is a prestigious global competition that celebrates and promotes the spirit of entrepreneurship among young innovators.

National Entrepreneurship Challenge (NEC)

The National Entrepreneurship Challenge aims to help establish E-Cells all across the country, which in turn helps develop a startup ecosystem in our country. NEC consists of various tasks in the following categories, step-by-step execution of which can effectively lead to the establishment of an E-Cell in the colleges that participated. This year's NEC saw a participation of a whopping 1600 colleges from all across the country who completed the tasks with utmost passion and sincerity. The vision of NEC is further expanded to school students, by driving to create innovation cells in schools across the country.

Campus Executive Internship Program

Campus Executive is an initiative by E-Cell, to provide six-month long internship to students where a student (or two depending on the college) is selected from every college based on his/ her aptitude for entrepreneurship and business who actively interacts with E-Cell, IIT-Bombay.

MOOD INDIGO

Mood Indigo, IIT Bombay's annual cultural festival and Asia's largest college cultural festival, took place during December 18-21, 2023. Attracting a footfall of over 1,46,000 people from around 4000+ colleges across India, Mood Indigo entertained the visitors with an incredible array of artists, both national and international. The four-day fiesta centered around the theme of "A Rewired Reality" served the visitors with the best festive feelings.

The 53rd edition of Mood Indigo was the grandest ever and laid a strong base for the upcoming golden jubilee of the festival. Mood Indigo even conducted various Pre-MI events for the students of IIT Bombay. As a part of the Institute Night in OAT, Mood Indigo invited Arjun Kanugo, a national pop sensation.

The dates for Mood Indigo 2023 were announced in a spectacular fashion, with Bollywood stars **Tara Sutaria** and **Abhishek Banerjee** launching the dates during the Institute's nite. Events like Coordinator's All Team Meet featuring stars like **Radhika Madan**, **Angira Dhar** and **Deepak Dobriyal** were organized for the sophomores to introduce them to Mood Indigo.

Mood Indigo 2023 saw a conglomerate of over 230 events spanning across multiple genres. With the presence of over 250 national and international artists, IIT Bombay continued the legacy of providing the most assorted and entertaining experience to the crowd.

The 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.



Proshows

This year, Mood Indigo assembled an illustrious panel of celebrities for Eloquence. The lineup included the actor **Abhishek Bachchan**, the versatile **Pankaj Tripathi**, actor **Aditya Roy Kapur**, **Jitendra Kumar** and **Shriya Pilgaonkar**. Additionally, there was a dynamic panel featuring **Ananya Panday**, **Siddhant Chaturvedi** and **Adarsh Gourav**, which captivated the audience. To enrich the literary segment, India's bestselling author **Amish Tripathi** conducted a session on his book "Idol". Adding a touch of slam poetry to the event, **Helly Shah**, **Jidnya Sujata**, and **Ruchika Lohiya** enthralled the youth with their performances.



Stand-up session by Akash Gupta at Humour Fest during Mood Indigo

Stand-up sensations, the much renowned **Akash Gupta**, **Rahul Dua** and IIT Bombay alum **Vipul Goyal** were the major highlights of our Humorfest, treating the crowd with their insane performance along with **Varun Grover**, the versatile writer throwing light on JEE Journey through his new film All India Rank. Further, the evergreen YouTube sensations and a part of the renowned YouTube channel TVF **Barkha Singh**, **Ritvik Sahore**, **Ayush Mehra**, **Rohan Shah**, **Ahsaas Channa**, **Abhinav Anand**, **Revathi Pillai** also graced the HumorFest. **Nikhil Taneja** moderated an insightful panel on Positive Masculinity in conversation with renowned actors **Amol Parashar** and **Nakul Mehta**. The International Music Festival had a crowd relishing the performances from international artists and bands like Ousel, Paddy Hanna, Melisa Otero, and FAENIHAELVETTE, Increasing the magnificence of IMF by adding an Indian touch to it, we had Indian youth sensations like Rahgir, Kabir Cafe and Tapi Project amaze the crowd with their brilliant performances. In addition to this, Mood Indigo saw performances from artists belonging to various cultures from Spain, France, Jerusalem, Puerto Rico, Norway, Italy, Denmark, England, Ireland, Taiwan, Brazil, Australia, and Mexico. Increasing the takeback value for the crowd, we included 50+ Interactive and DIY workshops ranging from Book writing and parkouring to Mural Arts, Tango etc to make the festival more memorable.



Actor Abhishek Bachchan at Eloquence

Pronites

The concerts at Mood Indigo have always been known for the perfect blend of unique, up and coming talent and the most renowned names in the industry. Living upto the legacy of International acts, Pink Sweat\$ the American R&B singer, attracted huge crowds from all parts of India to watch the band live with an opening performance by Dream Note.



Pink Sweat\$ the American R&B singer performing for the first time in India at Mood Indigo International Nite

ElectroFunk Nite has always been known to deliver infectious and energetic EDM and 2023 was no different. The OG Jay Sean, with multiple songs achieving significant chart positions across various charts including the Hot 100, Hot R&B/ Hip-Hop songs headlined the night. The legendary **Mohit Chauhan** headlined the Euphonic nite with an opening performance given by one of the most popular indie music bands in India, Pineapple Express. Popular Nite saw a full house crowd to witness the praiseworthy singer duo, a man who has defined the 2000s of Bollywood and etched their songs to our hearts forever - **Salim Sulaiman** along with their band which was opened by the OG indie rock band - Anand Bhaskar Collective to add energy to the night. For the first time post-COVID at Mood Indigo, a heavy stage production was used along with 3D Interactive visuals which made the concerts more engaging and interactive for the crowd.

Competitions

A wide variety of 60+ competitions spread across 9+ genres were organised during Mood Indigo 2023. Known to attract the best student talent from across the country. Mood Indigo saw competitions in the field of dramatics, dance, film and photography, music, debating and creative writing, and informal events with a quirky twist.

To end the competitions, the grandest dance competition 'Choreonite' saw thousands of people lining up to get entry into the Convocation Hall to watch some of the best dancing groups in the country in live action. The relentless energy at the jam-packed convocation hall radiated throughout the venue. To add a cultural flavour to the festival, various competitions in the classical and folk art genre were also introduced which were highly appreciated by the judges as well as the participants. Best of Competitions, previously known as Aaveg, is one of the two major flagship events of Competitions. All the finalists of the prime events like Desi Beat, Beat the Street, Chosen-One, Humor-Us, MI Idol, Conchord etc got to perform in front of personalities like **Manoj Muntashir Shukla**. Mood Indigo has always been a trend-creator and a trendsetter. Going forward with this trend, a new competition, Mood Court, MI's version of Moot Court, was launched in the 53rd edition of Mood Indigo.

Catering to a niche audience. Over 50 bands performed in Mantra, the Hindi band competition, for an audience of over 8000. It gave the 'MANTRA' of life to talented budding musicians across the coun-try.

Vogue is Mood Indigo's annual flagship fashion competition. An extravaganza where students participate as designers, models, photographers, and choreographers to compete in the best-ever college fashion show! It saw participation from colleges throughout India and more.

Mood Indigo also sets a stage for its participants to explore and pursue their interests going

forward. The LYP or Live Your Passion program is a perfect step in this direction. The level of LYPs has elevated over the years with the present edition witnessing some very big names like The Kings, Anupam Kher's Actor Prepares, Jaipur International Film Festival and many more. Multicity is an initiative of the Competitions department wherein elimination rounds are conducted in different cities of India. This year witnessed elimination of over 10+ major cities of India, from Delhi, Pune, Bangalore, Mumbai and Nagpur to Chandigarh, Indore, Allahabad and Bhopal. The level of multicity eliminations has scaled up year after year with this year witnessing the inclusion of more competitions.

Hip Hop Fest:

Hip-Hop Fest one of Mood Indigo's plethora of events, hosted for the second time, included performers from one of the most popular TV shows, called MTV Hustle. It was a complete and exhaustive pack of all events that can come under the hip-hop genre, from beatboxing to rap to street dance competitions.



Neazy at Hip Hop Fest

Media and Publicity:

A great deal of media houses, online and offline partners helped in carrying out the publicity of the festival. We had an extensive coverage deal from our partners for the publicity of the festival on all platforms including TV, Facebook, Twitter and Instagram. Mood Indigo collaborated with PVR and Cinapolis Cinemas in order to publicize Mood Indigo in each and every cinema in Mumbai via play-ing Ads on every screen. Our associations with local newspapers and magazines helped us penetrate into regions where Mood Indigo wasn't present before. In order to reach out to colleges in Mumbai, a College Publicity Drive along with a Contingent Leader Meet was conducted to engage with the crowd first-hand and achieve better information flow.

MoodIndigo collaborated with ShotsbyInsideme to create a documentary based on how Asia's largest college cultural festival comes to life which is set to be released on OTT platforms soon.

Innovations and Breakthroughs:

The Gymkhana Revamp - This edition of Mood Indigo changed the way Mood Indigo used to conduct concerts by re-assuming the space we used to use for the concerts since 2015. This increased our concert's crowd capacity. Mood Indigo 2023 hosted the biggest and the most diverse lineup along with hosting the most number of people in Gymkhana concerts over the years.

NEONS OOH Awards 2024 is the oldest and most prestigious honor for creative excellence in out-of-home advertising design & innovation. Mood Indigo excelled by winning two gold, one silver, and two bronze awards for AR graffiti and art therapy projection during NEONS OOH Awards 2024, conducted at Taj hotel.



At the award ceremony for India's largest AR Graffiti campaign and Art Therapy

Mood Indigo visited Neeta Mukesh Ambani Cultural Center (NMACC), a state of the art performing arts and multi-disciplinary cultural and exhibition space and interacted with their creative director.

YOGASTHA

Yogastha, the wellness initiative at IIT Bombay, has actively organized and executed a plethora of events aimed at promoting physical, mental, and emotional well-being among the student community. Team Yogastha conducts one-hour morning yoga sessions (6:30 AM - 7:30 AM) thrice a week. The sessions were led by core team member Sarika Ji, these sessions offered participants an opportunity to improve flexibility, reduce stress, and enhance overall well-being. The positive feedback from students underscores these sessions' effectiveness in fostering physical and mental wellness.

Team Yogastha conducted the following camps and workshops, showcasing the diverse range of activities during 2023-24:

Yoga Camp:

The 5-day Yoga Camp organized by Yogastha during April 5-9, 2023. The camp provided participants with a comprehensive immersion into various yoga practices, including meditation, asanas, and yogic detox techniques. With esteemed speakers Dr. Vikas Chothe and Dr.

Shwetambari Chothe, the camp offered valuable insights into the Ayurvedic lifestyle and yoga for women, contributing to a deeper understanding of holistic wellness practices.

i-Meditate Workshop:

The "i-meditate" workshop was a two-month-long workshop organized started on April 12, 2023. The workshop focused on stress management and physical fitness through yoga and meditation. By incorporating these practices into the academic routine, participants were equipped with tools to manage stress and enhance overall health and well-being.

Nutrition Talk on Weight Management:

The nutrition talk conducted on May 20, 2023 by Ms. Gazal Shaikh offered participants valuable insights into effective weight management strategies through proper nutrition. With Ms. Shaikh's expertise, participants gained a deeper understanding of nutrition principles for maintaining a healthy weight.

Stress Management Workshop:

The stress management workshop organized on May 28, 2023, focusing on Indian Classical Dance, Music, and Sahaj Yoga Meditation, provided participants with unique techniques for stress relief. Led by Geetika Tiwari and Dheeraj Khurana, this workshop showcased the therapeutic benefits of expressive arts and meditation.

Acu Yog for Healing and Health:

Yogastha introduced Acu Yog on June 12, 2023, an innovative approach combining acupuncture and yoga principles for holistic healing. Led by Sir Shrikant, this practice aimed at addressing physical, mental, and emotional imbalances for enhanced well-being.

Workshop on How Postures Affect Emotions:

The Yogastha team organized a workshop on 'How Postures Affect Emotions' on August 19, 2023. The workshop delved into the



profound connection between body postures and emotional states, offering participants transformative insights. Led by Shubham Giri and guided by Birjoo Mehta, this event provided a unique blend of expertise in yoga and emotional well-being.

Hatha Yoga Workshop:

Dr. Kush Panchal conducted the Hatha Yoga Workshop on August 31, 2023. It offered participants a journey of self-discovery through various yoga techniques. With Dr. Panchal's innovative approach, attendees embraced Hatha Yoga for physical and mental rejuvenation.

Talk on "Lifestyle Engineering":

The Yogastha team organised a talk session on 'Lifestyle Engineering' by Mr. Niranjana Pendharkar on September 28, 2023. The session provided attendees with practical tools for personal growth and well-being. Pendharkar's insights into lifestyle engineering resonated with participants, offering valuable guidance for integrating spirituality into daily life.

Meditation Workshop:

The Meditation workshop organised on October 7, 2023 was led by Dr. Nita Kamat, the workshop focused on the meaning and effects of meditation on the mind and body. With live meditation sessions, participants experienced firsthand the transformative power of meditation for stress reduction and overall well-being.

Nritya Yogasutra Workshop:

Dr. Sangeeta Pethkar conducted a workshop on Nritya Yogasutra during October 28-29, 2023. The workshop offered a unique fusion of dance and yoga for stress management and physical health. Participants experienced a holistic approach to wellness through Indian classical dance and yoga techniques.

Pranayama Workshop:

The Yogastha team organised a workshop on 'Pranayama' on January 19, 2024. The workshop introduced participants to the

practice of Pranayama and its benefits. With a live demonstration, attendees gained practical insights into incorporating Pranayama into their daily routine for optimal health.

"Breakthrough with Sri Krishnaji" Workshop:

The workshop organised on February 11, 2024 provided practical tools for personal growth and well-being, guided by Sri Krishnaji. Participants actively engaged in discussions on stress management and life's purpose, gaining valuable insights for navigating life's challenges.

Meditative Workshop:

The meditative workshop was conducted on February 18, 2024, aimed at enhancing concentration and reducing anxiety was well-received by participants. Led by Anika, the workshop provided practical tools for managing exam stress and fostering inner peace.

5-Day Yoga Camp:

The 5-day Yoga Camp organised in collaboration with Shri Ambika Yoga Kutir during March 11-15, 2024, offered participants a transformative journey of self-discovery through various yoga practices. Led by trained professionals, the camp promoted mental, physical, and spiritual well-being.

Talk Session on Yoga Research:

The talk session on Yoga Research by Sat Bir Singh Khalsa on March 20, 2024, provided attendees with insights into ongoing research on yoga and its applications in multidisciplinary fields. Khalsa's expertise in yoga research highlighted the significance of interdisciplinary approaches for harnessing yoga's benefits.

Yoga and Wellness Series:

Shri Narayana Ji's series of events on Siddha Samadhi Yoga and Decoding Disease and Health was organised during March 30-31, 2024 provided the attendees valuable insights into yoga and wellness. Participants gained practical knowledge for maintaining vibrant health and well-being.

The following activities and sessions were conducted as part of International Day of Yoga (IDY) 2023:

Pranayama Workshop:

As part of the International Day of Yoga series, Yogastha organized a Pranayama Workshop on May 6, 2023. Led by Revati Rajesh Vaidya, the workshop provided participants with valuable insights into different pranayama techniques and their daily incorporation for optimal health.

Sahaj Yoga Meditation:

In celebration of the International Day of Yoga, Yogastha organized a Sahaj Yoga Meditation session on June 3, 2023. The session was led by Dheeraj Khurana. With over 23 years of experience, Khurana facilitated a transformative meditation experience aimed at harnessing inner spiritual strength.

IDY 2023 Practice Sessions:

Yogastha conducted various practice sessions in preparation for the International Day of Yoga 2023 during June 6-19, 2023, including Yogathon, Common Yoga Protocol, and various competitions (2 min Yoga Challenge, Best yoga pose competition, Slogan Competition, Poster-Making Competition, Online Quiz). These sessions aimed at promoting active participation and spreading awareness about the benefits of yoga.

IDY 2023 Celebrations:

The IIT Bombay Yogastha team celebrated International Day of Yoga 2023 on June 21, 2023 with great enthusiasm, featuring Common Yoga Protocol sessions, Yogathon (108 Surya Namaskar), and various competitions. These events attracted a diverse audience and showcased the popularity of yoga as a holistic health system.

CULTURAL COUNCIL

Cultural Convener Selection:

Registrations were invited via webmail and social media channels from April 16, 2023 onwards.



Participants performing during International Yoga Day 2023

Every cultural club took 30-days for groundwork, give assignments, and conduct interviews to find the set of freshers that best represent the skills, interests, and zeal for their cultural activity. This year, 374 freshers applied for the selection and 82 were selected.

Mumbai Mela:

Inspired by student's love of Mumbai, the cultural council organised a refreshing event during June 3-4, 2023 to make the summers easier for UG freshers on campus. This event consisted of a treasure hunt, along with informal stalls, board games, karaoke night, and a movie screening.

Rukhsat:

'Rukhsat' was a remarkable farewell event organized by all cultural clubs of IIT Bombay to bid farewell to their graduating students. The primary objective of the event was to pass on the seniors' experiences to the freshers and sophomores, fostering a sense of camaraderie and imparting valuable advice.

Summer School Of Cult:

Summer School of Cult is a learning opportunity for the students, staff, and residents of IIT Bombay. Classes across multiple genres dramatics, film, literary arts, music, photography, design, fashion, and speaking arts - were conducted during the summer vacation. The organisers received a total of 335 registrations for the event.

Institute Cultural Summer Projects:

The Institute Cultural Summer Projects were





introduced this year to provide semi-professional grade cultural projects to the students. The projects were conducted in tandem with professors, art professionals, and experienced students to focus on the overall development of amateurs within the institute.

Mental Health:

The Institute Cultural Council has taken following two projects in collaboration with the Student Wellness Centre of IIT Bombay:

- **Shattering Stigma:** Fourthwall gathered a team of writers to make and perform a street play dedicated to raising mental health awareness within the institute.
- **Art Therapy:** Symphony proposed a movement and music therapy workshop in the first week of September as a pilot run for the programme.

Inter-IIT Cultural Meet:

This is the annual gathering where students from different IITs come together to showcase their talents in various cultural activities. This year the cultural meet was hosted by IIT Kharagpur during December 26-29, 2023. IIT Bombay participated with a contingent of 250 students and achieved overall 2nd position.

Performing Arts Festival:

The Performing Arts Festival (PAF) is the largest inter-hostel cultural competition. The term PAF refers to both the festival and the individual performances within it. Undergraduate and graduate students collaborate to organize and prepare for the event. This year 2 PAFs were organized namely 'Raahovan' on March 31, 2024 and 'Thorns of the White Rose' on April 7, 2024.

Events Organised by Cultural Clubs:

Annual Stand-Up Showcase:

The 'Annual Start-Up Showcase' was organised on March 14, 2024. It showcased the best comedic performances of the year while introducing forms like sketch and musical comedy, along with a special guest from outside the institute.

The final showcase was held in the Convocation Hall achieving a footfall of more than 1,400.

Surbahaar:

A grand showcase for the musicians in the community to collaborate with fellow musicians in the Institute was organised on March 17, 2024. 13 bands were formed considering the musical interests of the performers. The final showcase was held in the Convocation Hall achieving a footfall of more than 1,000.

Literarium:

The annual Literary Arts Festival of IIT Bombay 'Literarium' was organised on March 16, 2024. It attracted over 2,000 attendees. Literarium transformed the SoM Foyer into a vibrant hub of literary and carnival activities. The foyer featured various stalls offering games such as Duet or Duel, Scrabble Shootout, and Ring Toss.

Vision Showcase:

A 3-day exhibition held during March 19-21, 2024, was set up in the convocation foyer. The event showcased 10 projects and three offline installations made by the students from scratch. Merch including stickers, badges, and t-shirts were created.

Izhaar:

This 3-day event consisted of a poetry competition open for all institute students, a showcase by renowned poets (Kavi Sammelan), and a panel discussion (Rubaru) with famous artists.

Annual InSync Dance Showcase:

The Annual InSync Dance Showcase was held on February 1, 2024 for the dancers in the community to collaborate with fellow choreographers in the Institute. 11 performances were formed considering the interests of the performers.

Short Film Showcase:

The 'Short Film' showcase was organized on March 14, 2024 as a showcase of our vibrant filmmaking community on campus. It showcased

filmmaking projects undertaken by the club community, both inside and outside the club.

Showstopper:

A culmination of rampwalk, modelling, choreography and costume designing was held on January 28, 2024. This event celebrates all the students interested in fashion and provides them with a platform to showcase their talents.

Virasat:

Hosted at IIT Bombay campus during September 30 - October 1, 2023, Virasat highlighted the artistry of Nrityya and Abhinaya, featuring the grace of classical and folk performances. From mesmerizing flute solos to enchanting Kathak dances, the event captivated an audience exceeding 600 enthusiastic attendees.

Kaladarshan:

A two-day event of creativity held during March 12-13, 2024 started with a road painting event open to all institute members, encouraging artistic expression. Over 2000 participants joined in. The event concluded with an exhibition in the Convocation Foyer, showcasing submissions and thematic décor.

Annprod:

A showcase of student-written plays selected through auditions and writer meetings was presented at the Institute’s PC Saxena auditorium over two days during January 31-31, 2024. Featuring mime, monologues, and theatrical acts, the event attracts over 1000 attendees, highlighting elegance and professionalism in theater.

Dharohar:

Dharohar celebrates classical and folk arts. With diverse dance styles from across India and melodious vocal performances, the event had an audience of over 500 attendees with echoes of enchanting epics and youthful talent.

TheatreFest:

An annual flagship event held during November

3-4, 2023 in the Institute’s Convocation Hall, showcasing famous Indian plays to an audience of over 1500. Featuring authentic and moving theatrical performances, the event emphasizes the true value of theater to the institute audience through impactful messages.

Dandiya Night:

A traditional Navaratri celebration with open dandiya grounds for institute students was organised on October 20, 2023. Starting with rituals and pooja, the event featured professional dandiya in the authentically decorated OAT, captivating over 1000 participants with garba festivities into the night.

PG CULT:

Phase 1 - 8th October 2023:

Post-graduating students competed with sportsman spirit across various genres, giving their best in each cultural performance and vying for trophies in front of judges.

Phase 2 - 11th February 2024:

Auditioning across various genres including stand-up, fashion, music, and folk, the Convocation Hall showcased the best talents of post-graduating students to an audience of 1300+.

Informals 1 - 27th August 2023:

Set in Old Sac, this event featured solo competitions with over 200 registrations across genres, celebrating the diversity of talent and the vibrancy of culture together.



Common Yoga Protocol (CYP) 2023

INTERNATIONAL RELATIONS

During the period from April 1, 2023, to March 30, 2024, IIT Bombay experienced a good influx of international inbound students, greatly contributing to the internationalization efforts of the Institute. A total of 36 undergraduate and postgraduate students from over 18 universities participated in semester exchange programs, enriching cultural and academic exchange initiatives during both the spring and autumn semesters. Additionally, 14 students joined the Institute for internships from several universities. These international students and interns predominantly represent European and

Asian countries, thus significantly enhancing IIT Bombay's global connections. Regarding full-time degree-seeking International students, IIT Bombay welcomed 28 master's and 13 PhD students under various funding schemes from over 11 countries. There are 102 international students onroll engaged in doctoral programs, semester exchanges, and research internships, contributing actively to the Institute's research endeavors and academic discourse. The table below presents details of the influx of international students during the autumn and spring semesters:

Table: International Student Influx for Autumn and Spring Semester

Autumn Semester:

Country	Home University	No of Students	Host Department
Australia	Monash University	1	Department of Energy Science and Engineering
China	BFSU	4	Department of Humanities and Social Sciences
Czech Republic	Czech Technical University	2	Department of Biosciences and Bioengineering
Denmark	DTU	4	Department of Mathematics, Department of Computer Science and Engineering, Department of Energy Science and Engineering
France	University of Strasbourg	4	Department of Computer Science and Engineering
	University of Applied Science		Department of Chemical Engineering
	INSA Lyon		Centre for Urban Science Engineering (C-USE)
	IMT Norde Europe		Department of Mechanical Engineering
Germany	TUM	2	Department of Mechanical Engineering, Department of Biosciences and Bioengineering
Germany	TU Darmstadt	1	Department of Energy Science and Engineering
Israel	Holon Institute of Technology	1	IDC School of Design
Italy	Politecnico di Milano	1	Department of Civil Engineering

Spring Semester:

Country	Home University	No of Students	Host Department
Argentina	Instituto Tecnológico de Buenos Aires	1	Department of Computer Science and Engineering
Bangladesh	Daffodil International University	1	Department of Computer Science and Engineering
France	IMT Nord Europe	1	Department of Energy Science and Engineering
France	IMT Atlantique	2	Department of Energy Science and Engineering
Germany	TUM	2	Department of Mechanical Engineering
Italy	Politecnico Di Milano	1	Department of Mechanical Engineering
Switzerland	ETH Zurich	3	Department of Physics, Environmental Science and Engineering Department, Department of Biosciences and Bioengineering
Switzerland	University of Geneva	1	Department of Humanities and Social Sciences
Taiwan	National Tsing Hua University	1	Department of Computer Science and Engineering
Turkey	Bogazici University	3	Department of Computer Science and Engineering, Department of Electrical Engineering, Department of Industrial Engineering and Operations Research

Research Interns:

Overall 14 research interns from various countries including Australia, Germany, Ghana, Japan, Sweden, Turkey and USA joined various departments of IIT Bombay.

International Degree Students:

During 2023-24, overall 27 international students from Bangladesh, Fiji, Guyana, Myanmar, Nepal, Sudan and the USA joined MTech programme; 13 students from Nepal, Sudan, USA, Bangladesh, Nigeria, Ethiopia, Jordan and Sudan joined PhD programme, and one student from Taiwan joined MBA programme at IIT Bombay.

During the year, IIT Bombay signed 76 MoUs with various foreign universities and met governmental and ministerial delegations from countries across the globe to explore areas of collaboration and cooperation.





Memorandum of Understanding with Foreign Universities signed through Dean IR office during April 2023 – March 2024:

- University of Queensland, Australia
- University of Newcastle, Australia
- Royal University of Bhutan, Bhutan
- University of Montreal, Canada
- University of Victoria, Canada
- University of Saskatchewan, Canada
- Concordia University, Canada
- Aalto University, Finland
- University of Strasbourg, France
- École nationale supérieure des Arts Décoratifs, France
- ENS-PARIS-SACLAY, France
- University of Stuttgart, Germany
- RWTH Aachen, Germany
- Leibniz University of Hannover, Germany
- City University, Hongkong
- Universitas Negeri Malang (UM), Indonesia
- The Ministry of Communications and Informatics, Indonesia
- Amirkabir University of Technology Tehran, Iran
- Hebrew University of Jerusalem, Israel
- Holon Institute of Technology, Israel
- Politecnico de Milano, Italy
- University of Bologna, Italy
- University of Tsukuba, Japan
- Hokkaido University, Japan
- Kobe University, Japan
- Kyoto Seika University, Japan
- Kyushu University, Japan
- Kyutech, Japan
- The Graduate School of Science, Osaka University, Japan
- L.N. Gumilyov Eurasian National University, Kazakhstan
- Abai Kazakh National Pedagogical University, Kazakhstan
- Alikhan Bokeikhan University, Kazakhstan
- East Kazakhstan Technical University, Kazakhstan
- Woosong University, Korea
- Korea Institute of Science and Technology, Korea
- Yonsei University, Korea
- University of Balamand, Lebanon
- Tribhuvan University, Nepal
- Institute of Engineering, Nepal
- Delft University of Technology, Netherlands
- University of Auckland, New Zealand
- University of Agdar, Norway
- Dhofar University, Salalah, Oman
- Cracow University of Technology, Poland
- Skolkovo Institute of Science & Technology, Russia
- Peter the Great St. Petersburg Polytechnic University, Russia
- Saint-Petersburg State University, Russia
- University of Moratuwa, Srilanka
- ETH Zurich, Switzerland
- National Cheng Kung University, Taiwan
- National Taiwan University, Taiwan
- Southern Taiwan University of Science & Technology, Taiwan
- Tunghai University, Taiwan
- Prince of Songkla University, Thailand
- Newcastle University Upontyne, UK
- Loughborough University, UK
- Nottingham Trent University, UK
- The University of Sheffield, UK
- The University of Sheffield, UK (Staff exchange)
- University of Birmingham, UK
- University of Edinburgh, UK
- Boston College, Massachusetts, USA
- College of Engineering, University of Miami, USA
- Chicago Quantum Exchange, USA
- Colorado School of Mines, USA
- North Carolina State University, USA
- North Eastern University, USA
- Northwestern University, USA
- Ohio State University, USA
- Rensselaer Polytechnique, USA
- Rice University, USA
- University of California, San Diego, USA
- University of Chicago, USA
- University of North Texas, USA
- Samarkand State University, Uzbekistan
- Uzbek-Finnish Pedagogical Institute, Samarkand, Uzbekistan

Visits/ Meetings of International Delegations:

IIT Bombay also received a large number of international delegations for exploring areas of collaboration and cooperation. The major ones are as follows:

- **Visit by the Ministry of Oman:** A delegation led by H.E. Prof. Rahma Al-Mahrooqi, the Minister of Higher Education, Research and Innovation, Oman, and accompanied by Mr. Yahya Salam AlManthari, DG of Financial and Administrative Affairs, and Mr. Ahmed Alqutaiti, Acting Director of International Cooperation Department visited IIT Bombay on July 4, 2023
- **Visit by the Ministry of Spain:** A delegation led by H.E. Ms. Ester Capella, Minister of Territory and Mobility of the Government of Catalonia, Spain. The minister was accompanied by Mr. Marc Sanglas, Secretary of Mobility and Infrastructure, and Mr. Eric Gomez, Head of the Cabinet of the Ministry of Territory. The objective of this visit was to strengthen the relationship of Catalonia, Spain with India in the Smart Mobility and Innovation segments and to interact with innovators and faculty members at IIT Bombay and understand the work being undertaken towards Smart mobility, traffic management, and other related aspects of the vertical visited IIT Bombay on October 16, 2023
- **Visit by Montgomery County, Maryland, USA:** A delegation led by Mr. Marc Elrich, County Executive of Montgomery County, Maryland. The delegation was composed of entrepreneurs, investors, academic and industry leaders, and other County officials who visited IIT Bombay on November 2, 2023
- **Visit by the Ministry of Indonesia:** A delegation from the Ministry of Communication and Information Technology (KOMINFO), Indonesia led by Mr. Hary Budiarto, Head of Human Resources Development on Communications and Informatics Agency, accompanied by Mr. Edy Wardoyo, Consul General of the Consulate General of the Republic of Indonesia in Mumbai visited IIT Bombay on November 29, 2023
- **Visit by NASA Delegation:** A 16-member delegation led by NASA Administrator Bill Nelson and the US Principal Deputy Assistant Secretary Elizabeth Horst visited IIT Bombay on December 1, 2023
- **Visit by Alderman Professor Michael Mainelli:** Lord Mayor of the City of London: Alderman Professor Michael Mainelli FCCA FCSI(Hon) FBCS, Lord Mayor of the City of London 2023-24 visited IIT Bombay on February 15, 2024
- **Visit by the Association of American Universities:** A senior delegation from the Association of American Universities (AAU) led by Prof. Barbara Snyder, President of AAU visited IIT Bombay on February 23, 2024
- **UK Universities:** A 14-member delegation comprising of senior education leaders Vice-Chancellor, Pro-Vice Chancellors, and Deans of Faculty from top UK universities visited IIT Bombay on September 22, 2023
- **Russian House in Mumbai:** A senior delegation consisting of 21 members from St. Petersburg, Russia led by Mr. Vladimir Knyagin, Vice-Governor and delegates from the Russian House in Mumbai visited IIT Bombay on September 27, 2023
- **Universities in the Nordic region:** A delegation of members from 14 renowned universities of the Nordic region visited IIT Bombay on November 22, 2023. The delegation was accompanied by the Embassy



In addition to the above visits, interactions with the following universities were held online:

Name of the country	Name of the universities/ organizations/ agencies	Name of the country	Name of the universities/ organizations/ agencies
United States of America	<ul style="list-style-type: none"> Case Western Research University Cornell University Dartmouth College Georgia Institute of Technology Michigan State University Northeastern University Pennsylvania State University Purdue University Rice University The University of Chicago University of Buffalo University of Denver University of Houston University of Illinois Urbana-Champaign University of Minnesota University of Notre Dame US Consulate General in Mumbai US Embassy in India Washington University in St. Louis 	<ul style="list-style-type: none"> Consulate General of the People's Republic of China in Mumbai Embassy of the People's Republic of China in India University of Shanghai for Science and Technology 	
	<ul style="list-style-type: none"> Moscow Aviation Institute (National Research University) Perm State University Skolkovo Institute of Science and Technology 		<ul style="list-style-type: none"> Embassy of the Republic of Uzbekistan in India Tashkent University of Information Technologies Urganch Branch of Tashkent University of Information Technologies
	<ul style="list-style-type: none"> National University of La Matanza University of San Martin 		<ul style="list-style-type: none"> Technical University Braunschweig Technical University Darmstadt
	<ul style="list-style-type: none"> Imperial College London Nottingham Trent University University College London University of Birmingham University of Cambridge University of Exeter University of Sheffield University of Sussex 		<ul style="list-style-type: none"> Alikhan Bokeikhan University Astana IT University
	<ul style="list-style-type: none"> Edith Cowan University Griffith University University of Newcastle University of New South Wales University of Sydney 		<ul style="list-style-type: none"> Consulate-General of the Kingdom of the Netherlands in Mumbai Delft University of Technology
	<ul style="list-style-type: none"> Dhofar University National University of Science and Technology 		<ul style="list-style-type: none"> Nanyang Technological University National University of Singapore
	<ul style="list-style-type: none"> Centrale Lille Institute Consulate General of France in Mumbai Fédération Gay Lussac Université Toulouse Capitole 		<ul style="list-style-type: none"> Azerbaijan State University of Economics
	<ul style="list-style-type: none"> Bahrain Institute of Banking and Finance 		<ul style="list-style-type: none"> University of Alberta
	<ul style="list-style-type: none"> National Institute of Informatics Tohoku University University of Tsukuba Waseda University 		<ul style="list-style-type: none"> Consulate General of Finland in Mumbai
	<ul style="list-style-type: none"> Consulate General of Brazil in Mumbai Fundação Getulio Vargas Link Business School 		<ul style="list-style-type: none"> State University of Malang
	<ul style="list-style-type: none"> University of Stavanger Western Norway University of Applied Sciences University of South Eastern Norway 		<ul style="list-style-type: none"> Iran Israel Mexico Nepal
	<ul style="list-style-type: none"> Sharif University of Technology 		<ul style="list-style-type: none"> The Hebrew University of Jerusalem
	<ul style="list-style-type: none"> Consulate General of Mexico in Mumbai 		<ul style="list-style-type: none"> Tribhuvan University

Name of the country	Name of the universities/ organizations/ agencies
Saudi Arabia	• Imam Abdulrahman Bin Faisal University
Spain	• Bilbao School of Engineering
South Africa	• University of Cape Town
South Korea	• Woosong University
Taiwan	• National Tsing Hua University
Thailand	• Prince of Songkla University
Turkey	• The Scientific and Technological Research Council of Turkiye (TUBITAK)

of Sweden in India and the Nordic Centre in India

- **University of Taiwan:** A delegation led by Prof. W. John Kao, President of National Tsing Hua University and several other universities of Taiwan visited IIT Bombay on November 28, 2023

Faculty Research Workshops:

- **Technical University of Denmark (DTU):** IIT Bombay has been actively collaborating with DTU in terms of student exchange, faculty connection, and regular leadership meetings. A faculty research workshop between the professors of IIT Bombay and DTU was held on August 14, 2023 at IIT Bombay. From IIT Bombay, this workshop was led by Prof. Subhankar Karmakar, Head of the Environmental Science and Engineering Department (ESED), and Prof. Subimal Ghosh, Convener of the Interdisciplinary Program in Climate Studies (IDPCS), and the professors of ESED and IDPCS had research interactions with the visiting DTU professors. To further strengthen the partnership with DTU, more areas for collaboration were explored with a faculty research workshop at DTU on November 16-17, 2023. The IIT Bombay delegation led by

Prof. Sagar Mitra and the faculty members from the Department of Energy Science and Engineering – Prof. Zakir Rather, Prof. Prakash Ghosh, and the Department of Mechanical Engineering – Prof. Sandip Saha, Prof. Rajneesh Bhardwaj participated. To find synergies, the IIT Bombay and DTU professors discussed their ongoing research in the areas of batteries, electrolysis and fuel cells, thermal energy storage, and wind energy.

- **Australia – India Workshop:** A 14-member delegation comprising researchers from six universities of Australia, the Commonwealth Scientific and Industrial Research Organization (CSIRO), and the Australian Government - Department of Climate Change, Energy, the Environment and Water visited IIT Bombay on November 23, 2023 to explore potential collaborations with professors working in the area of Green Hydrogen. From IIT Bombay, this workshop was led by Prof. Pratibha Sharma, Department of Energy Science and Engineering, and the Australian delegation was led by Prof. Suresh Bhargava, Distinguished Professor, Royal Melbourne Institute of Technology
- **Nottingham Trent University (NTU), UK:** A faculty research workshop was scheduled at NTU on November 29, 2023 wherein IIT Bombay and NTU professors explored collaborations in the areas of grid integration, electric vehicles, data science for energy, battery storage and recycling, green and sustainable fuels. The IIT Bombay delegation was led by the former Head of the Department of Energy Science and Engineering (DESE) Prof. Suneet Singh, Prof. Anish Modi, Prof. Venkatasailanathan Ramadesigan, Prof. Sandeep Kumar and Prof. Arnab Dutta, Department of Chemistry
- **University of Sheffield (UoS), UK:** As an



offshoot of the constant connection with the UoS, a faculty research workshop was scheduled at UoS on December 1, 2023 wherein both side professors explored collaborations in the areas of circular economy, batteries, thermal energy storage and systems, as well as green hydrogen. Prof. Anish Modi, Prof. Venkatasailanathan Ramadesigan, Prof. Sandeep Kumar from the Department of Energy Science and Engineering (DESE), and Prof. Arnab Dutta from Department of Chemistry participated. Prof. Suneet Singh, former Head of DESE, headed this IIT Bombay delegation

- **Skolkovo Institute of Science and Technology, Russia:** As an offshoot of the constant connection with the UoS a faculty research workshop was scheduled at UoS on December 1, 2023 wherein both side professors explored collaborations in the areas of circular economy, batteries, thermal energy storage and systems, as well as green hydrogen. Prof. Anish Modi, Prof. Venkatasailanathan Ramadesigan, Prof. Sandeep Kumar from Department of Energy Science and Engineering (DESE), and Prof. Arnab Dutta from the Department of Chemistry participated. Prof. Suneet Singh, former Head DESE, headed this IIT Bombay delegation
- **National University of Singapore (NUS):** The workshop on Materials Technologies with the National University of Singapore was organized on February 26-27, 2024 at IIT Bombay. This workshop was anchored by Prof. Rajiv Dusane, Department of Metallurgical Engineering and Materials Science (MEMS) and had the participation of professors from MEMS and the Department of Energy Science and Engineering

The following international visits were taken to enhance international networking:

Visit to Kazakhstan: Prof. K.V.K. Rao, Deputy Director (Finance, Infrastructure and Administration) and Prof. Amit Agrawal, former Dean (International Relations) participated in AUA Presidents Forum 2023 held during May 11-13, 2023 at Nazarbayev University in Astana, Kazakhstan, as part of the AUA Summit 2023. IIT Bombay is a member university of the Asian Universities Alliance (AUA) - a consortium of Asian universities. There was an exchange of views in this summit on the incentives, obstacles, and best practices of attracting talent to Asian universities, the paths to mutual recognition of academic qualifications for students, and a discussion on how universities are working towards Sustainable Development Goals (SDGs). During this visit, Prof. Rao and Prof. Agrawal visited other universities in Kazakhstan namely L.N. Gumilyov Eurasian National University in Astana, and in Almaty, they visited Al-Farabi Kazakh National University, Almaty Kazakh National Pedagogical University and Satbayev University to explore collaboration opportunities. The visit to these universities was facilitated by Mr. Sanjay Vedi, Director, Swami Vivekananda Cultural Centre, Embassy of India in Astana, Kazakhstan.

Visit to Indonesia and Thailand: To establish connections that can lead to fruitful collaborations in the form of joint research initiatives, student exchange programs, faculty development, and other mutually advantageous projects, a visit to Indonesia and Thailand was organized in September 2023. From IIT Bombay, Prof. Subhasis Chaudhuri, former Director; Prof. S. Sudarshan, Former Deputy Director (Academic and Infrastructural Affairs) and Prof. Amit Agrawal, former Dean (International Relations) visited Indonesia on September 11-13, 2023 and Thailand on September 14-15, 2023. In Indonesia, the team visited Universitas Airlangga, ITS Surabaya, Universitas Gadjah Mada, Universitas Indonesia, and Bandung Institute of Technology. In Thailand, they visited

Chulalongkorn University, Mahidol University, and King Mongkut's University of Technology Thonburi. During this visit, IIT Bombay delegation also visited the Embassy of India in Jakarta, Indonesia, and the Embassy of India in Bangkok, Thailand to seek their perspective and guidance in enhancing cooperation with the universities in Indonesia and Thailand.

Visit to Japan: The Japan Science and Technology Agency (JST) Sakura Science Program Headquarters (SSP) held the 2nd Japan-India University Forum on September 30, 2023 at the Prince Kyoto Takaragaike, Japan. The forum was organized to promote cooperation between Japan and India as a strategic and global partner in the fields of academic and scientific technologies; specifically, to foster young human resources and expand brain circulation which is extremely important for the development of both countries. This forum was attended by 30 presidents and other representatives from top 10 Indian and 20 Japanese universities. From IIT Bombay, former Director Prof. Subhasis Chaudhuri participated in this forum. During this visit, Prof. Chaudhuri participated in the 20th Annual Meeting of Science and Technology in Science (STS) Forum 2023 held on October 1, 2023. He also attended the graduation ceremony of Sakura Science Indian University Program 2023 hosted by JST on September 29, 2023 in which five PhD students from IIT Bombay participated.

Visit to Hong Kong: Prof. K.V. Krishna Rao, Deputy Director (Finance and External Affairs), and Prof. Amit Agrawal, former Dean (International Relations) participated in the seventh Executives Meeting 2023 on November 7-10, 2023 of Asian Universities Alliance (AUA), a consortium of Asian universities that IIT Bombay is member of. This meeting was hosted by The Hong Kong University of Science and Technology and is an annual meeting of AUA to congregate, review the programs, and discuss

the opportunities for future development.

Visit to Denmark: A delegation from IIT Bombay, comprising of Prof. Sagar Mitra, Prof. Prakash Ghosh, Prof. Zakir Rather from the Department of Energy Science and Engineering, and Prof. Sandip Saha, Prof. Rajneesh Bhardwaj from the Department of Mechanical Engineering visited Denmark from November 14-18, 2023. The delegation visited Aalborg University and Aarhus University on November 15, 2023 in Denmark to explore cooperation opportunities. This was followed by a faculty research workshop with the Technical University of Denmark (DTU) on November 16-17, 2023 to explore research collaborations. There was a discussion on Indo-Danish cooperation in the strategic areas and to seek possible funding opportunities for the same. This visit to Denmark was coordinated and supported by the Office of the Dean (International Relations).

Visit to United Kingdom: Likewise coordinated by and with the support of the Office of the Dean (International Relations) a delegation from IIT Bombay consisting of Prof. Suneet Singh, Prof. Anish Modi, Prof. Sandeep Kumar, Prof. Venkatasailanathan Ramadesigan from the Department of Energy Science and Engineering and Prof. Arnab Dutta from the Department of Chemistry visited UK from November 27, 2023 to December 2, 2023. The delegation visited four UK universities to initiate discussions for potential research and pedagogical collaborations in the areas of sustainable energy, green chemicals, green hydrogen, and sustainable fuels. The visit to the University of Leeds and the University of York was scheduled for November 28, 2023 and the faculty research workshops of one and a half days each with Nottingham Trent University and the University of Sheffield were scheduled from November 29, 2023 to December 1, 2023.

