

Indian Institute of Technology Bombay



Date: Oct, 2024
[Name of the] Meeting



“ज्ञानं परमं ध्येयम्”
“Knowledge is the Supreme Goal”

Prof. Sudarshan Kumar
Dean (International Relations), IIT Bombay, India

Mumbai

- Mumbai (previously known as Bombay) is the largest city of India -
- Mumbai is the financial capital of India -
- The city is also popular for its entertainment industry -
- Fondly called as the 'City of dreams' -



Indian Institute of Technology Bombay



- ❖ A premier technical university located in the financial capital of India
- ❖ ~95% of the community lives in a residential campus with a small hill, two natural lakes
- ❖ A clean, green, and safe campus

1958-2024: 65 years of Continuing Excellence



**The Ministry of Human Resource Development granted the
Institution of Eminence (IoE) status to
Indian Institute of Technology Bombay (IIT Bombay) on July 9, 2018**

IIT Bombay – Education



- IIT Bombay is the preferred choice for engineering students – 45 of top 50 JEE rankers joined IITB
- Flexible UG curriculum: minors, inter-disciplinary dual degree program (IDDDP)
- Hands-on experience: Maker's Lab, E Cell, Clubs, MI, Techfest
- International competition participation

IIT Bombay – Academic & Research

Academic Units of IIT Bombay offers wide range of Academic and Research areas to pursue

Engineering

Aerospace Engineering
Chemical Engineering
Civil Engineering
Computer Science & Engineering
Electrical Engineering
Energy Science and Engineering
Environmental Science & Engineering
Industrial Engineering & Operations Research
Mechanical Engineering
Metallurgical Engineering & Materials Science

Interdisciplinary Programs

Climate Studies
Centre for Machine Intelligence & Data Science
Desai Sethi School of Entrepreneurship
Educational Technology
Systems & Control Engineering
Policy Studies

Humanities, Design, Management

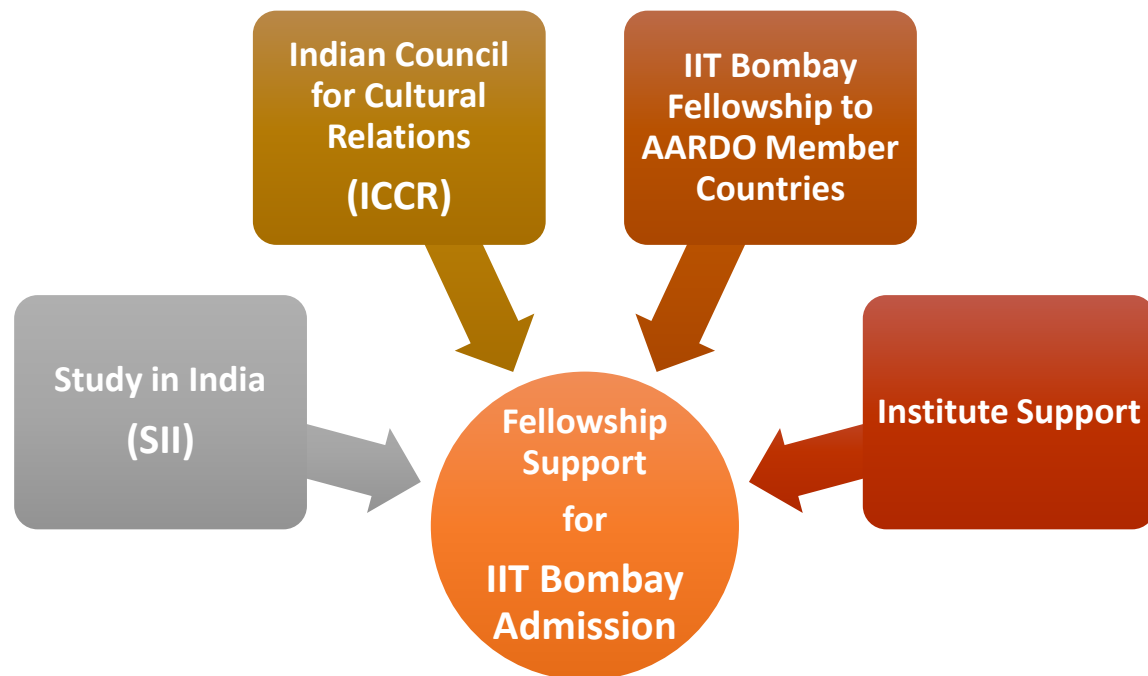
Economics
Humanities & Social Science
IDC School of Design
Shailesh J. Mehta School of Management

Sciences

Biosciences & Bioengineering
Chemistry
Earth Sciences
Mathematics
Physics

IIT Bombay – Admission and Funding Opportunities for International Students

for Postgraduate & Ph.D. Program



- Attractive funding opportunities from various agencies -
- Scholarship amount more than sufficient for meeting all expenses -
- All courses are in English -

Semester	Degree Programmes	Application Deadlines (every year)
Autumn (Jul-Nov)	Postgraduate and Ph.D.	1 January - 31 March
Spring (Jan-May)	Ph.D.	1 September - 31 October

Degree Programmes
M.Tech.
M.Des.
M.B.A.
M.B.A. (Executive)
M.P.P.
M.S. by Research
M.A. by Research
M.Tech. + Ph.D. (Dual Degree)
M.Sc. + Ph.D. (Dual Degree) in Energy
M.A. + Ph.D. (Dual Degree) in Philosophy
Ph.D.

Biosciences, Chemistry, Earth Sciences, Energy Sciences, Mathematics, Physics

Admission in M.Sc. Program from 2024



Ladakh Fellowship – IIT Bombay, Delhi, Kanpur

*For more details refer to: <https://www.ir.iitb.ac.in/en/students/how-to-apply>

*Application portal for degree program: <https://portal.iitb.ac.in/intadm/login>

IIT Bombay – Student Mobility

Academic Calendar

Duration	Semester 1	Semester 2
Term	Last week of July to last week of November	1st week of January to last week of April
Orientation	3rd week of July	1st week of January
Classes	4th week of July to Mid November	1st week of January to Mid April
Exams	Mid-end of November	Mid-end of April

Students can do course work and/or project work at an Institution with whom IIT Bombay has an MoU

Duration	Course Work	Project Work
Outbound	to complete a semester in one of the partner universities.	For doing project/research work at a Host institution the onus of finding a guide rests with the student.
Inbound	Autumn Semester (Jul - Nov): 31 Mar (every year) Spring Semester (Jan - Apr): 30 Sep (every year)	Applications accepted throughout the year and should be sent to us at least 2 months prior to the expected date of start of the project.



Application documents should be send to dean.ir.office@iitb.ac.in

*Please refer Academic Calendar for detailed information: <https://www.iitb.ac.in/newacadhome/toacadcalender.jsp>

IIT Involvement in Indo-foreign Government Scheme

Schemes of Government of India

1. International S&T Cooperation: A bilateral collaboration through Department of Science and Technology (DST)
2. Scheme for Promotion of Academic and Research Collaboration (SPARC)
3. Visiting Advanced Joint Research (VAJRA)
4. Global Initiative of Academic Networks (GIAN)

Schemes of Other Agencies

1. Shastri Indo-Canadian Institute (SICI)
2. UK-India Education and Research Initiative (UKIERI)
3. Deutscher Akademischer Austauschdienst (DAAD) German Academic Exchange Service
4. Indo-German Science & Technology Centre (IGSTC)
5. Centre Franco-Indien pour la Promotion de la Recherche Avancée (CEFIPRA)
Indo-French Centre for the Promotion of Advanced Research (IFCPAR/CEFIPRA)
6. Indo-U.S. Science and Technology Forum (IUSSTF)

Support available through External Agencies

1. Indian National Science Academy (INSA)
2. Council of Scientific and Industrial Research (CSIR)
3. Department of Science and Technology (DST)
4. Department of Biotechnology (DBT)
5. Science and Engineering Research Board (SERB)

Society for Innovation and Entrepreneurship (SINE)

An ecosystem to foster and support innovation and knowledge based entrepreneurship at IIT Bombay, since 2004



SINE supports technology startups founded by IITB community or that are based on IITB technologies, and extends the role of the institute by facilitating conversion of R&D into entrepreneurial ventures.



<https://sineiitb.org/>

Society for Innovation and Entrepreneurship (SINE)

SINE has entered into MoUs with the Corporates, Investors, and Services Providers, with an objective to support portfolio startups to raise funds, avail various market opportunities, and so forth.



Making Industries Intelligent



Founding members

FROST & SULLIVAN

Knowledge Partner

131 Members

47 Startups

140 Members by end of 2023

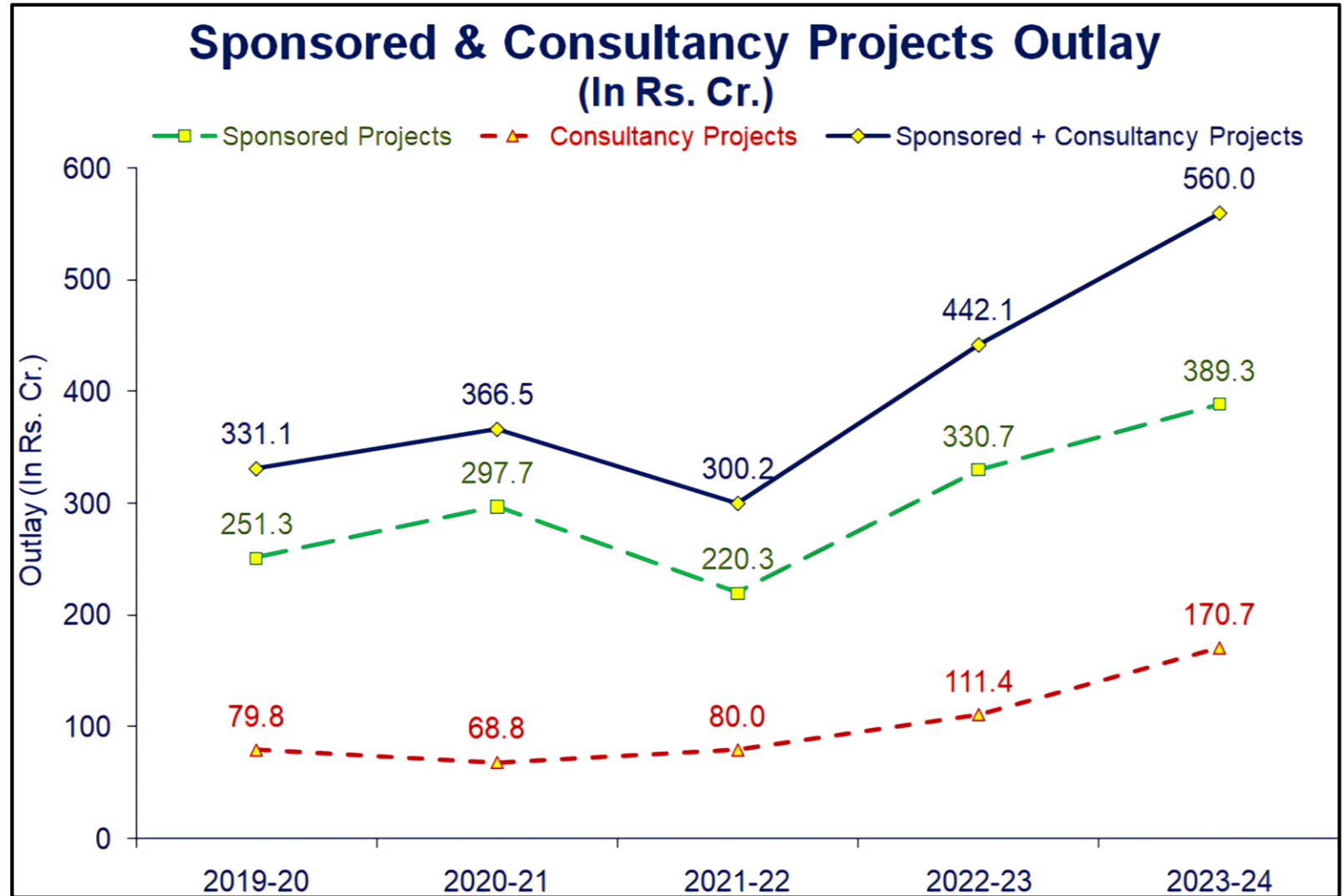


<https://sineiitb.org/>

R&D at IIT Bombay

R&D Outlay

In FY 2023-24, the new projects sanctioned funding scaled up to **Rs. 560.0 Cr.**, with sponsored projects contributing Rs. 389.3 Cr. from 335 projects and consultancy projects contributing Rs. 170.7 Cr. from 779 projects.