Short-Term Online Program on No-Code Artificial Intelligence: IIT Bombay is a member

university of the Asian Universities Alliance (AUA), a consortium of Asian universities. Under AUA, IIT Bombay - Office of Dean (International Relations) and Interdisciplinary Programme in Education Technology (IDP-ET) hosted a short-term program in online mode during June 19-23, 2023 on No-Code Artificial Intelligence for the students of AUA member universities. Prof. Syaamantak Das from IDP-ET conducted this program. This program covered five important topics in AI, including Chatbot development using GPT (focusing on ChatGPT), AI-based image generation using Midjourney, Natural Language Processing (NLP) using MonkeyLearn, and more. This consortium currently comprises 15 leading Asian universities, and this program had seventeen students from eight AUA member universities. For students, this program was very informative, well-structured, and an enriching learning experience. They successfully created their own repository of digital artwork, personal chatbot, and their own AI knowledge bases during the program.

Marie Skłodowska-Curie Postdoc-Global Fellowships program: The Delegation of the European Union to India in New Delhi extended a special invitation to IIT Bombay to participate in the esteemed Marie Skłodowska-Curie Postdoc-Global Fellowships (MSCA-PF-GF) programme. The MSCA-PF-GF scheme, generously funded by the European Commission, presents an opportunity for Indian institutes and universities to host fully funded European postdoctoral researchers. This programme allows scholars to conduct their research in partner countries outside of Europe, including India. To promote this initiative, a webinar was organized on June 21, 2023. The primary objective of the webinar was to showcase potential host institutes in India that are interested in welcoming European postdocs. The target audience for this event consists of European institutes and postdoctoral candidates

seeking to expand their research horizons beyond Europe. Prof. Amit Agrawal, former Dean (International Relations) represented IIT Bombay in this webinar.

Short-Term Program on Systems Biology:

Under the consortia, Asian Universities Alliance (AUA), IIT Bombay - Office of the Dean (International Relations) and the Department of Chemistry hosted a short-term programme in physical mode from July 3-7, 2023 on 'Systems Biology: A quantitative way to tackle disease regulations for a futuristic public healthcare system' for the students of AUA member universities and our international partner universities. Prof. Sandip Kar from the Department of Chemistry, IIT Bombay conducted this program. This programme covered, various aspects of Systems biology by highlighting how it can help in understanding certain complex biological regulations quantitatively by suggesting therapeutic measures. In all 20 students from AUA member universities and Institute's international partner universities participated in this programme.

Participated in Online Education Fair 2023:

IIT Bombay is a member university of the Asian Universities Alliance (AUA). This is the third year that all AUA member universities hosted a joint education fair. This fair was held during December 14-15, 2023 for students seeking post-graduation career opportunities. More than 25 live recruitment events were delivered by provosts and admissions officers of the 15 AUA member universities, who introduced the latest admissions policy for international students, the application process, and the featured academic programmes. It was an excellent opportunity for students to learn about different universities and institutes all in one place. Prof. Amit Agrawal, former Dean (International Relations) shared information on various post-graduation options available at IIT Bombay for international students.

Following activities were organised by the Office of Dean (International Relations) during 2023-24:

Visit of Bangladeshi Youth Delegates to IIT Bombay

A 100-member Bangladeshi youth delegates visited IIT Bombay on March 2, 2024. The Office of Dean (International Relations) hosted the delegates. The visit commenced with a campus tour to show around various facilities available on campus. Following the tour, Prof. Neela Nataraj, Acting Dean (International Relations) delivered a brief presentation welcoming the delegates and providing an overview of IIT Bombay. Subsequently, the delegates watched a short movie showcasing IIT Bombay's green campus. Several international students currently pursuing degree/ semester exchanges at IIT Bombay shared their perspectives on why they chose to do the course at IIT Bombay. A question-and-answer session was arranged, allowing the delegates to interact with the international students.



At the concluding session, Prof. Nataraj expressed gratitude to the delegates and officials from the Ministry of Youth Affairs and Sports for organizing the visit, emphasizing its fruitful outcome. A representative from the Ministry also extended thanks to the Institute for facilitating the visit, providing international delegates with a comprehensive understanding of the Institute.

The Office of Dean (International Relations) had arranged a visit for the delegates to the Society for Innovation and Entrepreneurship (SINE) – an IIT Bombay incubator fostering entrepreneurship and nurturing tech start-ups and the Institute’s Central Library for

the delegates before their departure from the campus.

SATU Presidents' Forum

The Office of Dean (International Relations) hosted the Southeast and South Asia and Taiwan Universities (SATU) Presidents’ Forum Steering Committee Meeting during November 17-18, 2023, with the main event on November 17, 2023. The event witnessed the participation of 25 esteemed international delegates, primarily consisting of University Directors, Chancellors, Vice-Chancellors, Rectors, Directors, and Deans from various member universities of the SATU consortium. These delegates represented 14 SATU member universities across nine countries, including India, Indonesia, Malaysia, Taiwan, Thailand, Sri Lanka, and Vietnam. A highlight of the event was the keynote sessions delivered by eminent experts in the field.

Prof. Abhay Karandikar, Secretary, Department of Science and Technology (DST), Government of India, provided invaluable insights on building the Indian Science and Technology (S&T) ecosystem through strategic DST initiatives. His talk featured India’s global S & T positioning in Key Emerging Technology sectors such as Clean Energy and climate sciences, Advanced materials, Bio Engineering and Health Sciences, Sustainable Agriculture etc. Concurrently, Prof. Mohd Fadhil Bin Md Din, Director of the Indian Campus Sustainability University, Technology Malaysia, delivered a lecture on the challenges and strategic approaches to sustainability and creating green campuses. To enhance the delegates' experience, our office organized a comprehensive campus tour on November 18, 2023, encompassing visits to various research facilities, followed by a city tour.

International Summer School 2023

The first offline International Summer School Program was organised from June 12-24, 2023 at IIT Bombay. The Office of Dean (International Relations) hosted the participants representing various institutions including DTU Denmark (Denmark); Loughborough University (UK); Daffodil International University (Bangladesh);

SATU Presidents Forum Steering Committee Meeting



Tohoku University (Japan); Jahangirnagar University (Bangladesh); Kharazmi University (Iran); National Yang-Ming Chiao Tung University (Taiwan); SLTC Research University (Sri Lanka); Abai Kazakh National Pedagogical University (Kazakhstan) around the globe. The program offered courses meticulously designed on three cutting-edge subjects "Sustainable Waste Management," "Statistics" and "Neuromorphic Computing: Implementing AI/ML, dedicating 25-30 hours per week to each course. Beyond the classroom, participants also had the opportunity to explore the historical and cultural landmarks of Mumbai, providing them with a captivating glimpse into the richness and diversity of Indian culture. IIT Bombay acknowledged the faculty, participants, and staff for their dedication and hard work contributed to the success of this Summer School.

Virtual Global Winter School

The Office of Dean (International Relations) organized a Virtual Global Winter School 2023 for International students. The courses were designed with two-week modules, delivered during the December 4-8 and 11-15, 2023. It was a privilege to host a diverse cohort of participants, encompassing a wide array of academic disciplines and levels of expertise. Participants from over 20

countries including Bangladesh, Russia, Brazil, South Korea, Finland, Turkey, Germany, Thailand, Hong Kong, Taiwan, Indonesia, The Netherlands, Iran, Uzbekistan, Japan, UK, Kazakhstan, Nepal, Oman, and Pakistan, spanning across more than 30 prestigious universities globally participated in the winter school.

Outbound Students:

IIT Bombay offers ample opportunities for students to experience and develop a global outlook. The Office of International Relations has meticulously chalked out avenues through which students get international exposure. IIT Bombay is committed to supporting the students in visiting eminent institutions abroad for various purposes, including participation in exchange programs, short-term programs/ internships.

There were 50 students from IIT Bombay who visited foreign universities for semester exchange and around 19 students participated in various short-term programs namely the Asian Universities Alliance, NTU Singapore, Sakura Science Indian University Program hosted by the Japan Science and Technology, U7+ alliance.



IIT Bombay Students participated in Student Exchange Programmes (under the Memorandum of Understanding) during Academic Year 2023- 24:

Sr. No.	Name of the University	Number of students/ Programme & Department of student
1	Aalto University, Finland	One dual degree student from Department of Electrical Engineering, one dual degree student from Department of Mechanical Engineering, one dual degree student from Environmental Science and Engineering Department
2	Bogazici University, Turkey	One BTech student from Department of Aersopace Engineering
3	Ecole Nationale Supérieure des Arts Décoratifs, France	One MDes student from IDC School of Design
4	EPFL Lausanne, Switzerland	Two dual degree students from Department of Electrical Engineering, one dual degree student from Environmental Science and Engineering Department, one dual degree student from Department of Energy Science and Engineering
5	ETH Zurich, Switzerland	One BTech student from Department of Mechanical Engineering, one dual degree student from Department of Energy Science and Engineering, one dual degree student from Department of Mechanical Engineering, one dual degree student from Department of Metallurgical Engineering and Materials Science
6	INSA Lyon, France	One BTech student from Department of Aersopace Engineering, one dual degree student from Department of Electrical Engineering
7	Korea Advanced Institute of Science & Technology, Korea	One BTech student from Department of Physics, one BDes student from IDC School of Designs, one BS student from Department of Mathematics, one dual degree student from Department of Electrical Engineering
8	Koc University, Turkey	One dual degree student from IDC School of Designs
9	Katholieke Universiteit Leuven, Belgium	Three MBA students from Shailesh J. Mehta School of Management
10	KTH Royal Institute of Technology, Sweden	One dual degree student from Department of Electrical Engineering, one dual degree student from Department of Energy Science and Engineering, one dual degree student from Environmental Science and Engineering Department, one dual degree student from Department of Mechanical Engineering
11	Loughborough University, UK	One dual degree student from IDC School of Designs, one dual degree student from Department of Energy Science and Engineering
12	Lehigh University, USA	One BTech student from Department of Mechanical Engineering
13	Malardalen Univ, Sweden	One MDes student from IDC School of Designs

Sr. No.	Name of the University	Number of students/ Programme & Department of student
14	Monash University, Australia	One MTech student from Department of Civil Engineering
15	National University of Singapore, Singapore	One BTech student from Department of Physics, one BTech student from Department of Mechanical Engineering, one BS student from Department of Mathematics
16	Politecnico Di Milano, Italy	One BTech student from Department of Computer Science and Engineering
17	Sciences Po, France	Two dual degree students from Department of Energy Science and Engineering
18	Technical University of Denmark, Denmark	One BTech student from Department of Computer Science and Engineering, one BTech student from Department of Chemical Engineering, one dual degree student from Department of Electrical Engineering
19	Technical University of Munich, Germany	One BTech student from Department of Aerospace Engineering
20	University of Agder, Norway	Two MBA students from Shailesh J. Mehta School of Management
21	University of Bologna, Italy	One BTech student from Department of Computer Science and Engineering, one dual degree student from IDC School of Designs
22	University of Geneva, Switzerland	One BTech student from Department of Computer Science and Engineering, two BTech students from Department of Mechanical Engineering
23	University of Strasbourg, France	One BTech student from Department of Aerospace Engineering

Staff Exchange programmes:

Hosting Staff members of international partner universities

The Erasmus+ staff mobility grant is a European Union (EU) funded grant that helps finance EU staff, teaching, and training mobility with partner institutions. IIT Bombay has an Erasmus partnership with the Technical University of Munich (TUM), Germany, and Sabanci University, Turkey for the year 2022-23.

Under this mobility, Ms. Ursula Fourier-Kamp, TUM visited IIT Bombay from April 24-28, 2023. Likewise, Ms. Gizem Mert from Sabanci University visited IIT Bombay from June 19-23, 2023. They were hosted by the Office of the Dean (International Relations). Prof. Alex Lyakhovich from Sabanci University visited the Department of Biosciences and Bioengineering, IIT Bombay during July 24-28, 2023.

This staff exchange programme allowed the staff members to share their expertise; experience new teaching environments; connect with their peers abroad to develop common activities to achieve the programme's objectives and exchange good practices and enhance cooperation between institutions.

Visit to Turkey

Under the Erasmus+ International Mobility program, from IIT Bombay, staff members of the Office of Dean (International Relations), Ms. Tanvi Mehta, Executive Officer, and Ms. Chandrika Naik, Office Assistant participated in International Staff Week and Study Abroad Fair hosted by Koc University, Turkey during May 8-12, 2023. This mobility program promoted by the European Union refers to the mobility of students, researchers, and staff between European higher education institutions and non-

European (bilateral) partners and is aimed at enhancing bilateral cooperation between the two institutions. This exchange programme allows the staff to exchange and learn the best practices and implement them for the growth of the Institute and themselves.

During this visit, Ms. Mehta and Ms. Naik visited Bogazici University and Sabanci University – IIT Bombay’s other partner universities in Turkey. This visit exposed them to good practices and provided them with a better understanding of the functioning of their counterparts at international partner universities.

Mr. Pankajanabha Chachadi, Assistant Registrar, Materials Management Division and Ms. Anjali Rijil, Technical Superintendent, Department of Biosciences and Bioengineering participated in International Staff Week hosted by Sabanci University, Turkey during May 22-26, 2023.

Visit to Germany

Under the Erasmus+ International Mobility program, from IIT Bombay, Ms. Joyita Roy Sarkar, Senior Technical Officer, Industrial Research and Consultancy Centre (IRCC); Ms. Sushma Jagtap, Administrative Assistant, Office of Dean (International Relations) and Ms. Archita Patil, Junior Administrative Assistant, Office of Dean (Faculty Affairs) had the opportunity to participate in the Freie Universität Berlin’s 11th International Staff Training Week held at Berlin, Germany during June 26-30, 2023. The event was attended by 147 participants representing 43 different countries all over the world creating a global platform for collaboration and knowledge exchange. The five-day staff training programme based on different modules was highly interactive and engaging. These modules covered namely Internationalization aimed at expanding the Erasmus opportunities and managing the international network, Career Service, the Welcome Service for Staff, the University Library, and the Research Division for nurturing research excellence. Ms. Roy participated in the Research Division for nurturing research excellence, Ms. Jagtap participated in Internationalization aimed at expanding the Erasmus opportunities and

managing international network and Ms. Patil participated in Welcome Service for Staff. This was an excellent opportunity for participants to enhance their professional skills and gain exposure to diverse perspectives.

Staff Exchange AUA

IIT Bombay is a member university of the consortium Asian Universities Alliance (AUA). This is a very active consortium with many activities organized throughout the year wherein students and faculty members of AUA member universities actively participate. AUA also supports and encourages staff exchange among its member universities. This staff exchange program allows the staff to exchange and learn the best practices and implement them for the growth of the Institute and themselves. Under AUA staff exchange Ms. Ainur Sapobekova, Senior Manager of the Registration and Scheduling Unit, Office of the Registrar, Nazarbayev University, Kazakhstan visited IIT Bombay from February 5-9, 2024. The Office of Dean (International Relations) hosted Ms. Sapobekova and arranged her interactions with the various administrative and academic units of IIT Bombay.

Likewise, from IIT Bombay, Mr. Yogesh Patil, Deputy Registrar visited the United Arab Emirates University; Dr. Archana V. Shetty, Technical Superintendent, Department of Biosciences and Bioengineering visited Chulalongkorn University, Thailand; and Ms. Anjali Raghunathan, Technical Superintendent, Department of Biosciences and Bioengineering visited Universitas Indonesia under AUA Staff Exchange.

Language courses:

Following language courses for the students and staff of IIT Bombay were organised in the Autumn and Spring semester:

- Japanese (in association with Koo International Co. Ltd., Japan)
- Sanskrit (in association with Central Sanskrit University, New Delhi)
- Indonesian Bahasa (in association with Consulate General of the Republic of Indonesia, Mumbai)
- Mandarin Chinese

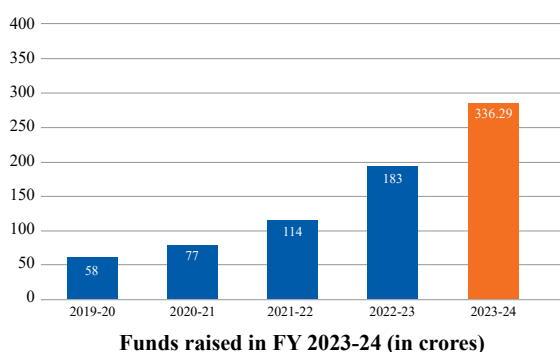


ALUMNI AND CORPORATE RELATIONS

During 2023-24, the Institute remains steadfast in its groundbreaking mission to foster a world-class education and research environment. IIT Bombay has continued to benefit from the remarkable support of its alumni, corporate partners and well-wishers globally. Alumni contributions have been invaluable, encompassing strategic advice, guest lectures, participation in events like 'Alumination', student mentoring, roles on department advisory boards and financial and technical support aligned with the Institute's priorities. These priorities include scientific research, student financial aid, faculty development, infrastructure enhancement and more.

IIT Bombay is committed to advancing its infrastructure capabilities, supporting faculty and students through chair professorships and scholarships, and establishing state-of-the-art research facilities in emerging technologies such as climate change, drug discovery, circular economy, nanotechnology, sensors, e-mobility, translational research, and many others.

In the financial year 2023-24, the Dean (ACR) office raised approximately Rs. 336.28 cr marking an increase of 83% increase in fund collected compared to the previous year's collection of Rs. 183 crores.



The total value of new MOUs signed in FY 2023-24 was Rs. 823 crores. The contribution from both individual donors/ well-wishers and corporates/ foundations stood at 65% and 35% respectively. The MOUs signed will establish a robust pipeline

for the Institute to secure funding for projects in various priority areas, including research, infrastructure, student development and faculty development, in the coming years.

Purpose	% Funds Collected by Cause
Infrastructure	50%
Centre/ COEs	18%
R&D	12%
Others/ Urgent needs	11 %
Student Aid	4%
Chairs	3%
Entrepreneurship	2%

I) The major initiatives for which the donations were received are as under:

A) Faculty Development:

a) **Young Faculty Awards (YFA):** The Young Faculty Award (YFA) was initiated in 2010. It has become one of the most successful alumni-funded projects at IIT Bombay. The objective of the YFA is to assist the Institute in attracting and recruiting exceptional faculty to join IIT Bombay's prestigious faculty body and support its pursuit of excellence in research and academics. The "Young Faculty Joining Bonus", initially a Class of '82 Legacy Project, is now supported by all batches. A total of 404 faculty members have received the Young Faculty Award to date and for the financial year 2023-24, 100 faculty members received it.

b) **Chair Professorship:** The Chair Professorship at IIT Bombay is a prestigious honour recognizing exceptional teaching and research by its permanent faculty. These endowed positions, known as "Chairs", signify the highest academic distinction, crucial for attracting and retaining top research talent. Reserved for the institute's elite faculty, Chair Professorships acknowledge their groundbreaking contributions to

research and teaching, aiming to elevate the institution's global stature. By attracting outstanding scholars, these positions enrich the educational experience for students while fostering continued excellence in academia. Chair Professorships at IIT Bombay cover a wide range of disciplines, from traditional fields to emerging areas of need. Traditional areas include Textile, Structural Engineering, and Mechanical Engineering, while upcoming needs focus on Quantum Computing, Sustainable Development and Nanotechnology. This diverse range ensures that the Institute remains at the forefront of innovation and addresses both current and future challenges. As of FY 2023-24, IIT Bombay has 63 Chair Professorships. These positions are distributed across various departments and are held by some of the most eminent faculty members at the Institute.

- c) **Shri. D.P. Joshi Memorial Award for Excellence in Teaching Award:** Shri. D. P. Joshi Memorial Award was established through the generous donation of the Institute's distinguished alumnus, Dr. Narendra Joshi, in memory of his late father, Shri. D. P. Joshi. This award is designated for faculty members in the Departments of Mechanical and Aerospace Engineering. In 2023, the award was conferred upon Prof. Darshan Shah, Department of Mechanical Engineering and Prof. Dhwanil Shukla, Department of Aerospace Engineering.
- d) **Shri. Hotchand Lala and Jamunabai Lala Memorial Award:** The Shri. Hotchand Lala and Smt. Jamunabai Lala Memorial Award was established through the generous contribution of the Institute's alumnus, Dr. Jay Lala, in memory of his parents. This award is designated for faculty members in the Department of Aerospace Engineering. In 2023, the award was conferred upon Prof. A.M. Pradeep and Prof. Krishnendu Sinha.

B) Student Development:

- a) **Scholarships:** Scholarships are financial aid awards that are designed to help students

pay for an undergraduate program at IIT Bombay. Scholarships are based on merit and need, and ensure that qualifying students can access world-class education, despite financial constraints. Donations towards scholarships are a pathway for deserving students to chase their dreams and access knowledge, innovation and societal advancement. The investment in student scholarships acts as a catalyst for transformative change, reaffirming that education is a fundamental right accessible to all, not just a privilege. For the academic year 2023-24, a total of Rs 13,45,55,200 was disbursed among 481 undergraduate students, including 207 female students. It was supported by 185 donors.

- b) **Awards and Prizes:** To recognize excellence in academics and research, IIT Bombay annually honours students with awards, prizes and medals during the convocation ceremony. At the 61st convocation in August 2023, around 156 students received awards for their outstanding performance in the FY 2023-24. These awards, totalling 73, highlight the dedication and brilliance of students, inspiring IIT Bombay's academic community to strive for excellence.
- c) **Fellowships:** The Office of Dean (ACR) offers vital fellowship programs to postgraduate and PhD students, fostering academic excellence and industry collaboration. Students receive fellowship support through corporates, foundations, alumni and philanthropists, aiding their academic journey. Currently, there are 67 active fellowship recipients, with 30 of them funded by corporates. These programs provide financial aid and valuable R&D opportunities, empowering students to contribute to impactful research while promoting industry-academia partnerships.

C) Batch Legacy Projects:

The Batch Legacy Project at IIT Bombay is a time-honoured tradition that brings alumni together during reunions, to support pivotal initiatives at the Institute. Over the years, the



alumni's unwavering support has acted as the North Star for over 50 transformative projects, with contributions surpassing Rs. 260 crores. The last three years witnessed a remarkable upward trajectory in Batch Legacy collections from Rs. 16.56 crore in the year 2021, escalating to Rs. 27.58 crore in 2022 and Rs. 33.31 crore in 2023. Their profound commitment to the growth of the Institution and the welfare of its students, faculty, and infrastructure is a testament to their dedication.

The legacy batches' diverse contributions foster academic excellence, innovation, and enhance campus life. Some of the key initiatives are:

- a) **Financial Aid and Faculty Support:** The establishment of the Financial Aid Program, Mess Workers Incentive Fund and CTARA Fellowships have provided substantial support. The Young Faculty Award, instituted to attract exceptional young faculty, further strengthens the Institute's academic prowess. The Retired Faculty Wellness Fund (RWF) is a remarkable initiative pioneered as a *Guru Dakshina* (a token of gratitude) for retired teachers at IIT Bombay
- b) **Research and Innovation:** Generous donations have fuelled groundbreaking initiatives in nanotechnology, design and more. These include Faculty Chairs and research labs like the Tinkerer's Lab and Electric Vehicle (EV) Lab, which nurture a vibrant culture of innovation and creativity that continues to shape the Institute's future
- c) **Infrastructure:** Projects such as Makerspace, Micro factories, Café, Project Evergreen, Integrated Waste Management, Biogas Plant, Sports Facilities, Study rooms, Lecture Rooms, Wellness Funds and others, have improved the Institute's infrastructure
- d) **Student Support and Mental Wellness:** Support for scholarships and financial aid empowers diverse talent, while contributions to awards and mental wellness programmes foster a supportive and enriching learning environment for all students

- e) **Fostering a Culture of Innovation:** Batch Legacy's contributions have fuelled a culture of innovation. New labs and programmes like IDEAS (Innovation, Development and Entrepreneurship with Alumni Support) spark student creativity, while the Translational Research Accelerator (TRA) Fund bridges the gap between research and real-world solutions. This fosters self-reliance in technology and empowers students and faculty to become tomorrow's entrepreneurs

These diverse contributions reflect the enduring legacy and continued engagement of IIT Bombay alumni and benefit current and future generations. The batches have truly embodied the spirit of giving back to their alma mater, playing a pivotal role in shaping IIT Bombay into the prestigious institution it is today.

II) Corporate Engagements:

During the financial year 2023-24, IIT Bombay witnessed significant advancements in industry collaboration and corporate engagement driving investments totalling 108 crores. The Institute received robust support from over 90 corporate partners, including prominent names such as:

BFI Biome
Citadel Securities
Coal India
Cummins
FedEx
Google Cloud
HiMedia
HSBC
Jindal Stainless
Oracle
Roadstar
SBI Foundation
Synopsis
Tower Research Capital

These partnerships have played a crucial role in establishing new Centers of Excellence, such as:

- IIT Bombay-FedEx Centre for Advanced Logistics and Analytics\
- SBI Foundation Hub for Data Science and Analytics

- IIT Bombay-Citadel Securities Quantitative Research Lab
- IIT Bombay-Synopsys Semiconductor Lab for Virtual FAB Solutions

Prestigious Chair professorships, including the Cummins Chair in Green Energy and the Google Cloud Chair in Generative AI, were instituted during the year. Infrastructure development has been notably supported by contributions such as the construction of Women’s Hostel-21, funded by Coal India. Additionally, contributions were received for student development initiatives such as scholarships for women in STEM, by Oracle.

III) Outreach Events:

a) **Institute Valedictory function:** The Institute’s Valedictory Function was held on **April 29, 2023** to commemorate as well as celebrate the journey of graduating students at the Institute. The youngsters were advised to keep pursuing excellence through two powerful keynote speeches delivered by guests of honour and the Institute’s illustrious alumni Dr. Lalit Kanodia (Batch of 1963), Chairman, Datamatics Group of Companies and Mr. Karthik Ganapathy (Batch of 1993), Co-Founder and Vice President, BillDesk. Overall, 1900 students attended the event.



FAN US Meet 2023 – Northwestern University

b) **Focussing on the Future** - IIT Bombay, in collaboration with the IIT Bombay Heritage Foundation (IITBHF), hosted the second edition of its prestigious Faculty Alumni Network (FAN) and Distinguished Alumni Meet (DAM) for 2023 at the renowned Northwestern University, Evanston, Illinois between July 08-15, 2023. The event brought together IIT Bombay’s illustrious faculty and its accomplished alumni from academia and industry globally, to strategize on ways to shape the future of IIT Bombay’s growth and deliberate on emerging areas of research.

The event was attended by esteemed dignitaries including Congressman Raja Krishnamoorthy; Ms. Kathleen Hagerty, Provost of Northwestern University; Prof. Julio Ottino, Dean of Engineering and Applied Science, Northwestern University and was coordinated by Prof. Neelesh A. Patankar from the Department of Mechanical Engineering at Northwestern University.

The event hosted a thought-provoking panel discussion on collaborations in India-USA Higher Education. The discussion shed light on the boundless potential that lies within partnerships between these two great nations. The day also saw exciting breakout sessions on Microelectronics, Sustainability and Circular Economy, Engineering Medicine, Design in Engineering and Education.

c) **CSR Conclave:** The second edition of IIT Bombay’s annual flagship CSR Conclave – Technology for Development was held on June 16, 2023. The event brought together a diverse range of stakeholders (including

industry leaders and over 150 corporates, faculty, alumni and students), ignited meaningful conversations, fostered innovative collaborations and inspired those who attended to contribute actively to the greater good. The conclave provided a meaningful platform to explore the intersection of business and social impact and exemplified IIT Bombay's enduring legacy of excellence in making a positive difference in society.



d) Student Alumni Relations Cell (SARC) Activities:

- **CORE Talks:** SARC organized 28 CORE talks by our esteemed alumni in 10 departments. Each talk was attended by over 80 students (UG and PG). CORE Talks by alumni, who are experts in their area, help current students gain perspective and better insights on the career opportunities in their respective majors
- **Alumni Student Mentorship Programme (ASMP):** The ASMP orientation was held on September 1, 2023. ASMP - an initiative by SARC aims at creating a platform to foster meaningful mentoring relationships between alumni and current students. ASMP achieves this objective by bringing together alumni mentors and student mentees and conducting various events to enrich their mentoring experience. Around 500 students have been mentored during the year 2023-24

- **Trailblazers - Idea Forge:** The SARC conducted Trailblazers – Idea Forge on September 2, 2023. The purpose of Trailblazers is to connect successful alumni with the students. The speaker at the event was Mr. Ankit Mehta, CEO and Co-Founder of Idea Forge. The students gained valuable guidance from Mr. Mehta.
- **Alumination:** Celebrating Innovation: The flagship event of SARC ‘Alumination’ was organized between October 21- 22, 2023 with enthusiastic participation from alumni and students. Over 250 alumni and 5000 participants attended both online and offline activities. The collective feedback from both alumni and attendees was overwhelmingly positive, with a keen interest shown in and appreciation for the various events conducted during the two days.

The event was attended by alumni Mr. Ravindra Gupta, Founder and CEO of InnovSense; Mr. Suhas Kajbaje, Vice-President (Enterprise Architect) Mahindra Finance; Mr. Akshay Saxena, Co-CEO, Co-Founder of Avanti Fellows; Mr. Vipul Goyal; Mr. Sneha Vaswani, CEO and Co-Founder of Miko.ai and Ms. Ahana Gautam, CEO & Founder of Open Secret.

The event helped students get perspectives from experienced alumni on a range of issues including career guidance, corporate exposure and lifelong learning.

e) Alumni Meet:

Engaging and connecting with IIT Bombay's extensive alumni community across the world is an important initiative for the Institute. These meet-and-greets provide a pivotal platform for fostering meaningful connections, nurturing a strong sense of community and garnering vital support for the Institute's continued growth and development. These roadshows are essential to strengthen the bond between IIT Bombay and its esteemed alumni even as they foster a collaborative environment for mutual advancement and progress.

- Nashik Alumni Meet:** IIT Bombay and IIT Bombay Alumni Association (IITBAA) hosted an alumni meet at Nashik on September 16, 2023 at the Radisson Blue Resort and Spa. The event brought together former Director of IIT Bombay Prof. Subhasis Chaudhuri and the Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi, a group of Institute functionaries, along with IIT Bombay alumni, and various stakeholders from academia, industry and the government. The event was a testament to the collaborative spirit of its attendees and explored opportunities for IIT Bombay to partner with Nashik's diverse stakeholders in projects aimed at societal impact and nation-building. Over 100 alumni (and their families) attended the meeting event.

- Hyderabad Chapter Meet:** On January 20, 2024, IIT Bombay hosted Hyderabad Alumni Connect, in collaboration with the IITBAA. The meeting was aimed at fostering and fortifying the bonds with the Institute's extended alumni community stands at the core of its ongoing commitment to excellence.

Mr. Srinivas Rao Mahankali (MSR), the CEO of T-Hub, graced the occasion as the keynote speaker. His compelling discourse delved into the burgeoning entrepreneurial landscape in India. Approximately 200 alumni attended the event which served as a heartfelt reunion where they rekindled their connection with their alma mater and revelled in its remarkable milestones.

- Pune Alumni Connect 2024:** IIT Bombay and IITBAA welcomed its esteemed Pune alumni to the Pune Alumni Connect on March 02, 2024, at Sheraton Grand Pune. A highlight of the evening was the keynote address by Dr. Ganesh Natarajan, a distinguished alumnus and the Founder of 5F World. Dr. Natarajan specializes in team leadership and business development. It was a gathering filled with laughter, cherished memories, and the joy of reconnecting with old friends. Over 200 alumni (and their families) attended the

meeting. The event showcased the potential of collective effort.



- US Roadshow Amplifies Alumni Engagement and Solidifies Commitment to Excellence:** A team from IIT Bombay embarked on a roadshow to the US between October 26 and November 5, 2023. The roadshow, spearheaded by the IIT Bombay Heritage Foundation and several alumni chapters in the US, showcased these entities' exceptional dedication and initiative in advancing their alma mater's interests. A delegation from the Institute visited alumni in New York, Detroit, Atlanta and San Francisco. Throughout the week, the team actively showcased IIT Bombay's vision and strategic initiatives including the rapid expansion of the Institute's infrastructure and research capabilities, with special emphasis on establishing Centres of Excellence (CoE) in pertinent and emerging research domains. The alumni meetings featured engaging discussions and presentations on various topics, including sustainability and climate change, entrepreneurship and the automotive industry. Alumni were also briefed on IIT Bombay's ambitious fundraising objectives, future aspirations and the multiple avenues through which they could actively contribute to the Institute's mission of achieving global prominence in engineering education and research. In response, alumni offered constructive feedback to the delegation, providing valuable insights on how the Institute can sustain its rapid growth and advance further in the years ahead.
- UK Roadshow:** IIT Bombay, with the IIT

Bombay Alumni Association's UK Chapter, organized Mood Diwali '23 at the Indian Gymkhana Club in Isleworth, West London between November 23-26, 2023. Former Director of IIT Bombay Prof. Subhasis Chaudhuri and Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi led a delegation from IIT Bombay and shared insights into the exciting developments at IIT Bombay with an audience of around 120 alumni. The delegation shared the Institute's vision and mission and left the attendees excited and gratified at the progress made by their alma mater over the years. The gathering not only fostered a sense of community among alumni but also ignited a spark of philanthropy, with many expressing a keen interest in supporting IIT Bombay's initiatives. The event provided a valuable networking opportunity, allowing attendees to connect with the Institute's leadership and fellow alumni while celebrating the spirit of Diwali together marked by competitive games to vibrant Diwali attire and crowned by a spectacular fireworks display.



- **Chicago Chapter meet:** The Institute's former Director Prof. Subhasis Chaudhuri and delegates met the Chicago Chapter on July 9, 2023. Around 40 alumni attended the session where the Director and Dean ACR presented the vision and roadmap of IIT Bombay for 2030
- **Canada Roadshow – Alumni Interaction sessions in Toronto and Vancouver:** An interactive session was held with the former Director Prof. Subhasis Chaudhuri and other dignitaries from IIT Bombay in Toronto during July 11-13, 2023, and in Vancouver during July 14-16, 2023. The session was an engaging and insightful gathering of IIT

Bombay alumni, providing an opportunity for alumni to reconnect with their alma mater and engage with fellow alumni. More than 80 alumni attended the event in Toronto and over 25 alumni attended in Vancouver

f) GO IITB Campaign:

IIT Bombay launched the 2023-24 edition of its annual GO IITB fund-raising campaign to harness the power of collective giving through generous contributions of its alumni for various critical and timely initiatives on campus. With its alumni's support, the Institute hopes to enhance its infrastructure capabilities, democratize top-tier education for deserving youth across India, and champion high-priority initiatives. This will, in turn, allow IIT Bombay to take the lead in nation-building and solve challenges of national and global importance. The Institute identified the following five critical categories for this year's GO IITB campaign: Project Evergreen/ Hostel, Scholarships and Institute Development Fund (IDF).

g) Reunions (Old Friends, New Ideas):

- **Diamond Jubilee Reunion of Joining (DJRU) of Class of 1969:** The Class of 1969 celebrated their Diamond Jubilee Reunion of Joining (DJRU) from January 26-28, 2024 in a grand and nostalgic manner. The event brought together more than 85 alumni, who reunited to commemorate 60 years since their entry into the Institution. Over three days, attendees engaged in a variety of activities designed to evoke fond memories and foster connections. The reunion featured a series of insightful presentations and interactive workshops, which allowed alumni to share their experiences and reflect on their remarkable journeys since leaving the campus. Participants also enjoyed a guided tour of the campus, witnessing firsthand the evolution of their alma mater and revisiting familiar spots that held special significance. The gathering was marked by a warm atmosphere of camaraderie and shared nostalgia, as former

classmates rekindled old friendships and celebrated their enduring bonds. The event not only honored their past but also strengthened the connections among the alumni, creating a memorable and meaningful chapter in their collective history



- Golden Jubilee Reunion of Class of 1973 (Msc):** The Class of 1973 (Chemistry/ Physics/ Maths) celebrated their Golden Jubilee Reunion on November 25-26, 2023, enjoying a memorable 2-3 days of nostalgia, especially for those who hadn't seen some classmates in 50 years. The event featured both humorous and poignant recollections, making the reunion truly unforgettable.

Around 35 alumni attended, reflecting the camaraderie and shared memories that defined the gathering. This reunion brought together classmates from various paths of life, with the search for elusive friends, nostalgic visits to familiar places, and engaging presentations on remarkable post-IITB journeys adding to the event's special nature. Fueled by laughter and reaffirmed connections, the reunion became an unforgettable chapter, celebrating lifelong bonds among those who began their academic journey decades ago.



- Class of 1973 - Golden Jubilee Reunion:** The Class of 1973 celebrated their Golden Jubilee Reunion (GJRU) during February 8-10, 2024 embarking on a heartwarming journey through time. The event offered a unique opportunity to reconnect with old friends, forge new bonds and reminisce about the experiences that shaped their lives. The celebration extended a warm invitation not only to alumni but also to their cherished families, ensuring that the gathering was both opulent and inclusive. Over 130 alumni, along with their family members, attended the memorable event, making it a truly special occasion.



- Silver Jubilee Reunion Class of 1998:** The Silver Jubilee Reunion (SJRU) for IIT Bombay's Class of 1998 was a spectacular journey down memory lane, marked by camaraderie, laughter and a deep sense of nostalgia. Celebrated during December 22-24, 2023, the reunion brought together over 200 batchmates from various programmes for an unforgettable experience on campus.

The excitement was evident as attendees checked into campus guest houses and collected registration kits that included specially designed T-shirts and coffee mugs featuring the unique C1998 reunion logo. The event seamlessly blended the past with the present, as alumni revisited hostels, relived cherished memories and connected with the next generation of IITBians. The reunion not only reinforced old bonds but also made a lasting impact on the institution's legacy, symbolizing the enduring spirit and unity of the Class of 1998.

h) Following Named Lectures were held last year:

- **Prof. C. V. Seshadri Chair Distinguished Lecture:** Prof. C.V Seshadri Memorial Lecture series (as part of its “Institute Distinguished Lecture” series) by Prof. K. Ganapathy Ayappa, Department of Chemical Engineering, IISc Bengaluru titled ‘Understanding the Action of Pore-forming Proteins’ was organised on April 5, 2023
- **Prof. N.R. Kamath Institute Distinguished Lecture:** The ‘Prof. N. R. Kamath Distinguished Institute Lecture’ by Prof. Kaushik Basu (Professor of Economics and Carl Marks Professor, Cornell University and Prof. N. R. Kamath Visiting Chair Professor, IIT Bombay) titled “Group Moral Responsibility: Some Paradoxes and the Role of Leadership” was organised on August 16, 2023.
- **Girish Sant Lecture Series:** The Girish Sant Lecture Series by Mr. Anshuman Lath ((BE-IIT Roorkee, PGDM-IIM Bangalore) is the co-founder of Gram orja Solutions Private Limited, titled ‘Remote Village Energy Access: Experience, Challenges, and Possibilities’ was organised on February 28, 2024.
- **Prof. N.R. Kamath Distinguished Institute Lecture:** The ‘Prof. N. R. Kamath Distinguished Institute Lecture’ by Prof. Herbert Huppert, Professor of Theoretical Geophysics at the University of Cambridge, and Prof. N. R. Kamath Visiting Chair Professor at IIT Bombay titled “The effect of surface waves over coral reefs” was organised on March 5, 2024
- **Prof. N.R. Kamath Distinguished Institute Lecture:** The second series of the ‘Prof. N. R. Kamath Distinguished Institute Lecture’ by Dr. Shreefal Mehta, Member of the Research and Entrepreneurial Advisory Committee to the Department of Biotechnology, BIRAC, Government of India titled “Translational Research and Opportunity Recognition in Biotech/Bio MedTech” was organised was held

on March 12, 2024.

- **Radhika Rajan Women Leadership Lecture:** IIT Bombay hosted the Radhika Rajan Women Leadership Lecture Series on March 20, 2024. The inaugural lecture showcased Ms. Premlata Poonia, Founder of Hamari Laado. Ms. Poonia’s extraordinary journey, from the remote village of Likhmewala to leading a billion-dollar business in the US. Her subsequent return to her roots and dedication to empowering young girls through Hamari Laado continues to leave a lasting impression.

Her lecture illuminated the paths of her academic and professional career, showcasing how each step paved the way for her mission – “Change, one girl at a time!” This impactful talk deeply resonated with IIT Bombay’s dedication to empowering women in STEM fields and nurturing their pursuit of excellence.

i) Other events:



- **a) Groundbreaking Ceremony of Project Evergreen:** IIT Bombay conducted the much-awaited groundbreaking ceremony of its ambitious hostel project – Project Evergreen – on June 24, 2023. The project is spearheaded by the IIT Bombay alumni community and will fund, design and build a new 1,100-room world-class Hostel Complex, as a replacement for Hostel 7, Hostel 8 and the construction of a new women’s hostel- Hostel 21. This modern facility will include additional rooms, spacious courtyards, ergonomically designed study rooms, dining areas, and other globally competitive living facilities that will transform student living at IIT Bombay.



b) **Felicitation Ceremony of Nandan Nilekani:** IIT Bombay celebrated 65 years of its pursuit of excellence toward global leadership with a grand event held on campus on July 26, 2023. The Institute brought together many of its distinguished alumni, faculty, students, well-wishers and entrepreneurs. The occasion honored the exemplary contributions, mentorship and overall involvement of alumni and well-wishers who have played a critical role in the Institute's continued growth and progress. As part of this event, a special felicitation ceremony was held to honor one of IIT Bombay's most Distinguished Alumni, Mr. Nandan Nilekani – a visionary thought

leader, entrepreneur and philanthropist. Mr. Nilekani has donated Rs. 315 crores, bringing his total donation to Rs. 400 crores to IIT Bombay.

A plaque dedicating the Main Building to Mr. Nilekani was unveiled at the EMBA room, SJMSOM building, in his presence along with his family members; Prof. Subhasis Chaudhuri, former Director, IIT Bombay, Prof. Ravi Gudi, Dean ACR, as well as several Institute dignitaries, including the Head of Departments, Associate Deans and more. The building will henceforth be called the Nandan Nilekani Main Building.



c) **Inauguration of Seminar Room 21:** On July 24, 2023, IIT Bombay dedicated Lecture Hall 21 to the loving memory of Mr. Mohsin and Mrs. Zulekha Vasi, parents of the Institute's esteemed Professor Emeritus, Prof. Juzer Vasi. The Lecture Hall was renamed the Mohsin and Zulekha Vasi Lecture Hall.

STRATEGY

The newly established Office of Dean Strategy became operational in July 2022 after the appointment of Prof. Krishna P. Kaliappan, Department of Chemistry as the first Dean – Strategy. The office is the first-of-its-kind in the IIT system, focusing on strategic initiatives of the Institute: developing IIT Bombay’s future vision, setting goals, and implementing policies, while closely working with all stakeholders in the IIT Bombay ecosystem; manage Institute’s ranking, collecting and analysing Institute data to facilitate strategic decisions, and being an important touchpoint for external stakeholders.

The office is geared to make it easier for other administrative offices to achieve their goals.

For this purpose, a committee called Institute Strategic Advisory Committee (ISAC), was constituted in December 2022, having esteemed alumni, professors, and industry professionals as its members. ISAC, convened by Dean (Strategy), has held seven meetings so far, deliberating and recommending actions on various strategic issues – infrastructure, faculty value proposition, international relations, Institute finance and budget, SINE and Research Park – with the respective Professor-In-Charges, Deans and Deputy Directors. Dean Strategy places these recommendations to higher-level committees for deliberation and action.