IIT Bombay – Research Park



Connecting Industry and Academia

A hub for robust industry-academia collaboration, commercializing research for solutions to Indian and global technology challenges.

Mode of Engagement

- Research & Innovation
- Talent Development & Exchange
- Student Causes
- Donation

Architectural background
with a 3D building model of
IIT Bombay Research Park

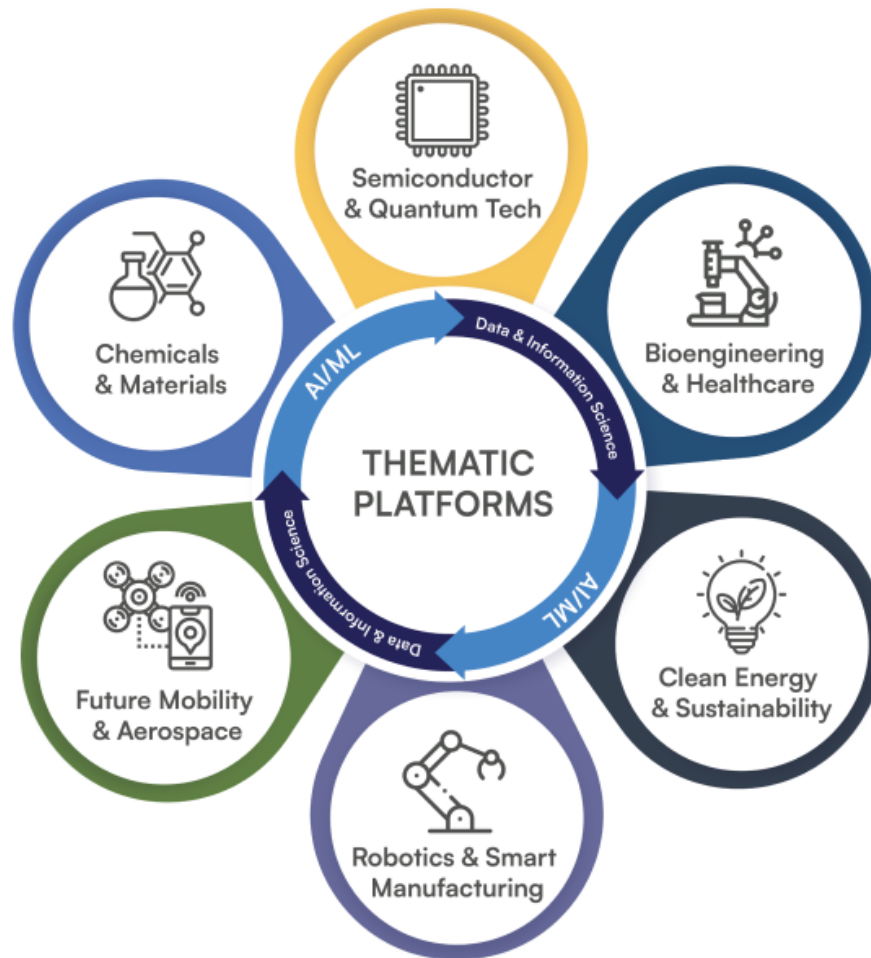


IIT Bombay – Research Park



IIT BOMBAY
RESEARCH PARK
aspire

Connecting Industry and Academia



A network of trusted associates



Koita Centre for Digital Health (KCDH)

KCDH Key Focus Areas

 Large Language Models in Healthcare	 Healthcare Applications	 Healthcare Data Management	 Healthcare Analytics & AI/ML	 Consumer Health & Telemedicine	 Computational Biology & Bioinformatics	 Population Health & Public Health Policy
<p><i>Diagnosis assistance and improved patient care</i></p> <p><i>Advancing medical research and knowledge</i></p> <p><i>AI enabled crisis management</i></p> <p><i>Data driven policy changes</i></p>	<p><i>EHR, EMR and clinical applications</i></p> <p><i>Medical imaging</i></p> <p><i>Medical devices software</i></p> <p><i>Payers and life sciences applications</i></p>	<p><i>Data interoperability and standards</i></p> <p><i>Data Privacy and Security</i></p> <p><i>Healthcare data warehousing & management</i></p> <p><i>Federated data management</i></p>	<p><i>Healthcare AI/ML</i></p> <p><i>Medical image analytics</i></p> <p><i>Clinical decision support</i></p> <p><i>Preventive & prescriptive analytics</i></p>	<p><i>Consumer health devices</i></p> <p><i>Mobile Health applications</i></p> <p><i>Tele-medicine applications</i></p> <p><i>Remote patient monitoring</i></p>	<p><i>Proteomics</i></p> <p><i>Genomics</i></p> <p><i>Pathway analysis</i></p> <p><i>Disease diagnosis</i></p>	<p><i>Disease surveillance & analytics</i></p> <p><i>Population health analytics</i></p> <p><i>Epidemiology & disease management</i></p> <p><i>Public health policy</i></p>

Department of Economics

B.S.

- A *four-year* B.S. Program has attracted top *JEE* rankers.
- The curriculum is designed to produce well-trained professionals with multidisciplinary skills for Applied Economic Analysis. The dept. offers a Minor in economics.
- Electives are offered.

Ph.D.

- For the last *five decades*, the economics group faculty members have been guiding Ph.D. dissertations.
- Our Graduates hold faculty positions at IIT Kharagpur, IIT Madras, IIT Roorkee, IIT Indore, IIT Dharwad, TISS (Mumbai), IISER Bhopal, IIM Indore, GIPE (Pune), and the like.

Economics faculty are not only engaged in cutting-edge research but are also very passionate about teaching. We pride ourselves on having persons with an exceptional academic background as faculty colleagues. They regularly publish in reputed leading scholarly journals.
(<https://www.economics.iitb.ac.in/faculty.html>)

Programs

- The Program aims to create a unique brand of citizens who will be trained with the temper of an ethically strong society while achieving superior technological applications and breakthroughs.
- An Inter-Disciplinary Dual Degree Program and an M.S. in Economics will be introduced soon.

Placements

- **Corporate:** Bain & Company; BCG; EY; Goldman Sachs; McKinsey & Co.; PwC; Microsoft; Accenture; Deloitte; Nomura.
- **Academia:** Cornell Univ.; The Wharton School; KU Leuven; UC Louvain; WU Vienna; Erasmus Univ. Rotterdam; IIM Lucknow.

(<https://www.economics.iitb.ac.in/ugplacement.html>)

CoE in Quantum Information Computing Science & Technology (QuICST)

National Mission on Quantum Technologies and Applications (NMQTA)
(~USD 800 Million)



- 15+ associated faculty members
- Projects worth INR 30 Cr under QuEST (USD 3.8 Million)
- State-of-the-art fabrication and measurement infrastructure
- Inter-disciplinary dual degree (B Tech. - M Tech.) program

NPTEL

The IITs and IISc, Bengaluru have taken an initiative along with [Ministry of Education](#), GoI to provide free online videos of actual lectures of different disciplines under [National Programme on Technology Enhanced Learning](#) (NPTEL). This initiative is undertaken to make quality education accessible to all students.

Online Learning Initiatives by IITs and IISc funded by MoE, Govt. of India



IIT Bombay



IIT Delhi



IIT Kanpur



IIT Kharagpur



IIT Guwahati



IIT Roorkee



IIT Madras



IISc Bangalore



A ONE STOP RESOURCE PORTAL!

Check out our Initiatives Today

- GATE PORTAL
- NPTEL+
- NPTEL Domain
- Faculty Development Program



Enroll now & get certified from IITs/IISc



5372
MOOCS
COMPLETED

28.6 LAKH +
EXAM
REGISTRATIONS

2.3 CRORE+
TOTAL
ENROLLMENTS

3,000+
UNIQUE
COURSES

1.6+
BILLION
VIEWS

5800+
LOCAL
CHAPTER
COLLEGES

<https://nptel.ac.in/>
<https://onlinecourses.nptel.ac.in/>

Jointly-supervised Ph.D. IIT Bombay – Monash Research Academy

(A Section 8 company to administer the Joint Ph.D. program between IIT Bombay, India and Monash University, Australia.)

- ❖ Established 2008, a JV of IIT Bombay and Monash University
- ❖ Jointly-supervised Ph.D.
- ❖ Students enrolled at both institutions full time and they research in IIT Bombay for 3 years and up to 1 year at Monash University
- ❖ On graduation, the students are awarded a joint-badged PhD degree from both institutions
- ❖ 239 Ph.D. degrees awarded; 169 students currently enrolled
- ❖ 400+ faculty members involved from both IIT Bombay and Monash



**IITB-Monash
Research Academy**

An Indian-Australian research partnership

Frontier Science & Engineering Research Center IIT Bombay – Ohio State University

RESEARCH AREAS

- Renewable Energy
- Advanced Manufacturing
- Electronics
- Photonics
- Emergent Materials
- Quantum Information and Technology

- ❖ MoU signed in 2019
- ❖ Focus in the fields of Semiconductor and Microelectronics, Power and Energy Technologies, Advance Energy Materials and Devices
- ❖ Objective: To create a global community of shared research, innovation and training that dramatically extends the reach and impact for both institutions
- ❖ Research projects awarded to select faculty every year
- ❖ Provision of mobility of faculty and research scholars between the two institutes



Joint Degree EMBA Program IIT Bombay – Washington University in St. Louis



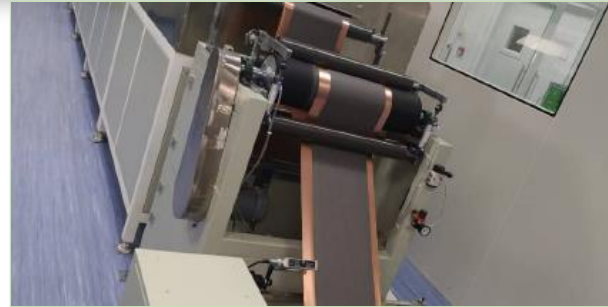
- ❖ MoU signed in 2014
- ❖ First of its kind Program in India to provide Joint Degree
- ❖ For the busy mid-level/senior executives for their next level of growth
- ❖ Modelled after successful sister programs between USA and China