The office of Dean (Strategy) is also proactive in preparing reports and presentations, providing the latest updates on the strategic initiatives of the Institute. A completion report for the previous Strategic Plan 2017-2022 has been prepared by the office, and the process is underway to develop a new Institute Strategic Plan for the future.

The office also works closely with the Public Relations Office to participate in national and

international Institute rankings, collecting and submitting relevant information to the agencies.

Dean Strategy is also involved in the decision-making process of the Institute of Eminence (IoE) cell, with the office regularly assisting IoE in making presentations to senior leadership in the Institute and to Ministry of Education, and Prime Minister’s Office, GoI.

The office also oversees the coordination of the Institute Innovation Council (IIC), a programme instituted by the Ministry of Education, GoI, to nurture innovation and entrepreneurship among students through various events and activities.

With the active involvement of the Dean Strategy Office, we have jumped from 5 IIC activities in the year 2022-23 to 47 in the year 2023-24, completing all the activities stipulated by the Ministry, and the doing more through a “self-driven” mode.

Several events and workshops like Start-up Team Building Workshop, Start Up Founders Meet, Marketing and Finance for Entrepreneurs, etc., international delegation visits, technical competitions and workshops were part of the activities conducted under the programme.

The office is also at the forefront of building an up-to-date repository of all relevant Institute data, including students registered under different programmes and streams, faculty registered under different levels of professorship, research and publications, intellectual property data, etc, which provides insight to Dean Strategy for his decision-making.

The Office of Dean Strategy has taken up its role with full enthusiasm and energy and will do its best to help IIT Bombay achieve its future goals and become one of the topmost Institutes in the world.

PLACEMENT

IIT Bombay had 2414 students registered for the campus placement season from July 2023 - July 2024 of which 1979 students actively participated in placements and 1475 students secured jobs. The placements were conducted in a hybrid mode comprising of interviews. 1350 unique Job Announcement Forms were offered. This year number of companies registered were 543, of which 388 participated in the placement and 364 companies made offers. This year, an increase of 12 % was observed in the number of companies recruited from IIT Bombay. 78 international offers were accepted during the placement season 2023-24.

Table1: Highlights of Placement Season 2023-24

Key Metric	Details
Number of Registered Students	2414
Number of Students who Actively Participated	1979
Total Number of Accepted Offers	1475
Total Number of Companies Registered	543
Total Number of Companies who Offered Jobs	364
Total Number of Job Offers	1650
Pre-Placement Offers accepted	258
International Job Offers accepted	78
Average annual CTC Salary Package of students	Rs. 23.50 LPA
Median Salary	Rs. 17.92 LPA
Top Recruiting Sector	Engineering and Technology

IIT Bombay Placement for Academic Year 2023-24 saw participation from multiple sectors such as core engineering, information technology, software programming, research and development, consulting, finance, banking, high and technology and technical services. The job opportunities offered by the recruiting firms provide real-world experience, extensive learning,

and the opportunity to travel and experience diverse work cultures.

Student preparation

The key focus of the Placement Office is to prepare students for their placement and internships. Keeping the students well prepared for what they are likely to face in the corporate world is the responsibility of every academic Institute. Students undergo challenging coursework and are exposed to research-based projects, along with a host of sports, cultural and organizational activities on the vibrant IIT Bombay campus. The first event in this endeavour was “Assessments”, in collaboration with industry experts, for profiles of coding, consultancy, finance, analytics etc.

In addition, preparatory programmes were arranged to enhance communication skills, group dynamics and interview skills. Overall, these programmes provided insight into the job domains and prepared the job aspirants to face the challenges of the future. The students were assigned mentors for guidance and a series of aptitude tests were conducted to improve their problem-solving skills. The preparatory activities sourced information from various alumni, where the alumni background was mapped according to student preference. Various department-level activities were conducted to cater to the individual domain requirements of the students. All assessment-related activities were conducted successfully by the Placement team.

Recruiter’s Profile and Overall Statistics:

This year 78 international offers were made to IIT Bombay students from different firms based in Japan, Taiwan, Europe, UAE, Singapore, USA, Netherlands and Hong Kong. Despite the war in Ukraine and the subdued global economy, the number of international offers remained similar to last year. The average package offered during IIT Bombay placement season 2023-24 was INR 23.5 LPA.

The engineering and technology sector recruited the highest numbers of students. In various engineering domains, 430 students were

selected from 106 core engineering companies for positions at the entry-level. Information technology and tech hiring were slightly more this season compared to last year. Around 307 students were offered IT/ software jobs by over 84 companies, making the IT sector the second largest recruiter after the engineering sector. Over 117 consulting offers were made by 29 consulting companies. Trading, banking and fintech companies were also prominent recruiters. 113 offers were made by 33 financial service firms this year. Profiles in artificial intelligence, machine learning, product management, mobility, 5G, data science and analytics, and education also saw brisk hiring trends. Seventeen design companies made 33 job offers. The education sector saw eleven companies participating with 30 jobs offered. The research and development sector witnessed companies in automation, energy science, battery technology, chemical and mechanical research, energy-efficient solutions, application development, materials research, semiconductors, power electronics, AI/ ML and research laboratories, where 36 organizations offered 97 positions in 2023–24.

This year, IIT Bombay's placement percentage may vary based on the student's decision. Some of 435 non-participating students expressed interest in pursuing higher studies, such as M.S./ M.Tech./ PhD and MBA courses, while others opted for entrepreneurship or civil services, and didn't appear/ had minimal participation in the placement drive.

Program-wise placement statistics

All students registering for placements do not necessarily participate actively in campus placement, some opt for higher studies abroad or in different stream. Also, students also got placed through channels other than campus placements. The program-wise placement data is provided in Table 3. The count of students participation excludes students who opted for higher studies or had other career options, and hence de-registered from the placement process.

The sector-wise distribution of companies making offers and number of accepted offers are listed in Tables 2.

Table 2: Distribution of offers from different sectors (includes PPOs).

Sector	Number of Offers	Number of companies
Engineering and Technology	430	106
IT/ Software	307	84
Consulting	117	29
Finance	113	33
Other	155	53
Research & Development	97	36
Education	30	11
Services	6	3
Public Sector Undertaking	6	2
Product Management	20	8
Data Analytics	78	22
Design	33	17
Data Science	48	16
Software Development	16	7
AI/ ML	15	8
Operations	4	3
Total	1,475	438*

**is not total number of companies as some companies have made offers in multiple sectors*

Table 3: Program-wise placement data 2023- 24 (including PPOs).

Program	Registered	Participated	Placed	Percentage placed
B.Tech.	930	819	683	83.39
M.Tech.	564	497	415	83.5
M.S. (Research)	23	15	14	93.33
Dual Degree (B.Tech. + M. Tech.)	216	192	152	79.16
M.Sc. (2-year)	228	158	87	55.06
Bachelors in Science (4-year)	69	60	39	65.0
B. Des.	26	17	9	52.94
Dual Degree (B.Des. + M. Des.)	10	10	4	40
M.Des.	69	63	36	57.14
M.S. (Research) (Exit Degree)	10	7	1	14.28
M.P.P.	11	6	0	0
Ph.D.	230	117	32	27.35
Others*	28	18	3	16.67
Total	2,414	1,979	1,475	74.53

*Includes other programmes such as 5-year Dual Degree (B.S. + M.S.), Dual (M. Tech.+PhD), Dual (M.Sc. + Ph.D.), M.Phill, MUDE, M.S by Research.

Department-wise placement statistics

IIT Bombay has 17 different departments, spanning various undergraduate, postgraduate and doctoral degree programmes. Along with these departments, several interdisciplinary schools and focused research centers also offer Bachelor+Masters (Dual Degree), Masters and PhD degrees. Student’s may also earn an honors degree from their parent department and/ or a minor degree from another department/ center by taking extra credits. The placement team endeavors to attract companies from core as well as non-core sectors for students. The placement statistics of students from all programmes for major departments/ centers during the placement season 2023-24 is compared with placement data from the preceding two years and shown in Table 4 and Figure 1. The placement numbers continue to be strong across departments.

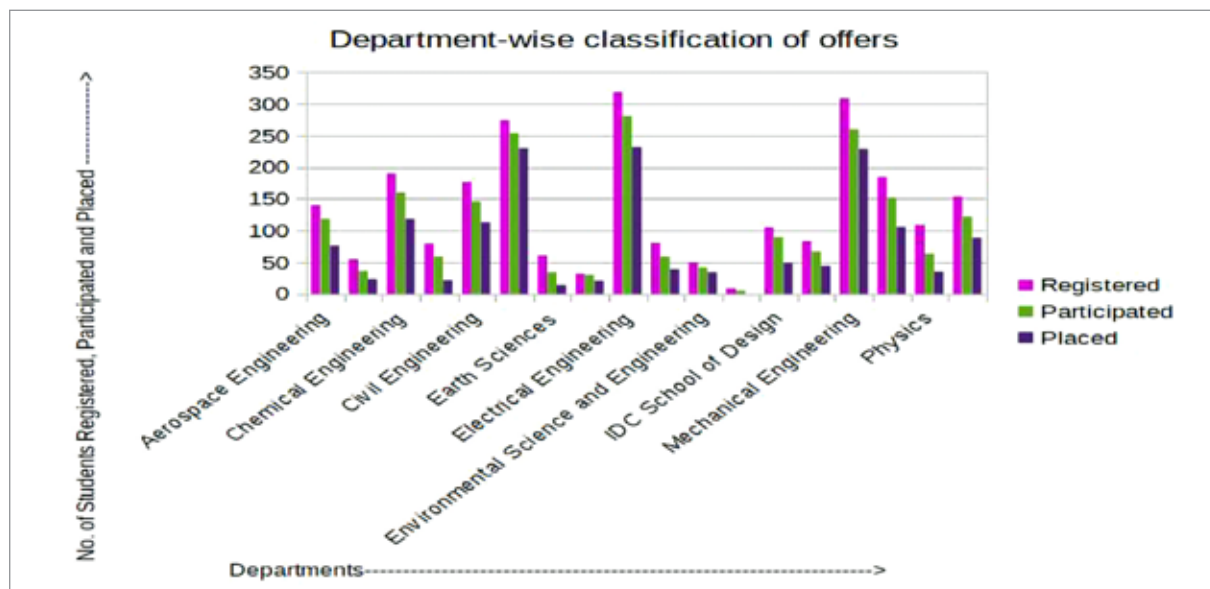


Figure 1.: Department-wise classification of offers

Table 4: Department-wise classification of offers.

Department / Centre	Registered	Participated	Placed
Aerospace Engineering	140	119	76
Biosciences and Bioengineering	55	36	23
Chemical Engineering	190	160	119
Chemistry	80	59	22
Civil Engineering	177	146	113
Computer Science & Engineering	275	254	230
Earth Sciences	61	34	14
Economics	32	30	21
Electrical Engineering	319	281	232
Energy Science and Engineering	81	59	39
Environmental Science and Engineering	50	42	34
Humanities and Social Sciences	9	5	0
Industrial Design Centre	105	90	49
Mathematics	83	67	44
Mechanical Engineering	308	260	229
Metallurgical Engineering and Materials Science	185	152	106
Physics	109	63	35
Other Programs	155	122	89
Total	2,414	1,979	1,475

Salary-wise statistics

The job offers by recruiting organizations are categorized based on the gross compensation packages. Factors other than compensation package, such as job profile, past association etc. may sometimes influence students choice of a company. Salary-wise classification of total offers made in the year 2023-24 is shown in Table 5.

Table 5: Placement details based on Salary compensation excluding PPOs

Range of gross salary (in Rupees) (Lakhs per annum)	Number of Offers	Number of Companies
Above 20	558	123
Between 16.75 to 20	230	70
Between 14.0 to 16.75	227	60
Between 12.0 to 14.0	93	29
Between 10 to 12	161	46
Between 8 to 10	128	43
Between 6 to 8	68	25
Between 4 to 6	10	7
Total	1,475	403*

*Includes other programmes such as 5-year Dual Degree (B.S. + M.S.), Dual (M.Tech.+PhD),

Dual (M.Sc. + Ph.D.), M.Phill, MUDE, M.S by Research.

Comparison of average salary, international and Pre-Placement Offers:

The Average Gross Salary offered was Rs. 17.92 LPA and the average salary (Based on CTC) was Rs. 23.50 LPA. The number of Pre-Placement Offers (PPO) was 258, while the number of international offers was 78. This suggests an increasing and a positive trend in the pay package offered by various organizations as can be seen in Table 6. The distribution of overseas offers as well as MNCs and Indian companies is listed in Table 7.

Table 6: Average salary, international and Pre-Placement Offer details

Description	2022-23	2023 - 24
Median Salary (CTC, in LPA*)	16.66	17.92
Average CTC (in LPA*)	21.82	23.50
Number of International Offers	65	76
Number of Pre-Placement Offers	194	258

*LPA-Lakhs per annum (in rupees)

Table 7: Placement statistics based on Company Type / Geography

Placement statistics based on Company Type / Geography	Number of students
Placement Outside India (International Location)	78
Placements in MNC's in India	775
Placements in Indian Companies	622
Total	1,475

Year-wise comparison of placement

Despite the challenging market situation this year, IIT Bombay continued to be the preferred Institute for most of the top firms. Table 8 show the comparison of students placed over the last three

years from the major degree programmes.

Table 8: Comparison of the number of students placed in the last three years

Program	2021-22	2022-23	2023-24
B.Tech.	544	598	683
Dual Degree (B.Tech.+M. Tech.)	184	178	152
M.Tech.	523	479	415
Others	190	261	225
Total	1,441	1,516	1,475

Sector-wise statistics for different programmes B.Tech. and M.Tech. students maintained almost the same demand amongst companies of various sectors.

Table 9. Sector-wise number of offers for different programs

Sectors	B.Tech.	Dual Degree	M.Tech.	Other Programs	Total
Engineering & Technology	159	46	194	31	430
IT/Software	178	22	78	29	307
Finance	80	14	3	16	113
Consulting	65	15	23	14	117
Research and Development	19	15	39	24	97
Data Analytics	27	9	17	25	78
Data Science	27	9	9	3	48
Design	0	1	3	29	33
Education	9	0	2	19	30
Product Management	15	4	0	1	20
Software Development	8	2	4	2	16
AI/ ML	4	1	7	3	15
Services	4	0	0	2	6
Public Sector Undertaking	5	1	0	0	6
Operations	4	0	0	0	4
Others	79	21	36	19	155
Total	683	160	415	217	1475

Note: Dual Degree mentioned includes all Dual degrees offered by various departments and centres such as B.Tech.+M.Tech., B.S.+M.Tech. The data does not including B.Des. + M.Des. Other programmes include PhD, M.Sc. And all other degrees not mentioned.

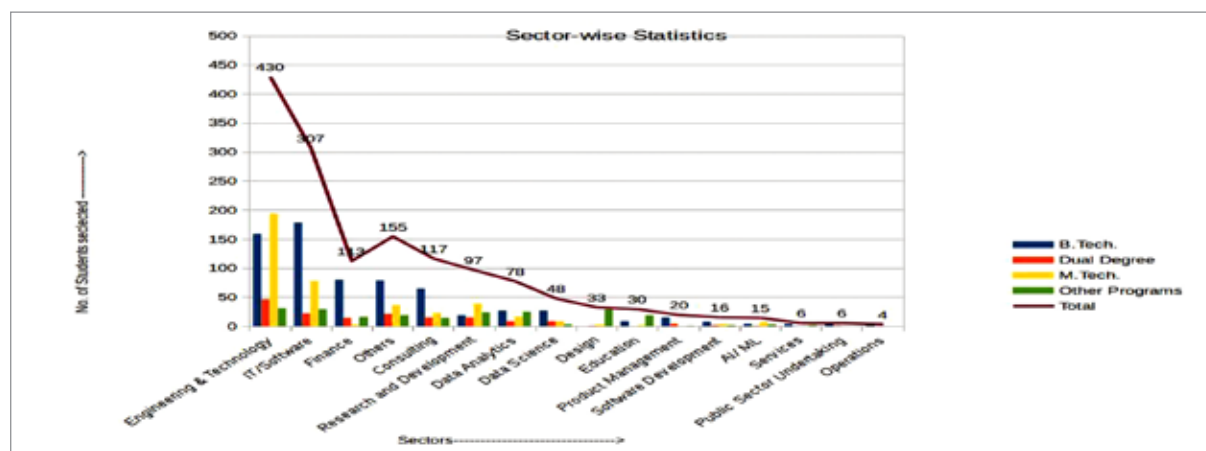


Figure 2: Sector-wise Statistics

PhD student placement

The PhD student placement details are as below:

Total number of registered students:	230
Number of active participants:	117
Total number of accepted offers:	32
Average CTC from allocated offers (in INR): Rs. 18.46 LPA	
Percentage of offers to active applicants: 27.11%	

Table 10: Ph.D. Students recruitment comparison three years

Academic Year	2021-22	2022-23	2023-24
Total Participated	67	131	117
Total Placed	30	41	32

Internships 2023–24

Pre-final year students have been offered Pre-placement Offers (PPOs) at the end of their internship term. PPOs at IIT Bombay have improved this year. Recruiter interest was highest for Computer Science followed by core engineering. This year 300 PPOs were received, of which 258 have been accepted by the students. Overall, these pre-placement offers were made after completion of internship at respective companies.

Department-wise internship offers

This year students from all the departments were in demand by firms and universities alike for internship positions. The demand for students from departments such as Computer Science was strong while that for Chemical, Civil, Mechanical and Metallurgical Engineering and Materials Science students was high. Table 11 and Figure 3 show the department-wise distribution of internship offers made over the past 3 years.

Table 11: Department-wise internship offers over years

Department	2021-22	2022-23	2023-24
Aerospace Engineering	58	54	40
Chemical Engineering	112	108	138
Chemistry	19	7	35
Civil Engineering	85	60	118
Computer Science	252	273	242
Electrical Engineering	176	179	169
Engineering Physics	38	44	45
Energy Science	20	25	32
Mechanical Engineering	155	171	217
MEMS	86	72	102
Others*	194	111	129
Total	1,195	1,104	1,267

*Others include students from IDC School of Design, Mathematics, Economics etc.

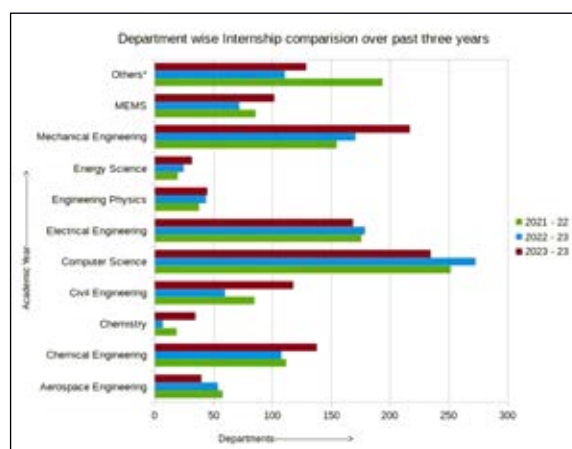


Figure 3: Department-wise internship comparison over past three years

Summer vs. Winter internship offers

Summer internships usually begin in May and continue till mid-July, whereas winter internships are pursued in the month of December. The number of summer internship offers exceeds the number of winter internships, which is attributable mainly to the longer duration available in summer.

Table 12. Summer vs. winter internship offers

Number of internships	Summer internships	Winter internships
1,267	1,178	89

Company vs. University internship offers

Companies of various business sectors offer internship positions to the students. This option presents an opportunity to gain industrial exposure and broaden one’s skill-set in the domain of interest. A few years ago, the Institute started the credit-based internship programme, by means of which the students could leverage the performance in their internship towards the academic credit requirement.

Table 13. Companies vs. Universities internship offers

Number of internships	Company offers	University offers
1,267	1,177	90

A major influence on a student’s career path tends to be the internships they undertake during their third-year summers. In all courses, 430 students pursued core internships related to their department, and 740 students pursued non-core internships in other companies.

Conclusion

The number of registered students in the 2023 - 24 placement drive is 2414. The count of registered students this year has increased by

11 % in comparison with last year. IIT Bombay has achieved the second highest of 1475 this year, compared to the number of students placed in the academic year 2022-23 with total number of accepted offers being 1516. The placement season was successfully completed with three out of four students securing desired job profiles despite challenging job scenario. The total recruited Ph.D. students are 32 out of 117 active participants.

Taking into account the total number of participating students, placement percentage is nearly 75%. Most of the remaining unplaced students prefer to pursue higher studies, self-employment or entrepreneurship over the jobs being offered to them. Almost all of the participating companies have honored their job offers. The overall average salary packages (based on CTC) showed a slight increase of 7.7 % over last year i.e. from Rs. 21.82 LPA to Rs. 23.5 LPA. Job scenario remains optimistic based on placement data over the last two years as the job generation has been robust after resumption of economic activity subsequent to the COVID – 19 pandemic and uncertainty job market. The total number of companies offering jobs has increased from 324 companies last year to 364 this year. Overall, the upward trend of placements continued in season 2023-24, confirming that IIT Bombay is the preferred recruiting destination for major Indian and multinational companies.



SOCIETY FOR INNOVATION AND ENTREPRENEURSHIP

Society for Innovation and Entrepreneurship (SINE), the technology business incubator of IIT Bombay, boasts a rich history for close to two decades. SINE being the broad-spectrum incubator has nurtured startups from various domains like hardware, healthcare, biotech, agritech, industrial, manufacturing, HR tech, buildtech etc. It has also been instrumental in monitoring many new and upcoming

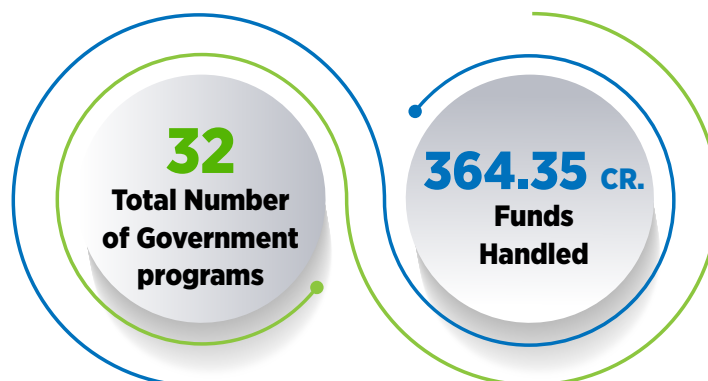
incubators. SINE's NIDHI Centre of Excellence by the Department of Science and Technology has been operational since July 2023. SINE also hosts the Bionest incubator to support life sciences and med-tech startups.

SINE, in its journey of two decades, has created the following impact:



In addition to incubation, as an implementation partner and a national Program Management Unit (PMU), SINE also manages government programs by different ministries.

Government programs and funds managed by SINE:



Select key highlights of the year:

ImmunoACT founded by Prof. Rahul Purwar, Department of Biosciences and Bioengineering, a SINE incubate company is the first company in India to develop indigenous CAR-T cell Cancer therapy and has received the Central Drugs Standard Control Organisation’s (CDSCO) marketing authorization approval.

Max Healthcare collaborated with ImmunoACT and announced the launch of the chimeric antigen receptor. (CAR)-T cell therapy at its hospital in Delhi-NCR.

IIT Bombay was honoured as the Best Assistive Technology Investor of the Year at the AssisTech Foundation (ATF) Awards 2023, which took place during the Bengaluru Tech Summit.

Former CEO of SINE Ms. Poyni Bhatt was honoured by the Minister of Tourism, Skill Development, and Entrepreneurship Shri Mangal Prabhat Lodha, at ISBACON 2023 for her outstanding two-decade-long dedication to the Incubator and Startup ecosystem.

Incubation

SINE’s ‘Start to Scale’ support focuses on preincubation to acceleration and provides access to various funding support to the startups. SINE hosted 234 companies since inception, of which 21 companies were incubated at 2023-24. Also, around 47 innovators and entrepreneurs were supported under various programs during the year.

SINE continues to act as a Program Management Unit (PMU) as nominated by DST, GoI for implementing the NIDHI-PRAYAS program nationwide and has completed the implementation of four cycles. The fifth cycle of the program is being implemented. A total 56 centres are implementing this program, SINE continues to monitor and mentor these centres across the country.

IIT Bombay IoE program: This initiative by IIT

Bombay is in line with the National Innovation and Start-up Policy (NISP) 2019, by way of funding to actively engage with students, alumni, faculty, and staff of IIT Bombay in innovation and entrepreneurial activities. The program provides funding in the form of grants at the idea/ POC stage ranging from 6 to 9 lakhs per innovator/startup. It also provides Translational Research Support (TRS) and scale-up support to the tune of Rs. 30 – 50 lakhs.



Pre-incubation programs – SINE has been successfully implementing prototyping grants and fellowship programs of various government departments like the Department of Science and Technology (DST), Department of Biotechnology (DBT), Ministry of Electronics and Information Technology (MeiTY), etc. These prototyping and entrepreneurial fellowship grants support aspiring or budding entrepreneurs in pursuing a promising technology business idea and help convert their ideas into prototypes. This results in startup formation, prototypes/ product development, fundraising, etc.

Fellowship Program

- DST NIDHI EiR - Completed the implementation of four cycles wherein 41 entrepreneurs were supported under the NIDHI-EIR program. In the ongoing fifth cycle, a total of 10 entrepreneurs have been supported with a total fund support of Rs. 36 lakhs
- MeitY EiR 2.0 – Completed two cycles, in the third cycle 6 innovators have been supported with a total funding support of Rs. 24 lakhs

Prototyping grants -

- NIDHI-PRAYAS - completed the implementation of four cycles. Under the fifth cycle, a total of 10 innovators/ start-ups have been supported with a total funding of

Rs. 100 lakhs

- MeitY 2.0 grant - Completed two cycles supporting 13 startups/innovators. In its ongoing third cycle, 6 innovators have been supported with a total funding support of Rs. 42 lakhs
- SINE as a BIG partner is executing and monitoring the Biotechnology Ignition Grant (BIG) grant from BIRAC across India. Under BIG, SINE has implemented 7 cycles. A total of 38 startups/innovators have been supported so far. Currently, the eighth cycle is underway wherein 8 startups have been supported



Impact of SINE programs:

iDEX – SINE, as a partner incubator for iDEX by the Ministry of Defence, has incubated around 30 startups. In the year 2023-24, eight new startups were added. The program focuses on defence technologies, and specific problem statements by defence, PSUs, and DPSUs.

Plugin Alliance:

A first-of-its-kind industry technology alliance in India named 'Plugin Alliance' provides an open collaborative framework for the ecosystem to nurture innovation and accelerate the adoption of smart industry solutions. The alliance has created an ecosystem of deep-tech startups with credible and validated solutions.

The Plugin Alliance currently consists of:

- 115 members including more than 33 large enterprises, seven solution and scale members, 15 funding institutions, 15 ecosystem members, and 45 deep-tech startups
- more than 265 solutions have been listed by 45 member startups
- more than 30 use cases shared by members for solution identification

Funding and Investment:

Around 38 start-ups associated with the SINE (including both current and graduate) have collectively raised an investment of Rs. 1202 crores. These include:

- ideaForge, a start-up incubated by SINE, has notably filed for an Initial Public Offering (IPO), becoming the first academic incubator-based start-up in India to do so. The IPO was remarkably successful, being oversubscribed by 106.06 times. The anchor investors for this IPO included prominent financial entities such as Nomura, Invesco, HSBC, ICICI Pru MF, Mirae Asset MF, HDFC MF, and Goldman Sachs. Other key investors who have supported various other start-ups in the SINE portfolio include Sorenson Capital, Eight Roads Ventures, Laurus Labs, Emerald City Ventures, Enrission India Capital Inc., Speciale Invest, Velumani HUF, Unicorn India Ventures, Shiru Café, and several angel investors.
- During this year, SINE sanctioned the investment of around Rs.12.13 crores to 23 startups via funding from various government agencies like IoE, DST, MeitY, DBT/ BIRAC, and CSR funds from corporates.

Events and Workshops

Investors Week @ SINE: SINE celebrated National Startup Week by conducting Investors Week at SINE IIT Bombay from 15-19 January 2024. A pivotal event that brought together 25 investors and 35 innovative startups. The event witnessed 250 high-impact meetings, each lasting for 45 minutes.

The five-day event bridged the gap between innovation and investment. SINE investing partners got a peek into the entrepreneurial ecosystem in IIT Bombay and SINE startups an opportunity to network and connect with leading early-stage investors.

SINE START: SINE organizes an in-house coaching program called Startup Training to Achieve Right Target (START) and 'Basics

of Business' for early-stage innovators. These programs started in February 2021, intending to broaden participants' thinking from a technology-centric mindset to a venture-centric mindset of doing business.

Startup founders were taken through different sessions covering various aspects of entrepreneurship and venture creation by startup founders and industry experts from various domains such as technology, product development, sales and marketing, and legal. Till now five cohorts have been completed with participation from around 102 startups.

Enterprise startup mela: SINE conducted 'Enterprise Partners and Startup Mela'. It was focused on providing an excellent opportunity for SINE enterprise partners and SINE-supported startups to interact and engage with each other.

International space tech startup support program: SINE along with its esteemed partners Taiwan Accelerator Plus (TAcc+) and Industrial Technology Research Institute (ITRI) conducted two roadshows in Hyderabad and Bengaluru, to showcase startups in the Indian space sector and to collaborate with potential international partners like the Taiwan space industry and manufacturers.

Technology Vision 2047 Roundtable: SINE in collaboration with Sapio Analytics & Technology Think Tank, Technology Information Forecasting and Assessment Council (TIFAC), the Government of India, hosted a roundtable event on how to shape the policies of India and create a Technology Vision for 2047 (100th year of India's independence).

Branding and Marketing Workshop: SINE held a two-day workshop on 'Branding & Marketing' for startups at IIT Bombay, where Mr. Balaji Chakravarthi, a B2B sales and Digital Marketing expert, provided valuable insights.

Partnerships and Collaborations

Partnerships are strengthening tools for startups

and the ecosystem. SINE continues to partner with multiple stakeholders to achieve an improvised upshot. SINE signed various MoUs to expand its partnerships during the year. In the year 2023-24, SINE signed an MOU with multiple corporates and investors.

In addition to this, Export-Import Bank of India (EXIM) Bank, ICICI Securities, ICICI HFC, DANA, AMD, Pensando, Shree NM Electricals, Panasonic and ZF India supported startups with seed funding and CSR. A total of 14 startups were selected for funding support of Rs. 437 lakhs.

ICICI Securities, SINE's CSR partner, visited SINE to engage with and facilitate interactive sessions for supported startups. They provided valuable insights to entrepreneurs and toured SINE's Biolab to view its equipment.

Awards and Accolades:

1. Haystack Analytics, a healthcare startup, was honoured with the Innovator Award in Genomics at Global Bio India 2023, presented by the Department of Biotechnology (DBT) and Biotechnology Industry Research Assistance Council (BIRAC).
2. Catapult-Mahindra Logistics named Pupilmesh the winner of Catapult 3.0 Premier Day. Pupilmesh specializes in AR headsets, providing a hands-free experience with real-time IIoT data, blueprints, manuals, and digital workflow information.
3. InspeCity, a space tech startup, was awarded the prestigious "Spacetech Startup of the Year" by Entrepreneur India. Additionally, the startup took part in a month-long space-tech startup program organized by TAcc+, where they exhibited their product at the Taipei Aerospace and Defense Technology Exhibition for three days.
4. Ayati Devices, a Medtech startup, secured the top prize of Rs. 50 Lakhs in the eighth iteration of the Qualcomm Design in India Challenge (QDIC), a program initiated by Qualcomm to promote innovation in Indian hardware design.



IIT BOMBAY RESEARCH PARK FOUNDATION

Applied Science Park for Innovation, Research and Entrepreneurship (ASPIRE), the Research Park at IIT Bombay, is a bridge between academia and industry. This bridge is both metaphorical – in that ASPIRE anchors research-led partnerships with industry, as well as tangible – comprising space designed for industry to set up research centres in the invigorating IIT Bombay campus. 2023-24 was a year marked by milestones, breakthroughs, and new beginnings for ASPIRE.

A most awaited moment was the grand inauguration of the ASPIRE-IIT Bombay Research Park building. The anticipation had been building for months, and when Prime

Minister Shri Narendra Modi inaugurated the building virtually, it was a moment of pride and achievement for everyone involved. This event symbolized the growth of innovation and partnership.

Throughout the year, ASPIRE remained engaged with the faculty and students, recognizing them as the core of the Institute.

TechTalk series:

In November 2023, the Research Park kicked off its TechTalk series with an insightful talk-session led by IIT Bombay Alumnus Mr. Dharmesh Jani on 'Sustainability in Open Compute and Meta's Goals and Initiatives'. Mr. Dharmesh Jani (DJ), holds degrees from IIT



▲ Guest of Honor, Member of Parliament (Mumbai North-East) Shri Manoj Kotak, Chairperson of the Board of Governors of IIT Bombay Dr. Sharad Saraf, former Director of IIT Bombay Prof. Subhasis Chaudhuri, Professor-In-Charge of the IIT Bombay Research Park Foundation Prof. Swaroop Ganguly and Institute functionaries at the inauguration of ASPIRE - IIT Bombay Research Park

Bombay (BTech, EE), UCLA (MSEE), and UC-Berkeley, Haas School of Business (MBA). Mr. Jani has been a key figure in the Open Compute Project (OCP) since 2012. At Meta, he leads the Infra ecosystem and partnerships, focusing on OCP and open technologies for the past five years. Mr. Jani currently chairs the OCP Incubation Committee and sits on the Board of Directors for Universal Chiplet Interface Express (UCIe). The talk was a blend of historical insights and future aspirations, leaving the audience motivated to contribute to a sustainable future.

Seminars and Workshops:

In February 2024, the students gathered for a seminar on global leadership. The speaker was Mr. Yogendra Puranik, a man who had made history in Japan with his remarkable achievements. He spoke passionately about the skills needed to become a global leader and the importance of learning foreign languages, inspiring the students to broaden their horizons.

The year was also filled with dynamic collaborations and events. In May 2023, IIT Bombay Research Park Foundation organised a workshop showcasing IIT Bombay's capabilities. The workshop attracted renowned Japanese companies. This event was a stepping stone for future collaborations.

The Indo-French R&D Seminar in June 2023 brought together representatives from 32 French companies, leading to fruitful discussions and potential partnerships. The Research Park's outreach efforts extended internationally with a strategic roadshow in Japan, showcasing IIT Bombay's value proposition to prominent Japanese companies. This initiative, coupled

with meetings with the Indian Ambassador to Japan, facilitated discussions on potential collaborations.

ASPIRE's outreach efforts were not limited to workshops and seminars. The foundation partnered with the Centre for Semiconductor Technologies (SemiX) and the Wadhvani Research Center for Biotechnology (WRCB) at IIT Bombay to conduct summits, fostering interdisciplinary interactions and attracting new member companies. The Annual Clients and Associates Day was a grand success, with representatives from 25 companies engaging in meaningful interactions with the academic community.

ASPIRE also celebrated the remarkable achievements of its member companies. IdeaForge made headlines with its Initial Public Offering in July, marking a significant milestone in its journey. NeoDocs, co-founded by Nikunj and Pratik, was another shining star. Their inclusion in Forbes' prestigious 30 Under 30 list, coupled with raising \$2 million in seed funding, showcased their dedication to bringing affordable diagnostics to India. Their triumph at the AI-Gamechangers Awards during the GPAI Summit 2023 was the cherry on top. Applied Materials, with its long-standing partnership with IIT Bombay, found a special mention in Dr. Philip Kotler's iconic book 'Essentials of Modern Marketing'. This collaboration, spanning 18 years, stood as a testament to industry-academia partnerships.

ASPIRE continues its journey in creating a vibrant ecosystem where ideas can flourish and grow. The journey is far from over, but the foundation has been laid for a legacy of excellence and partnership.

INSTITUTE EVENTS

1) Hon'ble Vice President of India Shri Jagdeep Dhankhar Visits IIT Bombay

The Hon'ble Vice President of India Shri Jagdeep Dhankhar visited IIT Bombay and addressed the students, faculty and staff members of the Institute on November 6, 2023. Shri Ramesh Bais, Hon'ble Governor of Maharashtra, was the Guest of Honour on the occasion.



During his visit, Hon'ble Vice President of India Shri Jagdeep Dhankhar also planted a sapling in the Institute campus and delivered a lecture titled 'Role of Youth in Nation Building' as part of Viksit Bharat @ 2047.

Prof. S. Sudarshan, former Deputy Director (Academic and Infrastructural Affairs), IIT Bombay; Prof. K.V.K. Rao, Deputy Director (Finance, Infrastructure and Administration), IIT Bombay, students, faculty members and other dignitaries were present at the event.

2) IIT Bombay Hosts G20 RIIG Delegates

IIT Bombay hosted delegates of the G20 RIIG Summit and Research Ministers' Meeting on July 6, 2023. Acting Director Prof. S.



Sudarshan presented an overview of the IITs, Asso. Dean (Research and Development) Prof. Upendra Bhandarkar spoke about the R&D ecosystem and Prof. Asim Tewari, Department of Mechanical Engineering, talked about the entrepreneurship and innovation environment at IIT Bombay followed by a brief interaction. The delegates later visited the R&D stalls put up by various Departments and Centers of the Institute.

3) 65th Foundation Day:

The Indian Institute of Technology Bombay celebrated its 65th Foundation Day on March 7, 2024 by honouring the contributions of its faculty members as well as alumni who have left their mark in their chosen fields of profession. Prof. Ajay Kumar Sood, Principal Scientific Adviser, Government of India, graced the occasion as the Chief Guest of the function.

The "Prof. S. C. Bhattacharya Award for Excellence in Pure Sciences" and the "Prof. H. H. Mathur Award for Excellence in Applied Sciences" are prestigious awards presented annually by IIT

Bombay. These accolades have been established through the generous contributions of IIT Bombay alumnus Mr. Rakesh Mathur. These awards recognize and celebrate outstanding achievements and contributions in the fields of pure and applied sciences.

The ‘Prof. S. C. Bhattacharya Award for Excellence in Research in Pure Sciences’ for 2023 was conferred on Prof. Ruchi Anand, Department of Chemistry, and ‘Prof. H. H. Mathur Award for Excellence in Applied Sciences’ for 2023 was conferred on Prof. Rohit Srivastava, Department of Biosciences and Bioengineering.



The Prof. S.C. Sahasrabudhe Lifetime Achievement Award (2023-24) was conferred on Prof. P. M. Mujumdar, former Head of the Department of Aerospace Engineering (2008–11) and Deputy Director (Finance and External Affairs) of IIT Bombay from 2015-2021, in recognition of his outstanding contributions as teacher, researcher and administrator, during the Foundation Day celebration.

The Institute recognised 14 select alumni of IIT Bombay, with the Distinguished Alumnus Awards (DAA) and four select alumni of IIT Bombay, who have excelled in their field of work and made the Institute proud, with the Young Alumni Achiever Awards (YAAA), during the function.

DAA Awardees

- Prof. Anil Virkar (BTech, Metallurgical Engineering, 1967)
- Mr. Narendra Goliya (BTech, Electrical Engineering, 1974)
- Mr. Salil Donde (BTech, Mechanical Engineering, 1980)
- Dr. Pratap Nair (BTech, Chemical Engineering, 1983)

- Mr. Nallicheri Vydiathan Tyagarajan (BTech, Mechanical Engineering, 1983)
- Dr. Shridhar Bhalchandra Shukla, (BTech, Electrical Engineering, 1983)
- Mr. Sanjay Jain (BTech, Computer Science and Engineering, 1987)
- Mr. Rajesh Jain (BTech, Electrical Engineering, 1988)
- Mr. Karthik Ganapathy (BTech, Electrical Engineering, 1993)
- Dr. Mukesh V. Khare (BTech, Electrical Engineering, 1994)
- Prof. Ashwin Arunkumar Seshia (BTech, Engineering Physics, 1996)
- Mr. Kashyap Deorah (BTech, Computer Science and Engineering, 2000)

- Mr. Nakul Aggarwal (BTech, Computer Science and Engineering, 2000)
- Mr. Ritesh Arora (BTech, Computer Science and Engineering, 2006)

YAAA Awardees

- Dr. Alekh Agarwal (BTech, Computer Science and Engineering, 2007)
- Dr. Abhinav Kandala (BTech, Engineering Physics, 2008)
- Prof. Karthik Shekhar (Dual Degree (BTech and MTech), Chemical Engineering, 2008)
- Mr. Somay Vinayak Munde (Dual Degree (BTech and MTech), Chemical Engineering, 2013)



4) Interim Session of 62nd Convocation:

IIT Bombay awarded degrees to 325 students at the interim session of its 62nd Convocation on February 24, 2024 at the Institute's Convocation Hall.

At the interim session of 62nd convocation, 352 degrees were awarded, which included 209 PhD students (including dual degrees(MTech/ MSc +PhD)). In addition, 143 degrees including 44 E-MBA degrees were awarded to students of various other programs.

The degrees were conferred upon those students who have completed all the requirements during the period from August 2023 to January 2024 and have requested

for the degree to be awarded earlier than the 62nd Convocation. Prof. Satish K. Tripathi, University at Buffalo, State University of New York, was the Chief Guest of the function. The function was presided by the Chairman of the Board of Governors, IIT Bombay Dr. Sharad Kumar Saraf and the Director Prof. Subhasis Chaudhuri gave away the degrees.

5) Commencement Ceremony

IIT Bombay held Commencement 2024 on May 3, 2024 at the Institute's Convocation Hall.

Mr. Natarajan Chandrasekaran, the Chairman of Tata Sons, the holding company and promoter of all Tata Group companies, was the Chief Guest at the ceremony and delivered the Commencement Address.

Commencement is a special event to be conducted once every year to gather all students expected to graduate in that academic year. It does not depend on actual completion of any graduation requirements (such as courses and thesis). Participating in the Commencement event does not mean that the student has graduated. The event is held soon after the end semester examinations of the 2nd semester, before the graduating batch leaves the campus. This gives an opportunity for the entire graduating batch to celebrate their stay in the Institute along with their batchmates, and also invite their family and friends to the campus to partake in the joy. The event is similar to the traditional Convocation ceremony: uniformly dressed students, Academic procession, Chief Guest and Director address, photo-op with the Director, and a Pledge. However, it is devoid of degrees, medals, or special awards to the students, since they are yet to complete the requirements of graduation.

During the afternoon session, about 2489 students who were likely to graduate, were invited for a photo opportunity with the Director on the dais. The students included (approx) 1249 undergraduate, 1005 postgraduate and 235 PhDs.



6) Teachers' Day:

The Indian Institute of Technology Bombay (IIT Bombay) celebrated its 65th Teachers' Day on September 5, 2023. Dr. Arunava Majumdar, Dean, Stanford Doerr School of Sustainability, Jay Precourt Professor, Professor of Mechanical Engineering, Stanford University was the Chief Guest on the occasion. IIT Bombay's former

Director Prof. Subhasis Chaudhuri presented:

- The International Award for Excellence in Research in Engineering and Technology
- Prof. S. P. Sukhatme Award for Excellence in Teaching
- Dr. P.K. Patwardhan Technology Development Award (2022)
- Excellence in Academics Award



The IIT Bombay International Award for Excellence in Research in Engineering and Technology (instituted by Mr. Sandeep Naik and Mr. Shantanu Rastogi) was conferred on Dr. Nitin Saxena, N. Rama Rao Chair Professor, Department of Computer Science and Engineering, IIT Kanpur, in commendation of his outstanding contributions in the areas of computational algebra and complexity, including solving a long-standing open problem in algorithmic number theory related to efficiently checking for the primality of numbers.

The Professor S. P. Sukhatme Award for Excellence in Teaching was awarded to 15 select faculty members recognising their exceptional contributions to teaching:

- Prof. Pradeep Amboor Madathil, Department of Aerospace Engineering
- Prof. Kumar Singh, Department of Earth Sciences
- Prof. Suneet Singh, Department of Energy Science and Engineering



- Prof. Shishir Jha, Centre for Policy Studies formerly with SJMSOM
- Prof. Amartya Mukhopadhyay, Department of Metallurgical Engineering and Materials Science
- Prof. Tanmay Bhandakkar, Department of Mechanical Engineering
- Prof. Avijit Chatterjee, Department of Aerospace Engineering
- Prof. Dipankar Saha, Department of Electrical Engineering
- Prof. Saravanan Vijayakumaran, Department of Electrical Engineering
- Prof. Uday Khedker, Department of Computer Science and Engineering
- Prof. Mandar Inamdar, Department of Civil Engineering
- Prof. Ranjan Panda, Department of Humanities and Social Sciences
- Prof. Salil Kulkarni, Department of Mechanical Engineering
- Prof. Sankagiri Umasankar, Department of Physics
- Prof. Pichai Ramadevi, Department of Physics



Prof. Bhaskaran Raman, Department of Computer Science and Engineering, receiving the Dr. P.K. Patwardhan Technology Development Award (2022)

Dr. P. K. Patwardhan Technology Development Award (2022) was awarded to Prof. Bhaskaran Raman, Department of Computer Science & Engineering & Prof. Kameswari Chebrolu, Department of Computer Science & Engineering in recognition of their innovative R&D work on “SAFE: Smart Authenticated Fast Exam”.

As a recognition to the top-performing students of each class, IIT Bombay, conferred ‘Excellence

in Academics Award’ to 61 students for their superlative academic performance, during the Teachers’ day function.

7) Alumni Day:

IIT Bombay celebrated its annual Alumni Day on December 24, 2023, at VMCC on the campus. As part of the function, Distinguished Service Award (instituted in 1999) was bestowed on Mr. Gajanan Vithal Gandhe, B.Tech., 1986, Civil Engineering. The Chapter Service Awards (instituted during the Diamond Jubilee year celebrations) are given to four select alumni who have contributed consistently to the progress of their Chapters and the Institute.

The awardees include:

- Mr. Kicha Ganapathy, B.Tech., 1967, Electrical Engineering (Chapter: New York)
- Mr. Deepak Digambar Thite, M.Tech., 1996, Mechanical Engineering (Chapter: Pune)
- Mr. Amit Gupta, B.Tech., 2002, Chemical Engineering (Chapter: Japan)
- Ms. Tarana Gupta, M. Design, 2009, IDC (Chapter: New York)



Awardees with former Deputy Director (Academic and Infrastructural Affairs) Prof. S. Sudarshan (first from right), Deputy Director (Finance, Infrastructure and Administration) Prof. K.V.K. Rao (second from left) and Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi (first from left)

IIT Bombay launched the 3rd edition of its annual fund-raising campaign ‘GO-IIT Bombay’ for 2023-24. The theme is ‘Invest in Excellence. Shape Tomorrow’.

The Silver Jubilee Batch (class of 1998) has pledged a sum of Rs. 57 crores towards its Legacy Project. The Legacy Project is a way for alumni to come together with their batchmates

to give back to their alma mater and leave behind a lasting legacy and remembrance of their milestone reunions.

On the occasion, the Golden Jubilee Batch C1973 pledged a total of Rs 7.15 crores to support two causes: C1973 EV Power Train Laboratory and C1973 Faculty Awards for Excellence in Research.

8) 75th Republic Day:

IIT Bombay celebrated the 75th Republic Day on January 26, 2024. The celebration began with the unfurling of the National Flag by the Institute’s former Director Prof. Subhasis Chaudhuri at the Institute’s Gymkhana ground. IIT Bombay security

staff and NCC gave a salute to the National Flag.

During the event, the Prof. Subhasis Chaudhuri awarded certificates to winners of an essay writing competition on “Say no to corruption; commit to nation” held during Vigilance Awareness Week 2023. Security Officers, guards and staff from IIT Bombay and NCC cadets were felicitated during the event. Certificates were also presented to students for securing prizes in the “Words of Change” creative writing competition organized by the Gender Cell under the ‘Elimination of Violence Against Women Pakhwada 2023’.



Republic Day celebrations at the Institute’s Gymkhana ground

9) Ek Bharat Shreshtha Bharat (EBSB) - Yuva Sangam Programme:

Indian Institute of Technology Bombay, for the first time, welcomed 45 youth from Dr. B.R. Ambedkar National Institute of Technology Jalandhar, Punjab under Ek Bharat Shreshtha Bharat (EBSB) ‘Yuva Sangam’ campaign held during May 7-12, 2023. The youth delegation included 22 girls and 23 boys in the age group 18 to 30 years.



Former Hon’ble Governor of Maharashtra Mr. Ramesh Bias with the Yuva Sangam delegates from Punjab



The Governor of Maharashtra Mr. Ramesh Bais addressed the delegates during an interaction session at Raj Bhavan on May 9, 2023. Besides, these students also visited the Bombay Stock Exchange, Chhatrapati Shivaji Terminus, Gateway of India, Vidhan Sabha, Kanheri Caves and other places of interest during their stay in Mumbai. The students also explored the campus of IIT Bombay. In addition, the Yuva Sangam delegates from Punjab played a friendly basketball match with IIT Bombay students displaying a spirit of sportsmanship and unity.

The exposure tour provided an immersive, multidimensional experience under five broad areas: Paryatan (Tourism), Parampara (Traditions), Pragati (Development), Prodyogik (Technology) and Paraspar Sampark (People-to-people connect).

The Yuva Sangam programme, envisaged the participation of 1000 youngsters from 23 states & Union Territories of India. Maharashtra was paired with Punjab as part of this initiative. As a part of this programme, 35 youth from Maharashtra and 10 from Dadra-Nagar Haveli, Daman-Diu also travelled to NIT Jalandhar during May 12-19, 2023.

10) World Bicycle Day:

To highlight the importance of fitness and celebrate World Bicycle Day, IIT Bombay Sports organised a 5 km bicycle rally on June 3, 2023. Around 100 participants of all age groups participated in the rally.

11) International Day of Yoga:

49 NCC cadets of KV IIT Powai (Unit-2 MAH ENGR REGT) celebrated International Yoga Day 2023. Trained yoga instructors from Ambika Yog Kutir Mrs. Sandhya, Mrs. Janki, Mrs. Susheela and faculties Mr. Harish K Pillai (Incharge, Students Activity Centre), Prof. Atul Srivastava, Associate Dean (Student Affairs), Prof. S. V. Kulkarni, Ex-Dean (Administrative Affairs), Dr. Deepak Sachdeva (Founder and Director, Medical Yoga Centre), Mr. Ganesh Bhorkade (Registrar, IIT Bombay), Prof. Neeraj Kumbhakarna (Faculty

Advisor, Yogastha) along with other Yogastha team members and volunteers Mr. SK Wale and Mrs. B Lavanya guided the cadets. The session started with prayer and chanting of AUM and concluded with prayer. Under their supervision, the cadets performed different asanas and pranayama. The instructors made the cadets aware of the importance of physical, mental fitness and role of yoga asanas, meditation and pranayama.

IIT Campus School and Junior College also celebrated Yoga Day celebration under the guidance of Principal Mrs. Valsala Kumari, Vice Principal Mrs. Geeta Shewde and Primary Incharge Mrs. Anita Hiregange. The event aimed to raise awareness about the benefits of yoga and encourage students to incorporate it into their daily lives. Students and teachers of KG School also celebrated International Yoga Day 2023.

12) World Environment Day:

On the occasion of World Environment Day, NSS IIT Bombay conducted a bicycle rally on June 4, 2023, to raise awareness of environment. The rally witnessed a footfall of above 200 enthusiastic participants. Dean (Students Affairs) Prof. Suryanarayana Doolla flagged off the rally.

The Abhyuday, IIT Bombay in collaboration with UNICEF India and Project Mumbai, conducted the Powai Lake Cleanup Drive as part of World Environment Day. The drive saw tremendous participation from the students, faculty and staff of IIT Bombay as well as neighbours. Around 400 volunteers participated. Cleaning took place along the lake's 2 km-long perimeter. Around 3 tonnes of trash were collected in the cleanup. The aim of this campaign was to spread the idea that everyone has a duty to keep their surroundings free of plastic and that even a small effort can have a significant impact.

The Environmental Science and Engineering Department (ESED) and the Environmental Science and Engineering Association (ESEA) conducted a talk session titled "Impacts and Methods to Combat Climate Change" by Prof.

Ajit Annachhatre, Emeritus Professor at the Asian Institute of Technology, Bangkok, Thailand, and musical programme on June 2, 2023, celebrating World Environment Day. The objective of this event was to raise awareness about the importance of environmental conservation and sustainable practices.

13) Van Mahotsav:

IIT Bombay celebrated the 32nd Van Mahotsav – the annual tree plantation drive on July 29, 2023. More than 450 saplings were planted by IIT Bombay faculty, staff and students along with students and teachers of Kendriya Vidyalaya and Campus School within the IIT Bombay campus. The Chief Guest of the function was Mr. Jitendra Pardesi, Superintendent of Gardens, Brihanmumbai Municipal Corporation (BMC).



School students planting trees and performing a skit during Van Mahotsav 2023

14) Partition Horrors Remembrance Day:

IIT Bombay observed ‘Partition Horrors Remembrance Day’ on August 14, 2023, commemorating the victims and sufferings of people during the 1947 partition of India. On this occasion, a digital exhibition, curated jointly by the Indian Council of Historical Research

(ICHR) and the Indira Gandhi National Centre for the Arts (IGNCA), was organised in the foyer of the VMCC.

15) 77th Independence Day:

IIT Bombay celebrated the 77th Independence Day near the arch on the infinity corridor, facing the Nandan Nilekani Main Building on August 15, 2023. The celebration began with the hoisting of the national flag by the Institute’s former Director Prof. Subhasis Chaudhuri. The Institute celebrated the ‘Azadi Ka Amrit Mahotsav (AKAM)’, commemorating the 75 glorious years of a progressive independent India. The campusites gave a tremendous response to the ‘Har Ghar Tiranga’ campaign by hoisting the National Flag of India in their homes fostering national pride and unity on the occasion of Independence Day.



On the 77th anniversary of India’s independence, the National Cadet Corps (NCC) unit of IIT Bombay organised a 1000-foot-long “Tiranga March” in a show of unity, pride and patriotism. More than 1000 participants, including NCC cadets, faculty and staff, proudly carried the tricolour flag through the sprawling campus, covering more than 3 kilometres. The Tiranga March commenced from the iconic Nandan Nilekani Main Building of IIT Bombay and reached the NCC area.

In line with Hon'ble Prime Minister Narendra Modi's theme of "Meri Maati Mera Desh," the IIT Bombay NSS Green Campus (GC) team celebrated Independence Day by distributing Tulsi seeds. This initiative resonated with the essence of patriotism and environmental consciousness.

16) National Sports Day:

To commemorate the birth anniversary of hockey legend Major Dhyan Chand, IIT Bombay celebrated National Sports Day on August 29, 2023, at the Indoor Cricket Court on the campus. The Institute of Sports Council of IIT Bombay organized a mixed hockey league for male and female players, that saw participation from all undergraduate (UG) and postgraduate (PG) students, faculty and staff members.

17) National Engineers' Day:

The Engineers' team of the Electrical and Maintenance Division (EMD) at IIT Bombay celebrated National Engineer's Day in honour of the birth anniversary of Bharat Ratna Dr. Mokshagundam Visvesvaraya on September 15, 2023. The team organised a training session on Harmonics Mitigation and Modernization of electrical systems as part of the celebration. The EMD Team highlighted the significance of engineering as a profession and its role in the nation's progress, including the recently executed and upcoming technology-oriented, energy-saving projects.

18) Swachhata Pakhwada:

IIT Bombay observed Swachhata Pakhwada 2023 (Ek Tareekh Ek Ghanta - Shramdaan program) from 10 am to 11 am on October 1, 2023. The event saw the active participation of 800 individuals who cleaned an area of 61,427 sq.m. and collected 2587 kgs of waste (segregated as wet waste, dry waste, garden waste, scrap and glass waste).

The Horticulture Section of IIT Bombay collected dry-cut wood branches, cut grass and dry leaves and disposed 119 cubic meters of horticulture dry/ green waste. They also planted 90 saplings (above 6 ft in height) in the hostels. As part of the

event, activities such as collection of tree branches and trunks, segregation and collection of dry-wet waste, collection of scrap and junk (unclaimed), identification of material to be written off, cleaning of residential area, cleaning of department and hostel terrace area and shifting of unwanted and unclaimed material, were carried out.



IIT Bombay staff and few functionaries during Ek Tareekh Ek Ghanta-Shramdaan programme

19) Birth Anniversary of Mahatma Gandhi and Lal Bahadur Shastri:

IIT Bombay paid homage to the Father of the Nation Mahatma Gandhi and former Prime Minister Lal Bahadur Shastri on their birth anniversary on October 2, 2023. The Institute Cultural Council organized the Jayanti celebrations at P.C. Saxena Auditorium. IIT Bombay functionaries, including former Deputy Director (Academic and Infrastructural Affairs) Prof. S. Sudarshan; Deputy Director (Finance, Infrastructure and Administration) Prof. KVK Rao; Dean (Infrastructure Planning and Support) Prof. Tom V. Mathew; Associate Dean-III (IPS) Prof. Anurag Garg; Dean (Student Affairs) Prof. Suryanarayana Doolla; Associate Dean (Student Affairs) Prof. Atul Srivastava; Registrar Mr. Ganesh Bhorkade and other dignitaries lighted the lamp and paid floral tributes to Gandhiji and Shastriji during the function. The Institute community present on the occasion took the Swachhata pledge. Students of Campus School, Kendriya Vidyalaya and IIT Bombay received appreciation certificates for various competitions held as part of Swachhata Pakhwada 2023.

20) Rashtriya Ekta Diwas:

The Indian Institute of Technology Bombay

commemorated the birth anniversary of the Iron Man of India, Sardar Vallabhbhai Patel, by observing National Unity Day (Rashtriya Ekta Diwas) on October 31, 2023. The 'Rashtriya Ekta Diwas Pledge' was administered to employees of IIT Bombay in Hindi by the Dean (Administrative Affairs) Prof. Nand Kishore and in English by Ex. Joint Registrar - Human Resources, HR-2 (HCM) Section Dr. K. V. Reghuthaman at VMCC.

21) Vigilance Awareness Week:

To observe Vigilance Awareness Week from October 30-November 05, 2023, IIT Bombay staff undertook a pledge to promote integrity in public life and achieve a corruption-free society. The 'Integrity Pledge' was administered to employees of IIT Bombay in Hindi by the Dean (Administrative Affairs) Prof. Nand Kishore and in English by Ex. Joint Registrar - Human Resources, HR-2 (HCM) Section Dr. K. V. Reghuthaman at VMCC.

The Vigilance Cell of IIT Bombay has also organised an essay-writing competition for the campus community on the theme 'Say no to corruption; commit to the Nation.'

22) National Constitution Day:

IIT Bombay observed the National Constitution Day on November 26, 2023. To commemorate the adoption of the Constitution of India, IIT Bombay participants read the 'Preamble To The Constitution' online.

23) Jal Shakti Abhiyan (JSA):

The Ministry of Jal Shakti launched a nationwide campaign "Jal Shakti Abhiyan: Catch the Rain" (JSA: CTR) focusing on saving and conserving rainwater with the theme "Source sustainability for drinking water" during March 4-November 30, 2023.

As a participating Institute in this campaign, IIT Bombay organized various competitions, including slogan writing, poster making and essay writing.

24) National Science Day:

IIT Bombay celebrated National Science Day on February 28, 2024, to commemorate the discovery of the 'Raman Effect' by Sir C.V. Raman, an Indian physicist for which he was awarded the Nobel Prize in Physics in 1930. As part of this celebration, IIT Bombay organized lectures by Prof. Samir Maji, Department of Biosciences and Bioengineering on "Mechanism and development of blood tests for Parkinson's disease" and Prof. Varun Bhalerao, Department of Physics on "Ultimate Alchemy: How does the Universe create gold?".

25) Matribhasha Diwas:

The Indian Institute of Technology Bombay celebrated Matribhasha Diwas (International Mother Language Day) on February 21, 2024 by organising a cultural programme at P.C. Saxena Auditorium. Over 25 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.

26) International Women's Day:

The Gender Cell at IIT Bombay celebrated International Women's Day on March 8, 2024. Noted actress Ms. Ratna Pathak Shah was the invited guest for the function.

27) "Mera Pehla Vote Desh Ke Liye" campaign:

Mera Pehla Vote Desh Ke Liye - a voting awareness campaign envisioned by Hon'ble Prime Minister Shri Narendra Modi to encourage Amrit Peedhi to step into the democratic arena for the first time, was observed. From being a spectator to becoming a participant in shaping the nation's future, the Mera Pehla Vote Desh Ke Liye campaign called upon the youth of the country to come forward and cast their vote in the largest electoral process, the 18th Lok Sabha Election. As a part of the campaign, students of IIT Bombay pledged to exercise their right of casting vote.

28) Pariksha Pe Charcha:

Students of KV IIT Bombay attended the 7th edition of “Pariksha Pe Charcha” on January 29, 2024. Their day began on a high note, as they explored the keys to exam triumph and life’s adventures through various insights shared by Hon’ble Prime Minister of India Shri Narendra Modi.

29) Inaugurations on campus during 2023-24

1) Centre For Machine Intelligence And Data Science (CMInDS)

IIT Bombay has set up a Centre For Machine Intelligence And Data Science with a vision to provide technology and thought leadership in Machine Intelligence and Data Science through teaching, research, academic outreach and industry collaboration. Set up in 2020, the physical space of this Centre was unveiled during an inaugural ceremony held on campus on April 28, 2023.

The inauguration event was presided over by Chief Guest Dr. Samir Kamat, Secretary, Department of Defence R&D and Chairman, Defence Research and Development Organisation (DRDO).

The Centre for Machine Intelligence and Data Science (C-MInDS) at IIT Bombay is committed to furthering its mission of being the thought and technology leader through impactful teaching, research, academic outreach and industry collaboration. C-MInDS has been established to contribute to the growing significance of the role of Artificial Intelligence, Data Science, and related areas in different application domains.

2) A New Playground

IIT Bombay dedicated a new playground, addressing the growing need for sports facilities on campus, on May 25, 2023. The playground has a mini-football field, a volleyball court and three cricket nets. The playground is accessible via a newly constructed staircase between Hostels 12 and 13, located behind the cone structure of H12 and H13.

3) Research Hub for Green Energy and Sustainability:

IIT Bombay is fostering a collaborative environment where faculty, researchers, students and even campus residents work together to drive innovation. This collaborative spirit extends to strategic partnerships with industries, NGOs and universities worldwide. IIT Bombay aims to tackle critical sustainability challenges head-on. Beyond research, IIT Bombay is actively transforming its own campus into a model of sustainability. Through initiatives like “Net Zero Campus”, IIT Bombay is implementing environmentally friendly practices, paving the way for a more sustainable future for all. The Institute is creating world-class educational and training programs in green energy and sustainability. These programs, coupled with entrepreneurship workshops and hackathons, will equip students and industry professionals with the skills and knowledge needed to solve tomorrow's environmental challenges. IIT Bombay is fostering a global consortium to bring together industry leaders, NGOs, government bodies and academics from around the world, to facilitate knowledge sharing and accelerate the transition to a sustainable future. IIT Bombay extends a hand to industries, startups, and organizations seeking innovative solutions in the green energy space to build a future powered by clean energy and sustainable practices, ensuring a thriving planet for generations to come.

4) New Centre Of Excellence On Membrane Technologies For Desalination, Brine Management And Water Recycling

IIT Bombay inaugurated a new Centre of Excellence on Membrane Technologies for Desalination, Brine Management and Water Recycling on July 21, 2023. The new Centre’s advanced instrumentation facility and website were also inaugurated on the occasion.

This Centre represents a significant step towards ensuring safe, reliable and sustainable potable water sources for rural and urban India

for industrial as well as domestic applications by using innovative membrane technologies.

The five IITs (IIT Bombay, IIT Delhi, IIT Kharagpur, IIT Tirupati and IIT Hyderabad) will work closely with different industries, NGOs and other stakeholders to develop various desalination, brine management and water recycling technologies.

Prof. Swatantra Pratap Singh, Environmental Science and Engineering Department and Professor-In-Charge of the new Centre, along with Institute functionaries were present during the inauguration.

5) **New building for the DRDO-Industry-Academia Centre of Excellence (DIA-CoE)**

The foundation stone of the new building for the DRDO-Industry-Academia Centre of Excellence (DIA-CoE), a joint Centre between IIT Bombay, IIT Madras and DRDO with its headquarters at IIT Bombay, was laid by Dr. Samir V Kamat, Secretary, Department of Defence Research & Development (DDR&D) and Chairman Defence Research and Development Organisation (DRDO) and Prof. Subhasis Chaudhuri, former Director, IIT Bombay on November 16, 2023.

6) **INOX Cryogenics Research Lab**

IIT Bombay inaugurated the INOX Cryogenics Research Lab on October 5, 2023. This event was graced by Prof. Subhasis Chaudhuri, former Director of IIT Bombay; Prof. Milind Atrey, INOX Chair Professor of Cryogenics and former Dean (Research and Development); Mr. Siddharth Jain, Director of INOX Group; Mr. Parag Kulkarni, Executive Director of INOXCVA and other dignitaries. The lab aims to provide opportunity to students to perform experiments, understand the concepts and processes and perform cutting-edge research in Cryogenics. The objective is to enable hands-on, experiment-based learning that can equip students to deal with real-world industrial setups. The event highlighted the crucial role of cryogenics, focusing on the

complexities of ultra-low temperatures and its diverse applications across scientific and industrial domains. IIT Bombay's Department of Mechanical Engineering has spearheaded comprehensive research initiatives, led by distinguished faculty members, exploring various aspects of cryogenics. Under the guidance of Prof. Milind Atrey, the Chair Professor of Cryogenics, the Institute has fostered an educational approach, enabling students to delve deep into the nuances of cryogenic technology.

7) **National Cryogenic Electron Microscope Facility Inauguration**

Prof. Abhay Karandikar, Secretary of Department of Science of Technology (DST) and CEO of Anusandhan National Research Foundation, Government of India inaugurated the National Cryogenic Electron Microscope facility of IIT Bombay on March 7, 2024. He was accompanied by Prof. Subhasis Chaudhuri, former Director of IIT Bombay, Prof. Subramaniam from the University of British Columbia, Canada and Prof. Shekhar Mande, Distinguished Professor, Savitribai Phule Pune University, Former DG-CSIR.

The facility houses the Vitrobot Mark IV, Leica's Cryo-Ultramicrotome and high-pressure freezer, a screening 120 kV Cryo-EM (Talos L120V), and the 300 kV Krios G4 equipped with a Biocontinuum Energy filter and the Gatan K3 detector. IIT Bombay's facility is one of the four national facilities supported by SERB and is the first to be inaugurated. The facility will cater to the scientific needs of the nation by providing access to cutting-edge technology, thereby allowing us to make a positive impact on the scientific landscape of the world.

The inauguration was also graced by Prof. K.V.K Rao, Deputy Director (FEA), heads of various departments of IIT Bombay, and national and international scientists working in Structural Biology and allied fields.

8) **C1973 EV Power Train Laboratory**

On February 8, 2024, the Institute advanced



its commitment with the inauguration of the C1973 EV (Electric Vehicle) Power Train Laboratory during the batch's Golden Jubilee reunion. Dr. Anil Kakodkar, former Chairman, BoG, IIT Bombay was the Chief Guest on the occasion. This initiative, powered through the generous contribution of the Class of 1973, envisions transforming research and innovations in the EV space at IIT Bombay.

This laboratory will allow IIT Bombay to leverage its exceptionally talented pool of faculty, globally competitive scientists, researchers, entrepreneurs, and innovators, to take the lead in the indigenization of EV research and technology. While it will initially focus on 2- wheelers, 3-wheelers, small cars and light commercial vehicles (which account for the lion's share of EV sales in India), the Lab will also support India's journey toward becoming a worldwide hub for small EVs. It aims to be the preferred source of R&D for firms in India, enabling innovation and global technology competitiveness. The lab also aspires to play a pivotal role in manpower training through internal and professional programs, solidifying IIT Bombay's position at the forefront of sustainable technology.



9) SBI Foundation Hub for Data Science and Analytics:

IIT Bombay and the State Bank of India (SBI) launched 'The SBI Foundation Hub for Data and Analytics' at IIT Bombay on September 20, 2023. Prof. Subhasis Chaudhuri, former Director, IIT Bombay; Mr. Dinesh Khara, Chairperson, SBI; Mr. Om Prakash Mishra, DMD (HR) and CDO, SBI; and Mr. Nitin Chugh, DMD and Head (Digital Banking), SBI,

were present on occasion. The State Bank of India, in partnership with its CSR arm – the SBI Foundation, has committed a generous amount to establish a Hub for Banking Data and Analytics that will capitalize on the extensive banking experience of SBI and the research expertise of IIT Bombay. The Hub is specifically designed to address the unique challenges faced by the Indian banking and financial services sector. Establishing this Hub will harness the Institute's proficiency in data science, analytics, and artificial intelligence to effectively tackle tangible issues within the Indian banking and financial service (BFS) sectors. Anticipated outcomes include a pivotal role in stimulating innovation within the digital banking realm and promoting research in emerging fintech domains. It will actively participate in competency-building and bolstering skillsets, as well as outreach initiatives that will augment and broaden the community of professionals skilled in banking analytics.

10) FedEx Centre for Advanced Logistics and Analytics:

FedEx Centre for Advanced Logistics and Analytics was launched at IIT Bombay with a generous grant from FedEx Express. The President and CEO of FedEx Corporation and IIT Bombay alumnus Mr. Raj Subramaniam inaugurated the Centre on November 30, 2023. The Centre aims to conduct research in the domains of logistics and supply chains, training students in these domains, addressing challenges faced by these industries and incubating novel ideas. The association will focus on reducing costs and enhancing operational efficiency using advanced quantitative models and solution technologies in supply chain network design and planning.

30) Visits

1) CBSE Principals Visit IIT Bombay

55 CBSE-affiliated school principals from across the country visited IIT Bombay for a '2-Day Exposure Visit' during May 11-12, 2023. The visit, organised by CBSE Department of

Skill Education, exposed school principals to interactive learning techniques at IIT Bombay in context of National Education Policy.

2) WiSE (Women in Science Engineering from Rural Parts of India) At IIT Bombay

Science and Engineering disciplines in India are the most male-dominated fields. For K-10 education, there is almost equal participation from men and women. However, the ratio is highly skewed towards males for higher education, especially in rural parts of India.

As a part of the IIT Bombay outreach activity, a new program – WiSE (Women in Science Engineering from Rural Parts of India) was introduced under the leadership of Prof. Rajesh Zele from the Department of Electrical Engineering. The goal was to reach out to the girls studying in ninth grade from rural parts of India and get them excited about STEM. IIT Bombay will be mentoring them over a long term and helping them make wise decisions about their future and career choices. The Institute is keeping the teachers and parents involved throughout the process as it is vital for the long-term success of the program.

3) Bipartisan US Congressional Delegation

The Indian Institute of Technology Bombay hosted the visit of the Bipartisan US Congressional Delegation on August 11, 2023.



The delegation comprised Rep. Ro Khanna (D-CA), Democratic Co-Chair; Rep. Deborah Ross (D-NC); Geo Saba, Chief of Staff, Rep. Ro Khanna; Thomas Boodry, Legislative Director,

Rep. Mike Waltz; Mr. Karthik Iyer, First Secretary in Embassy of India, DC; and Dr. Vikram Krishnamoorthy, Deputy Secretary (AMS), MEA.

The delegation was welcomed by the Institute’s former Director Prof. Subhasis Chaudhuri along with Institute functionaries including former Deputy Director (Academic and Infrastructural Affairs) Prof. S. Sudarshan, Deputy Director (Finance and External Affairs) Prof. K.V.K. Rao, Dean (Research and Development) Prof. Sachin Patwardhan, Dean (Strategy) Prof. K.P. Kaliappan, former Dean (International Relations) Prof. Amit Agrawal and Dean (Alumni and Corporate Relations) Prof. Ravindra Gudi.

The IIT Bombay functionaries made a presentation about the IIT Bombay ecosystem and R&D activities. The IIT Bombay undergraduate students demonstrated Matsya - an Autonomous Underwater Vehicle (AUV) which won the IEEE YRP Award 2020.

4) GIG India Program

The IITB-Monash Research Academy, in collaboration with the Department of Economics at IIT Bombay, hosted the Global Immersion Guarantee Program (GIG) India Program. This year marked the 7th cohort of GIG at IIT Bombay.

The program at IIT Bombay aimed to expose students to diverse local contexts and educate them on addressing human impact on the environment while balancing environmental protection, sustainability, economic development and social progress.

In the 2023-24 edition of the program, Block 1 took place from November 18 - December 2, 2023, with participation of 54 students and faculty/ staff. The themes for the year included sustainable development, waste management, recycling, energy security and climate change.

IIT Bombay provided substantial support, including accommodation, seminar venues,

medical facilities and active involvement from the Department of Economics, contributing to the success of the program. During their time in Mumbai, students participated in seminars, workshops and direct engagement with local responses to waste management, urbanization, climate change, water and food security and more.

5) All IIT Registrar's Conclave 2024

The Indian Institute Of Technology Bombay organized a two-day IIT Registrar's Conclave-2024 during March 15-16, 2024. The theme of the conference was 'Building World-Class University Administration' and was attended by Registrars of 18 IITs.

6) Secretary of Ministry of Steel

Shri Nagendra Nath Sinha, IAS, Secretary of Ministry of Steel, Government of India visited IIT Bombay on February 29, 2024 to discuss various collaborations to further increase the research and industry use of steel in India.

Prof. Subhasis Chaudhuri, former Director of IIT Bombay, along with Head, Department of Civil Engineering Prof. Deepankar Choudhury and Professor of Practice in Department of Metallurgical Engineering and Materials Science Prof. Sanjay Chandra interacted with Ministry of Steel during their visit.

Institute Lecture/ Colloquium/ Conference/ Workshops:

Prof. K. Ganapathy Ayappa, Indian Institute of Science, Bengaluru, delivered an Institute distinguished lecture (in memory of Prof. C. V. Seshadri) titled "Understanding the action of pore forming proteins: Insights from molecular dynamics simulations, single molecule experiments and oligomerization kinetics" on April 5, 2023

Dr. Scott R. Stroud, University of Texas, Austin, delivered an Institute lecture (in memory of Dr. B. R. Ambedkar) titled 'Ambedkar, Dewey, and the Evolution of Pragmatism in India' on April 12, 2023.

US Consul General Mike Hankey, delivered the Institute Lecture on "India-US Cooperation in Technology and Research" on June 28, 2023.

Prof. Jayant B. Udgaonkar, Department of Biology, Indian Institute of Science Education and Research, Pune, delivered the Institute Lecture on "Protein Folding: A central problem in biology" on July 25, 2023.

Prof. Vinothan N. Manoharan, Wagner Family Professor of Chemical Engineering and Professor of Physics Harvard University, delivered the Institute Lecture on "Braiding and weaving microscopic fibers using water" on August 9, 2023.

Prof. Nitin Saxena, N. Rama Rao Chair Professor, Department of Computer Science and Engineering, IIT Kanpur, delivered the Institute Colloquium on "Algebra powers computation" on September 6, 2023.

Dr. N. Kalaiselvi, Director General, Council of Scientific and Industrial Research, Secretary, Department of Scientific and Industrial Research, delivered the Institute talk titled "Energy Technologies: National Missions, CSIR Research and Collaboration Opportunities" on November 10, 2023.

Prof. Vikram Jayaram, FASc, FNASc, FNAE, Honorary Professor, Department of Materials Engineering, Indian Institute of Science Bangalore, delivered the Institute lecture titled "The early history of irreversible thermodynamics and thermoelectricity" on November 29, 2023.

Dr. Anil K. Rajvanshi, Director, Trustee and Hon. Secretary, Nimbkar Agricultural Research Institute (NARI), Phaltan, delivered the Institute Colloquium titled "Innovative Water Technologies - Possibilities for Rural Applications" on December 4, 2023.

Prof. Ashok J Gadgil, Distinguished Chair Professor of Safe Water and Sanitation in CEE, Professor of Civil and Environmental Engineering, UC Berkeley and Faculty Senior Scientist, Lawrence Berkeley National Laboratory (LBNL), delivered the Institute colloquium titled "Development Engineering - my journey my learnings" on January 30, 2024

Dr. Sirish Shah, PhD, FCAE, FCIC, FIEEE, Emeritus Professor, Department of Chemical and Materials Engineering, University of Alberta,

delivered the Institute talk titled “Reimagining Systems Science in the era of AI and ML” on February 7, 2024

Prof. Sriram Ramaswamy, Honorary Professor, J C Bose National Fellow, Department of Physics, Indian Institute of Science Bangalore, delivered the Institute colloquium titled “Active Matter Today and Tomorrow” on February 21, 2024

Conferences:

1st Mining Start Up Summit: The Ministry of Mines, Government of India organised the first Mining Start-up Summit in collaboration with the Department of Earth Sciences, IIT Bombay to explore new innovations and technologies in the mining and metallurgy sector on May 29, 2023. Hon’ble Union Minister of Coal and Mines and Parliamentary Affairs Mr. Pralhad Joshi inaugurated the Summit. The summit focused on interaction with leading industries in the mineral exploration sector, financial institutions and banks. Mr. Pralhad Joshi also inaugurated the state-of-the-art exhibition, showcasing the advancement of technology in mining sector.

SANGAM 2023: The first annual Summit of Academia Networking with Government, Allied Health Workers, and Medical Professionals (SANGAM) Conference in 2023 was held during June 2-3, 2023 at the IIT Bombay campus. The event was organized in partnership with the Maharashtra University of Health Sciences (MUHS) and the Government of Maharashtra. The conference offered a unique opportunity and platform to key stakeholders of the healthcare sector through networking, knowledge exchange and a focus on innovation ultimately aiming to establish solutions for an effective healthcare system.

AI Research Summit: The NVIDIA AI Technology Centre and IIT Bombay jointly hosted "AI Research Summit" on August 19, 2023. The Summit focused on the “Large Language Model and Generative AI” and “AI for Scientific Computing Research”

Trust Summit: The second edition of Trust

Summit, held on September 22, 2023, assembled a diverse and influential cohort of leaders, pioneers, and experts in the domain of digital trust from across industry, academia, and the government at IIT Bombay’s Victor Menezes Convention Centre (CMCC). The summit included a keynote session, panel discussions and talks on various aspects of Digital Trust.

IIT Bombay Biopharma Summit 2023: The Department of Chemical Engineering and Wadhvani Research Centre for Bioengineering jointly organized the IIT Bombay Biopharma Summit 2023 during November 23-24, 2023 at VMCC, IIT Bombay. The Summit featured several expert talks and panel discussions on the emerging technologies in biopharma R&D and the opportunities and challenges in clinical translation of these advances for advancing healthcare.

16th Annual International Conference of the Forum for Global Knowledge Sharing: The Department of Economics organised the 16th Annual International Conference of the Forum for Global Knowledge Sharing on the theme "Technology, Economy and Sustainability" during November 24-25, 2023 at IIT Bombay.

Third International Conference on Water Technologies (ICWT 2023): The Water Innovation Centre: Technology, Research and Education (WICTRE), IIT Bombay in collaboration with the Asian Universities Alliance and The International Society for Optics and Photonics (SPIE) hosted the Third International Conference on Water Technologies (ICWT 2023) during December 4-7, 2023.

3D-GEM Conference: IIT Bombay and 3D Graphy jointly organised a 3D-GEM Conference about 3D printing during December 9-10, 2023. The two-day conference included a poster presentation, an exhibition and a scientific talk sessions focused on various 3D technologies in the engineering and medical sectors.

SCAN Annual Symposium 2024: The Sunita Sanghi Centre of Ageing and Neurodegenerative Diseases organized SCAN Annual Symposium 2024 during January 9-10, 2024. This symposium

aimed to delve into the latest research, findings, and innovations related to neurodegeneration.

Conference on ‘Semiconductor Technologies’:

The Centre of Excellence in Semiconductor Technology (SemiX), IIT Bombay conducted a conference titled ‘Semiconductor Fabs are Coming’ on semiconductor technologies on March 13, 2024.

Workshops:

‘AI-Impact’ workshop: The Centre for Machine Intelligence and Data Science (CMInDS) and Technocraft Centre for Applied Artificial Intelligence (TCA2I) jointly conducted a two-day workshop on “AI-Impact” during April 28-29, 2023 to foster collaborations for impactful AI Technologies.

GIS workshop: FOSSEE Project, IIT Bombay and the Rural Data Research and Analysis Lab, jointly organized a one-day GIS workshop to create awareness about the use of Geographical Information Systems (GIS) and its applications using open-source data on May 2, 2023 (online), for faculty members from colleges across India.

Workshop on "National Education Policy 2020 and the Agenda of Higher Education Expansion":

The Ashank Desai Centre for Policy Studies, IIT Bombay and Azim Premji University, jointly organised a policy workshop on "National Education Policy 2020 and the Agenda of Higher Education Expansion" during May 3-4, 2023.

DTE-IITB Collaborative Workshop:

IIT Bombay, in association with the Directorate of Technical Education (DTE), Maharashtra State, organized a DTE-IIT Bombay Workshop during May 12-13, 2023. The workshop featured presentations from various professors at IIT Bombay and included visits to the Advanced Mechanical Testing Facility, NanoBios Lab, Battery Prototyping Lab, IIT Bombay Nanofabrication Facility and the Environmental Science and Engineering Department.

One Day Pilot Workshop on Scilab GUI: One-day Pilot workshop on Scilab GUI was organized by the FOSSEE Project at IIT Bombay, funded by

the NMEICT, Ministry of Education, Government of India was on May 29, 2023.

Workshop on Generative AI and Machine Learning:

Azure Society of Excellence (ASE), powered by Microsoft in partnership with SINE, IIT Bombay held a virtual workshop on Generative AI and Machine Learning on June 01, 2023. Ms. Shweta Gaur, Director of Product Marketing, Analytics & AI at Microsoft was the key speaker.

One-day workshop on “Tribal Empowerment: Challenges and Opportunities”:

The Centre for Technology Alternatives for Rural Areas (CTARA) conducted a one-day workshop on “Tribal Empowerment: Challenges and Opportunities” in remembrance of Jan Jatiya Gaurav Diwas on August 26, 2023.

One-day workshop on ‘Green Hydrogen’:

IIT Bombay in collaboration with HSBC India conducted a one-day Green Hydrogen workshop on December 2, 2023. The workshop comprised breakout sessions on significant and diverse topics, including Hydrogen Storage, Hydrogen Utilization and Transport, and Hydrogen Generation. Dr. Ashish Lele, Director of National Chemical Laboratory, was the plenary speaker at the workshop.

"Biomimetic and Electroactive Membranes (BMEM2023)" Workshop:

The Environmental Science and Engineering Department hosted a "Biomimetic and Electroactive Membranes (BMEM2023)" workshop during December 7-8, 2023 at the Institute campus. The workshop collaborated with the University of Texas at Austin and focussed on advanced membrane technology.

One-day workshop on “Cybersecurity for Critical Infrastructure Theme: 5G Networks”:

The Department of Industrial Engineering and Operations Research (IEOR) organised a one-day workshop on “Cybersecurity for Critical Infrastructure Theme: 5G Networks” on February 1, 2024. During the workshop, Vajra, an indigenous tool for endpoint management, detection and response was launched .

Two-day workshop on "System Dynamics Theory and Practice": The Department of Industrial Engineering and Operations Research (IEOR) conducted a two-day workshop on "System Dynamics Theory and Practice" during February 5-6, 2024.

Two-day workshop on 'Compensatory Afforestation: Critical Challenges in the era of Climate Change: The Centre for Technology Alternatives for Rural Areas (CTARA) and the Department of Humanities and Social Science (HSS) at IIT Bombay organised a two-day workshop on 'Compensatory Afforestation: Critical Challenges in the era of Climate Change' during February 9-10, 2024. The workshop was in collaboration with the Institute of Development Policy, University of Antwerp, and the Korbel School of International Studies, University of Denver.

IIT Bombay Hydrogen Workshop 2024: The Department of Industrial Engineering and Operations Research (IEOR) organized IIT Bombay Hydrogen Workshop 2024 as part of the 2024 edition of IRCC's Annual CONferences on Emerging Concepts [ICONS] during February 16-17, 2024.

Workshop on "Electron Spin Resonance (ESR) Spectroscopy": The Center for Research in Nanotechnology and Science (CRNTS) organised "Electron Spin Resonance (ESR) Spectroscopy" workshop, was held on February 22, 2024.

Workshop on "Thermal Analysis Techniques": The Center for Research in Nanotechnology and Science (CRNTS) organised "Thermal Analysis Techniques" titled "Thermogravimetric/Differential Thermal Analysis (TGDTA) and Differential Scanning Calorimetry (DSC)" on March 13, 2024.

Workshop on "Dynamic Mechanical Analysis (DMA)": The Center for Research in Nanotechnology and Science (CRNTS) organised "Dynamic Mechanical Analysis (DMA)" workshop on March 20, 2024.

Workshop on Materials Technologies: The Department of Metallurgical Engineering and Materials Science (MEMS) organized a workshop on Materials Technologies with the National University of Singapore during February 26-27, 2024 at IIT Bombay.

Workshop on "Overview of Medical Device and IVD Regulation in India": The Society For Innovation and Entrepreneurship (SINE), IIT Bombay organised a workshop on 'Overview of Medical Device and IVD Regulation in India' on March 4, 2024. Ms. Meena Dalal, Founder and CEO at TrialGuna, Comprehensive Clinical Research Solution, an entrepreneur and a mentor was the speaker of the workshop.

Workshop on "High-Performance Wide Band-gap Semiconductor Devices": The Centre of Semiconductor Technologies (Semix), IIT Bombay organized a workshop on "High-Performance Wide Band-gap Semiconductor Devices" on March 7, 2024. The workshop included a talk titled "Wide/ Ultrawide Bandgap Next Generation RF and Power Devices" by Professor Martin Kuball, Royal Academy of Engineering Chair in Emerging Technologies at the University of Bristol.

One-day workshop on "Intellectual property driven research and development": The Wadhvani Research Centre for Bioengineering (WRCB) organised a one-day workshop titled "Intellectual property driven research and development" on March 16, 2024. The workshop was conducted by Dr. Raj Hirwani, a leading expert in the field of technology management and entrepreneurship, along with Dr. Mohan Kulkarni, Emeritus Scientist at CSIR URDIP and Dr. Sangeeta Telang, Senior IP Analyst, Novonosis.

Workshop on "IPR: IP Protection, Monetization, and Transaction": Society For Innovation and Entrepreneurship (SINE), IIT Bombay organised a workshop titled "IPR: IP Protection, Monetization, and Transaction" on March 27, 2024. Mr. Rahul Kapoor, Managing Partner of the Silicon Valley Office at Morgan, Lewis & Bockius LLP, was the speaker.



HINDI CELL

Hindi Cell is actively engaged in providing support for the implementation of the Hindi language in the Institute. In line with Section (3) 3 of the Official Languages Act, 1963, all documents including Institute's circulars, office orders, registers, forms, visiting cards, signboards, routine correspondence, Institute's annual reports and degree certificates were prepared in bilingual form by the Hindi Cell.

During 2023-24, a two-member team including Mr. Jagdish Ram Pauri, Joint Director (Official Language) and Mr. Inder Raj, Senior Translation Officer from the Ministry of Education conducted the official language inspection at IIT Bombay on September 18, 2023. During this visit, the Registrar of the Institute Mr Ganesh Bhorkade and other officials including the Hindi Officer appraised the inspection team about the conduct of the official language in the Institute. Mr. Jagdish Ram Pauri, Joint Director, Ministry of Education and Mr. Inder Raj, Senior Translation Officer appreciated the efforts being made towards the implementation of the official language in the Institute and guided on the progressive use of the Hindi language. Mr. Puri also held a workshop on 'Compliance of Official Language Policy and Use of Official Language Hindi in Government Offices'.