IIT Bombay – Research Facilities



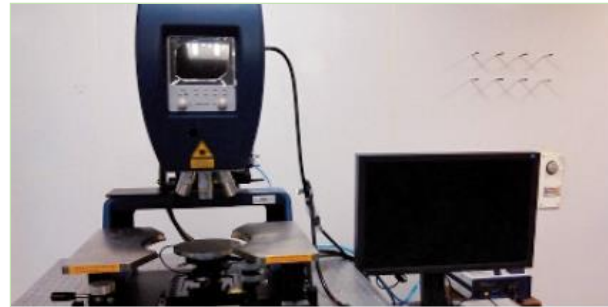
Forbes Marshall Energy Efficient Lab



Coating machine for battery prototyping



Image Based Spray Diagnostic Systems



Laser Doppler Vibrometer



Spinning Disc Confocal Facility



INOX Cryogenic Research Lab

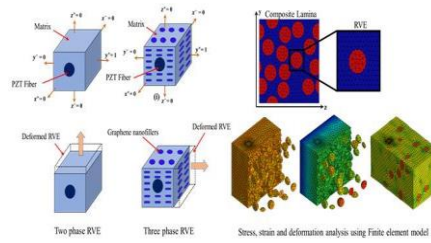


High Resolution X-Ray Diffractometer



Cryo FEG Scanning Electron Microscope

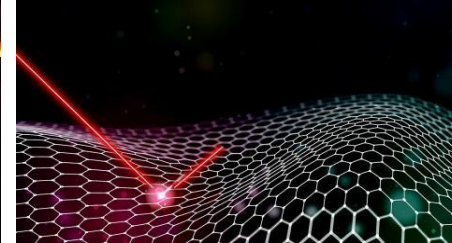
IIT Bombay's Research Highlights



researchers propose a novel piezoelectric material



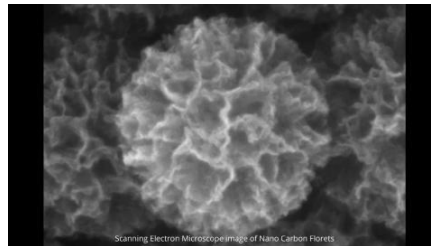
Breaking the trial-and-error loop in Material Design through ML



A Tabletop Chiral Attosecond Laser



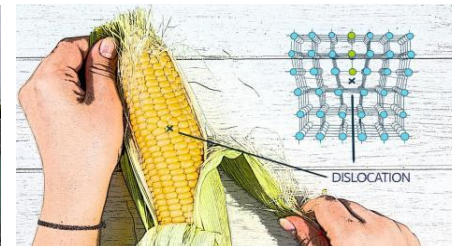
Indigenous Technology for Affordable Cancer Cure



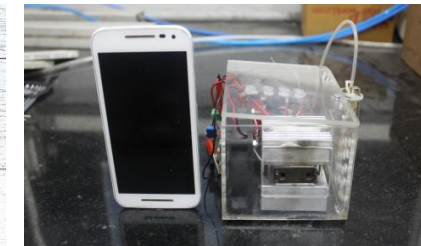
Nanocarbon Florets to Treat Industrial Effluents



Plastic-lined farm ponds exacerbate water scarcity in semi-arid regions



Harnessing the power of defects to improve metallic alloys



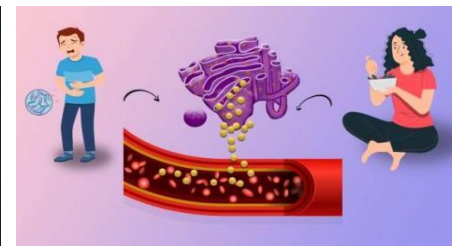
Mini-fuel Engines Could Replace Batteries in the Future



Mindfulness meditation - the ancient practice enters modern research labs



Using diamonds as probes to explore fast-changing weak magnetic fields



The Lipid Travel Diary



Low-cost lenses to turn smart phones into microscopes

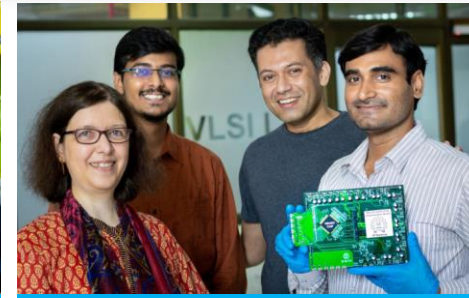
IIT Bombay's Research Highlights



India gets 1st homegrown CAR T-cell therapy centre at IIT-B. All about breakthrough cancer treatment



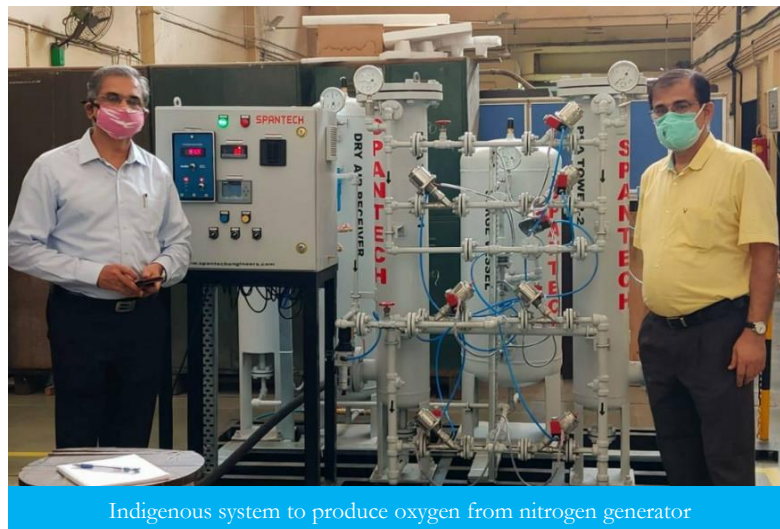
High-performing unconventional optoelectronic materials for solar cells



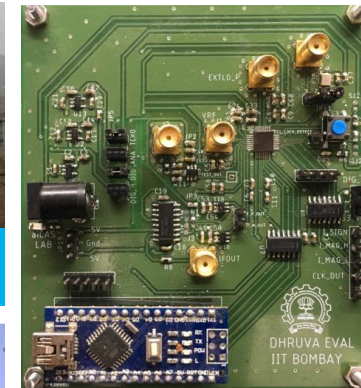
World's first quantum tunneling enabled spiking neural network chip



Solar energy plant in North Sikkim for Indian Army troops



Indigenous system to produce oxygen from nitrogen generator



Dhruva: Indian RF receiver chip for NAVIC & GPS Satellites



Portable Digital Microscope

Licensing of IIT Bombay IP



Safe formulations for hand & body sanitizer, surface disinfectant and room protection spray
(Prof. Rinti Banerjee)



Indigenous telecom routers
(Prof. Ashwin Gumaste)



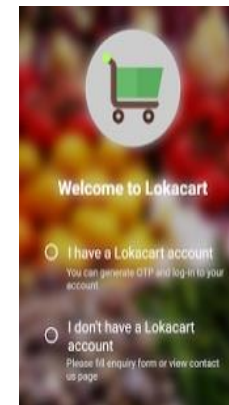
Fuel additives
(Late Prof. K.D. Deodhar)



Wash resistant antiviral coatings for masks & textiles
(Prof. Rinti Banerjee)



Vi-SWAAS: ICU ventilator
(Prof. B. Ravi)



E-Commerce & inventory management app
(Prof. Ganesh Ramakrishnan)



Remotely operated smart device for controlled irrigation
(Prof. T. Kundu)



Cool roof coatings
(Prof. A.S. Khanna)



Portable UV based sterilization units for disinfection
(Prof. A. Kunwar)

IIT Bombay's Recognitions



IIT Bombay wins Clarivate Innovation Award 2021 in the Academic Institutions category



IIT-Bombay students develop a racing car faster than Porsche, Tesla or Audi



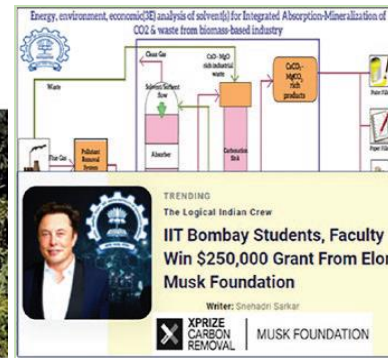
IIT Bombay Alumnus Mr. Abhishek Verma of IDC School of Design wins National Award



ISRO launches Pratham, a satellite by the students of IIT-Bombay



IIT Bombay students were given a special mention under the 'New Discovery award 2020' by the Astronomical Society of India. The team works with GROWTH-India Telescope (GIT) to confirm Near-Earth asteroids



Srinath, Srushti, Anwesha, Vikram, Arnab, Shubham

A student-led team named SASIITB (the only team from India), with four students and two professors was one of the 23 winning global teams in the X-PRIZE Carbon Removal Student Competition, supported by the Elon Musk Foundation.



The IDC School of Design Professor's film 'Saakshatkaaram' won the Silver Conch for the Best Short Fiction Film at the Mumbai International Film Festival - MIFF 2022

Renowned Alumni of IIT Bombay



Kanwal Rekhi
MD, Inventus Capital
Partners



Shantanu Rastogi
MD & Head – India,
General Atlantic



Ramesh Mangaleswaran
Senior Partner Emeritus,
McKinsey & Company



Romesh Wadhvani
Chairman & CEO, Symphony
Technology Group



Bhavish Aggarwal
co-founder of Ola Cabs
and Ola Electric



Dr Viral Acharya
Former Deputy
Governor, RBI



Nitesh Tiwari
An Indian film director,
screenwriter, and lyricist known for
his works in Bollywood



Sharad Saraf
Founder & MD,
Technocraft Industries



Manohar Parrikar
Former Chief Minister
of Goa



Rakesh Mathur
Entrepreneur, Founder –
Jungle, Purple Yogi



Parag Agrawal
Ex-CEO, Twitter



Dr. K Sivan
Chairman, Indian Space
Research Organization



Sarita Adve
Prof. of computer science at
the University of Illinois at
Urbana-Champaign, US