"Hindi Pakhawada" was celebrated in the Institute during September 14-29, 2023, beginning with the All-India Official Language Conference at Pune. During the Hindi Pakhwada, various competitions, including essay writing, Rajbhasha Hindi quiz competition

and antakshari competition, were held for the staff members. Various competitions such as Hindi dictation, Hindi handwriting, Hindi poetry reading, elocution, poster making and slogan writing were organised for the students of the Campus School. The winners of these competitions were awarded with cash prizes and certificates.

During the year, workshops on 'Constitutional provisions for official language of the union' and 'Official language policy of the Union' and 'Noting and Drafting' etc. were organised by the Hindi Cell for Institute staff members.

On January 25, 2024, the Hindi Cell and Electronic Theses and Dissertation Cell of the Institute's Central Library jointly organized a literary (book) discussion (Pustak Charcha) on the novel 'Manas Ka Hans', authored by Amritlal Nagar. Prof. Sachin Gapat, Department of Hindi, University of Mumbai was the Chief Guest of the event. Many dignitaries graced the occasion, including Dean (Administrative Affairs) Prof. Nand Kishore, who delivered the keynote address, former Dean (Administrative Affairs) Prof. S.V. Kulkarni briefed the audience on Goswami Tulsidas and inspired the participants to maintain a culture of learning. The event was also attended by Prof. Ashutosh Kumar, Department of Biosciences and Bioengineering; Mr. Ajay Prasad, Deputy Registrar (Accounts Section); and Mr. Anmol Jain, PhD Student and General Secretary (Academic Affairs), IIT Bombay.

FACILITIES

INFRASTRUCTURE DEVELOPMENT

During 2023-24, IIT Bombay completed the construction of the 'IIT Bombay Research Park' building. The structure comprises of ground plus 14 floors with total built-up area of 52239 m². The project aims to establish and nurture R&D collaboration between industries and IIT Bombay for mutual value creation. The estimated cost of the project is Rs. 230 crores.

Revised Master Plan: The revised master plan of IIT Bombay was prepared and submitted to the Municipal Corporation of Greater Mumbai (MCGM) as per the Development Control and Promotion Regulations (DCPR) 2034 and the same has been approved. The total built-up area envisaged at the end of 10 years is approx. 19 lakhs m².

The Hon'ble Prime Minister laid the foundation stone (virtually) of the following 5 major projects on February 20, 2024, to be constructed in the near future:

1. **Efficiency Apartments** is being constructed to provide 2BHK residential accommodation for faculty members and 1 RK for married Research Scholars of the Institute. The estimated cost of the project is Rs. 223.48 crores.
2. **Hostel 4:** Hostel 4 is being re-constructed near Hostel 18 building. The hostel is designed to accommodate 1260 students in single occupancy rooms. Few rooms in the hostel are specially designed rooms for differently abled students. The estimated cost of the project is Rs. 182.33 crores.
3. **Academic Science Block 1:** This is a new building with a built-up area of about 30000 m² for the Department of Chemical Engineering and Department of Chemistry at an estimated

cost of Rs. 372.70 crores. The building will have state-of-the-art laboratories with cabins for 60 faculty members.

4. **Academic Block 1 (AB1) and Academic Block 2 (AB2):** The newly constructed AB1 and AB2 will be located near the existing workshop sheds N1, S1 and S2. The estimated cost of the project is Rs. 263.93 crores. The detailed design of the project is completed.
5. **Academic Science Block 2 (Earlier Central Animal Facility):** This new building will be located towards the eastern boundary of IIT Bombay. The building structure consists of a basement, ground plus 10 floors with a total built-up area of 10744 m². Of the 10 floors, the ground and 1st floors house Animal Facilities, the 2nd to 7th floors house Bioscience and Bioengineering (BSBE) department facilities and the 8th to 10th floors house Institute facilities. The estimated cost of the project is Rs. 86.49 crores with major funding from IoE funds.

Projects under Construction Stage:

1. **New Annex to HSS Building:** is located between the existing Department of Earth Sciences and Department of Aerospace Engineering buildings. The total built-up area is 5039 m² and the estimated cost of the project is Rs. 28.50 crores. The building is expected to be ready by March 2025.
2. **Desai Sethi School of Engineering:** This new building is located adjacent to the Central Library with a total built-up area of 11300 m². The estimated cost of the project is Rs. 58.75 crores. The building is expected to be ready by March 2025.
3. **Hostel-19:** A new hostel, similar to Hostel-18, is being constructed behind Hostel-18. The structure is of ground plus 9 floors and with a capacity to accommodate 1052 students

in single or double occupancy rooms. The estimated cost of the project is Rs. 125 crores. Currently, the structural work of the building is in progress and the second slab is completed.

4. **Centre of Propulsion Technology (CoPT):** The CoPT building is being built in collaboration with IIT Bombay and DRDO. The building is located near the 'IIT Bombay Research Park' building. The building will house labs, offices, classrooms, and seminar/conference rooms. The ground floor and first floor labs will be shared between COPT and the Department of Aerospace Engineering. The estimated cost of the project is Rs. 99.90 crores.
5. **SAC:** The Students Activity Centre building will cater to the various needs of the student community. The estimated cost of the project is Rs. 34.26 crore and the same will be met from IoE funds.
6. **Hostel 7, 8, and 21 Complex:** The construction of Hostel 7, 8, and 21 complex is called Project Evergreen. The total built-up area is 34309 m². The entire project is supported by IIT Bombay Alumni Association (IITBAA). The complex consists of three hostels viz. 7, 8, and 21 with a structure of ground plus 9 floors. Hostel 21 is for girl students. The total capacity of all three hostels is 1127.
7. **Construction of a new Extra High Voltage (EHV) Sub-station:** The campus currently has 22 KV supply of electricity lines and a further increase in load demand on these lines is not possible as per the Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) - Electricity Board. To meet the electricity demand, it is essential to construct an Extra High Voltage (110 KV EHV) receiving station with the provision of fire safety and other essential utilities. The project is designed to meet the electricity demand of the campus for the next four decades. The estimated cost of

the project is Rs. 92.81 crores.

Projects under Planning Stage:

1. **Academic Block (AB3) and Academic Block 4 (AB4):** The Academic Blocks 3 and 4 are located adjacent to AB1 and AB2 and in the present N2, N3 and S3 sheds. The total built-up area is 20000 m² with a proposed structure of ground plus 10 storeys building. The estimated cost of the project is Rs. 162.48 crores.
2. **Redevelopment of Hostel 6:** This Hostel will accommodate around 1000 students. The built-up area proposed is 30000 m². The estimated cost of the project is Rs.162.45 crores.
3. **Extension to Hostel 14:** A new wing is being constructed as an extension to Hostel 14. This Hostel will accommodate around 500 students. The proposed built-up area is 15000 m². The estimated cost of the project is Rs.80.80 crores.
4. **New Faculty Quarters (B-26):** The redevelopment of B-26 building has been planned. The building will be identical to the existing faculty quarters (B-25). The structure will consist of a stilt plus 20 storeys with a total built-up area of 16600 m². The construction of a new faculty tower is aimed at fulfilling the residential requirements of the faculty members on the campus. The architect for design consultancy is being appointed.
5. **Construction of a new Type 2B** building having 78 flats is in the planning stage which will help in resolving the accommodation issues of staff members in the campus. The estimated cost of the project is Rs. 38.03 crores.
6. **Development Centre:** A new building with a built-up area of 14150 m² including covered parking is proposed to be constructed by demolishing an old bungalow at an estimated cost of Rs. 89.97 crores.

CENTRAL LIBRARY

The Central Library is a vital component of the Institute providing a wide range of services to users. In 2023-2024, the library continued to be a hub of activity, with a diverse range of services that cater to the needs of faculty, students, staff, alumni members, corporate and educational members.

The Central Library, IIT Bombay housed in a huge 3-storey building having central air-conditioned facilities with state-of-the-art amenities provides a vibrant ambiance to the students, faculties, staff, alumni and corporate/ member users for study, research and access to library resources. The efficient and courteous staff backs the services of the library. It holds a vast collection of books, back volume of journals, monographs, standards, reports, thesis/ dissertation and current journals/ magazines etc., in the varied areas of engineering, sciences, technology, humanities and social sciences both in print and electronic format. The institutional repository of IIT Bombay publications attracts large number of users from around the world throughout the year.

In 2023, the library recorded around 15 lakh user footfall. About 61,554 books were accessed by the subscribers. The library's online catalog and library portal saw a million searches. The institutional repository of IIT Bombay has 36,247 publications. During this year, 865 Master's degree dissertations, 12 M.Phil, 459 PhD theses, and 186 Dual Degrees dissertations were submitted online on the Electronic Thesis and Dissertation (ETC) system.

The library's collections continued to expand in 2023-24, with new titles added regularly. The library provides access to more than 38,09,680 e-journals and e-resources and

has added about 1686 volumes including books, theses, reports, standards, pamphlets, and other reading materials during the year. It also acquired 379 e-books during the year. All the library collections can be accessed through Online-Public Access Catalogue (OPAC).

The Central Library also renders user-services like reference, consultation, document delivery services, book lending, arranging materials from other libraries through inter-library-loan, providing the book bank facility for IIT Bombay students belonging to economically and socially weaker sections of the society and organizing the user awareness programmes to enhance their awareness about library resources, services and activities. The children section in the library continued to attract campus children. The library allows users to self check-out books as well as renew borrowed books online. It facilitates inter-library-loan facilities of books and other informational documents for its members as and when required. It also provides internship facilities to Library Science graduates. Central Library also offers services to industry and corporate, alumni, engineering (educational) institutions, professional members and has received Rs. 9,40 lakhs for the services rendered.

The Central Library uses open source software to manage library resources and services such as Wordpress for Library Portal, Koha for Library Automation, Omeka for Institute Archive Management, Dspace for institutional repository and VIVO for faculty management system etc.

The library's usage statistics continue to be strong, reflecting the importance of the library to the user community.

COMPUTER CENTRE

The Computer Centre (CC) continues to provide improved, efficient and effective computer network infrastructural facilities, IT services and telecommunication services to the IIT Bombay user community during the year 2023-24. The academic activities including the conduct of admission tests for new students, regular classes, and seminars were possible using the internet facilities through various web-conferencing platforms like Cisco's WebEx, Zoom, Google Meet, Microsoft Teams etc. These were provisioned, integrated and maintained with the Light Weight Directory Access Protocol (LDAP) using a single sign-on (SSO) having Two-Factor Authentication (2FA) by the Centre. The 'IITB-SSO' app for Android and iOS provides smooth, secure and quick access to various applications integrated with the IITB-LDAP. The online course registration for all students including new students, over the Internet, was also undertaken. In some cases, students could complete the course registration from their homes at their native place over the Internet. The open VPN (Virtual Private Network) services enabled students, faculty and staff to access remotely the various computing facilities in the Institute. With a significantly very large scope of work, CC services form the silent backdrop for most of the computer-related activities on the campus.

Network and Connectivity

The Centre manages the campus network and is responsible for the availability of connectivity inside the Institute with ~25000 wired nodes spread over all the departments, hostels, residential complexes, various entry/ exit gates on the campus boundary, and internet connectivity in the Institute with the outside world. In addition, wireless access points providing wi-fi access at various departments and other key locations on

campus were managed through the IITB-LDAP authentication via a radius server. The following activities were undertaken during the year:

- IIT Bombay has five backbone switches connected with a 40Gbps bandwidth. The 32 departments, 18 hostels and six residential network kiosks possess a 10Gbps network bandwidth. Furthermore, about 200 residential buildings are connected with 1Gbps to each room.
- The intranet network at IIT Bombay is managed by OSPF routing and includes 406 routes.
- The Computer Centre at IIT Bombay is installing a controller-based WiFi 6 solution for all academic and hostel networks, which will include a total of 1600 access points, both indoor and outdoor.
- The Computer Centre at IIT Bombay plans to upgrade the hostel network switches to state-of-the-art technology with new 40 Gbps/ 10 Gbps uplink switches. This upgrade will also include the replacement of old network distribution and access layer switches.
- The total Internet bandwidth was maintained for the campus community at 10 Gbps from NKN and 7 Gbps from Reliance Jio, respectively. The 7 Gbps additional link has been upgraded to 10 Gbps from BSNL. The internet bandwidth has upgraded from 17 Gbps to 20 Gbps from the previous year.
- The internet bandwidth from the above two ISPs was managed with BGP (Border Gateway Protocol) routing using appropriate router switches
- Four Class C IPv4 address ranges acquired

from APNIC provide internet access to the Institute's website and services

- Separate password for the users at the residences for web access was managed so the employees do not have to share their passwords with their families
- Transport Layer Security (TLS) was procured via a digital certificate from DigiCert
- The field support team for network infrastructure provided prompt responses in restoring the reported failures of network issues to enable the smooth conduct of online classes and meetings during the hours of need

The Centre operates and manages a non-academic, hostels, and residential areas network. External wi-fi access points are deployed on campus to cover common areas in student's hostels. Access through IITB-Wireless for IIT Bombay users, IITB-Guest for guests of IIT Bombay and EduRoam for visitors affiliated with EduRoam partners was managed with these wi-fi access points. The computer network set up by the Computer Centre enables the Electric Maintenance Division to monitor the Power Distribution Systems, check the status of various Lifts, functioning of UPS Systems, etc. in the Institute.

National Knowledge Network:

IIT Bombay continued to be a member of the National Knowledge Network (NKN) during the year. This multi-gigabit network initiative started by the National Informatics Centre (NIC) is being used by the Centre for Distance Engineering Education Programme (CDEEP) to conduct distance education programmes.

Grid Computing Facility GARUDA:

The grid computing facility GARUDA is also supported by the Computer Centre allowing the users of the Institute to access the available resources on the National Grid.

Honeypot server:

The National Cyber Coordination Centre (NCCC), an agency in India that is operational for cyber security and e-surveillance in the country, has deployed Honeypot servers in the Computer Centre for the detection of possible cyber threats and has started regularly reporting suspected attacks and attackers, allowing IIT Bombay to take necessary actions for protecting the IT infrastructure. The Centre is also in the process of completing the Phase-II servers of NCCC requirements.

Hardware/ Software Infrastructure:

All service offerings at the Computer Centre are based on Open Source Software Systems. The Computer Centre has registered IIT Bombay as an official mirror for various versions of Linux operating systems on its anonymous FTP server (<ftp://ftp.iitb.ac.in>) which is available to the user community at large. To support the ERP (enterprise resource planning) resources of the Institute, the ERP is housed in the Computer Centre's Data Centre (DC). The Centre staff are involved in the management of the ERP hardware.

The Computer Centre has procured the DigiCert Verified Mark Certificate SSL for the domain iitb.ac. to enhance the security level for threat protection of emails for one year.

With the help of the finance available through the Higher Education Financing Agency (HEFA), a joint venture between Canara Bank and the Ministry of Education, Government of India, the Computer Centre could purchase data centre hardware and accessories worth Rs. 13.4 crores to upgrade the 10-year-old server farm in the data centre. These high-end computing infrastructures consist of self-cooled racks to house the data centre network switches, a 500TB storage system, and 40 Enterprise servers. With this increase in storage mailbox quota for the faculty, staff and student has been doubled of their allocated quota.

For better coverage of wi-fi access, new access points are being purchased. The twenty-year-old structured cabling for computer networks in many student hostels is being upgraded in a phased manner along with new network switches using the finance under the HEFA programme.

Educational software:

The Institute continues to be a member of Microsoft Azure for its education software licensing programme. These licenses allow the user community to use most of the Microsoft software products in a non-production environment. Volume licenses of the latest Microsoft Office Professional (with 100 activations) have been acquired to meet the critical needs of the Institute. The Institute Software Committee solicits, specifies and negotiates the purchase of useful commercially available licensed software for the IIT Bombay Academic community. Software packages meant for scientific and technical computations such as Ansys, Matlab, LabView, Cisco's WebEx (5 nos. host licenses), and Zoom (for education, 20 nos. of hosts) for video conferencing facility, etc. which are available through appropriate license schemes are procured, upgraded and administered by Computer Centre.

Currently, floating network licenses of appropriate number of the packages like Ansys, Abaqus, Autocad, Comsol, Maple, Mathematica, Originlab, SPSS, etc are also maintained at the Computer Centre. These facilities are as per the requirement of the students, faculty, scientists, and staff in the Institute. The Centre also maintains and analyses the software license usage so that an optimum number of licenses can be made available to the users.

Apart from this, the online Matlab portal available through the campus-wide licenses purchased from Mathworks registers around 14,000+ users. These users have downloaded a licensed copy

of the software for their computer to meet their academic and research needs. As a step towards a paperless office and fast response in searching information among the members of the respective meetings, the Institute has started using digital sessions for its important high-level conferences. This facility has enabled the members and experts of the panels to participate electronically over the web to review and finalize the conference proceedings. The Computer Centre hosts the required server and software needed for this facility.

Main Building Hardware Infrastructure:

The Computer Centre manages the desktops in various administrative sections of the Institute with more than 775 desktop machines. The Computer Centre encourages and has implemented the use of Open Source Software Systems for Office Automation in about 775 PCs deployed in the various administrative sections of the Institute. During the year 2023-24, the Centre replaced 7 nos. of i5 all-in-one desktop computers, 11 nos. of Laptops, 26 nos. of printers, and 50 Nos. of monitors for computers with new ones. The use of Open Source Operating Systems and Software has eliminated, to a great extent, the menace of the spread of computer virus and thus has optimised the IT support overheads required for network management and PC maintenance.

Word processing tools, facilities and support:

The Computer Centre provides support for Open Source Operating Systems with word processing applications (namely OpenOffice.org and LibreOffice) capable of handling various Indian languages, especially Hindi to prepare multilingual (bilingual) documents. The documents prepared in OpenOffice.org/LibreOffice (available for Windows and Mac OS) can be saved in files compatible (edit/ save) with MS Office.

User Awareness Sessions:

At appropriate intervals and as per requirements Computer Centre conducts a two-hour training session on the usefulness of the applications under the Open Source Operating Systems for Office Automation and also apprises users about the IT Infrastructure facilities provided by the Computer Centre for the administrative staff of the Institute.

IP CCTV Surveillance activity of the Institute:

The Computer Centre continues to play a secondary role by providing technical support to install and run the IP-based Security Surveillance Systems having 284 IP cameras and storage for the Security Section. The Computer Centre has acquired, installed, and manages 16 (nos.) IP CCTV surveillance system that vigils critical locations of the Computer Centre building. A few offices of the departments like Computer Science and Engineering, Application Software Centre, and Centre for Formal Design and Verification are housed in the Computer Centre building.

High-Performance Computing (HPC) Facility:

In its continued efforts to provide an excellent infrastructure for cutting-edge research and the growing demand for a world-class supercomputing facility at IIT Bombay, the Centre has in operation a CRAY (recently HPE-CRAY) system for High-Performance Computing. This system is known as “SpaceTime-2” with 216 CPU (2x Intel Xeon 6148) only nodes and 64 CPU + GPU (Intel Broadwell + Nvidia P100) nodes, 1000 TeraByte parallel file system as storage. Its 1003 TFLOPS Total Peak Performance has enhanced the computing capabilities in various areas of modelling and simulation. The system has been operational for the past five years and serves 1200+ users from different departments. During the COVID-19 pandemic, an incredible surge in the usage of the system was observed as it was the only research facility available and accessible remotely.

In addition, a cluster consisting of 49 nodes of HPE Apollo 6000 server with a theoretical peak of 45 TF (each server has 2 X Intel Xeon 2680 v3 processors and 128 GB of RAM) and a 100 TB of parallel file system as storage and known as SpaceTime-X, continue to provide computing facilities for more than 50 users from different scientific research groups.

Telephone Exchange:

The Telephone Exchange runs about 1500 IP telephones (Voice over IP) using the computer network of the Institute. It is apart from about 3500 regular telephone lines spread over various departments, student hostels, and residential buildings in the Institute. The telephone exchange has added two nos of IBS (building solutions) for increasing the access of mobile phone and network access with a total of 10 mobile towers at various locations on campus. The telephone exchange has laid 4 kilometres of Fibre Optic Cables across campus to enhance 5G mobile networks from Airtel and Reliance Jio.

The Computer Centre runs a help desk for all users as a part of its day-to-day activities. The twenty-year-old electronic help desk interface (web-based) has been upgraded by integrating IITB-SSO. A total of three students enrolled for the MTech program in the Department of Computer Science and Engineering actively work for the various facilities run by the Computer Centre.

The existing all-in-one desktop computers (120 nos.), data projection systems in the Bits and Bytes Lab for user access, and bookings for the conduct of various courses, examinations, Institute events and are maintained by the Computer Centre. The bookings for the use of the Labs and the Conference Room can be done online from the website of the Computer Centre.

DEPARTMENTS/ SCHOOLS/ INTERDISCIPLINARY GROUPS AND CENTRES

Science and Engineering Departments:

The engineering departments at IIT Bombay offer undergraduate and postgraduate programmes leading to BTech, BS, MTech and PhD degrees. The five-year Dual Degree programme pioneered by the Institute in 1996 offers a BTech degree in a basic discipline and an MTech degree with specialization in a field on its completion. This programme is now offered by all engineering departments. The science departments at IIT Bombay were set up to provide basic grounding in science and mathematics to engineering students. However, apart from providing core courses in undergraduate programmes, these departments also offer postgraduate courses which lead to MSc or PhD.

Arts and Humanities Department:

The Art and Humanities Department at IIT Bombay were set up to familiarize the students of Science and Technology studies with the broader social, cultural, economic, ethical and humane concerns underlying social change. The advanced courses offered at the postgraduate level aim at cultivating critical thinking and enhancing the analytical capabilities of students engaged exclusively with the study of these concerns. These departments offer postgraduate courses which lead to MSc, BDes, MDes and PhD.

Following are the science, engineering, humanities and design departments at IIT Bombay :

Departments:	Head
Aerospace Engineering	Prof. A.M. Pradeep
Biosciences and Bioengineering	Prof. P. V. Balaji
Chemical Engineering	Prof. Mahesh Tirumkudulu
Chemistry	Prof. Ruchi Anand
Civil Engineering	Prof. Tom Mathew
Computer Science and Engineering	Prof. Varsha Apte
Earth Sciences	Prof. M. Radhakrishna
Economics	Prof. K. Narayanan
Electrical Engineering	Prof. Harish K. Pillai
Energy Science and Engineering	Prof. Manaswita Bose
Environmental Science and Engineering (ESED)	Prof. Subhankar Karmakar
Humanities and Social Sciences (HSS)	Prof. Pooja Purang
Industrial Engineering and Operations Research (IEOR)	Prof. Jayendran Venkateswaran
Mathematics	Prof. U.K. Anandavardhanan
Mechanical Engineering	Prof. Atul Sharma
Metallurgical Engineering and Materials Science (MEMS)	Prof. N.N. Vishwanathan
Physics	Prof. Subhabrata Dhar

Schools:

Desai Sethi School of Entrepreneurship (DSSE)	Prof. Anuradha Narasimhan
IDC School of Design (IDC SoD)	Prof. Anirudha Joshi
Shailesh J. Mehta School of Management (SJMSoM)	Prof. S.V.D. Nageswara Rao

Interdisciplinary Groups:

Climate Studies	Prof. Subimal Ghosh
Educational Technology	Prof. Sahana Murthy
Systems and Control Engineering	Prof. Sukumar Srikant

Centres offering academic degrees:

Some of the Centres offer postgraduate programmes and reflect the Institute's multi-disciplinary approach and emphasis on staying with leading-edge technologies in its academic approaches.

Ashank Desai Centre for Policy Studies (ADCPS)	Prof. N.C. Narayanan
Centre for Machine Intelligence and Data Science (C-MinDS)	Prof. Sunita Sarawagi
Centre of Studies in Resources Engineering (CSRE)	Prof. Surya S. Durbha
Centre for Technology Alternatives for Rural Areas (CTARA)	Prof. Anand B. Rao
Centre for Urban Science and Engineering (C-USE) (Now merged with Civil Department)	Prof. Virendra Sethi
Koita Centre for Digital Health (KCDH)	Prof. Ganesh Ramakrishnan
IITB-Monash Research Academy (Section 8 Co.)	Prof. Prasanna Gandhi
Centre for Research in Nanotechnology and Science (CRNTS)	Prof. Suparna Mukherji

Academic Advisory

Centre for Liberal Education (CLE)	Prof. Anurag Mehra
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Centres of Academic Outreach (education and research)

National Centre for Mathematics (NCM)	Prof. Sudhir Ghorpade
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Centres offering Service

Application Software Centre (ASC)	Prof. P Sunthar
Computer Centre (CC)	Prof. Prabhu Ramchandran
Centre for Distance Engineering and Education Programme (CDEEP)	Prof. Siddhartha Ghosh
Parimal and Pramod Chaudhari Centre for Learning and Teaching (PPCCLT)	Prof. Sahana Murthy
Sophisticated Analytical Instrument Facility (SAIF)	Prof. Suparna Mukherji

Centres providing research and support facilities:

These Centres host a large number of sophisticated equipments and advanced facilities for carrying out R&D activities at IIT Bombay. Following are the research facilities at IIT Bombay:

Centre for Semiconductor Technologies (SemiX)	Prof. Udayan Ganguly
Centre of Excellence in Steel Technology (CoEST)	Prof. N.N. Vishwanathan
Centre of Excellence in Oil, Gas and Energy (CoE-OGE)	Prof. Yogendra Shastri





DRDO-Industry-Academia Centre of Excellence (DIA-CoE)	Prof. Debasis Chakraborty
Centre of Excellence in Quantum Information, Computing, Science and Technology (CoE-QuICST)	Prof. Suddhasatta Mahapatra
Geospatial Information Science and Engineering (GISE)	Prof. Milind Sohoni
National Centre of Excellence in Carbon Capture and Utilization (NCoE-CCU)	Prof. Vikram Vishal
National Centre of Excellence in Technology for Internal Security (NCETIS)	Prof. B.G. Fernandes
National Centre for Photovoltaic Research and Education (NCPRE)	Prof. Suryanarayana Doolla
Wadhvani Research Centre for Bioengineering (WRCB)	Prof. Debjani Paul
Biomedical Engineering and Technology Incubation Centre (BETIC)	Prof. Ravi B
Tata Centre for Technology and Design (TCTD)	Prof. Santosh Noronha
Technocraft Centre for Applied Artificial Intelligence (TCAAI)	Prof. Manjesh Hanawal
Water Innovation Centre: Technology, Research and Education (WICTRE)	Prof. Shobha Shukla
Sunita Saghi Centre of Ageing and Neurodegenerative Diseases (SCAN)	Prof. Samir K Maji
Centre of Excellence on Membrane Technologies for Desalination, Brine Management, and Water Recycling	Prof. Swatantra Pratap Singh

Section 8 Companies

Society for Innovation and Entrepreneurship (SINE)	Prof. Santosh J. Gharpure
IIT Bombay Development and Relations Foundation (IITB-DRF)	Prof. Ravindra Gudi
IITB-Research Park Foundation (IITB-RPF)	Prof. Swaroop Ganguly
Technology Innovation Hub Foundation for IoT and IoE (TIH-IoT)	Prof. Leena Vacchani

Hubs

Green Energy and Sustainability Hub	Prof. Sanjay M. Mahajani
SBI Foundation Hub for Data Science and Analytics	

Externally Funded Centres and Labs

Photovoltaics Technology and Innovation Centre (PoTIC)	Prof. Anil K. G.
IIT Bombay-FedEx Centre for Advanced Logistics and Analytics	Prof. Ashutosh Mahajan
IITB Trust Lab	Prof. Manoj Prabhakaran
HDFC-Ergo IIT Bombay (HE-IITB) Innovation Lab	Prof. Snehal Awate
GMP (Good Manufacturing Practice) Lab	Prof. Shamik Sen

DEPARTMENTS

DEPARTMENT OF AEROSPACE ENGINEERING

Established in 1966-1967 as the Department of Aeronautical Engineering, it was renamed the Department of Aerospace Engineering in 1992. The Department strives for a balance of academics, research and technology development, coupled with education beyond the classroom and co-curricular activities. The Department has MTech and PhD students from the armed forces, HAL, ISRO, DRDO and various other government and private agencies related to Aerospace Engineering.

The Department maintains close links with the aerospace and defence industries and undertakes continuing education programmes in diverse areas. The faculty has contributed towards national programmes like LCA, IGMDP and GSLV in various capacities, with spin-off benefits to other fields like biomedical engineering. The Department provides students with a cordial atmosphere and an opportunity to acquire a multidisciplinary perspective to engineering problems.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	33
No. of Post-Doc Fellows	05

Academic Programmes:

The Department runs undergraduate and postgraduate programmes for four-year BTech degree, the two-year MTech degree, the five-year Dual degree and a PhD with four broad areas of specialization in Aerodynamics, Dynamics and Control, Aerospace Propulsion and Aerospace Structures. These programmes focus mainly on science and engineering/ technology of flight vehicles and their sub-systems covering fundamentals of fluid dynamics, propulsion, structural mechanics, vehicle dynamics, control and guidance etc., as well as applications of these fundamentals to the analysis and design of aerospace vehicles.

Total no. of students on-roll: 590		
Programmes Offered	Students Intake	Degrees Awarded
BTech	81	66
DD (BTech +MTech)	-	07
MTech	50	57
PhD	13	09
DD (MTech +PhD)	-	02
IDDDP	-	03
MS By Research (Exit)	-	01

R&D Activities:

The Department has extensive experimental and computational facilities that support its research and teaching activities. Among these are the Aerodynamic Lab, which houses wind tunnels, Laser Doppler Velocity-meter (LDV), anechoic chamber; the Instrumentation Lab, which has experimental set-ups for control education, in addition to sensors, actuators and other accessories as part of mechatronics related facilities; the Structures Lab, which has facilities for composite fabrication, testing, apart from experimental setups for demonstrating static and dynamic aspects of structures; the Propulsion Lab, which houses axial flow compressor research test rig, low speed low turbulence wind tunnel, diffuser test rig centrifugal blower and motor control unit for air delivery; the MAV Lab, which has facilities for building and flying unmanned aircraft models, hardware in loop simulation for MAVs. The Department also has powerful serial and parallel computers which provides computational resources for sophisticated flow simulation tasks like in computational fluid dynamics and computational electromagnetics.

Projects	Sponsored Projects	Consultancy Projects
New Projects	12	10
Ongoing	35	11
Completed	08	22

Key components of the facility include:

- A double pulsed 532 nm laser, delivering 200mJ/ pulse for illumination
- Closed laser beam guide with sheet optics
- Two 26 megapixels dual shutter CMOS cameras from PCO for stereo imaging
- A BNC synchronizer for synchronization between laser pulses and camera shutters
- An indigenously developed Laskin-nozzle-based oil seed generator for providing the seeding

Under Key components:

Technologies Developed/ Facilities setup

- Shock wave driven syringe for liquid drug delivery
- A balance for shear force measurement on hypersonic models
- A method for measurement of stress behind shock-loaded collapsible materials



Outreach/ Publicity Activities:

During 2023-24, the Department continued to actively engage in programmes and workshops, some of which are as follows:

- Faculty Updation Program on 'Introduction to Navigation, Guidance and Control of Unmanned Systems' as part of project 'Capacity Building for Human Resource Development in Unmanned Aircraft System (Drone and Related Technology)' funded by the Ministry of Electronics and Information Technology (MeitY), Government of India. Prof. Shashi Ranjan Kumar was the convener.
- Workshop on Automated Drones for Commercial Applications
- Seed Funding for Collaboration and Partnership Projects (SCPP) workshop on Aerospace Combustion, convened by Prof. Nagendra Kumar

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	01	73	53



A new high-resolution stereo Particle Image Velocimetry (PIV) facility was set up in Summer 2023 with the motive of studying fluid flows with intricate motions.

DEPARTMENT OF BIOSCIENCES AND BIOENGINEERING

The Department of Biosciences and Bioengineering is a nodal centre for applying science and engineering principles to further fundamental knowledge and applications in biology and biomedical engineering. The Department continues to nurture and sustain the ambience for the pursuit of scholarly activity in research and education, to make an international impact and produce leaders of tomorrow in the fields of Biology and Biomedical engineering.

The Department faculty continues to provide thought leadership as part of several important committees of government bodies as well as other academic institutions.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	42
No. of Post-Doc Fellows	21

Academic Programmes:

The Department currently offers an MSc in Biotechnology, an MTech in Biomedical Engineering, and a PhD.

Total no. of students on-roll: 354		
Programmes Offered	Students Intake	Degrees Awarded
MSc	35	26
MTech	32	20
DD (MSc+PhD)	-	03
DD (MTech+PhD)	-	01
MTech + M.S. By Research (Exit)	-	01
PhD	25	22
M.S. By Research (Exit)	-	04

R&D Activities:

The Department continues to produce impactful research as evidenced by high-quality publications, the development of technologies and products that make a difference, and recognition both within and outside the country in the form of prestigious awards, fellowships of science academies, etc.

The high level of research output is ensured by excellent resources viz., technical and office staff as well as research infrastructure. The Department is well equipped with several cutting-edge facilities such as mass spectrometry, 3-D laser lithography, AFM, BSL-2 facility, and FACS. Major equipment installed includes Multiphoton imaging equipment, Single Molecular Counting, Preparative floor model refrigerator, Electrophysiology system, Genaxxy Scientific LED Display Orbital Shaking Incubator, and 70 MHz 2 Channel Oscilloscope, among many others.

Major projects Outlay:

- Investigative study of the cytosolic defense mechanisms in pathogen clearance and host protection by Prof. Anirban Banerjee.
- Initiation of a project to customize the platform technology developed for the treatment of malignant solid tumors by Prof. Rahul Purwar.
- Cancer immunotherapy through the use of 3D polymeric implants loaded with nano vectors by Prof. Prakriti Tayalia.
- Initiation of consultancy projects with pharma companies for the characterization of biosimilars by Prof. Ashutosh Kumar.
- A project initiation by Prof. Nivethida to investigate the trade-offs between speed and accuracy in sequential saccade (rapid eye movements that shift the field of vision) planning.

- Investigation of the contribution of MUCIN-1 to therapeutic resistance and metastasis in breast cancer by Prof. Shamik Sen.
- A new project by Prof. Santanu Ghosh focuses on proteins involved in chromatin remodeling in *Candida albicans*, a fungus that is pathogenic to humans.
- Prof. Rohit Srivastava initiated the Medical Engineering Design and Innovation Center (MEDIC), a multi-disciplinary centre supported by the Department of Biotechnology, India to train future leaders in the biomedical sector.

Projects	Sponsored Projects	Consultancy Projects
New Projects	34	22
Ongoing	67	39
Completed	30	04

Outreach/ Publicity Activities:

The Department participated in TechConnect, the R&D exhibition of the Institute co-organized as part of TechFest 2023, where they showcased the following technologies:

- Low-cost microscopes developed for educational purposes and UVC-based robotic and non-robotic disinfection systems, led by Prof. Ambarish Kunwar.
- Innovative approaches pursued for wound healing and cancer immunotherapy with a focus on smart biomaterials for meeting diverse healthcare requirements, led by Prof. Prakriti Tayalia.
- A range of prototypes and products developed as point-of-care devices for healthcare applications, led by Prof. Rohit Srivastava.

iv) BrainProt (ver 3.0), is an omics-based knowledge base that includes six domains to accelerate neuroscience research around the globe. It provides an easy and robust framework to access and visualize omics data of the human brain and associated diseases and disorders, led by Prof. Sanjeeva Srivastava.

- BIOS [Genvision-2024], the annual event of the Department, was held from January 13-14, 2024. Seven speakers from industry and academia gave talks, with more than 200 participants in attendance.
- Prof. Rahul Purwar and team participated and displayed the technology titled “Chimeric Antigen receptor T- cell (CAR-T) therapy for cancer cure” under the theme: Affordable Healthcare at the second edition of Ministry of Education’s flagship R&D Innovation Fair, IInvenTiv-2024, held at IIT Hyderabad during January 19-20, 2024.
- Prof. Samir Maji delivered an informative discourse titled “Mechanism and development of blood tests for Parkinson’s disease” as part of National Science Day celebrations at IIT Bombay on February 28, 2024.

Workshops:

- International Workshop on 3D Lithography and Bioprinting–2023 held during April 4-5, 2023, led by Prof. Prakriti Tayalia
- Workshop on M/EEG data analysis using Brainstorm held during June 28-30, 2023, led by Prof. Nivethida. T
- Analytical Ultracentrifugation (AUC) application and data analysis held in September 2023, led by Prof. Ashutosh Kumar

- Hands-on Experience in Next Generation Sequencing held during August 9-11, 2023, led by Prof. Santanu Ghosh
- Biopharmaceutical Development and Characterization held during November 1-4, 2023, led by Prof. Ashutosh Kumar
- India-UK AMR Workshop held during November-December 2023, led by Prof. Soumyo Mukherji
- International conference “Interdisciplinary Applications of Magnetic and Optical Tweezers (MTOT2023)” held during December 19-22, 2023, led by Prof. Ambarish Kunwar
- Three-day hands-on workshop in Flow Cytometry, Cell Sorting, Data Analysis & Advance Applications jointly organized by IIT Bombay-BD Biosciences India during January 17-19, 2024. Prof. Anirban Banerjee was the convener.

Student Achievements:

- Amreen Khan, a PhD student, has been awarded the 2024 Student Award for outstanding research from the Society For Biomaterials.
- Shabana Falak, an MTech student, won the Innovation Think Tank Program organized by Siemens Healthineers.
- Sandesh Papade, a PhD student, received the Springer Nature India-Excellence in Poster Award 2023' at the 92nd Annual Meeting of SBI (I)-BITS Pilani-K. K. Birla Goa Campus.
- Subham Kumar Tripathy, a PhD student, received the best poster award at the 45th Indian Biophysical Society Meeting, NCBS-Bengaluru.



Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	27	17	86



Participants during the hands-on-experience workshop on Next Generation Sequencing 2023 held at IIT Bombay

DEPARTMENT OF CHEMICAL ENGINEERING

The Department of Chemical Engineering at IIT Bombay started in 1958. Today, it is widely recognized in India for its strong academic programmes at both the undergraduate and postgraduate levels, extensive research output, industrial collaborations and diverse range of research areas.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	60
No. of Post-Doc Fellows	18

Academic Programmes:

The Department offers various programmes leading to BTech, MTech, PhD and Dual Degrees. This includes a strong core curriculum complemented by electives in the important emerging areas at both undergraduate and postgraduate levels.

A new course titled SLP-IDP (Supervised Learning Project–Industry Defined Problem) has been introduced for both undergraduate and postgraduate students, exposing them to open-ended problems posed by the industry.

Total no. of students on-roll: 945		
Programmes Offered	Students Intake	Degrees Awarded
BTech	147	149
MTech	59	29
PhD	25	28
DD (BTech+MTech)	-	04
DD (MTech+PhD)	-	02
BS (3-year)	-	07
IDDDP	-	04
PGDIIT (Exit)	-	08
MS by Research (Exit)	-	03

R&D Activities:

The Department has excellent experimental facilities for research and has strong links with industry interactions spanning consultancy, sponsored research and continuing education. The faculty members lead high-quality research programmes in a wide spectrum of areas.

Notable instruments acquired in 2023-24:

- Temporal Analysis of Products- Kinetic Processing and Characterisation System
- 3 D bioprinter
- Pelleted Complete Feed Demonstration Plant
- Gas Chromatograph Analyser
- Power Quality Analyser
- Independent GPU Nodes

The newly built experimental facility for energy storage and conversion provide research students with opportunities to explore and investigate modern energy storage systems.

Projects	Sponsored Projects	Consultancy Projects
New Projects	20	23
Ongoing	77	56
Completed	24	16

Outreach/ Publicity Activities:

- AZeotropy 2024, the annual event of the Department, was organized by the undergraduate students to promote interaction between students, industry and academia. It saw participation from over 250 colleges, more than 50 industrialists in the field and a footfall of 11000 people on average.

Symposiums on:

- International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Rapid granular flows and turbulent particle suspensions organised by Prof. Devang. V. Khakhar and Prof. Partha Sarathi Goswami.
- Outreach Symposium on Molecular Simulations: Advances & Applications by Prof. Jhumpa Adhikari
- IIT Bombay Biopharma Summit 2023 by Prof. Abhijit Majumder, Prof. Sarika Mehra and Prof. Pramod Wangikar
- Symposium on Prospective in Hydrodynamics, led by Prof. Ratul Dasgupta

- Seed Funding for collaboration and partnership project, organised by Prof. Devang. V. Khakhar and Prof. Partha Sarathi Goswami
- Carbon Management in Chemical Industry by Prof. Ojus Mohan
- End of Life of Plastics by Prof. Guruswamy Kumaraswamy
- IOE Soft Matter Meeting, led by Prof. Guruswamy Kumaraswamy, Prof. Mukta Tripathy, Prof. Venkat Gundabala and Prof. Jyoti Seth

Workshops on:

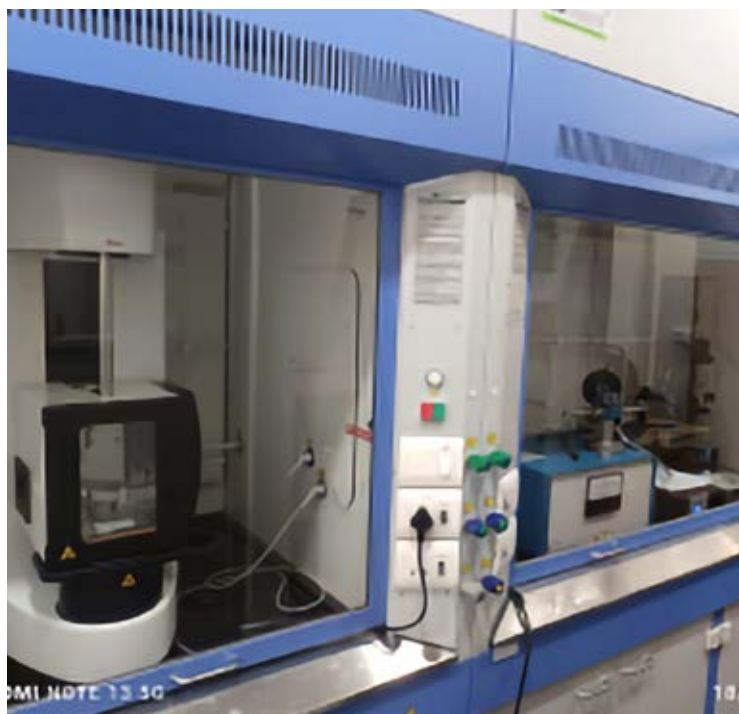
- Centre Franco-Indien pour la Promotion de la Recherche Avancée, led by Prof. Ratul Dasgupta

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	01	26	165



High Tension Tank



Turbo Pumping Machine

DEPARTMENT OF CHEMISTRY

Founded in 1964, the Department of Chemistry at IIT Bombay is one of the leading academic units in India for chemical sciences education and research. The Department is well-equipped to perform cutting-edge research through central instrumental facilities of the Institute, Department and those built by individual faculty members.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	56
No. of Post-Doc Fellows	59

Academic Programmes:

The Department offers five academic modules, including Masters in Chemistry (2-year), BS in Chemistry (4-year), a (BS+MSc) dual degree, integrated (MSc+PhD) and PhD programmes. The General Chemistry programme of the Department harbours two theory and two laboratory courses in the core curriculum of the first-year BTech programme. The Department offers Minors and IDDDP for BTech students of other departments of the Institute.