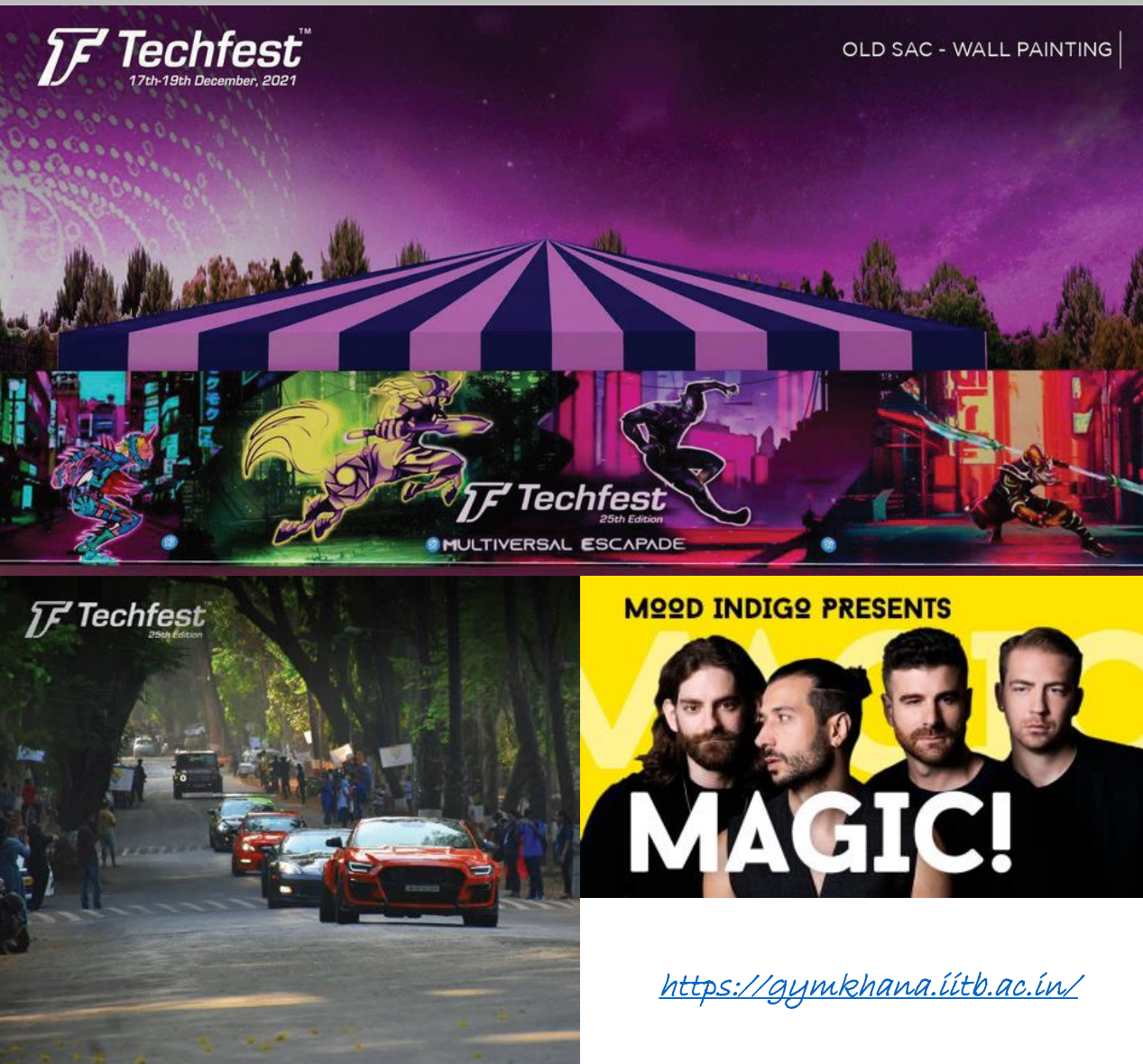


Victor Menezes
Ex-Senior Vice Chairman,
Citigroup; Chairman, Advisory
Board, Citi India



Dr. Udaya Kumar
Designer, Faculty at IIT
Guwahati

Student Activities



OLD SAC - WALL PAINTING

Mood Indigo, IIT Bombay's annual cultural festival and Asia's largest college cultural festival

Techfest is Annual Science and technology festival of IIT Bombay which is Asia's Largest College Festival organized by the student community.



<https://gymkhana.iitb.ac.in/>

IIT Bombay – Short-term Program

(Hosted by Office of International Relations in association with Departments/Centers)

Short Term Programs viz. **Winter School** and **Summer School** aims to improve the visibility of the Institute by showcasing its strengths, mainly, the rigor of our academic courses and/or existing research facilities at IIT Bombay. The program offers courses on some of the current topics by the IIT Bombay faculty members during the winter and summer breaks each year.

Schools (S/W)	Courses offered
Summer School – 2024 (in June-July)	8
Winter School – 2023 (in December)	13
Summer School – 2023 (in June)	4
Winter School – 2022 (in December)	4
Summer School – 2022 (in June-July)	3
Winter School – 2021 (in December)	3

- Short-term programs to provide a unique exposure and to give a competitive edge
- Have an emphasis on a particular academic area and can further be tailor-made depending on the requirement
- Brings together students of similar academic interests to broaden their knowledge horizons
- Learn about the academic atmosphere of the host institute
- Help students gain valuable insights from exchanging academic ideas with peers and professors

Short-term Programs
– under the AUA consortium/alliance

IIT Bombay – Winter/Summer School Program

(Hosted by Office of International Relations in association with Departments/Centers)

Short-term program which provides academically oriented lessons, classes, and activities during winter/summer.

Program is conducted twice every year as a part of Outreach activities:

- December-January (Winter)
- June-July (Summer)

Vision: showcasing the academic strength of IIT Bombay



IIT Bombay – Foreign Language Courses

Since 2004 Foreign Language Courses are conducted by the office of International Relations for the benefit of the students and staff of IIT Bombay.

Program is conducted every year

- Beginners Course (2 modules)
- Advanced Course (2 modules)

Module	Duration	Classes
Module - I	50 hours	Autumn Semester (25 classes)
Module - II	50 hours	Spring Semester (25 classes)



Japanese



French



German



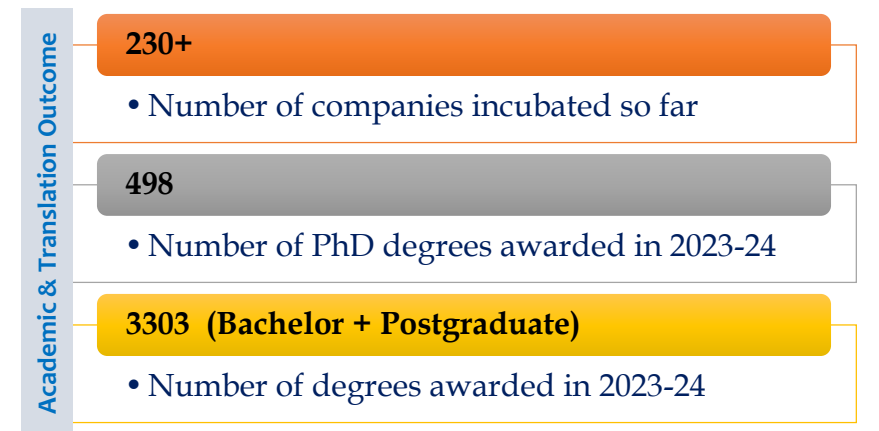
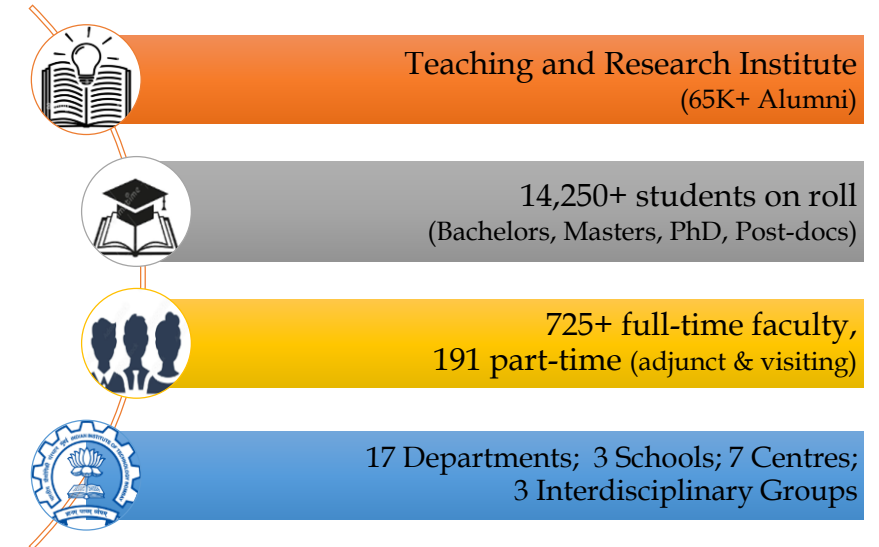
Mandarin