Total no. of students on-roll: 648		
Programmes Offered	Students Intake	Degrees Awarded
BS (4-year)	34	22
BS (3-year)	-	02
MSc (2-year)	57	50
Integrated MSc (5-year)	-	01
DD (MSc + PhD)	-	01
DD (BS + MSc)	-	09
PhD	51	44
MS By Research (Exit)	-	03

R&D Activities:

Research problems of a basic, applied and interdisciplinary nature are actively pursued in the Department through sponsored and industrial research projects. Major thrust areas of research include biophysical chemistry, coordination chemistry, bio-inorganic chemistry, organometallic chemistry, bio-organic chemistry, chemical biology, theoretical systems biology, membrane biology, chemistry of natural products, synthetic organic chemistry, photochemistry and spectroscopy, polymer chemistry, thermodynamics, electrochemistry, solid state chemistry and physics, catalysis, theoretical chemistry, statistical mechanics and soft matter.

New instruments:

Maldi, LCMS, HPLC-MS, Cryo-EM, NMR 600 MHz, ATR-IR, Spectrophotometer, Spectrofluorometer, Gas Generator (air/ Zero air/ H₂).

Projects	Sponsored Projects	Consultancy Projects
New Projects	32	05
Ongoing	79	13
Completed	50	12

Outreach/ Publicity Activities:

The Department organised many outreach events in the year 2023-24, including:

Symposiums on:

- Thieme - IIT Bombay International Chemistry Symposium 2023
- Contemporary Challenges in Chemical Sciences (C3S)
- Theoretical Physical Chemistry and Chemical Physics (TPCCP)

- Soft and Biological Materials: Experiments and Theory

Workshops on:

- Radiation Damage to Genetic Materials (RDGM2023)
- Chemical and Biological Sciences Driven Sustainability, an IIT Bombay and Nanyang Technological University (NTU), Singapore collaborative
- Systems Biology Approaches to Understand Complex Cellular Dynamics (SBAUCCD-2024)

Student Achievements:

- Vikram Gaikwad, from Prof. Rajarshi Chakrabarti's research group, received the best poster prize in the national seminar and discussion meeting on Simulations in Polymers, Materials and Biomolecules, held at Somaiya Vidyavihar University, Mumbai.
- Chayan Patra, from Prof. Rahul Maitra's research group, won the best poster prize at the 17th International Congress of Quantum Chemistry (ICQC 2023) held in Bratislava, Slovakia.
- Rajashi Haldar, from Prof. Maheswaran Shanmugam's group, has received the best poster award at the International Conference

on Molecular Magnetism, held in Nanjing, China.

- Rochak Kumar Rana, from Prof. G. Rajaraman's lab, received the best poster award at the 26th International Workshop on Quantum Systems in Chemistry, Physics and Biology (QSCP-XXIV, 2023) held in Jaipur, Rajasthan.
- Tanu Sharma, from Prof. G. Rajaraman's research group, received the best poster award in the Theoretical Chemistry Symposium (TCS 2023) held at IIT Madras.
- Priyanka Choudhary, from Prof. Rodney A. Fernandes's group, received the best oral presentation award at the 28th ISCB International Conference (ISCB-2024) held at Marwadi University, Rajkot, Gujarat.
- Priyanka Kushwaha received the best poster prize for her poster Soluble Supports for Cyclic Peptide Synthesis by On-Support Cyclization at the students' Indian Peptide Symposium (sIPS) held at Gujarat Biotech University, GIFT City, Gandhinagar.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	06	-	225



Chief Guest IIT Bombay alumna Prof. Lakshmy Ravishankar [Integrated M.Sc. ('82) and Ph.D. ('87)] addressing students at the 61st Convocation of the Department held on August 09, 2023



Speaker Prof. Brian Stoltz, California Institute of Technology, delivering the Prof. G. K. Trivedi Annual Award Lecture 2024 titled "Total Synthesis of Complex Alkaloids," held on December 9, 2023

DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering has been a part of IIT Bombay since its inception in 1958. Over the years, the Department has grown tremendously and is now well-known as one of the best engineering departments in the country, ranking high in the world for Civil Engineering. Nine faculty members of the Department are featured in the Top 2% Scientists of the world list in 2023, as published by Stanford University, USA, in collaboration with Elsevier. The faculty members of the Department contribute to several national and international editorial boards of various journals.

During 2023-24, the Senate and Board of Governors (BoG) of IIT Bombay have approved a noteworthy decision to close the Centre for Urban Science and Engineering (CUSE) and merge it with the Department of Civil Engineering.

The research domain of Urban Planning (which was earlier one of the major parts of CUSE), will now operate with the existing specialization CE7 i.e. Construction Technology and Management (CTaM) of the Department of Civil Engineering and in future, once a minimum of 3 faculty members in the domain of Urban Planning join the Department, new 8th vertical i.e. CE8 will be created, as agreed by the Senate and BoG members.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	61
No. of Post-Doc Fellows	30

Academic Programmes:

The Department offers BTech, MTech and PhD programmes. The postgraduate programmes offer seven different specializations, i.e. Transportation Systems Engineering, Geotechnical Engineering, Water Resources Engineering, Structural Engineering, Ocean Engineering, Remote Sensing and Construction Technology and Management.

Total no. of students on-roll: 1120		
Programmes Offered	Students Intake	Degrees Awarded
BTech	171	124
MTech	101	61
DD (BTech+MTech)	-	03
PhD	56	35
DD (MTech+PhD)	-	02
BS (3-year)	-	06
IDDDP	-	01
PGDIIT (Exit)	-	07
MS By Research (Exit)	-	01

R&D Activities:

The Department hosts 23 physical laboratories and various other thematic labs. The National Geotechnical Centrifuge is one-of-its-kind in the country.

The broad research areas are traffic analysis and design, traffic flow modeling and simulation, travel demand modelling and forecasting, urban transportation planning, transportation network optimization, centrifuge modelling, environmental geotechnology, earthquake geotechnical engineering, dynamic soil-structure interaction, foundation engineering, soil reinforcements, geosynthetic-reinforced soil structures, landslides, groundwater systems planning and management, computational fluid dynamics, urban drainage/ storm water management, diffusion of jets and plumes, global positioning system, remote sensing applications to water resources, structural dynamics and earthquake engineering, structural health/ condition monitoring, finite element analysis, design of nuclear containment structures, coastal, port and harbor engineering and research in the areas of construction materials and construction management.

Recently, a High-Velocity Impact Testing Machine was installed to test the blast and ballistic resistance of defence infrastructure.

Highlights:

A major industry project, Atal Setu – MTHL, India's longest sea bridge of 21.8 km, carried out by the Department during 2018-2019, was dedicated to the nation by the Hon'ble

Prime Minister of India on January 12, 2024. The peer review of the foundation and seismic design for India’s iconic mega infrastructure project was carried out by Department faculty Prof. Deepankar Choudhury and his research team with L&T for package-1 of Mumbai Trans Harbour Link (MTHL). This event was extensively covered by print, broadcast and online media, showcasing the technical contributions and expertise of Department of Civil Engineering to society.

Projects	Sponsored	Degrees Awarded
New Projects	27	558
Ongoing	58	473
Completed	28	690

Outreach/ Publicity Activities:

Workshops on:

- Two-day international workshop on Brainstorming sessions on Environmental Geotechnology at IIT Bombay, convened by Prof. D.N. Singh
- Hot and Cold Recycling Technologies for Utilization of RAP in Bituminous Pavements, led by Prof. Dharamveer Singh
- Quality of Bitumen and Bituminous Mixes, led by Prof. Dharamveer Singh
- **TUFLOW:** Numerical modeling of Coastal Morphology and Water Quality, led by Prof. R. Balaji
- Construction Technology Day - workshop along with CTAI foundation, led by Prof. Venkata Santosh K. Delhi

- Two-day international workshop on AI/ ML for Sustainable Coast, led by Prof. Manasa Ranjan Behera
- National-level Open BIM Master Class, by Prof. Venkata Santosh K. Delhi
- Artificial Intelligence for Sustainable Coastal and Ocean Developments, by Prof. Srineesh V K and Prof. Manasa R Behera

Conferences on:

- 4th Indian Symposium on Machine Learning (IndoML), convened by Avijit Majhi
- 7th Conference of Transportation Research Group of India, led by Avijit Majhi
- Session H049 on Drought Risk Assessment: Monitoring, Modeling and Prognosis, American Geophysical Union (AGU) Fall Meeting during December 2023 at San Francisco, USA. Conveners were Sahana V, Pallavi Goswami, Mariam Zachariah and Prof. Arpita Mondal

Student Achievements:

- EERI-IIT Bombay Student Chapter participated and secured the overall 8th position out of 34 teams in the Seismic Design Competition (SDC-2023), organized annually by the Earthquake Engineering Research Institute (EERI), USA, held at San Francisco, California, USA in April 2023.

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	19	135	252



Prof. Deepankar Choudhary, Head of Civil Engineering Department (second from left) along with others during the MTHL Project Package-1 site inspection

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The Department of Computer Science and Engineering is one of the largest departments in India, known for its research and academic programmes.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	53
No. of Post-Doc Fellows	01

Academic Programmes:

The Department offers a Bachelor of Technology (BTech), a Master of Technology (MTech), a (BTech+MTech) Dual Degree and a PhD programme.

Total no. of students on-roll: 1160		
Programmes Offered	Students Intake	Degrees Awarded
BTech	185	136
BS (3-year)	-	06
MTech	98	101
DD (MTech+PhD)	-	01
PhD	26	16
MS by Research	19	02
MS by Research (Exit)	-	04
PGDIIT (Exit)	-	02

R&D Activities:

The Department conducts research and teaching spanning a broad spectrum of areas, including algorithms, combinatorial optimization, graph theory, cryptography, formal methods, verification, theoretical computer science, graphics, image processing and analysis, computer vision, information retrieval, artificial intelligence, machine learning, reinforcement learning, natural language processing, speech

processing, medical image computing, functional programming, embedded systems, compilers, mobile computing, object-oriented systems, parallel and distributed processing, programming languages, databases, query processing and optimization, real-time systems, security, software engineering, cloud computing and virtualization, performance analysis and wireless networks.

Projects	Sponsored Projects	Consultancy Projects
New Projects	35	15
Ongoing	81	21
Completed	24	16

Student Achievements:

- A team of undergraduate students, including Richeek Das, Sahasra Ranjan, Shreya Pathak and their research advisor Prof. Preethi Jyothi, received an Outstanding Paper Award for their paper titled “Improving Pre Training Techniques for Code-Switched NLP,” at the Association for Computational Linguistics (ACL) 2023 held in Toronto, Canada.
- Research student Pranav Panicker received the Nilesh Vashee M.S. Student Grant.
- Research student Kiran Pradeep received the Thomas Dooie Class of 1974 M.S. Student Grant.
- Research scholar Meetesh Mehta received the Nilesh Vashee Ph.D. Student Grant
- Research scholar Karthika N. J. received the Tata Consultancy Services Research Scholarship.
- Three research scholars, Sandarbh Yadav, Poulami Ghosh and Jahanvi Rajput, received the Prime Minister Research Fellowship (PMRF) 2023.

- BTech students Kunal Kundwani and Parth Dwivedi were part of the team that qualified for the ICPC - International Collegiate Programming Contest World Finals -the world's oldest, largest and most prestigious programming contest.
- BTech student Lakshya Gadhwal was part of the IIT Bombay team that secured first position at the Mimamsa Science Quiz Competition for undergraduate students organized by IISER Pune.

Outreach/ Publicity Activities:

During the year 2023-24, the Department organised various conferences, symposiums and workshops, including:

Conferences:

- e-Yantra Symposium and Innovation Challenge Finale
- e-Yantra Robotics Competition Finale
- Digital Trust Conclave
- Trust Summit 2023

Workshops:

- Automata, Concurrency and Timed Systems (ACTS) 2023 at ENS Paris-Saclay, France

- Introduction to Product Design
- (3-days) Self-Balancing Robot Design
- (2-days) Drone 101: Getting Started with Control Systems
- (2-days) Introduction to Embedded Systems and Robotics
- Digital Identity Workshop
- SAT and SMT solving and their applications
- Aptos Winter School
- Research and Innovation Symposium in Computing (RISC) 2024
- Programming Languages and Compilers in Industry Day (PLACID 2024)
- Research Opportunities in Computer Science (ROCS) 2024 organised by the Association for Computing Machinery (ACM) India
- Spectral Methods in Foundations of Software Technology and Theoretical Computer Science (FSTTCS) 2023
- (Online) Technical session on Robot Operating System (ROS): An open-source tool for every Robotician

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	-	145	48

DEPARTMENT OF EARTH SCIENCES

The academic programmes in Earth Sciences started with the establishment of a section in the Department of Civil Engineering in 1959. As this programme grew, it became a separate Department of Earth Sciences in 1982 and has since become one of the leading academic units contributing to the Earth Sciences. The Department is interdisciplinary and has a diverse faculty engaged in high-quality teaching and research.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	25
No. of Post-Doc Fellows	08

Academic Programmes:

The Department offers degree programmes in MSc (Applied Geology), MSc (Applied Geophysics), MTech (Geo-exploration), MTech (Petroleum Geosciences) and a PhD.

Total no. of students on-roll: 288		
Programmes Offered	Students Intake	Degrees Awarded
MSc (2-year)	38	38
MTech	35	13
PhD	30	17
PGDIIT	-	08
MSc (Applied Geophysics)	20	18
DD (MSc + PhD)	-	01
MSc + PhD	-	01

R&D Activities:

The Department is actively involved in basic and applied research and consultancy providing high-quality technical advisory support through various R&D projects and consultancy to multiple organizations. The Department is well-equipped with laboratories to support teaching and research activities.

New Research Equipments:

- Donation of Educational Licenses of MOVE Suite of Software to Continental Deformation Laboratory by Petroleum Experts Ltd
- Wavelength Dispersive Sequential X-ray

Fluorescence Spectrometer (WDXRF) - 4KW for quantitative and semi-quantitative analysis of geological powder samples

- High-performance computing

Projects	Sponsored Projects	Consultancy Projects
New Projects	08	13
Ongoing	19	24
Completed	11	17

Outreach/ Publicity Activities:

- The Ministry of Mines, Government of India organised the first Mining Start-up Summit in collaboration with the Department of Earth Sciences, IIT Bombay and the Society for Innovation and Entrepreneurship (SINE) on May 29, 2023. Mr. Pralhad Joshi, former Hon'ble Union Minister of Coal and Mines and Parliamentary Affairs, inaugurated the Summit. The concluding session was chaired by Mr. Raosaheb Patil Danve, former Union Minister of State for Coal, Mines and Railways. A state-of-the-art exhibition showcased the advancement of technology in mining sector, technical sessions, panel discussion with industries and academia, presentations by start-ups and brainstorming sessions. The Summit saw participation from 82 start-ups and about 140 attendees.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	05	01	51	78



Mr. Pralhad Joshi (center), former Hon'ble Union Minister of Coal and Mines and Parliamentary Affairs inaugurating the first Mining Start-up Summit along with Mr. Dadaji Bhuse (right), former Minister of Mines, Government of Maharashtra

DEPARTMENT OF ECONOMICS

The Institute established the new Department of Economics with 13 faculty members across varied specializations on January 16, 2023. The objective is to be ahead of the latest developments in the field, produce high-quality research and graduate well-trained students. The cutting-edge research conducted by the Department will also help enhance policymaking for the government and government bodies and decision-making for businesses. The new Department will give a focused identity to faculties and students while applying for research grants, internships, exchange programs and higher studies.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	13
No. of Post-Doc Fellows	01

Academic Programmes:

The Department of Economics offers a four-year BS (Economics) programme (launched in 2017), a PhD programme and a Minor specialization in economics for undergraduate students of the Institute.

The Department aims to promote a holistic science and technology education that attends to economic policies and societal concerns by including a core course in economics and its contribution to sensitize students to environmental problems through another core course.

Total no. of students on-roll: 91		
Programmes Offered	Students Intake	Degrees Awarded
BS	35	-
PhD	10	01

R&D Activities:

The Department faculties are involved in several research projects independently as well as in collaboration with faculty members from other departments of IIT Bombay and as part of international research networks and partnerships. Faculty members and student

researchers conduct research on advanced areas and disciplines as well as interdisciplinary themes such as Climate Studies, Digital Health, Education Technology, Policy Studies and Urban Science and Engineering. Some of the faculty are Associate faculty members in these academic units of the Institute.

Projects	Sponsored Projects	Consultancy Projects
New Projects	02	04
Ongoing	05	01
Completed	01	01

Outreach/ Publicity Activities:

During the year 2023-24, various conferences and workshops were organized, including:

Conferences:

- Pathways to Sustainable Economy: A Banking and Finance Perspective, led by Prof. Puja Padhi during Oct 12-13, 2023
- Technology, Economy and Sustainability, led by Prof. K Narayanan
- Behavioural Research in Economics Workshop of the Economic Science Association (BREW - ESA), led by Prof. Subrato Banerjee and Prof. Neha Gupta during Dec 15-17, 2023
- Meeting of Young Minds in Frontiers of Economics, led by Prof. Tara Shankar Shaw

Workshops:

- (International) Economic Theory, led by Prof. Subrato Banerjee and Prof. Neha Gupta
- Global Immersion Guarantee Program, convened by Prof. Aditi Chaubal
- Health Analytics on Modelling Neglected Tropical Diseases, led by Prof. Souvik Banerjee

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	02	03	14	29

DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering has grown significantly from its inception in 1958 and has since become one of the major departments at IIT Bombay. The Departmental goals are focused on the old and new curricula and continue to build professional systems to facilitate excellent research. Faculty actively pursue research in the areas of Communications and Signal Processing, Control and Computing, Power Electronics and Power Systems, Solid State Devices, Electronic Circuits and VLSI Circuits and Systems.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	79
No. of Post-Doc Fellows	16

Academic Programmes:

The Department offers a Bachelor of Technology (BTech), Master of Technology (MTech), Doctor of Philosophy (PhD) and a five-year Dual Degree (BTech+MTech) with specializations in Communications and Signal Processing and Microelectronics.

Total no. of students on-roll: 1740		
Programmes Offered	Students Intake	Degrees Awarded
BTech	113	72
DD (BTech+MTech)	91	69
MTech	165	113
DD (MTech+PhD)	-	06
PhD	56	42
MS by Research (Exit)	-	01
PGDIIT (Exit)	-	01
IDDDP	-	05
BS (3-year)	-	01

R&D Activities:

Over the last two decades, the Department has developed a strong collaboration with industry, resulting in the establishment of several well-equipped laboratories and Centres. These include the Centre for Excellence in Nanoelectronics, the National Centre for Photovoltaic Research and Education and the Telecom Centre of Excellence,

among others. The Department plays a crucial role in shaping the country's technology roadmap in the electronics sector and prioritizes quality technical education through theory courses, teaching laboratories, CEP courses, workshops and conferences. The facilities in the Department are among the best in India and in certain specialized areas, they compete with those of leading International universities.

Projects	Sponsored Projects	Consultancy Projects
New Projects	42	29
Ongoing	98	41
Completed	46	43

Student Achievements:

- Nitupon Dihingia (Guide Prof. Sandip Mondal), has been awarded the 'Best Poster Award' for the work "Solution-processed Forming-free ALPO - RRAM based Artificial Synaptic Device with 3 orders of Conductance – Modulation," at the IEEE EDTM Conference 2024, held in Bengaluru during March 3-6, 2024
- Shubham Patil (Guide Prof. Udayan Ganguly and Prof. Veeresh Deshpande), has received the Best Student Research Forum (SRF) Poster Award for "Silicon/Germanium-on-Insulator Transistor-Variability, Reliability Characterization, Modelling and Fabrication," at IEEE EDTM 2024, held in Bengaluru during March 3-6, 2024
- The PhD thesis of IIT Bombay student Dr. Vijay Kanchetla has received the Top Groundbreaking Research Award in the Nationwide KPIT Shodh competition held in March 2024. Dr. Kanchetla is the first PhD student from the aiCAS lab of Prof. Rajesh Zele.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	131	151

DEPARTMENT OF ENERGY SCIENCE AND ENGINEERING

The Department of Energy Science and Engineering (DESE) is a unique blend of science and engineering faculty working on developing sustainable energy systems and solutions for the future.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	28
No. of Post-Doc Fellows	14

Academic Programmes:

The Department offers programmes in BTech, dual degrees in (BTech+ MTech) and (MSc+PhD), an MTech programme in Energy Systems Engineering, a PhD programme and a minor in Energy Engineering programme.

Total no. of students on-roll: 513		
Programmes Offered	Students Intake	Degrees Awarded
BTech	46	01
MTech	14	21
PhD	14	06
DD (BTech+MTech)	-	22
DD (MSc+PhD)	19	05
IDDDP	-	02
MSc (Exit)	-	02
PGDIIT (Exit)	-	02
MS by Research (Exit)	-	02
MSc+ MS by Research (Exit)	-	02

R&D Activities:

The recent highlights in research and development include a grid-connected MW scale solar thermal power plant and test facility, self-cleaning solar PV modules, high-efficiency PV cells based on new materials, novel Li-ion batteries, improved flow fields for fuel cells and biofuel-based rural electrification.

DESE has cutting-edge fabrication, characterization, testing and demonstration facilities with strong industrial linkages and international collaborations.

Projects	Sponsored Projects	Consultancy Projects
New Projects	17	12
Ongoing	35	22
Completed	13	03

Student Achievements:

Team SHUNYA (Sustainable Housing for an Urbanizing Nation by its Young Aspirants), a student-driven technical team at IIT Bombay, has secured first place in the Multifamily Housing Division at the US Solar Decathlon Design Challenge 2024 for Project Samsara. IIT Bombay students Mr. Ali Khan, Mr. Varun Padake, Ms. Simran Choudhary, Ms. Zenab Kagzi and Mr. Prabhat Sharma, along with Prof. Gurubalan Annadurai, represented from India in the competition during April 19-21, 2024 in NREL, Golden, Colorado, USA.

Outreach/ Publicity Activities:

- Workshop on Energy Education Outreach 2024 led by Prof. Lalit Kumar and Prof. Shireesh. B. Kedare.
- 9th International Conference on Advances in Energy Research (ICAER 2023) held during December 12-14, 2023. Profs. Srinivas Seethamraju and Sankara Sarma V. Tatiparti were the organising secretaries.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	38	99

ENVIRONMENTAL SCIENCE AND ENGINEERING DEPARTMENT

The Environmental Science and Engineering Department (ESED) was established in 1985 as a Centre and became a 'Department' in February 2019. Prior to this, an 'Environmental Science and Engineering Group' comprising faculty members from various allied disciplines existed on campus since 1977. The ESED is interdisciplinary in nature aiming to develop cutting-edge research, teaching and service towards better characterising, predicting and responding to human-induced environmental change. The graduates of this Department have career opportunities as engineers and scientists in Environmental Quality and Pollution Control. The course work and research opportunities offer students to contribute solutions to the current and future environmental problems. The faculty members have multi-disciplinary backgrounds and diverse research interests.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	19
No. of Post-Doc Fellows	05

Academic Programmes:

ESED offers academic programmes in (BTech+MTech) and (MSc+PhD) Dual Degrees, an MTech, PhD and a BTech (from the year 2023 onwards) with a strong focus on teaching and research. The Department offers a Minor in Environmental Science and Engineering for undergraduate students from other departments at IIT Bombay. An Institute core course, "Environmental Studies" is also offered to all undergraduate and (MSc+PhD) students. This course intends to familiarise students and raise awareness of the responsibilities of citizens and other stakeholders towards pollution prevention and environmental sustainability.

Total no. of students on-roll: 343		
Programmes Offered	Students Intake	Degrees Awarded
BTech	47	-
DD (BTech+ MTech)	-	20
DD (MSc+PhD)	06	01
IDDDP	-	01
MTech	17	17
PhD	19	04
MS By Research (Exit)	-	03
MSc (Exit)	-	02
PGDIIT (Exit)	-	02

R&D Activities:

Faculty in ESED take part in a diverse range of R&D in the areas of Air Quality, Water and Wastewater Management, Solid and Hazardous Waste Management and Environmental Systems Modelling. Ongoing research include:

- development of lab-scale and field-scale clean technologies and industrial pollution prevention
- design of integrated treatment and disposal of hazardous waste
- management of bio-medical waste
- design of techniques for biodegradation of complex industrial wastewater (fertilizer, food, paper, coke oven, dairy, distillery, petrochemicals)
- in-situ and ex-situ remediation of contaminated groundwater and aquatic environments
- development and application of toxicity/ mutagenicity tests for emissions and effluents
- development of novel bioreactors
- deployment of air pollution monitoring to characterize emissions and for support of regulatory assessments
- modelling and assessment of human health risk analysis
- development of aerosol and PAH emission factors, aerosol inventory, transport modelling and source apportionment

- (k) environmental impact assessment of developmental projects
- (l) simulation and optimization of environmental systems for the assessment of risk, frequency and vulnerability to natural environmental hazards and
- (m) analysis and mapping of hydroclimatic extremes and flood modelling.

The research activities of ESED are supported by excellent experimental and computational facilities, along with competent and dedicated technical staff and high-quality students. The Department offers wide professional expertise and actively pursues sponsored research, consultancy and technical services.

Projects	Sponsored Projects	Consultancy Projects
New Projects	06	19
Ongoing	23	29
Completed	04	21

Outreach/ Publicity Activities:

Conferences:

- 4th National Environmental Conference (NEC 2024), convened by Prof. A.K. Dikshit, Prof. Amritanshu Shrivastav, Prof. Tabish Nawaz and Prof. Subhankar Karmakar
- Desalination, Brine Management and Water Recycling 2023 (DesaltM 23), convened by Prof. Swatantra Pratap Singh, Prof. Amritanshu Shrivastav, Prof. Munish Chandel and Prof. Tabish Nawaz

Workshops:

- Biomimetic and Electroactive Membranes (BMEM 2023) jointly organized by the University of Texas at Austin, led by Prof. Swatantra Pratap Singh
- Urban Emissions for the 100+ Cities Project co-organized by Laboratory for Climate and Environmental Sciences (LSCE) France, led by Prof. Harish Phuleria

IoE Seminar Talk Series:

- Prof. Manoranjan Sahu and Srinidhi Balasubramanian were the faculty coordinators.
- Indoor Air Quality, Energy and Thermal Comfort: Nexus and Trade-offs, by Prof. Sameer Patel, IIT Gandhinagar

- Environmental Sustainability, by Ms. Ira Deulgaonkar (Project Coordinator, International Institute for Environment and Development, London UK)
- Fires, Forests and Fragrance, by Prof. Shantanu Jathar, Department of Mechanical Engineering, Colorado State University
- Dynamic Characteristics and Impacts of Atmospheric Organic Aerosols, by Prof. Ying Hsuan Lin, University of California, Riverside

Student Achievements:

- Ms. Saumya Agrawal, a PhD student working under Prof. Tabish Nawaz, has been awarded the Best Paper Presentation Award at the ChEmference 2023 Conference held at BITS Pilani Goa Campus during September -October 2023.
- Umangi Mehta, a PhD student, won the Best Oral Presentation Award at the International Conference on Environmental Pollution and Remediation (ICEPR 2023)
- PhD students Benita Nishil, Deepakshi Babbar and Muktesh S Bhatt have received the Prime Minister's Research Fellows Award (2024)
- Rahul Kumar, a PhD student, won the Student Best Oral Paper Award at the International Conference on Pollution Control for Clean Environment (ICPCCE 2023)
- Yash Aryan, a PhD student, won the Best Oral Paper Award at the International Conference on Environment and Sustainability (ICES 2023)
- Deval Singh, a PhD student, won the Best Paper Award at Sustainable Waste Management Practices (SWMP 2023) and Best Poster Presentation Award at the National Environmental Conference (NEC 2024)

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	04	15	38	87



Participants and faculty during the 4th National Environmental Conference (NEC 2024)

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

The Department of Humanities and Social Sciences was established at IIT Bombay to introduce science and technology students to a wider understanding of social, cultural, economic, ethical and human concerns that drive social change. The postgraduate-level courses are designed to develop students' critical thinking and analytical skills as they focus on studying these issues. The Department houses the disciplines of English Literature, Linguistics, Philosophy, Psychology, Sociology, CISTS (Sanskrit) and History.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	39
No. of Post-Doc Fellows	03

Academic Programmes:

The Department offers an MA+PhD programme in Philosophy, an MA by Research programme in Sociology/ Language, Literature and Performance Studies/ Human Sciences and a PhD programme.

Total no. of students on-roll: 439		
Programmes Offered	Students Intake	Degrees Awarded
BS	-	28
MPhil	-	11
MA Research	08	-
DD (MA+PhD) (Philosophy)	10	-
DD (MSc+ PhD)	-	01
DD (MPhil+ PhD)	-	01
PhD	21	21

The Department, apart from the production and dissemination of its disciplinary concerns, plays a unique and distinctive role within the

vision of the Institute, which seeks to promote a holistic science and technology education. The Humanities and other Social and Behavioural Sciences ensure science and technological boundaries are explored in an informed manner and attend to humanitarian and social concerns. The Department offers several core and elective courses for the BTech, MTech and MBA programmes of the Institute.

Apart from the facilities made available to all students at the Institute level, the Department houses the Psychology Lab, the Linguistics Lab, the Cognitive Psychology Lab and the Computer Lab.

R&D Activities:

The Department faculties are involved in a number of research projects independently, in collaboration with faculty members from other Departments of IIT Bombay and as part of international research networks and partnerships. Faculty members and student researchers of the Department conduct research in several cutting-edge areas, emerging sub-disciplines and trans-disciplinary themes such as computational linguistics, climate studies, organizational justice, digital media, innovation, gender and environmental change.

Projects	Sponsored Projects	Consultancy Projects
New Projects	05	02
Ongoing	08	07
Completed	03	-

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	02	04	02	26

DEPARTMENT OF INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

The Industrial Engineering and Operations Research (IEOR) programme was initially established as one of the first interdisciplinary programmes at IIT Bombay in 1976. It was formally inaugurated as the Department of Industrial Engineering and Operations Research in April 2024. The programme combines theory, modeling and application from both traditional and modern operations research, along with a system view derived from Industrial Engineering principles. A comprehensive IEOR education equips students for roles in industries, research, government and other applied disciplines such as data analytics, manufacturing, finance, retailing and supply chains, healthcare and various service sectors. In addition to academic programmes, IEOR offers continuing education programmes (CEP), conducts various research projects and has a vibrant alumni network.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	12
No. of Post-Doc Fellows	02

Academic Programmes:

IEOR offers PhD, MTech, (MSc+PhD) dual degree and IDDDP programmes. Additionally, it offers an undergraduate Minor. IEOR offers a range of courses in optimization, stochastic models, simulation, statistics, machine learning, artificial intelligence, deep learning, supply chain, logistics, operations and service systems. The curriculum also includes computational labs that train students on various modelling and software tools that can help implement operations research theory and algorithms to solve practical problems. IEOR introduced a BTech programme in Industrial Engineering and Operations Research starting in July 2024.

Total no. of students on-roll: 144		
Programmes Offered	Students Intake	Degrees Awarded
MSc	15	-
MTech	34	15
DD (MSc+PhD)	01	01
PhD	07	04
MSc (Exit)	-	12
MSc+ MS by Research (Exit)	-	01
PGDIIT (Exit)	-	01

R&D Activities:

The core areas of research include theoretical and computational optimisation, convex optimisation, probabilistic and stochastic models, data analytics, machine learning, reinforcement learning, deep learning, Markov decision processes, queueing theory, simulation modelling and analysis, system dynamics methodology, optimal control, game theory and networks, mathematical finance, logistics and transportation, railway operations and supply chain analysis. Faculty members served as referees for several journals and international conferences. IEOR has hosted several visitors from academia and industry during 2023-24. Faculty members visited various universities to pursue joint research.

Projects	Sponsored Projects	Consultancy Projects
New Projects	06	-
Ongoing	06	-
Completed	05	-

Outreach/ Publicity Activities:

- IEOR Day themed 'Digital Transformation for Operational Excellence' was celebrated on April 1, 2023.

- A ten-day GIAN Course on Advances in Mixed Integer Nonlinear Optimization held during January 15-25, 2024.
- Five-day workshop on Combinatorial Game Theory (CGT) held during January 21-25, 2024, led by Prof. Urban Larsson and Prof. K S Malikarjuna Rao.
- Two-day workshop on System Dynamics (SD) held during February 5-6, 2024, led by Prof. Jayendran Venkateswaran.

Student Achievements:

Several students presented their research publications at national and international conferences, including:

- Rishav Deval, a Senior Research Fellow at IEOR, IIT Bombay, presented "Emission-based Production and Inventory Control System: A stability analysis for system cost and service level", a paper co-authored with Prof. Jayendran Venkateswaran at the 11th EUROSIM CONGRESS 2023 held at Amsterdam University of Applied Sciences, Amsterdam, The Netherlands. A triennial event organized by the Dutch Benulex Simulation Society (DBSS), this year saw presenters from around 35+ countries with 100+ posters and presentations on theme 'Simulation for Sustainable Future,' held during July 3-5, 2023.
- Sachin Bodke, a Research Fellow at IEOR, IIT Bombay, had the honour of presenting his work titled "A Multi-Period Location-Allocation Model for Healthcare Facility Planning Under Accessibility Restrictions" at the 16th International Symposium on Locational Decisions (ISOLDE XVI) in Germany. The symposium was held at Fraunhofer ITWM in Kaiserslautern and Maison Messmer Hotel in Baden-Baden during June 25-30, 2023. Bodke was the sole representative from India among 78 speakers from 18 countries across three continents.

- Kritika Karwasra, a Prime Minister's Research Fellow (PMRF) at IEOR, IIT Bombay, presented a paper "System Analysis of Train Operations on Rail Sub-network with Mixed Traffic and Steep Gradient," co-authored with Prof. Narayan Rangaraj and Karuna Singh from Central Railways at the 16th World Conference on Transport Research (WCTR) 2023 conference held by CIRRELT University in Montreal, Canada during July 17-21, 2023.
- Three PhD students Riya Sultana, Rahul Vaishnav and Bhavya Gupta have been awarded Prime Minister's Research Fellowship (PMRF) in the year 2023.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	16	14



Participants and faculty during the Combinatorial Game Theory (CGT) workshop



Participants and faculty during the System Dynamics (SD) workshop

DEPARTMENT OF MATHEMATICS

Since its inception in the year 1958, the Department of Mathematics has evolved and grown in several directions. This change has been particularly striking in terms of attracting consistently top-tier faculty, bright, aspiring students globally, research output and the diversity of research pursued.

Currently, the faculty members are actively engaged in cutting-edge research across a wide spectrum of mathematical disciplines, including pure mathematics, applied mathematics and statistics that significantly contribute to the vibrant academic environment and ensure a comprehensive approach to mathematical education and research.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	57
No. of Post-Doc Fellows	18

Academic Programmes:

The Department offers a range of academic programmes, including a doctoral research programme, designed for motivated students pursuing careers in Mathematics or Statistics, both in academia or industry. These programmes include :

- (i) a four-year BS programme in Mathematics
- (ii) a five-year BS+MSc in Mathematics
- (iii) a five-year BS in Mathematics with an MSc in Statistics
- (iv) a two-year MSc in Mathematics
- (v) a two-year MSc in Statistics tailored for new entrants
- (vi) a five-year Integrated Msc in Mathematics
- (vii) an Interdisciplinary Dual Degree Program (IDDDP) in Mathematics and
- (viii) an IDDDP in Statistics exclusively available for current IIT Bombay students

Total no. of students on-roll: 325		
Programmes Offered	Students Intake	Degrees Awarded
BS	23	10
MSc (MA)	38	28
MSc (ASI)	48	36
Integrated MSc (5-year)	-	03
BS (3-year)	-	01
DD (MSc+PhD)	-	01
PhD	19	15
M.S. By Research (Exit)	-	01
IDDDP	-	01

R&D Activities:

The Department of Mathematics conducts basic, applied and interdisciplinary research in varied areas of Mathematics, including Algebra and Number Theory; Analysis; Combinatorics; Partial Differential Equations and Numerical Analysis; Geometry and Topology and Statistics and Probability.

Projects	Sponsored Projects	Consultancy Projects
New Projects	05	01
Ongoing	16	01
Completed	10	-

Outreach/ Publicity Activities:

During the year 2023-24, the Department held various workshops and conferences, including:

- Conference on 'Groups and Representations' during July 3-8, 2023. Prof. Shripad Garge and Prof. Sandip Singh were the organizers.
- National Centre for Mathematics (NCM) Workshop on Hilbert functions and Local Cohomology during November 27-December 02, 2023. Prof. J. K. Verma and Prof. Tony Puthenpurakal were the conveners.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	02	04	58

DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering was established in 1958 and is one of the largest departments at IIT Bombay. In addition to teaching and research, the Department is proud to have its faculty serve in various roles to ensure the smooth functioning of the Institute. In the 2024 edition of the QS World University Rankings by Subject, IIT Bombay was ranked 57th under the 'Engineering - Mechanical, Aeronautical and Manufacturing' programme category.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	66
No. of Post-Doc Fellows	20

Academic Programmes:

The Department offers BTech, Dual Degree (BTech + MTech), MTech and PhD degree programmes. The MTech programme offers specializations in the areas of (i) Thermal and Fluid Engineering (ii) Design Engineering and (iii) Manufacturing Engineering. Further, a student can pursue an undergraduate minor in Robotics and a postgraduate minor in any of the above specializations.

Total no. of students on-roll: 1500		
Programmes Offered	Students Intake	Degrees Awarded
BTech	197	146
MTech	111	55
PhD	53	34
DD (BTech+MTech)	-	37
DD (MTech+PhD)	-	02
BS (3-year)	-	03
IDDDP	-	06
PGDIIT (Exit)	-	01
MS by Research (Exit)	-	01

R&D Activities:

The advancement in technology, communication tools, access to sophisticated instrumentation and funding opportunities is well-reflected in the research areas with state-of-the-art computing machines, advanced manufacturing facilities and diagnostic tools. A few research topics are listed below:

- Application of Machine Learning to Material Selection/ Design
- Particle Imaging techniques applied to microfluidics
- Bio-mimetic instrumentation
- Cryogenics
- Nonlinear Optimization
- Fluid-structure interaction

New research labs, equipment and infrastructure installed:

- Wave and Vibration Engineering (WaVE) Lab (PI - Prof. Nitesh Yelve)
Equipment Installed: High-Speed Bipolar Amplifier, Pulse Receiver System, Condition Monitoring System and Machinery Fault Simulator.
- Materials Research Lab (PI - Prof. Ankit Jain)
Equipment Installed: Electrochemical workstation, Gas Chromatography with FID Detector and Methanisor, Fumehood, Convection Oven, Vacuum Oven

Projects	Sponsored Projects	Consultancy Projects
New Projects	20	21
Ongoing	105	53
Completed	36	32

Outreach/ Publicity Activities:

- A half-day workshop on Artificial Intelligence on August 26, 2023, convened by Prof. Sandip K. Saha.

- A three-day workshop on the Four-Dimensional X-ray Microscopy (FDXM) facility at IIT Bombay during October 3-5, 2023, led by Prof. Asim Tiwari.
- MechQuest, a two-day Department outreach programme, held during January 5-6, 2024. Prof. Ankit Jain was the convener.

Student Achievements:

- Sandeep Goli (Supervisor Prof. Amit Agrawal) was presented Indian Society For Heat and Mass Transfer (ISHMT) Best PhD Thesis Award 2023.
- Alok Kumar, Prasad Kangude and Atul Srivastava’s authored article titled “Coupled bubble dynamics and interaction mechanisms of adjacently nucleated vapor bubbles under subcooled pool boiling regime,” was published on the cover page of Physics of Fluids 2023.
- Tanmay Ganguli was awarded the Best Paper Award in Simulations and Modelling Category

2023 at the Spacecraft Mission Operations (SMOPS) International Conference 2023.

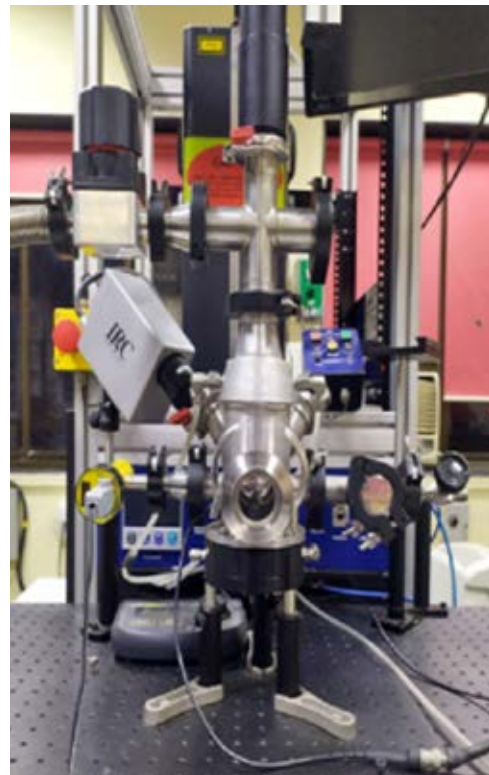
- Dhruv Sorathiya received the Best Research Paper Award 2023 at the Spacecraft Mission Operations (SMOPS) International Conference 2023.
- Vora Jay Bhaveshbhai was part of the winning Team Shunya that received 2nd prize in the 2023 Build Challenge in the US Solar Decathlon Competition 2023.
- Rushi Chavda was awarded the Top Performing Paper 2023 at the American Medical Informatics Association (AMIA) 2023 Conference held in the USA.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	23	211



Diamond Turn Machine



Droplet levitation setup

DEPARTMENT OF METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

The Department of Metallurgical Engineering and Materials Science continues to excel in a wide variety of areas, ranging from classical metallurgy, especially steel, which is of great importance to the country, to non-metallic materials in various forms and dimensional scales for applications ranging from advanced structural components to electronic, optical, sensing, healthcare and energy harvesting/ conversion/ storage devices and continues to design and offer new courses pertinent to cutting-edge areas.

Over the last 4-5 years, the number of PhD student intake has multiplied. The Department's annual output, which includes more than 250 publications in peer-reviewed international journals (including in highly rated journals like Acta Materialia, J. Mater Chem A, Philosophical Magazine etc.), allows it to compete with any other metallurgy-materials department in the world.

The Department of Metallurgical Engineering and Materials Science (MEMS) has been ranked second in the country and 85th in the world as per QS World University Rankings by Subject for 2024.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	50
No. of Post-Doc Fellows	35

Academic Programmes:

The Department offers programmes in BTech, dual degree (BTech+MTech), MTech and a PhD. The dual degree MTech programme with specializations in Metallurgical Process Engineering and Ceramics and Composites is the first-of-its-kind in the country. The critical strength of the IIT Bombay MEMS Department lies in its ability to balance teaching and research, traditional and emerging materials and applied and

basic research. The Department strives for excellence in manpower development.

The Department has also been offering an MTech in Steel Technology for personnel from steel industries, which has been very effective in enhancing the technical capabilities of manpower in major steel industries. The classical teaching combined with short-term courses (continuing education and quality improvement programmes, special training programmes like GIAN and SERB Schools etc.) has generated an excellent pool of highly motivated and competent manpower for the country. Some of the PhD students of the Department successfully receive highly renowned international awards due to their excellence in research.

Total no. of students on-roll: 980		
Programmes Offered	Students Intake	Degrees Awarded
BTech	133	85
DD (BTech+ MTech)	-	21
BS (3-year)	-	02
IDDDP	-	07
MTech	60	55
PhD	38	23
PGDIIT (Exit)	-	01

R&D Activities:

The faculty at MEMS conduct a wide range of experimental and theoretical research in the area of materials science and engineering, including biomaterials and devices, ceramics and glasses, corrosion protection, electronic materials and devices, energy materials and devices, iron and steel, materials and process modelling, mechanical behaviour, nanomaterials and structures, non-ferrous materials and alloys, phase transformations, physical metallurgy, polymers, surface engineering, synthesis and

processing, thin films and coatings and welding and manufacture. A significant contribution from some of the focused research programmes under CoEST (Centre for Excellence in Steel Technology, funded by the Ministry of Steel, Government of India), is providing a platform for critical research collaborations for the Indian Steel Industry, several technological products and a wide range of sponsored research projects.

The Department has started a long-term technical engagement with Jindal South West (JSW) Steel and has also signed an MoU with them to create a building infrastructure for the JSW-Technology Hub (JSW-TH) for Steel Manufacturing. The CoEST and JSW-TH steels are playing a significant role in the decarbonization efforts of steel plants mandated by the Ministry of Steel, Government of India. JSW Steel has also provided funding towards establishing a Sajjan Jindal Chair Professor at the Department.

Another collaborative Centre funded by the Department of Science and Technology is the Water Innovation Centre: Technology, Research and Education (WICTRE), which focuses on various areas of water purification, considering the present needs of our country.

Projects	Sponsored Projects	Consultancy Projects
New Projects	14	09
Ongoing	66	28
Completed	24	23

Outreach/ Publicity Activities:

- Workshop on Powder Coating, led by Prof. S. Parida
- Faculty Conclave in Teaching Iron and Steel, convened by Prof. Deepoo Kumar and Prof. N. N. Viswanathan
- Hosted an open day for more than 400 school students from 10 different schools (8th grade and above) on 26th August 2023, as part of the IOE outreach programme.

The programme included many exciting demonstrations, exhibits and experiments designed, curated and conducted by the Department students. Notable amongst them were: the concept of scale and size, heat and electricity from motion; music from materials, print your own superhero, breakathon, fun with ferrofluids, peer inside an electron microscope etc.

Highlights:

A breakthrough research innovation titled “*New cathode material can produce high-performance, cost-effective, environment-friendly Na-ion batteries as next-generation energy storage systems,*” developed by Prof. Amartya Mukhopadhyay and his research group got extensive media coverage and a noteworthy acknowledgement by the Government of India.

Honorary work rendered by Prof. Aparna Singh for developing copper interconnects layers that are just above the transistors for 14 nm technology. Made seminal contributions in development of tough and strong nanostructured steels and graphene epoxy fibre composites. Significantly successful in developing understanding and inhouse fabrication of materials with composition processing-microstructure-properties relationship for diverse and important applications, like in manufacturing of rails.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	-	-	153



School children during at one of the exhibits during the Open Day hosted by Department of Metallurgical Engineering and Materials Science

DEPARTMENT OF PHYSICS

The Department of Physics at IIT Bombay started in 1959 and is one of the largest departments in the Institute. The Department has a tradition of vibrant teaching and offers many research topics, making it one of the most preferred destinations for students at all levels. The faculty members conduct cutting-edge research in diverse areas.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	51
No. of Post-Doc Fellows	27

Academic Programmes:

The Department offers a two-year MSc in Physics programme, a four-year BTech in Engineering Physics and a PhD programme.

Total no. of students on-roll: 568		
Programmes Offered	Students Intake	Degrees Awarded
BTech	61	37
DD (BTech+ MTech)	-	03
BS (3-year)	-	02
IDDDP	-	04
MSc	60	48
DD (MSc+ PhD)	-	02
PhD	26	18
MS By Reseach (Exit)	-	04

R&D Activities:

The Department's research activities reflect diverse streams and guiding physical principles seen worldwide in a balanced manner. The "reductionist view," which aims to explain the natural world from a minimum set of principles, is well reflected in research in particle physics, fundamental symmetries, string theory, cosmology and the early universe, among other areas. Equally, the "emergent view," treating the complexity of the material world

as an acknowledgement of "more is different," often guides much of condensed matter and mesoscopic device physics.

Understanding ultrafast processes such as electronic wave packet propagation in atoms, energy transport and optical response in molecules, as well as plasmons in nanostructures, is an area where theorists and experimentalists of the Department are both active.

Efforts from the Department's faculties have led to the launch of the "Centre of Excellence" for Quantum Information, Communication, Science and Technology (QuICST) research and education at IIT Bombay. The research teams cover all pillars of quantum technologies, from fundamental to applied, from quantum information science theory to quantum-enabled and quantum-adjacent technology development. The Centre also focuses on building capacity in QST through a robust academic and outreach programme within the country.

The research groups contribute to experimental facilities enabled by major international collaborations. The Department faculty are part of LIGO (gravitational wave detection) and LHC (Large Hadron Collider at CERN). At the national level, a new experimental astronomy group also is collaborating with ISRO on space-based detectors and nanosatellites. The Department has extensive relations with the INO (Indian Neutrino Observatory) initiative.

The faculty members of the Department belong to at least one of the following research interest areas that overlap significantly:

- Astronomy, Cosmology and Gravity
- Condensed Matter Experiments
- Condensed Matter Theory
- High-energy Theory
- High-energy Experiments

- Light-Matter Interactions
- Physics of Quantum Technology
- Soft and Living Matter

Projects	Sponsored Projects	Consultancy Projects
New Projects	10	05
Ongoing	46	03
Completed	14	-

Outreach/ Publicity Activities

- An International Conference on Indian Strings Meeting 2023 organized during December 10-16, 2023. Prof. P. Ramadevi was the convener.
- A Symposium on Active and Living Matter (SALM) 2024 held during February 22-23, 2024. Prof. Anirban Sain, Prof. Mithun Mitra, Prof. Raghunath Chelakkot and Prof. Amitabha Nandi were the conveners.
- SymPhy 2024, the 11th annual symposium

of the Department held during March 8-10, 2024. It was convened by Prof. Soumya Bera.

Student Achievements:

- Sarthak (MSc), Aneesh Milind Bapat (BTech) and Roshni Singh [Dual Degree Program (Engineering Physics)] were awarded the Institute Silver Medal (2022-23) during the 61st Convocation of the Institute held in August 2023
- Abhishek Kejriwal [Dual Degree Program (Engineering Physics)] and Mahadevan Subramanian (BTech) were presented K. Seshia Research Excellence Award during the 61st Convocation of the Institute held in August 2023

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	01	12	158



Participants during the Indian Strings Meeting 2023 held at IIT Bombay

SCHOOLS

DESAI SETHI SCHOOL OF ENTREPRENEURSHIP

The Desai Sethi School of Entrepreneurship (DSSE) was set up as a centre in 2014 with a generous donation from alumnus Mr. Bharat Desai to foster innovation and entrepreneurship. It grew to become the School of Entrepreneurship in 2019. DSSE trains aspiring entrepreneurs through education and pre-incubation programmes.

In the last ten years, over 3500 students have benefited from Entrepreneurship courses; over 750 students have embarked on their entrepreneurial journeys; 250+ venture teams have been mentored in the pre-incubation programme; and DSSE students have gone on to lead 80 startups in multiple domains: consumer, enterprise tech, logistics, fintech, edtech, cleantech etc.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	12
No. of Post-Doc Fellows	-

Academic Programmes:

The Desai Sethi School of Entrepreneurship (DSSE) offers several theory and lab courses relevant to innovation and entrepreneurship, open to undergraduate and postgraduate (Masters and PhD) students. Students can take these courses as electives from the second year onwards or pursue a BTech (Minor) in Entrepreneurship as an additional degree, provided they complete a minimum of 30 credits. The interactive and experiential pedagogy of these courses is based on class discussions, field assignments and team projects, guest entrepreneurs and case studies. DSSE runs a Proof-of-Concept lab providing the necessary tools and guidance for students to work on design and prototyping of their product ideas.

In 2023-24, DSSE had a total of 1050 students

taking Entrepreneurship courses, up from 500 around 3 years back. The academic year 2023-24 also saw a big increase in the number of courses offered. Against the norm of 6 courses a year, DSSE offered 10 courses in 2023-24.

The core courses offered by DSSE are Introduction to Entrepreneurship, Proof of Concept (Lab), Marketing and Finance for Entrepreneurs, Innovation and Intellectual Property for Entrepreneurs, Technology Venture Creation. New electives included “Field Immersion for Entrepreneurs and Researchers” and “Social Enterprise and Inclusive Business”.

The first two courses are offered on the NPTEL platform – Business Fundamentals I and II with an enrolment of close to 9000 students each.

R&D Activities:

A 4-day workshop titled ‘Accelerating Technology Commercialization for Researchers and Academicians’ was organised for faculty and researchers of Maharashtra colleges in September 2023 in a sponsored project by RGSTC (Rajiv Gandhi Science and Technology Commission), Government of Maharashtra. The workshop sessions included Technology Development, Intellectual Property, New Product Development, Finance and Go-to-Market. In addition to commercialization workshops held at IIT Bombay campus, DSSE faculty also undertook field visits to support academics seeking to commercialize their ventures. Profs. Anuradha Narasimhan, Rajkumar Hirwani and Nishant Tikekar trained the participants on research translation and commercialisation.

Projects	Sponsored Projects	Consultancy Projects
New Projects	-	-
Ongoing	01	-
Completed	-	-

Outreach/ Publicity Activities:

- DSSE celebrated its 10th Anniversary as Entrepreneurship Day - a hybrid symposium at Victor Menezes Convention Centre, IIT Bombay, on January 31, 2024, attended by over 230 participants. Dr. Abhay Karandikar, Secretary, Department of Science and Technology, Government of India and Dr. Chintan Vaishnav, Mission Director, Atal Innovation Mission India delivered the keynote speeches. Thought leaders from academia, industry and the government converged together to discuss the evolving role of entrepreneurship education and the entrepreneurship ecosystem in the country. The event hosted two panel discussions titled (i) Entrepreneurship Education–Building Future Leaders and (ii) Entrepreneurship Ecosystem–Enabling Job Creators. The panelists comprised a mix of illustrious thought leadership from academia, industry and the government. The grand finale culminated with the felicitation of the the Institute functionaries and other members who contributed to building DSSE. Profs. Anuradha Narasimhan, Sankalp Pratap and Devdip Purkayastha were the conveners.
- DSSE’s IDEAS Program trains aspiring entrepreneurs through bootcamps, workshops, webinars and masterclasses. In 2023-24, 21 workshops were held with participation of 42 teams. 10 startups were registered in 2023-24 by DSSE students.
- In February 2024, DSSE faculty launched the ‘on campus’ round of the international Hult Prize, a social entrepreneurship venture creation competition with motivating speakers like Dr Premlata Poornia (Founder – Hamaari Laado), led by Profs. Sankalp Pratap and Lina Sonne Vyas.
- Executive Education Programme - 2nd Orbit Programme for IT Entrepreneurs and Small and Medium Enterprises' (SMEs) conducted in workshop mode for 32 NASSCOM entrepreneurs to help them scale to the next orbit through mindset changes and imparting skill held in October 2023 and March 2024.
- As part of the Marketing and Finance course, students were taken on a field visit to the Bombay Stock Exchange where they got an exciting opportunity to witness the launch of an IPO, in November 2023. Profs. Devdip Purkayastha and Umakant Jayaram were the faculty coordinators.
- As part of Institution's Innovation Council (IIC) activity, a workshop was conducted on Customer Discovery and Idea Hackathon for Entrepreneurship and Business Club (EnB Club) students to embark on their entrepreneurial journeys in November 2023, led by Prof. Sankalp Pratap.
- DSSE supports student activity on Innovation and Entrepreneurship all year round. The flagship event of the Entrepreneurship Cell ‘E-Summit’ was held during February 3-4, 2024. Prof. Anu Narasimhan was the inaugural speaker where she exhorted students to be entrepreneurial in mindset and skillset.
- NPTEL (National Programme on Technology Enhanced Learning) Single Point of Contact (SPOCs) from the Western Region were invited to IIT Bombay for promoting NPTEL activities and felicitation in February 2024.
- DSSE faculty and project staff members participated in conferences such as ABSS (Akhil Bhartiya Shiksha Samagam, New Delhi), Startup Maha Kumbh, Atal Incubation Centre (AIC) Atal Tinkering Laboratories (ATLs) Impact Study, Women in Photometry and Optics, as well as Faculty Alumni Meet (FAM)/ Distinguished Alumni Meet (DAM) conferences in Chennai and Chicago.
- DSSE participated in and held Best Paper Competitions in International Confluence Conference on Innovation and Startups, IIT Madras and Future of Strategy and Entrepreneurship, IIM Tiruchirappalli. Prof Sankalp Pratap was the Session Chair and adjudicated the awards.
- In 2023-24, our eminent guest speakers included Mr. Harsh Shah (Co-founder of

Fynd.com), Mr. Akshay Saxena (Co-founder and CEO Avanti Fellows), Mr. Shibabrata Das (Co-founder of Atomberg), Mr. Ankit Mehta (Co-founder of IdeaForge), Mr. Soumitra Mishra (Co-founder and CEO of Claro Energy), Mr. Gireendra Kasmalkar (Managing Partner, Pentathlon Ventures), Mr. Hemant Gupta (Head, Bombay Stock Exchange-Social Stock Exchange; BIL Ryerson Technology Startup Incubator Foundation), Mr. Sandeep Kapila, (Co-Founder, Swasth Foundation), Ms. Rita Mehta Achrekar (Independent Director, Canada), Dr. Nishad Deshpande (Senior Scientist of Council of Scientific and Industrial Research [CSIR]-Unit for Research and Development of Information Products [URDIP]), Mr. Siddhesh Mhatre (Pratham Education Foundation), Mr. Shashvat Rai (Managing Director, Aavishkaar), Mr. Beerud Sheth (Co-founder of unicorn Webaroo)

- Arkadeep Saha, Department of Electrical Engineering (2nd Yr.)

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	01	02



Felicitated members during DSSE's Entrepreneurship Day (hybrid symposium) held on January 31, 2024

Highlights:

The Anand Kusre Awards for Entrepreneurship were set up by Dr Jagdish Sheth. These awards are for the Best Entrepreneurship Student and the Best Startup Idea. An MOU was signed between IIT Bombay and Dr. Jagdish Sheth of Emory University and the first set of awards will be announced in 2024-25.



Panel discussion on Entrepreneurship Education during Entrepreneurship Day held on January 31, 2024

Student Achievements:

As part of Institute Innovation Council (IIC) activity, the following IIT Bombay students participated and won at the National Startup India Hackathon held in November 2023. They were mentored by Prof. Sankalp Pratap of DSSE.

- Ameya Marakarkandy (Team Lead), Department of Aerospace Engineering (3rd Yr.)
- Yashodhan Tingne, Department of Aerospace Engineering (3rd Yr.)
- Anupsa Swain, Department of Aerospace Engineering (3rd Yr.)
- Abhishek P M, Department of Aerospace Engineering (4th Yr.)
- Kanak Dudi, Department of Electrical Engineering (2nd Yr.)



Dr. Anand Deshpande (Founder, Chairman and Managing Director, Persistent Systems) during the 2nd Orbit CEP session for National Association of Software and Service Companies (NASSCOM) entrepreneurs

IDC SCHOOL OF DESIGN

The IDC School of Design (IDCSoD) at IIT Bombay offers an excellent environment for academics, research and applications in the field of design. The School interacts with industries and institutions for promotion and awareness of design. These are in the form of semi-nars, short-term courses and workshops. In design practice, IDCSoD offers professional de-sign consultancy and advisory services to industries and other organizations. The potential for innovation at IDCSoD lies fundamentally in solving real-world problems.

IDC School of Design envisions a holistic design education that shapes students into respon-sible contributors to society. It enables them to identify significant contemporary problems, inculcate critical thinking, critique conventional solutions and challenge the status quo to arrive at creative solutions through collaborative team efforts at different levels of society and influence policymaking that leads to innovations.

Total no. of faculty (Assistant/ Associate/ Full Pro-fessors/ Adjunct/ {Visiting-teaching faculty})	66
No. of Post-Doc Fellows	01

Academic Programmes:

The IDC School of Design at IIT Bombay has a well-established Master of Design degree (MDes) programme in Industrial Design, Communication Design, Animation Design, Interaction Design, Mobility and Vehicle Design and minor courses, as well as a PhD programme in Design. From 2015 onwards, IDCSoD has started a four-year Bachelor of Design (BDes) programme and a five-year (BDes+MDes) dual degree course, available only at the end of the third year. These programmes are credit-based and thus offer the flexibility to progress at one's own pace.

Total no. of students on-roll: 400		
Programmes Offered	Students Intake	Degrees Awarded
BDes	37	25
MDes	70	73
DD (BDes+MDes)	-	10
PhD	10	-

R&D Activities:

Several kinds of projects are undertaken at IDC, including product-oriented, experimental research, open-ended exploratory research projects, theoretical research and documentation and pedagogic research. Many of these projects are sponsored by the industry, the ministry and other organizations. The students conduct many projects of varying duration and complexity as part of their academic programme.

Projects	Sponsored Projects	Consultancy Projects
New Projects	03	05
Ongoing	10	05
Completed	05	10

Outreach/ Publicity Activities:

- The School organised the Design and Degree Show (DDS) during June-July 2023. Around 20 eminent designers, including IIT Bombay Master of Design (MDes) stu-dents, participated and showcased their projects from a wide range of specialisations ranging from user interface and human-computer interaction, communication design, industrial design and animation to mobility and vehicle design. The event was at-tended by design professionals, academicians and design students from various insti-tutes, apart from the general public.
- The 16th Typography Day on the theme 'The Sacred and Typography' was held during October 26-28, 2023. It was hosted by the Department of Applied Arts, Faculty of Visual Arts Banaras Hindu University,

Varanasi (BHU Varanasi) in collaboration with the IDC School of Design, IIT Bombay, with support from India Design Association (InDeAs) and Aksharaya. The event featured workshops on typography and calligraphy, followed by a conference dedicated to 'Sacred and Typography'. Select posters from the Poster Design Competition were also exhibited.

- The Design Thinking Studio at IDC School of Design, IIT Bombay, housed in the Rahul Bajaj Technology Innovation Centre (RBTIC) Building, was inaugurated on February 1, 2024, by former Director Prof. Subhasis Chaudhuri and Head of IDC School of Design Prof. Anirudha Joshi. The Studio provides an immersive design education experience, accommodating up to 180 students simultaneously and is a well-equipped zone featuring 3D printers, laser cutting machines, hand tools, workbenches and more, exploring a user-centric approach to designing and innovating products.

Student Achievements:

- Khyati Priya, a PhD scholar, won first prize for her logo entry in the design competition for the Green Energy and Sustainability Hub (GESH), IIT Bombay which was later adopted as GESH's official logo.
- PhD scholars Sukesha Ghosh and Apeksha Gautam, have been selected for the prestigious Prime Minister's Research Fellowship (PMRF) for their PhD research on

'Residential Space Design for Ageing in place Integrating Tangible Spatial User Interfaces for Indian Older Adults' and 'Game Based Instructions for Senior level Mathematics: A Behavioral Study of Teachers' Pedagogical Strategies', respectively.

- A team of four students from IDC School of Design, including Prafulla Chandra, Apoorv Anurag, Cherian Jeremiah Iype and Atish Waghwase presented their project 'Fina – File Management Interactions for VR' at the international XR event Laval Virtual 2023, France, held in April 2023. Guided by Prof. Jayesh Pillai, 'Fina' aimed to deal with novel hand gesture interactions for file management in a VR environment.
- Atish Waghwase's P2, under the guidance of Prof. Anirudha Joshi, was published and presented as a research paper titled 'GuidingBand: A Precise Tactile Hand Guidance System to Aid Visual Perception' at the Human-Computer Interaction (HCI) conference INTERACT 2023 held in York, UK. It was also selected as one of the Reviewers' Choice papers. An extended version of the paper was accepted for publication in the journal *Interacting with Computers*.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	18	24	07



IDC HASMED Design Thinking Studio

SHAILESH J. MEHTA SCHOOL OF MANAGEMENT

Founded in 1995, the School of Management at IIT Bombay aimed to mould professionals with technological backgrounds into future leaders. In 2000, it was officially named as Shailesh J. Mehta School of Management (SJMSOM) in recognition of the generous support from Dr. Shailesh J. Mehta, a distinguished alumnus of IIT Bombay. The School offers exceptional and innovative management education programmes with an emphasis on developing all-round managerial skills. The School has associate faculty from other academic units of IIT Bombay and visiting faculty from the industry to bring in the practitioner’s perspective.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	28
No. of Post-Doc Fellows	-

Academic Programmes:

The School of Management offers a Doctoral programme (PhD) in Management, 2-year full-time Master of Business Administration (MBA), a BTech (Minor) in management, Executive MBA (E-MBA) jointly with Olin Business School, Washington University in St. Louis USA, certificate programmes, short and long duration in-house and open management development programmes in all areas.

Total no. of students on-roll: 432		
Programmes Offered	Students Intake	Degrees Awarded
MBA	120	114
EMBA	45	39
PhD	14	07

R&D Activities:

Faculty members of the School are engaged in many research and consulting projects in all areas of management, including applied research

in rural development, climate change and other interdisciplinary areas.

Projects	Sponsored Projects	Consultancy Projects
New Projects	-	06
Ongoing	07	02
Completed	01	08

Highlights:

- Organized the first annual Summit of Academia Networking with Government, Allied Health Workers and Medical Professionals (SANGAM) Conference, in partnership with Maharashtra University of Health Sciences (MUHS) and the Government of Maharashtra from June 2-3, 2023. Prof. Sarthak Gaurav was the convener.
- IOE-funded Conference on Interdisciplinary Perspectives in Operations and Supply Chain Management 2023, in collaboration with Journal of Supply Chain Management, convened by Prof. T.T. Niranjan. A paper development workshop was also organised. The outcome, creation of a new field "neuro-operations management" was published in INFORMS OR/MS Tomorrow- a student magazine.
- A three-day workshop on “Psychometrics and Scale Development, Structural Equation Modelling with SPSS AMOS, Mediation, Moderation and conditional process analysis” during August 17-19, 2023. Prof. Vishal Gupta, IIM Ahmedabad was the invited speaker. Prof. Sarthak Gaurav was the convener.
- Workshop on Interdisciplinary Perspectives in Operations and Supply Chain Management held during November 7-8, 2023.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	02	53	28

INTERDISCIPLINARY GROUPS

INTERDISCIPLINARY PROGRAMME IN CLIMATE STUDIES

The Interdisciplinary Programme in Climate Studies (IDPCS) was established at the Indian Institute of Technology Bombay in January 2012 as one of the first doctoral programmes on climate change in India. The programme was partially funded by the Department of Science and Technology (DST) through its Climate Change Programme (CCP) Division. It was India's first DST Centre of Excellence in Climate Change, under the National Mission on Strategic Knowledge for Climate Change (NMSKCC).

Faculty from various departments across IIT Bombay are associated with IDPCS, working collaboratively, transcending the traditional academic boundaries, to apply their depth of expertise to interdisciplinary problems in addressing the complexities of climate change and contribute significantly in the field, both nationally and globally. Their contributions include the traditional core climate and environmental sciences, interdisciplinary technology development, climate economics and social sciences.

The objectives are to build long-term scientific capacity for studying regional climate change and climate futures, enabling the creation of a pool of multidisciplinary researchers to serve the growing needs for climate change scientists and professionals to serve the R&D and policy needs in private, public and governmental institutions and to inform policy and governmental decision making in air and water resources, climate mitigation, adaptation measures and provide strategic knowledge support to DST.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	05
No. of Post-Doc Fellows	01

Academic Programmes:

It offers one of India's pioneering doctoral programs in climate change focusing on climate science, climate adaptation and climate mitigation with a mission to develop a scientific

understanding of regional climate change, contributing to socio-economic, environmental and resource impacts and effective responses through technology and adaptation.

Total no. of students on-roll: 70		
Programmes Offered	Students Intake	Degrees Awarded
MS By Research (Exit)	-	01
PhD	14	03

R&D Activities:

The research activities at IDPCS are tailored to cultivate future leaders who are expected to conduct pioneering climate research, develop innovative climate solutions and spearhead climate action on local, national and global scales. The ongoing research at IDPCS cuts across the domains of climate science, vulnerability and adaptation and mitigation and policy. Investigations focus on refining model physics pertaining to clouds, ocean mixing, aerosol processes, climate change detection and attribution, effects of climate change on cities and communities, responses needed for adaptation and mitigation and assessing the climate change policies and mechanisms. Research efforts extend beyond statistical downscaling, emphasizing the examination of feedback from regional perturbations to synoptic scale circulations. Key focus areas include land-use and land-cover changes, dynamic vegetation, turbulent transport processes, regional aerosol emissions and better comprehension of their impact and feedback mechanisms.

Specific studies include the influence of aerosols on high-temperature extremes over India, aerosol-cloud interaction affecting cloud radiative forcing in the Indian region and the role of aerosols in altering the frequency, intensity and duration of rainfall extremes. Additionally, social vulnerability and risk to hydro-climatic extremes have been mapped across India. For coastal districts, a risk index has been developed to understand the vulnerability and recovery of marine fishing populations from extreme

climatic events. This index combines bio-physical stresses like cyclones, storm surges and tides, with socio-economic factors such as lack of infrastructure, technology, finance, social safety nets and space. An integrated socio-ecological systems perspective is being developed to assess vulnerability, incorporating pollution impacts, climate change-related risks and hazards and anthropogenic environmental degradation to impact local-level policy and decision-making.

Also, the positive/ negative impacts of climate and environmental policies on coastal vulnerability are being assessed. Key innovations such as “transformation” theory, conceptualization and operationalization of “emergent groups” for flood risk governance and integration of climate change uncertainties into adaptation strategies, are being used to convert climate change knowledge into actionable local-level adaptation and policy for flood risk mitigation. Detection, attribution analysis and modelling of hydroclimatic extremes are being studied. The dynamics of the equatorial Indian Ocean are being studied using the Modular Ocean Model. Decision support systems are being developed for studying technology options for sectors contributing to climate change by considering attributes related to cost, life cycle impacts, technology readiness level and social acceptability.

Research Facilities Set up in 2023-24:

- **HPC Cluster** was purchased from M/s Locuz Enterprises on a grant from Oracle Inc. in March 2023 and later 4 additional nodes were purchased from PAVITRA project funds. It is managed by the IDPCS HPC Committee of five faculty members from IDPCS. It is currently housed in the Aerospace engineering server room and will be moved into the central computing facility when completed.
- **Climate Modelling Lab** is a cutting-edge research lab facility, dedicated to education and advancing understanding of climate systems and their impacts on our planet. The lab consists of 16 advanced CPU-based front-end machines and 2 GPU-based machines linked to the 1500 Core High-Performance Computing System [currently in the Aerospace computing room]. Furthermore, this lab will host the machines and data servers that are the computing

backbone of our two living labs: Mumbai Flood Living Lab and Satara Living Lab.

- **Satara Living Lab** in Maharashtra state is a research and innovation concept that aims to actively involve users or citizens in co-creation and testing of new technologies, services or solutions in real-world environments, set up through the Corporate Social Responsibility (CSR) funds from Oracle. Key features of the Satara Living Lab include a) real-world context b) user involvement c) collaboration d) iterative approach and e) interdisciplinary nature. Satara district was chosen given its west-east rainfall gradient and several villages in the eastern part of the district having a water deficit situation, even though it was classified as a water surplus district. The living lab started in the village of Kaledhon, in the Khatav taluk of the district. The Lab is envisaged as an experimental testbed for understanding the earth system processes with a focus on natural-human interactions and achieving sustainability in the region's food-water-energy nexus.
- **Urban Flood Living Lab** is a citizen-driven flood risk and resilience assessment laboratory conceptualized by IDPCS, IIT Bombay. The laboratory will combine the power of rainfall forecasting and urban flood modelling with crowdsourced and sensor-based real-time inundation data to develop real-time flood risk maps. The propensity of various localities in Mumbai to flood will be depicted using rainfall nowcasts at 15-minute to 3-hour intervals and forecasts for three lead days. Using this information, the potential flood damage and the resilience of critical facilities will be estimated. The Living Lab is expected to help the civic authorities optimize their resources for flood mitigation as well as the citizens of Mumbai to plan their mobility during floods. A Nonhomogeneous Hidden Markov Model (NHMM) is used as the weather generator, well-suited for certain time series modelling tasks with temporal dependencies. NHMM offers a flexible and powerful approach for generating synthetic weather data and enables the generation of weather sequences that capture both short-term variability and long-term trends, making them a valuable tool in climate and weather research.

Projects	Sponsored Projects	Consultancy Projects
New Projects	03	01
Ongoing	-	-
Completed	-	-

Outreach/ Publicity Activities:

- International Climate Research Conclave (ICRC) 2023:** IIT Bombay hosted ICRC 2023 sponsored by the Ministry of Earth Sciences (MoES) and the Department of Science and Technology (DST), Government of India, during May 26-27, 2023. The Conclave brought together around 250+ researchers to discuss India's recent progress in diverse areas of climate research, the agenda for future research and a vision for 2030 and beyond. The event saw the official launch of the "India's Climate Research Agenda: 2030 and Beyond" report, edited by Dr. Akhilesh Gupta (Former Secretary, Science and Engineering Research Board (SERB) and Senior Advisor, DST, Government of India) and Prof. Subimal Ghosh (Convener, IDPCS).



(From R-L) Prof. Subhasis Chaudhuri (former Director, IIT Bombay), Dr. M Ravichandran (Secretary, MoES, GoI), Dr. S Chandrasekhar (former Secretary, DST), Dr. Akhilesh Gupta (former Secretary, SERB) and Prof. Subimal Ghosh (Convener, IDPCS) during the official launch of 'India's Climate Research Agenda: 2030 and Beyond' report at International Climate Research Conclave 2023 held in May 2023

- Stanford-IIT Bombay Joint Workshop on Climate Change:** IDP in Climate Studies at IIT Bombay and Stanford Doerr School of Sustainability under Stanford University

jointly organized a four-day workshop to discuss climate change in September 2023. The event was attended by Stanford-Doerr faculty, PhD students, Post Doctoral Fellows (PDFs) and industry participants. Dr. Naushad Forbes (Co-Chairman, Forbes Marshall) and Mr. Jamshyd Godrej (MD, Godrej and Boyce) gracing the event shared their experiences and learnings. Workshop was convened by Prof. Subimal Ghosh.



(From R-L sitting first row) Dr. Naushad Forbes (Co-Chairman, Forbes Marshall), Prof. Subhasis Chaudhuri (former Director, IIT Bombay), Mr. Jamshyd N Godrej (MD, Godrej and Boyce), Prof. Arun Majumdar (Dean, Stanford-Doerr SoS), Prof. Ravindra Gudi, Dean (Alumni and Corporate Relations, IIT Bombay) and Prof. Subimal Ghosh (Convener, Climate Studies and Professor, Department of Civil Engineering, IIT Bombay) along with other participants during Stanford-IIT Bombay joint workshop on climate change held in September 2023

- Induction Workshop for Institute Undergraduate Climate Enthusiasts:** A first-of-its-kind induction workshop for IIT Bombay undergraduate climate enthusiasts was held in March 2024. It was inaugurated by illustrious alumni Dr. Vinaya Kapoor and Dr. Samir Kapoor to ignite the interest of undergraduates in climate studies, help them navigate the various dynamics of climate change and identify opportunities for meaningful engagement and impactful careers in this field. The workshop was led by Prof. Subimal Ghosh, Convener, IDPCS and Prof. Subhankar Karmakar, Head, Environmental Science and Engineering Department (ESED), IIT Bombay.



Induction workshop inauguration by Dr. Vinaya Kapoor and Dr. Samir Kapoor

- Climate Entrepreneurship Award (ACCESS Award) and Chair Professorship:** In one-of-a-kind initiative, IIT Bombay announced ACCESS (ACcelerating Climate, Energy & Sustainability Solutions) Awards and first Chair Professorship in Climate Studies titled “*Vinaya and Samir Kapoor Chair in Climate Studies*,” supported through the generous contribution of illustrious alumni Dr. Vinaya Kapoor (BTech, Chemical Engineering, ‘92) and Dr. Samir Kapoor (BTech, Electrical Engineering, ‘992). The ACCESS Awards is instituted for students pursuing research in the climate, energy and sustainability space contributing to IIT Bombay’s endeavour to mitigate the climate crisis through disruptive research, climate-focused education and sustainability initiatives. It will facilitate the progress of students’ fundamental as well as implementation research proposals through cash prizes, provide mentorship to the winning teams, enable the incubation of ideas and launch the entrepreneurial journeys of the Institute’s bright and purposeful minds. The vision of the Chair is to establish IIT Bombay as a thought leader in Climate Studies. Prof. Subhankar Karmakar, Environmental Science and Engineering Department (ESED) is the first recipient of this chair professorship.



ACCESS Award 2023 winners

- Two faculty members served as lead author and four faculty as reviewer for Intergovernmental Panel on Climate Change (IPCC) Assessment Report 6 (AR6).
- IDPCS faculty member serves as panel member in United Nations Environment Programme’s (UNEP) Scientific Advisory of the Climate and Clean Air Coalition (CCAC-SAP).

Highlights:
Awards Constituted By IDPCS

- IDPCS has constituted two awards namely: 'Mainak Das Excellence in Publication Award' and 'Prashant Dave Best PhD Thesis Award,' in the memory of its two students Dr. Prashant Dave and Mainak Das, who passed away in February 2022 and October 2020, respectively. IIT Bombay alumni Dr. Kushal Tibrewal and Dr. Taveen Singh Kapoor, are the first recipients of the 'Mainak Das Excellence in Publication Award' and 'Prashant Dave Best PhD Thesis Award' 2023, respectively.

Student Achievements:

- Dr. Kushal Tibrewal received the 'Naik and Rastogi Award for Excellence in Ph.D. Research' by IIT Bombay.
- PhD student Manish Dhasmana, supervised by Prof. Arpita Mondal and Prof. Subhankar Karmakar, has been awarded the prestigious Outstanding Student Presentation Award (OSPA) at the American Geophysical Union (AGU) 2023.
- PhD student Ankan Chakraborty received the Best Paper Award in International Conference on Environmental Sustainability and Climate Change (ICESCC) 2023, National Institute of Technology (NIT) Meghalaya
- PhD student Navinya Chimurkar received 2nd best poster in the 'Engineering' category at Graduate Research symposium at Washington University in St. Louis, 2024.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	05	50	51

EDUCATIONAL TECHNOLOGY

The Interdisciplinary Programme in Educational Technology (IDP-ET) started in the Institute in 2010-11. The IDP-ET conducts research in areas of pedagogies and tools for technology-enhanced learning. In addition to the Institute courses, the IDP-ET organizes short-term courses and Massive Open Online Courses (MOOCs) on effective teaching-learning with emerging technologies and educational research methods through Continuing Education Programme (CEP), National Programme on Technology Enhanced Learning (NPTEL) and IITBombayX (open-source learning platform). The faculty members, post-doctoral research scholars and PhD students of the IDP-ET play a significant role in organizing international conferences, carrying out government and industry-sponsored projects and providing consultancy.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	06
No. of Post-Doc Fellows	-

Academic Programmes:

The IDP offers a PhD and MTech programme in Educational Technology. The IDP-ET continues to offer core courses and electives in various topics in educational technology to BTech, MTech and PhD students in other academic programmes within the Institute.

Total no. of students on-roll: 57		
Programmes Offered	Students Intake	Degrees Awarded
MTech	09	08
MS By Research (Exit)	-	01
PhD	05	04

R&D Activities:

The main research areas of focus of the IDP-ET are as follows:

- **Technology-Enhanced Learning of Disciplinary Practices (TELeaD):** TELeaD

focuses on developing students' cognitive skills such as design thinking, problem-posing, estimation, algorithmic thinking, modelling, data representation and analysis and divergent-convergent thinking.

- **Teacher Use of Educational Technology (TUET):** TUET focuses on research-informed development and outreach of ideas and innovations to empower teachers to use educational technology effectively. Contributions of TUET include models for learner-centric MOOCs and large-scale teacher professional development, development of teachers' design thinking, tools and strategies for effective technology integration and analysis.
- **Educational Data Analytics (EDA):** Educational Data Analytics is an emerging field where data pertaining to student behaviour in a computer-mediated environment are used to analyse cognitive and affective states. Key EDA objectives are:
 - Use of multimodal data such as mouse clicks, MOOC navigation data, eye gaze information, facial emotion recognition, galvanic skin conductance and brain waves to understand learner behaviour
 - Use machine learning and big data analytics to model and predict learner behaviour
 - Design the next generation of learning products such as intelligent tutoring systems in which the learning content is personalised based on students' prior knowledge, cognition and emotion.
- **Exploration of Emerging Technologies for Education (EmergE):** Identify potential benefits that emerging technologies such as augmented reality, virtual reality, wearable devices etc., might afford in the teaching-learning process and design appropriate learning activities using such technologies.

Projects	Sponsored Projects	Consultancy Projects
New Projects	02	01
Ongoing	04	-
Completed	02	01

Outreach/ Publicity Activities:

- IDP in ET hosted the International Conference on Technology 4 Education (T4E 2023) along with the EdTech Society, India during November 24-26, 2023. Over 200 participants from India and abroad were invited to present their research papers.
- Workshop on “*Introduction to Epistemic Network Analysis*” during T4E Conference
- Workshop titled “*Introduction to Python Programming*” for 72 first-year undergraduate students from JSPM’s Rajarshi Shahu College of Engineering, Pune and Atharva College of Engineering, Mumbai during month of August and September 2023.
- Hands-on workshop on “*Supporting students’ sensemaking through Karyotype adaptation and implementation in the classroom,*” for about 20 teachers across the country including Mumbai, Maharashtra, Agartala and Tripura)
- The first international workshop on Ethics of AI/ED: Challenges and Opportunities for Achieving Learner Centricity (ICCE 2023) at Matsue, Shimane, JAPAN.
- Online workshop on “*Documenting Educational Technology Research*” in collaboration with EdTech Society to help teachers and edtech industry practitioners learn the research methods and scaffold them to write research papers for T4E 2023.
- Online workshop titled “*Edtech Tulna Sensitization*” for middle school science teachers across the country conducted in April 2023.

- Prof. Ramkumar Rajendran served as Workshop and Demonstrations Co-Chair in the International Conference on Learning Analytics and Knowledge 2024 (LAK2024).

Faculty Professional Development programs:

MOOCs

Faculty, post-doctoral research scientists and PhD research scholars of the IDP-ET designed and taught the following MOOCs on NPTEL and/or IITBombayX platform:

- Designing Learner Centric MOOCs. 4-week MOOC for school teachers and e-learning curriculum designers offered on NPTEL during August-September 2022 and January-February 2023 by Dr. Sameer Sahasrabudhe, Dr. Jayakrishnan M and Prof. Sahana Murthy. The teaching assistants involved were Nandan P. A., Ishika, Jatin Ambasana, Vishwas Badhe and Pratiksha Patil.
- Learning Analytics Tools, a 12-week MOOC offered on NPTEL during August-October 2023 by Prof. Ramkumar Rajendran. The teaching assistants involved are Nisumba Soodhani K, Vishwas P. Badhe, Jyoti Shaha.
- Demystifying networking, a 4-week MOOC offered on NPTEL during July-August 2023 by Prof. Sridhar Iyer and Dr. Ashutosh Raina. The teaching assistants involved were Ram Das Rai and Setu Maheshwari..

Student Achievements:

- Nisumba Soodhani K, a PhD student, was elected as Asia-Pacific regional representative of the International Learning Sciences Students Association (ILSSA) - International Society of Learning Sciences from September 2023 to August 2024.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	29	06

SYSTEMS AND CONTROL ENGINEERING

The Systems and Control Engineering, formed in 1977, is a unique interdisciplinary programme in the country.

Systems and Control Engineering is poised for a remarkable future characterized by innovation, adaptability and widespread applications with the integration of emerging technologies such as Artificial Intelligence (AI) and Machine Learning (ML). These advances enables autonomous systems to learn, adapt and optimize control strategies in real-time, resulting in more efficient and responsive systems. For instance, self-driving cars and smart grids can adapt to changing conditions, making transportation safer and energy consumption more sustainable. This synergy improves the quality of life and the environment while maintaining the sustainability.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	17
No. of Post-Doc Fellows	01

Academic Programmes:

The IDP offers postgraduate programmes in MTech and PhD in the broad area of Systems and Control.

Total no. of students on-roll: 68		
Programmes Offered	Students Intake	Degrees Awarded
MTech	07	07
PhD	03	03

R&D Activities:

The research focus of the core group includes nonlinear control, robotics, path-planning, embedded control, coordination of autonomous vehicles, multi-agent systems, sliding mode control and applications, fractional-order modelling and control, optimization and optimization-based control, stochastic processes, game theory, stochastic control,

optimization, economics, information theory and combinatorial coding theory, control theory, NMR spectroscopy, nonlinear and geometric control, quantum information and control. In addition, the associate faculty members pursue research in process control, identification, behavioural theory, matrix computation and automotive control.

The experimental lab at Systems and Control is designed to familiarize students with hardware and software implementing control theories learnt as part of coursework. Various setups based on mechanical, electrical and chemical principles are made available to the students for this purpose. As part of core coursework, all Masters' students are expected to understand modelling, communication, sensor calibration and control of hardware to accomplish different control objectives.

Projects	Sponsored Projects	Consultancy Projects
New Projects	02	07
Ongoing	11	04
Completed	09	03

Outreach/ Publicity Activities:

- SysCon Summer School 2023 convened by Prof. Vivek Natarajan
- SysCon workshop for graduate students, led by Prof. R. N. Banavar and Prof. Debasish Chatterjee
- Workshop on Large Scale Learning and Control, led by Prof. Debasish Chatterjee
- Indo-German Workshop on Frontiers of Robot Learning (FRL 2024), organised by Prof. Arpita Sinha and Prof. Leena Vachhani

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	19	19

CENTRES

ASHANK DESAI CENTRE FOR POLICY STUDIES

The Centre was established in 2016 and was renamed as Ashank Desai Centre for Policy Studies (ADCPS) in 2021. The ADCPS aims to promote evidence-informed and inclusive public policy analysis and catalyzes bridging the gap between academia, policymakers and society at large. With a vision to become a Centre of Excellence in facilitating policy studies, ADCPS aims to address pressing societal challenges through rigorous research, innovative thinking and collaborations. The researchers at ADCPS undertake studies on a wide range of topics, such as digital society and governance, social policy (education, ageing, identity), technology and policy, urban policy, water, sanitation, energy and climate change. By exploring such diverse areas, the Centre aims to generate insights and recommendations that can inform effective policy-making.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	14
No. of Post-Doc Fellows	-

Academic Programmes:

ADCPS offers a Doctoral programme and a Master’s programme in Public Policy.

Total no. of students on-roll: 67		
Programmes Offered	Students Intake	Degrees Awarded
MPP	15	12
PhD	06	03
M.S. By Research (Exit)	-	01

R&D Activities:

Policy studies is a relatively nascent discipline in India. Currently, the Centre is involved in various key policy research areas, including digital society and governance, social policy (education, ageing, identity), technology and policy, urban policy, water, sanitation, energy and climate change, energy transitions, energy modelling, electric vehicles, green jobs, energy access etc.

Projects	Sponsored Projects	Consultancy Projects
New Projects	05	01
Ongoing	03	01
Completed	04	03

Outreach/ Publicity Activities:

- ADCPS hosted a “Summer School” in Kerala and a “Winter School” at IIT Bombay and Alibaug in May and December 2023, respectively
- Organized various workshops, including:
 1. Energy Transition, led by Prof. Anjali Sharma
 2. Indian Council of Social Science Research (ICSSR) Workshop on ‘Socio-Economic Impact Assessment of Atal Tinkering Labs (ATL) and Atal Incubation Centers (AIC) in the States of Gujarat, Maharashtra, Madhya Pradesh and Goa, led by Prof. Shishir K Jha
 3. Vocational Education and Training in India, led by Prof. Malish CM
- ADCPS organized two policy dialogues:
 1. Age-Friendly Urban Policy and Programmes for Older Persons led by Prof. Prabhir Vishnu Poruthiyil
 2. Higher Education and Marginalised Social Groups, led by Prof. Malish CM
- During the year 2023-24, about 14 policy-relevant talks were conducted on various topics.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	02	03	10

CENTRE FOR MACHINE INTELLIGENCE AND DATA SCIENCE

The Centre for Machine Intelligence and Data Science (C-MInDS) at IIT Bombay was set up in February 2020 to contribute towards the growing significance of Artificial Intelligence (AI), Data Science (DS) and related areas in different application domains. The activities of the Centre leverage the existence of a strong interdisciplinary academic community and the important research endeavours carried out by various researchers and faculty members. The Centre aims to nurture the future talent pool in AI and DS primarily through research, teaching and collaboration with industry and the government.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	02
No. of Post-Doc Fellows	-

Academic Programmes:

The Centre offers a Master of Science (MS) by Research and a Doctor of Philosophy in Machine Learning (ML) and Artificial Intelligence (AI), an Interdisciplinary Dual Degree Programme (IDDDP) and a Minor Programme in Artificial Intelligence (AI) and Data Science (DS). CMInDS plans to launch the Executive Postgraduate Diploma in Machine Learning and Data Science programme in August 2024. This programme is designed to provide basic and applied knowledge of AI and ML for working professionals through online mode.

Total no. of students on-roll: 18		
Programmes Offered	Students Intake	Degrees Awarded
MS by Research	16	-
PhD	17	-

R&D Activities:

The associated faculty members of CMInDS are engaged in industrial R&D projects with several organizations in different research areas,

including natural language processing (NLP) and speech technologies, image processing and computer vision, decision-making systems, materials modelling and discovery, as well as foundational research in Machine Learning (ML) and Deep Learning (DL). The Centre is also working on drafting Grand Challenges in Public Data and AI/ ML in Engineering. Recently, a lab space for researchers and students has been setup with dedicated servers and GPUs for large ML models. The Centre also has ongoing long-term collaborations with the SBI Foundation and Gupshup.

Outreach/ Publicity Activities:

- Workshop on AI Impact 2023, jointly organized by Prof. D. Manjunath (CMInDS) and Prof. Manjesh Hanawal (TCAAI).
- Workshop on Indo-ML, organized by led by Prof. Abir De and Prof. Biplab Banerjee
- Symposium on Advances in Probability Theory and Applications to Systems Modelling, led by Prof. D. Manjunath

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	-	-	01



Prof. K. Kaliappan, IIT Bombay Dean Strategy (right) felicitating alumni and founding donor (C-Minds) Mr. Mohan Lakhamraju (BTech, CSE, '98) (second from left) during AI Impact 2023 workshop

CENTRE OF STUDIES IN RESOURCES ENGINEERING

Established in 1976, the Centre of Studies in Resources Engineering (CSRE) is noted for its research in the areas of machine learning, synthetic aperture radar and hyperspectral image analysis, GPS applications, high-performance computing, geospatial IoT, mineral exploration, agro-informatics, cryosphere, water resources, hydrology and so on.

The Centre continues its international collaborations in areas such as microwave remote sensing, geology and mineral resources and data sciences in agriculture. The Centre has developed excellent infrastructure in terms of state-of-the-art software, hardware, laboratories and air-borne hyperspectral imaging.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty)	12
No. of Post-Doc Fellows	01

Academic Programmes:

The Centre offers MTech and Minor programmes in Geoinformatics and Natural Resources.

Total no. of students on-roll: 119		
Programmes Offered	Students Intake	Degrees Awarded
MTech	33	22
PhD	12	08
DD (MTech +PhD)	-	01

R&D Activities:

The Centre has been actively involved in several research and development activities through projects spanning across interdisciplinary domain expertise of faculty members and applications in geoinformatics, remote sensing, GPS and its applications.

Projects	Sponsored Projects	Consultancy Projects
New Projects	06	04
Ongoing	12	07
Completed	03	10

Outreach/ Publicity Activities:

- The Centre conducted Summer School on Deep Learning during March 4-8, 2024, under the ISRO-NRSC-sponsored programme
- International experts Prof. Carlos Lopez Martinez, Universitat Politècnica de Catalunya (UPC), Spain, Prof. Armando Marino, University of Stirling, UK, Dr. Erick Ramanaidou and Dr. Ignacio Gonzalez Alvarez from CSIRO Australia visited the Centre and interacted with faculty and students.
- The Centre was actively involved in organising the 2023 IEEE India Geoscience and Remote Sensing Symposium (InGARSS) during December 10-13, 2023 hosted in IIIT Bengaluru. Prof. Avik Bhattacharya (one of the General Chairs), Prof. Karthikeyan Lanka (one of the TPC Chair), and Prof. Y. S. Rao (member of the International Advisory Committee) were part of the Organizing Committee.



Participants and invited experts from India and abroad in InGARSS 2023 held during December 10-13, 2023 at IIIT, Bengaluru

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	01	03	59	35

CENTRE FOR TECHNOLOGY ALTERNATIVES FOR RURAL AREAS

The Centre for Technology Alternatives for Rural Areas (CTARA) was established at IIT Bombay in 1985 with a vision to attend and learn from the problems of rural India and develop appropriate technology solutions through fieldwork.

In the last two decades, our country has witnessed significant changes in several spheres at an increasingly rapid speed. The development agenda is now the key to the progress of India and its people. C-TARA's research and academic programmes are geared towards need assessment and alternative solutions, informed policy and implementation, design and analysis of key programmes, tracking performance and an inter-disciplinary study of a wider set of problems to reduce them to a set of disciplinary/ inter-disciplinary/ trans-disciplinary research.

Over the years the Centre has developed relations with various Ministries/ Governmental Departments at the Centre and State; multilateral agencies, industrial houses and CSR units, non-governmental organizations/ community-based organizations and villagers and PRIs.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	51
No. of Post-Doc Fellows	27

Academic Programmes:

The Centre offers an MTech and PhD programmes in "Technology and Development" to train science and engineering graduates in the technology and development domain. It also offers Technology and Development Supervised Learning (TDSL), a socially relevant project course for undergraduate students in IIT Bombay.

New programme:

A new one-year 'Masters in Development Practice (MDP)' programme has been started with its first batch from 2023. This programme aims to equip young development practitioners

with field experience to enhance their academic and analytical abilities to contribute effectively to the development sector. The programme runs in an online mode (in the evenings and weekends) enabling the working professionals to enrol.

Total no. of students on-roll: 128		
Programmes Offered	Students Intake	Degrees Awarded
MTech	20	22
DD (MTech+PhD)	-	01
PhD	07	05
Masters in Development Practice (MDP)	06	-

R&D Activities:

The Centre is actively involved in basic and applied research covering various sectors and themes such as rural energy, water and sanitation, health and nutrition, soil and natural resources, agriculture and agro-processing, food and nutrition, technology and society, among many more. The Centre also provides high-quality knowledge and technical advisory support through various R&D projects and consultancy to various organizations, as follows:

- The Rural Technology Action Group (RuTAG), IIT Bombay has developed and is disseminating various technology solutions such as solar hydrodistillation-based rose water production unit, hirda and chironji decortication machines and minor millets dehulling machine, that would reduce drudgery, enhance productivity and provide value addition for rural and tribal workforce.
- C-TARA, as a part of the Project on Climate Resilient Agriculture, the Department of Agriculture, Maharashtra has developed technology and process innovations in water and energy for agriculture.

- Use of upcoming technologies (e.g. Drone/ LoRAN IoT/), Open source software and algorithms (AI/ ML) for better understanding of rural development issues and aid in creating scientifically validated Best Management Plans (BMPs)
- Bioprocessing research addresses critical challenges by advancing biorefinery and bioenergy solutions, agricultural value chain analysis and the creation of novel food formulations.
- The Ministry of Agriculture has funded a Centre of Excellence in Bamboo Infrastructure Technologies, which focuses on developing technological solutions to generate livelihood opportunities for marginal farmers.
- Transdisciplinary research is conducted in the field of agriculture, water and disaster management through pilot case studies. The study involves setting up an experimental watershed and collecting and analysing micro-level socio-economic and environmental data using stakeholder engagement, Remote Sensing and Geographic Information Systems (RSGIS) Drones, Sensors/ Internet-of-Things (IoT) and Machine Learning (ML) tools.
- The ongoing social studies of science and technology include infrastructure studies and research into the repair and maintenance of

ecosystem for technologies and technological systems as well as research on wildlife and biodiversity conservation and its intersection with livelihoods.

Projects	Sponsored Projects	Consultancy Projects
New Projects	13	02
Ongoing	22	03
Completed	09	04

Highlights:

IIT Bombay signed an MoU with the United Nations World Food Programme (WFP) towards promoting knowledge exchange and bringing about transformative change in our global efforts to combat hunger and food insecurity. Ms. Elizabeth Faure, Country Director, World Food Programme in India and Dr. Abhay Kumar, Head, RAM and Evaluation Unit, WFP; Prof. KVK Rao, Deputy Director (Finance, Infrastructure and Administration), IIT Bombay; Prof. Sachin C. Patwardhan, Dean (Research and Development), IIT Bombay; Head and faculty members of CTARA, IIT Bombay, along with others were present during the MoU signing.

The MoU will focus on food security, livelihood situations and the impact of climate extremes on agriculture.



(Second from left) Prof. Sachin C. Patwardhan, Dean (Research and Development), IIT Bombay and (fourth from left) Ms. Elizabeth Faure, Country Director, World Food Programme in India along with others during MoU signing

Outreach/ Publicity Activities:

- **Workshops:**

1. Two-day workshop on Rural Mini-grids: Sustainability Challenges and The Way Forward led by Prof. Anand Rao and the SEED Centre team
2. Workshops led by Prof. Priya Jadhav:
 - (i) PoCRA Vulnerability and Extension Services for Sub-district Level Officers and Community (Two-day)
 - (ii) Series of workshops on the Development of course material for Ag feeders for Electrical Engineers
3. UK-India Government collaborative workshops on (i) Responsible and Trustworthy AI and (ii) Data Stewardship for AI and Climate led by Prof. Pennan Chinnasamy
4. A Seed funding for Collaboration and Partnership Projects (SCPP) initiative and IOE-funded two-day workshops on:
 - (i) Valuing Nature and Compensating Forests: Critical Challenges in the era of Climate Change' led by Prof. Pankaj Sekhsaria with Sarmistha Pattanaik (HSS), Vijay Kolinjivadi (Univ of Antwerp) and Ritwick Ghosh (University of Denver).
 - (ii) Regulating Biotech: Reimagining biology at the interface of science, technology and the market' led by Prof. Pankaj Sekhsaria with Mahendra Shahare (HSS), Naveen Thayyil (IIT Delhi) and Allison Fish (Univ of Queensland, Australia).
5. Workshops led by Prof. Parmeshwar Udmale:
 - (i) Brainstorming Session on Heatwave Preparedness (One-day)
 - (ii) Making Village Groundwater Visible: Outscaling MARVI (Managing Aquifer Recharge and Sustaining Groundwater Use through Village-level Intervention) in Maharashtra, supported by the Australia India Research Collaboration Grants (Unnati Research Collaboration Grants), including a field visit to the model village Hiware Bazar (Three-days)
 - (iii) CTARA hosted an offline training module of the Government of Maharashtra-initiated Chief Minister Fellowship from May 29 to June 9, 2023. The offline training

was the first part of the one-year fellowship programme (May 2022 to May 2023). A total of 24 fellows and five officers from the Directorate of Economics and Statistics participated in the offline module. Several government officials and bureaucrats visited and delivered lectures to the fellows during this workshop. (Ten-days)

- Prof. Rupal Dalal led and designed material for workshops for Capacity Building of health workers on Maternal, Infant and Young Child Nutrition which is being used in 12 districts of India.

Student Achievements:

A student team from the Centre for Technology Alternatives for Rural Areas (CTARA) at IIT Bombay emerged as winners from over 600 participant teams in the prestigious National Grand Onion Challenge initiated by the Ministry of Consumer Affairs and Public Distribution, Government of India. The team comprised of two M.Tech. students, Mr. Yashwanth Nandi and Mr. Om Agrahari and a Ph.D. student Mr. Nilesh Vadgave, mentored by Prof. Amit Arora, CTARA.

The winning solution from the IIT Bombay team was an innovative technology titled 'Converting existing Open Ventilated storage structure into Climate Smart storage for improving the shelf life of onions'. This groundbreaking approach holds immense potential for onion farmers, enabling them to preserve their harvest for long periods and secure better returns.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	03	01	08	22



(From L to R): Winners of National Grand Onion Challenge Mr. Nilesh Vadgave, Mr. Yashwanth Nandi, Justice Mr. A.P. Sahi (President, NCDRC), Mr. Rohit Singh (Secretary, Ministry of Consumer Affairs), Mr. Om Agrahari and Prof. Amit Arora

CENTRE FOR URBAN SCIENCE AND ENGINEERING

The Centre for Urban Science and Engineering (C-USE) was set up in 2013 with the focus to enhance the urban quality of life. Though in its nascent stage, the Centre has been able to leave its mark as one of the major academic units contributing to the emerging field of urban science and engineering. The Centre aims to combine science and technology with sustainable, equitable and human-friendly design to deliver innovative and holistic services to improve the quality of life of the rapidly urbanizing population in the developing world.

During 2023-24, the Senate and Board of Governors (BoG) of IIT Bombay approved a noteworthy decision to close the Centre for Urban Science and Engineering (CUSE) and merge it with the Department of Civil Engineering.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	06
No. of Post-Doc Fellows	-

Academic Programmes:

The Centre currently offers Master of Technology and PhD programmes. The Centre is interdisciplinary in nature and has multifaceted faculty (core and associated).

Total no. of students on-roll: 48		
Programmes Offered	Students Intake	Degrees Awarded
MTech	08	05
PhD	06	02

R&D Activities:

The Centre is actively involved in basic and applied research and consultancy and provides high-quality technical advisory support through various R&D projects and consultancy to various organizations. The research activities of the Centre focus on new products and solutions related to housing, transport, water management, energy efficiency, urban informatics, health, governance, urban poverty and citizen science while mitigating the effects of natural disasters and climate change. The Centre aims to establish links with various institutes in India and abroad, addressing urban challenges.

Projects	Sponsored Projects	Consultancy Projects
New Projects	02	04
Ongoing	06	02
Completed	-	04

Student Achievements:

- Three PhD students - Harshali Ghule, Priya Chavan and Nisha Nair were selected in an open call as international participants for the summer workshop on Mixed Methods across the urban disciplines at the University of Toronto's School of Cities, held during July 30-August 1, 2023.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	01	19	14

KOITA CENTRE FOR DIGITAL HEALTH

The Koita Centre for Digital Health (KCDH) at IIT Bombay is the first-of-its-kind in India, focusing on driving academic programmes, research and industry collaborations in digital health and envisions to be a globally renowned centre.

KCDH was established in June 2021 with a generous contribution from IIT Bombay alumni Rekha Koita (BTech, Metallurgical Engineering and Materials Science, 1992) and Rizwan Koita (BTech, Electrical Engineering, 1992), under the aegis of the Koita Foundation (www.koitafoundation.org), to address the needs of engineers, clinical professionals and entrepreneurs in digital health and create research and employment opportunities in this domain. It partners with leading hospital systems, healthcare research teams and academic institutions that have strong capabilities across medicine and healthcare.

KCDH has completed its two years of operations and crossed many important milestones. As envisioned, KCDH has become a multi-disciplinary hub of digital health activities at IIT Bombay. More than 60 faculty members from 20 different departments and centres are actively involved in the Centre's activities. KCDH is proud to have a world-class advisory board with renowned members from diverse backgrounds, including the CEOs and ex-presidents of leading global medical technology firms, directors of renowned hospitals and professors from top universities worldwide.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ Visiting-teaching faculty)	07
No. of Post-Doc Fellows	01

Academic Programmes:

KCDH offers a PhD programme in Digital Health, an Interdisciplinary Dual Degree Programme (IDDDP) in Healthcare Informatics and a Minor programme in Healthcare Informatics. The Centre will commence a new

Master of Science (MS) by Research programme (beginning July 2024).

Total no. of students on-roll: 21		
Programmes Offered	Students Intake	Degrees Awarded
PhD	12	-

R&D Activities:

The Koita Centre for Digital Health (KCDH) is involved in several significant research initiatives, including:

- National Disease Modelling Consortium (NDMC):** KCDH is a key participant in the NDMC, a collaboration with various institutions focusing on four disease verticals. The consortium emphasizes the importance of disease models, public health expertise and collaborations for genome sequencing and biomarker research.
- Centre of Excellence in Healthcare:** KCDH has been recognized as the co-lead of this initiative, which focuses on early detection and management of cardiovascular diseases. It also aims to streamline healthcare facility operations and clinical care through Artificial Intelligence and Machine Learning (AIML).
- BharatGPT Consortium:** KCDH has significantly contributed to the BharatGPT consortium by undertaking the healthcare vertical, which has recently received funding approval from the Department of Science and Technology (DST).
- KCDH-IBM Research Project:** This joint project, titled "Chain of thought for LLMs in the medical domain", is being carried out in close collaboration with IBM Research and Maharashtra University of Health Sciences. The project involves using an AI chatbot to train medical college students.

These initiatives reflect KCDH's commitment to leveraging technology and collaboration to advance healthcare research and practice.

Projects	Sponsored Projects	Consultancy Projects
New Projects	02	-

Highlights:

- 1) The Koita Centre for Digital Health (KCDH) at IIT Bombay had its Centre's inaugural event on April 17, 2023. Dr. Rajesh S. Gokhale, Secretary of the Department of Biotechnology, Government of India, was the Chief Guest and Lt. Gen Madhuri Kanitkar (Retd.) (Vice-Chancellor, Maharashtra University of Health Sciences) was the Distinguished Guest on the occasion.

The event also witnessed a symposium titled "Catalysing Digital Health Revolution in India" that brought together notable figures from the government, academia and industry. The panelists presented their views on digital solutions that can transform healthcare in India with some of the dominant themes being: managing large healthcare data sets, use of advanced technologies like AI/ ML in personalized medicine, disease modeling for public health, the importance of local innovation in digital health and the need for nation-wide capacity building in digital health.

- 2) The Centre witnessed the graduation ceremony of its first batch of IDDDP and Minor students on August 19, 2023. Dr. Sujit Chatterjee, the CEO of L. H. Hiranandani Hospital, was the chief guest on occasion. He gave away the degrees to the Batch of 2023 graduating students.

Outreach/ Publicity Activities:

- KCDH provides digital health training for professionals and supports national efforts through the following impactful outreach programmes:
 - Ayushman Bharat Digital Mission (ABDM) workshops
 - Executive education programmes
 - Summer/ Winter schools

- Prof. Kshitij Jadhav delivered an insightful talk on 'AIML in Healthcare' at Seth GS Medical College and KEM Hospital in December 2023.
- As a part of outreach activity, Prof. Ganesh R. visited many significant universities during his 14-day US tour, including Harvard University to cultivate robust connections for student engagement, encompassing internships and student exchange programmes. He showcased his research in Digital Healthcare and established collaborations pivotal for the growth of the Koita Centre for Digital Health at IIT Bombay.

Talk sessions on:

- Artificial Intelligence (AI)-assisted Healthcare Systems
- From data to decision-making: disease modelling for policy impact
- The Future of Health Tech: Gamification, AI, Personalized Health and Longevity
- Tracking India's Policy Actions and Health Inequities: Can Digital Health Make a Difference?
- Leapfrog Healthcare Through Innovation
- Detection of Heart Valve Disorders from PCG Signals using Time-Frequency Domain Deep Learning

Students Achievements:

- Five PhD scholars - Ambuj K Upadhyay, Keerthana Vinod Kumar, Shayantan Banerjee, Suraj Racha and Sneha Singh have been honoured with the prestigious Prime Minister Research Fellowship (PMRF) during the year 2023-24 for their outstanding research contributions in Digital Health.
- Dr. Indrajit Ghosh, a research scientist at NDMC, was conferred the Best Paper Prize in Medical Statistics: Disease Modelling by ICMR- National Institute of Medical Statistics for his paper titled "Short-term predictions and prevention strategies for COVID-19: A model-based study" on September 26, 2023.

Publications:

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	-	01	14	05

CENTRE FOR RESEARCH IN NANOTECHNOLOGY AND SCIENCE AND SOPHISTICATED ANALYTICAL INSTRUMENTAL CENTRE

IIT Bombay is one of the leading institutes in the country for Nanoscience and Nanotechnology research. The Centre for Research in Nanotechnology and Science (CRNTS) was formed in the year 2005 through a generous grant from the Department of Science and Technology (DST), Government of India. This Centre engages in interdisciplinary research in nanoscience and nanotechnology.

Total no. of faculty (Assistant/ Associate/ Full Professors/ Adjunct/ {Visiting-teaching faculty})	-
No. of Post-Doc Fellows	01

Academic Programmes:

The associated faculty members in CRNTS are faculty members in various academic units at IIT Bombay who guide the enrolled PhD students on both fundamental and applied aspects of nanoscience and nanotechnology research.

Total no. of students on-roll: 89		
Programmes Offered	Students Intake	Degrees Awarded
PhD	08	11

R&D Activities:

The broad research areas at CRNTS include nanomaterials; nanosensors; nanoelectronics; nanobiotechnology and nanomanufacturing. Some current research topics include: micromechanical theory for explaining the colloidal aggregation phenomenon; nanoparticles and nanocomposites for removal of organic pollutants and heavy metals from water; nanostructures for environmental biosensors; ecotoxicological studies on

nanomaterials; 3D printing for the development of flexible electronic devices and sensors; polymer composite membranes for water-oil separation; investigation of damage mechanisms in nanocomposites using experiments and multiscale modeling; and structure-property correlations of additively manufactured nano-concrete.

The Centre hosts the Sophisticated Analytical Instrument Facility (SAIF), which houses a variety of well-maintained major analytical instruments in operation. SAIF IIT Bombay, funded by DST, serves as an academic, research and scientific service provider and a facilitator available for users across the country. Various additional advanced instrumentation facilities have been set up in CRNTS to meet the advanced instrumentation needs of IIT Bombay researchers across various academic units. PhD research scholars from various academic units are trained to operate the advanced instrumentation facilities to enhance their utilization and facilitate state-of-the-art research at IIT Bombay. SAIF/ CRNTS also supports various interdisciplinary academic activities and research by conducting workshops, webinars and training programmes.

A wide range of analytical techniques for chemical analysis and material testing and characterization, including qualitative and quantitative elemental analysis, molecular analysis, structure determination, surface topographic studies and physical, optical and electrical characterization of materials are available in SAIF and CRNTS. Around 2679 users from academic institutes, national labs and industry utilized the SAIF and CRNTS facilities at IIT Bombay to analyze 22,666 samples during 2023-24.

Following is the Department of Science and Technology (DST)-funded new facility recently installed in the Centre:

Dynamic Mechanical Analyzer (DMA): It measures the mechanical properties of a material as a function of time, temperature and frequency under an oscillatory load. The DMA works by applying an oscillatory force to the sample at a specific frequency and measuring the resulting deformation. The amplitude and phase of the applied force and the resulting deformation are recorded, allowing for the calculation of various mechanical properties.



*Dynamic Mechanical Analyzer (DMA)
Model: DMA 242 E Artemis, Netzsch, Germany*

Projects	Sponsored Projects	Consultancy Projects
New Projects	-	-
Ongoing	02	02
Completed	-	04

Outreach/ Publicity Activities:

Workshops on:

- Focused Ion Beam-Scanning Electron Microscopy
- Small Angle X-Ray Scattering for Colloids, Polymers and Biological Systems
- Electron Spin Resonance (ESR) Spectroscopy
- Thermogravimetric/ Differential Thermal Analysis (TGDTA) and Differential Scanning Calorimetry (DSC)
- Dynamic Mechanical Analysis (DMA) Basics and Applications

- Organized Industry Day on August 29, 2023 to showcase the capability of facilities available in SAIF/CRNTS. About 51 delegates from various industries attended the event.
- Organized the National R&D Lab Meet 2023 on September 22, 2023, to showcase the capability of facilities available in SAIF/CRNTS. About 85 scientists and scientific officers from various national labs in Mumbai, Nagpur, Bhopal, Jamnagar, Pune, attended the meet.

SAIF/ CRNTS received a large number of visitors from academia and industry across country and abroad for exploring the areas of collaboration and learning.

Student Achievements:

- Goutam Narayan Tumulu won the best poster presentation award at Annual Prime Minister's Research Fellows (PMRF) annual Symposium conducted by IIT Indore during March 3-4, 2024
- Dr. Rhea Patel received the best thesis award in the Student Research Forum, IEEE Applied Sensing Conference APSCON Conference 2024, India
- Amreen Khan:
 - i) was chosen to attend the 72nd Lindau Nobel Laureate meeting in Physiology/ Medicine 2023, awarded by Department of Science and Technology, Government of India.
 - ii) was selected for "Young Scientific Talents Week: Sports and Science 2023" among 37 international young talented scientists from 22 countries, by the Institut Français en Inde, Embassy of France-India and Universcience – Cité des sciences et de l'industrie.

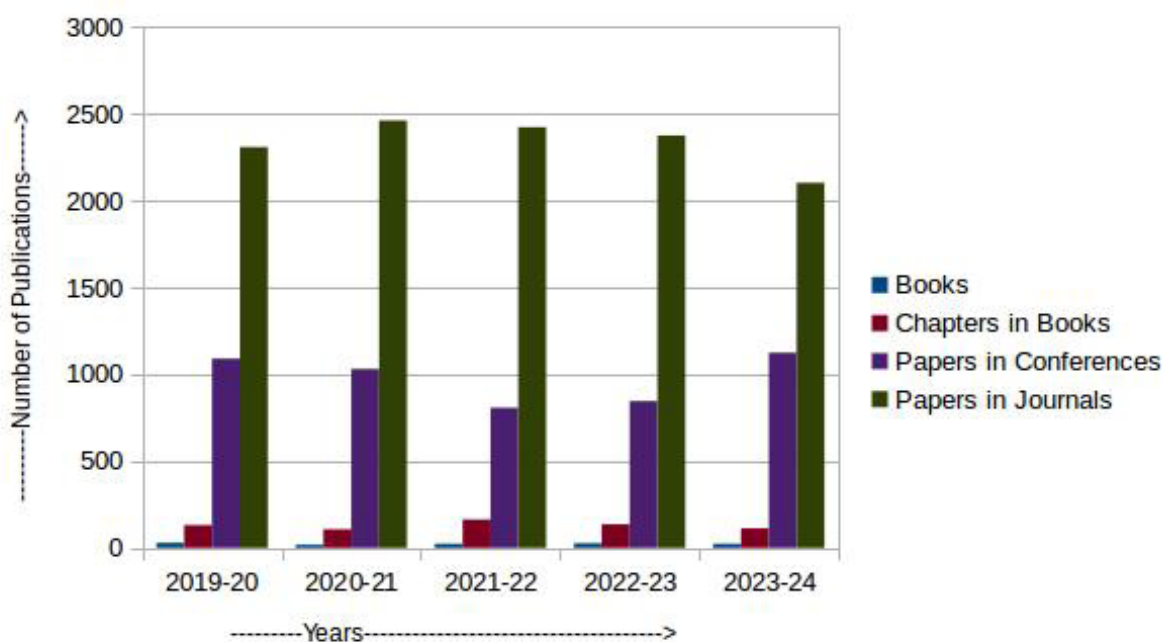


Delegates during the celebration of Industrial Day hosted by SAIF/ CRNTS, IIT Bombay

PUBLICATIONS

The number of publications by faculty members of IIT Bombay are steadily increasing. During the year 2023-24, 23 Books, 113 Chapters in Books, 2102 Papers in Journals and 1124 papers in Conference were published by the Institute's faculty.

Given below is the graphical representation of the Papers in Journals, Papers in Conferences, Books and Chapters in Books published by Institute's faculty in the last five years:



Year	Papers in Journals	Papers in Conferences	Books	Chapters in Books
2019-20	2308	1090	29	131
2020-21	2461	1030	18	107
2021-22	2423	807	23	163
2022-23	2375	845	26	136
2023-24	2102	1124	23	113

ORGANIZATION



Dr. Sharad Kumar Saraf
Chairperson,
Board of Governors



Prof. Subhasis Chaudhuri
Director
(Upto May 5, 2024)



Prof. Shireesh B. Kedare
Director
(From May 6, 2024)



Prof. S. Sudarshan
Dy. Director
(Academic & Infrastructural Affairs)
(Upto June 30, 2024)



Prof. Milind Atrey
Dy. Director
(Academics, Research & Translation)
(From July 1, 2024)



Prof. K V Krishna Rao
Dy. Director
(Finance, Infrastructure & Administration)



Prof. Milind Atrey
Dean (Research & Development)
(Upto July 31, 2023)



Prof. Sachin Patwardhan
Dean (Research & Development)
(From August 1, 2023)



Prof. Avinash Mahajan
Dean (Academic Programmes)
(Upto July 1, 2024)



Prof. Suvarn Kulkarni
Dean (Academic Programmes)
(From July 2, 2024)



Prof. Ravindra Gudi
Dean
(Alumni & Corporate Relations)



Prof. Tom V. Mathew
Dean
(Infrastructure Planning & Support)
(Upto June 11, 2024)



Prof. Vedagiri Perumal
Dean
(Infrastructure Planning & Support)
(From June 12, 2024)



Prof. Suryanarayana Doolla
Dean
(Students Affairs)



Prof. Amit Agrawal
Dean (International Relations)
(Upto January 3, 2024)



Prof. Sudarshan Kumar
Dean (International Relations)
(From January 4, 2024)



Prof. Neela Nataraj
Dean
(Faculty Affairs)



Prof. K. P. Kaliappan
Dean
(Strategy)



Prof. Siddhartha Ghosh
Dean
(Educational Outreach)



Prof. S. V. Kulkarni
Dean (Administrative Affairs)
(Upto August 6, 2023)



Prof. Nand Kishore
Dean (Administrative Affairs)
(From August 7, 2023)



Mr. Ganesh K. Bhorkade
Registrar

IIT COUNCIL

Minister in charge of Technical Education in the Central Government (Ex-Officio)	Chairman
Chairman of Board of Governors of all Indian Institutes of Technology (Ex-Officio)	Member
Director of all Indian Institutes of Technology (Ex-Officio)	Member
Chairman, University Grants Commission (Ex-Officio)	Member
Director General, Council of Scientific and Industrial Research (Ex-Officio)	Member
Chairman, Indian Institute of Science, Bangalore (Ex-Officio)	Member
Director, Indian Institute of Science (Ex-Officio)	Member
Three nominees of the Central Government	Member
To represent the Ministry concerned with Technical Education	Member
To represent the Ministry of Finance	Member
To represent any other Ministry	Member
Nominee of the All India Council for Technical Education (AICTE)	Member
Nominees of the Visitor (minimum 3 and maximum 5)	Member
Three Members of Parliament (two from Lok Sabha and one from Rajya Sabha)	Member
Secretary to the Council	Secretary

Members of the Board of Governors

Nominated by Visitor	Dr. Sharad Kumar Saraf, Chairman, Technocraft Industries (India) Ltd., Technocraft Group, Bombay, Technocraft House, A-25, MIDC, Marol Industrial Area, Road No.3, Opp ESIC Hospital, Andheri (East), Mumbai – 400 093.	Chairperson
Ex-officio	Prof. Shireesh B. Kedare (From 06.05.2024),	Member
	Prof. Subhasis Chaudhuri (Upto 5.05.2024) Director, IIT Bombay, Powai, Mumbai – 400 076.	Member
Council Nominees (Three)	Ms. Saumya Gupta, Joint Secretary, Ministry of Education (TE), 203-C, Shastri Bhawan, New Delhi - 110015	Member
	Prof. Aniruddha B. Pandit, Vice Chancellor, U.G.C. Professor, Department of Chemical Engineering, Institute of Chemical Technology Bombay, Matunga, Mumbai - 400019.	Member
	Prof. Paresh K. Joshi, NIUS Building, Homi Bhabha Centre for Science Education, TIFR, V.N. Purav Marg, Mankhurd, Mumbai -400088.	Member
State Government Nominees (Two)		
Maharashtra	Mr. Vikas Rastogi, IAS Secretary, Higher and Technical Education Government of Maharashtra, Mantralaya, Mumbai – 400 032.	Member
Dadra and Nagar Haveli	Shri Praful K. Patel, Administrator, U.T. of Daman and Diu, and Dadra and Nagar Haveli, Silvassa – 396 230.	Member
Senate Two	Prof. Swati Patankar (From 01.01.2024), Department of Biosciences and Bioengineering, Prof. Virendra Sethi (Upto 31.12.2023), Environmental Science and Engineering Department IIT Bombay, Mumbai 400 076	Member
	Prof. B.G. Fernandes (From 01.01.2024), Department of Electrical Engineering, Prof. Narayan Rangaraj (Upto 31.12.2023), Industrial Engineering and Operations Research (IEOR), IIT Bombay, Mumbai - 400 076.	Member
Ex-officio	Mr. Ganesh Bhorkade Registrar, IIT Bombay Powai, Mumbai – 400 076	Secretary

Members of the Finance Committee

Dr. Sharad Kumar Saraf, Chairman, Technocraft Industries (India) Ltd., Technocraft Group, Bombay, Technocraft House, A-25, MIDC, Marol Industrial Area, Road No.3, (Opposite ESIS Hospital), Marol Industrial Area, Andheri (East), Mumbai – 400 093	Chairperson
Prof. Shireesh B. Kedare (From 06.05.2024), Prof. Subhasis Chaudhuri (Upto 05.05.2024), Director, IIT Bombay, Powai, Mumbai – 400 076.	Member (Ex-officio)
Ms. Saumya Gupta, Joint Secretary, Ministry of Education (TE), Department of Higher Education, Government of India, Shastri Bhavan, New Delhi – 110 015.	Member
Mr. Sanjog Kapoor, Joint Secretary and Financial Advisor, Ministry of Human Resource Development, Department of Higher Education, Technical Section-1, Government of India, Shastri Bhavan, New Delhi – 110 015.	Member
Mr. Sandeep Asthana, B2-1101, Mahindra Eminent, Near Patkar College, S. V. Road, Goregaon (West), Mumbai – 400 062.	Member
Prof. K V Krishna Rao Dy. Director (Finance, Infrastructure and Administration), IIT Bombay, Powai, Mumbai – 400 076.	Member
Mr. Ganesh Bhorkade, Registrar, IIT Bombay Powai, Mumbai – 400 076	Secretary (Ex-officio)

Building and Works Committee

<p>Prof. Shireesh B. Kedare (From 06.05.2024), Prof. Subhasis Chaudhuri (Upto 05.05.2024), Director, IIT Bombay, Powai, Mumbai – 400 076.</p>	<p>Chairman</p>
<p>Superintending Engineer, Office of the Supdt. Engineer, Mumbai Central Circle-1, CPWD, 5th Floor, Pratishtha Bhavan, 101 MK Road, Mumbai – 400 020</p>	<p>Member</p>
<p>Superintending Engineer, Mumbai (P.W.D) Circle, 25 Murzban Road, Fort, Mumbai – 400 001.</p>	<p>Member</p>
<p>Mr. K. Srinivas, Head, Architectural and Civil Engg. Division, BARC, North Site, Trombay, Mumbai – 400 085.</p>	<p>Member</p>
<p>Mr. Vinod P. Chithore (Upto 17.09.2023) Chief Engineer, Vigilance, MCGM, MCGM Vigilance Officer</p>	<p>Member</p>
<p>Mr. Sunil Rathod (From 18.09.2023) Chief Engineer (Development Planning), Office of Chief Engineer (Development Planning), Mumbai.</p>	<p>Member</p>
<p>Prof. P. Vedagiri (From 13.06.2024) Prof. Tom Mathew (Upto 12.06.2024) Dean (Infrastructure Planning and Development), IIT Bombay, Powai, Mumbai – 400 076.</p>	<p>Member</p>
<p>Mr. Ganesh Bhorkade Registrar, IIT Bombay Powai, Mumbai – 400 076</p>	<p>Member-Secretary (Ex-officio)</p>

SUMMARY OF ACCOUNTS

Consolidated Account: Balance Sheet as at 31/03/2024

(Amount in Rupees)

Particulars	Schedule	Current Year 2023-2024	Previous Year 2022-2023
SOURCES OF FUNDS			
CORPUS / CAPITAL FUND	1	5,15,31,31,817	4,75,44,79,267
DESIGNATED / EARMARKED / ENDOWMENT FUNDS	2	9,44,97,35,822	9,96,13,62,399
CURRENT LIABILITIES AND PROVISIONS	3	31,31,91,41,407	26,23,83,75,572
TOTAL (A)		45,92,20,09,046	40,95,42,17,238
APPLICATION OF FUNDS			
FIXED ASSETS			
TANGIBLE ASSETS	4	14,74,97,49,610	10,06,81,72,746
INTANGIBLE ASSETS	4	15,92,95,767	14,47,61,368
CAPITAL WORKS-IN-PROGRESS	4	6,65,49,68,942	9,41,02,00,261
INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS	5	1,23,95,69,566	1,75,69,64,079
INVESTMENTS OTHERS	6	0	1,30,00,00,000
CURRENT ASSETS	7	19,15,61,26,407	14,94,60,30,778
LOANS, ADVANCES AND DEPOSITS	8	3,96,22,98,754	3,32,80,88,006
TOTAL (B)		45,92,20,09,046	40,95,42,17,238
SIGNIFICANT ACCOUNTING POLICIES	24		

INCOME & EXPENDITURE FOR THE YEAR ENDED 31/03/2024

(Amount in

Particulars	Schedule	Current Year 2023-2024	Previous Year 2022-2023
INCOME			
ACADEMIC RECEIPTS	9	1,54,84,15,138	1,47,65,95,844
GRANTS/ SUBSIDIES (IRREVOCABLE GRANTS RECEIVED)	10	8,66,38,19,354	76,36,300,913
INCOME FROM INVESTMENTS	11	1,15,02,45,135	90,02,74,926
INTEREST EARNED	12	97,90,064	94,27,371
OTHER INCOME	13	85,92,08,259	76,55,92,558
PRIOR PERIOD INCOME	14	83,941	25,40,550
TOTAL(A)		12,23,15,61,891	10,79,07,32,162
EXPENDITURE			
STAFF PAYMENTS AND BENEFITS (ESTABLISHMENT EXPENSES)	15	7,94,70,05,684	6,06,85,92,109
ACADEMIC EXPENSES	16	1,38,53,89,880	1,08,52,93,332
ADMINISTRATIVE AND GENERAL EXPENSES	17	2,03,75,83,232	1,60,89,98,484
TRANSPORTATION EXPENSES	18	54,99,393	72,66,010
REPAIRS AND MAINTENANCE	19	96,74,79,237	5,85,978,652
FINANCE COSTS	20	8,17,66,775	7,76,10,336
OTHER EXPENSES (WRITE OFF)	21	1,12,08,353	4,147,539
PRIOR PERIOD EXPENSES	22	1,174,547	2,83,210
DEPRECIATION	4	1,86,13,88,983	1,88,90,37,108
TOTAL(B)		14,29,84,96,084	11,32,72,06,780
BALANCE BEING EXCESS OF INCOME OVER EXPENDITURE (A-B)		-2,06,69,34,193	-53,64,74,618
ADJUSTED FROM CAPITAL FUND (DEPRECIATION)		1,86,13,88,983	1,88,90,37,108
ADJUSTED FROM CAPITAL FUND (WRITE OFF)		43,03,750	16,33,932
TRANSFER TO HEFA		58,03,10,000	59,03,60,000
TRANSFER TO CAPITAL FUND (3 -C)		19,32,10,083	56,49,42,912
TRANSFER FOR ADVANCE CAPITAL EXPENDITURE		28,18,58,466	5,00,00,000
TRANSFER TO GENERAL RESERVE - MAIN ACCOUNT		-1,87,86,98,886	-34,77,63,838
TRANSFER TO IRCC FUND		27,62,68,416	19,61,94,398
TRANSFER TO GENERAL RESERVE - DONATION ACCOUNT		34,58,10,461	30,04,62,950
BALANCE BEING SURPLUS/ (DEFICIT) CARRIED TO CORPUS/ CAPITAL FUND		-1,87,86,98,886	-34,77,63,838
SIGNIFICANT ACCOUNTING POLICIES	23		
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	24		

Note : Deficit transfer to General Reserve Rs.1878698886/- is on account of actuarial value provision in r/o Leave Encashment, Gratuity and Pension

RECEIPT AND PAYMENTS FOR THE PERIOD FROM 01/04/2022 to 31/03/2024

RECEIPTS	Amount In Rs.	PAYMENTS	Amount In Rs.
I. Opening Balances		I. Expenses	
a) Cash Balances	1,28,959	a) Establishment Expenses	5,43,86,19,798
b) Bank Balances		b) Academic Expenses	1,19,82,56,925
i. In Current accounts	95,40,80,789	c) Administrative Expenses	1,61,39,18,728
ii. In Deposits accounts	0	d) Transportation Expenses	51,77,766
iii. Savings accounts	0	e) Repairs & Maintenance	92,34,80,837
		f) Prior Period Expenses	0
II. Grants Received		II. Payments against Earmarked/ Endowment Funds	19,16,59,029
a) From Government of India	11,35,03,65,772		
b) Grant in aid due in 2021 - 22 received in 2022 - 23	0		
c) From State Government	0		
d) From Other sources (details)	0		
III. Academic Receipts		III. Payments against Sponsored Projects/Schemes	1,44,37,85,851
a) Fee from Students	98,38,70,783		
b) Other Receipts from Students	27,68,84,021		
c) All India Entrance Examination Receipts	22,91,06,594		
IV. Receipts against Earmarked/ Endowment Funds	11,49,42,574	IV. Payments against Sponsored Fellowships/Scholarships	46,32,27,169
V. Receipts against Sponsored projects/ Schemes	2,90,43,97,121	V. Investments and Deposits made	
		a) Out of Earmarked/ Endowments Funds	0
		b) Out of own funds (Investments - Others)	0
VI. Receipts against sponsored Fellowships/ Scholarships	43,82,82,219	VI. Term deposits with Scheduled Banks	27,30,71,47,894
VII. Income on investments from		VII. Expenditure on Fixed Assets and Capital Works - in - Progress	
a) Earmarked/ Endowment Funds	0	a) Fixed Assets	2,28,11,91,031
b) Other investments	0	b) Capital Works - in - Progress	62,07,22,666
VIII. Interest received on		VIII. Other Payments including statutory payments	3,19,71,20,834
a) Bank Deposits	1,20,75,88,183		
b) Loans and Advances	0		
c) Savings Bank Accounts	0		



RECEIPTS	Amount In Rs.	PAYMENTS	Amount In Rs.
d) Accrued Interest	0		
IX. Investments encashed	24,47,69,81,622	IX. Refunds of Grants	0
X. Term Deposits with Scheduled Banks encashed	0	X. Deposits and Advances	0
		a) Advances account	1,68,39,91,488
		b) Refundable Deposits	12,45,14,315
		c) Recoverable Deposits	52,66,000
XI. Other income (including Prior Period income)		XI. Other Payments	
a) Continuing Education programme	5,53,76,853	a) Grants from other organisations	59,46,33,488
b) Miscellaneous Receipts	31,43,61,086	b) Sundry Creditors	43,35,84,124
c) Guest House receipts	7,72,06,538	c) Loan - Inter Department	13,860
		d) Surplus transfer to Endowment	0
		e) Other Payments - Main Account	43,11,18,635
		f) Other Payments - Donation Account	35,52,84,712
		g) Other Payments - IRCC Account	27,7,78,12,149
XII. Deposits and Advances	0	XII. Closing balances	
a) Advances account	2,66,25,860	a) Cash in hand	1,45,375
b) Refundable account	23,10,16,647	b) Bank balances	
c) Recoverable Deposits	0	c) Current Accounts	43,37,73,674
XIII. Miscellaneous receipts including Statutory receipts	1,83,31,21,130		
a) Other Adjustable Accounts	13,450		
XIV. Any Other Receipts			
a) Grants from other Organisations	3,09,25,35,850		
b) Sundry Debtors	31,08,31,749		
c) Loan - Inter Department	0		
d) Other Receipts - Main Account	68,89,34,276		
e) Other Receipts - Donation Account	1,13,29,657		
f) Other Receipts - IRCC Account	1,94,64,64,617		
TOTAL	51,52,44,46,348	TOTAL	51,52,44,46,348



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