Spanish

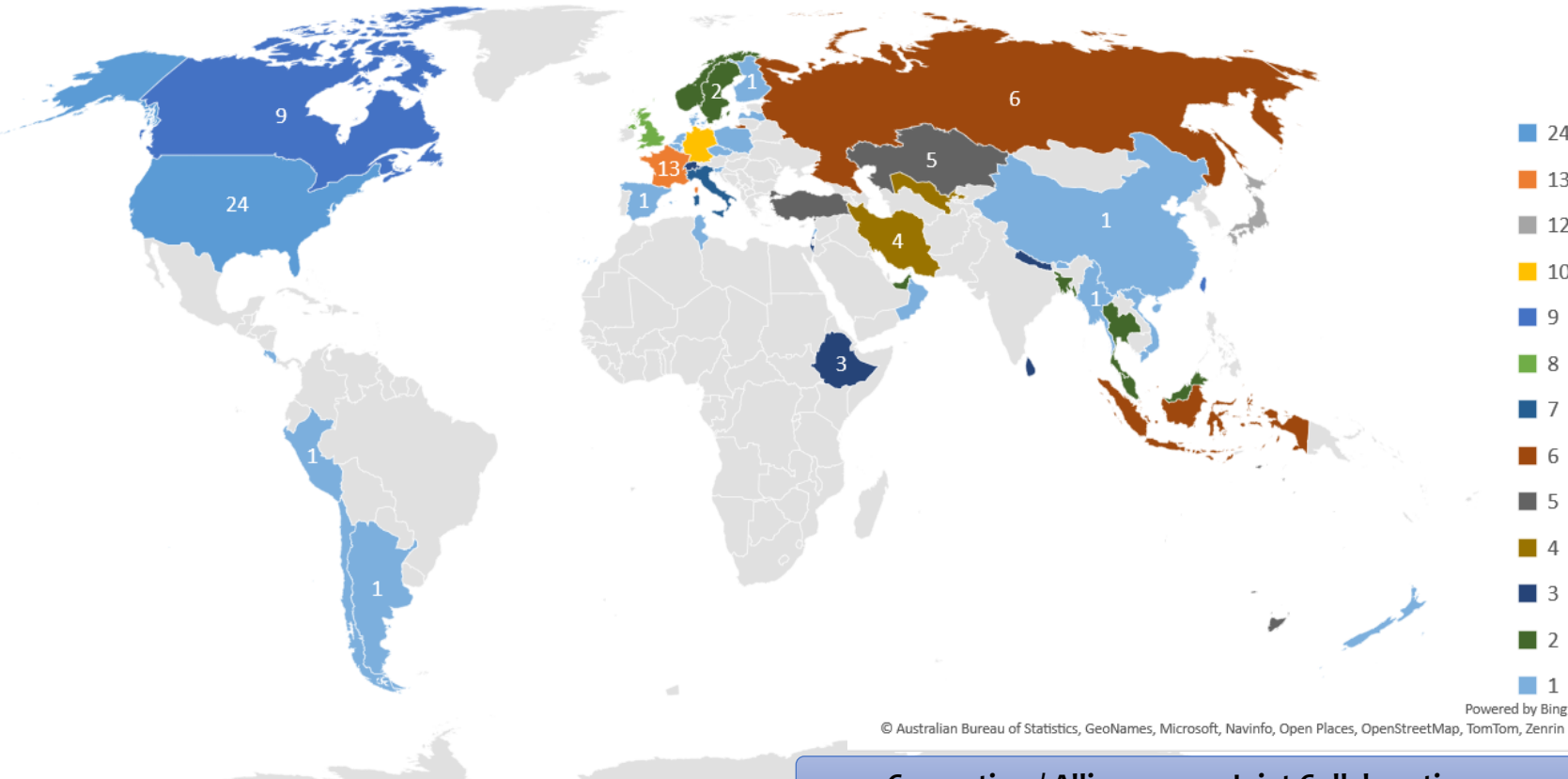
Major Activities of IR Office - Summary

- Work closely with partner institutions to:
 - Formalize details of engagement through appropriate MoUs
 - Match faculty with common research interests
 - Conduct faculty research workshops
- Work closely with govt. for admission of foreign national students
- Facilitate exchange of students for semester/summer
- Participation in University networks
- Instrumental in Joint projects with foreign collaborators
- Promotion of institute through outreach programs
- Run short-term programs
- Host international delegations and connect them with relevant departments/centers
- Run foreign language classes for campus residents



IIT Bombay – Overview of International Collaboration

IIT Bombay has partnerships in terms of MoUs with 188 foreign universities



IIT Bombay in umbrella MoUs with 4 countries

✓Finland ✓France ✓Russia ✓Spain

Bi-lateral Programs	Country
Joint Master's Degree	USA
Joint Doctoral Degree	Australia, Singapore
Ph.D. co-Supervision	Australia, Canada, Italy, Japan, Korea, Taiwan, UAE, USA
Cotutelle Ph.D.	Australia, Russia, Taiwan, UK

Modes of International Engagement

- Student Mobility through Semester Exchange and Joint Research Projects
- Student/Scholar/Staff Exchange
- Joint Degree Programs
- Faculty Research Workshops/Conferences
- Summer/Winter School for Students/Researcher

Consortium/ Alliances as a Joint Collaborations



4 MUs



38 MUs



15 MUs



10 country



20 MUs



15 MUs



14 MUs



30 MUs



10 country



15 country

Team – Office of International Relations



Prof. Sudarshan Kumar
Dean (International Relations)

The Office of International Relations at IIT Bombay aims to facilitate internationalization efforts across campus with specific emphasis on the research collaborations and bilateral exchanges between IIT Bombay and foreign institutions/universities. We emphasize developing a multicultural community of students, preparing our students for global environments, and helping foster collaborations in research and education. The office works actively to develop, establish, and maintain international partnerships.

IR website: www.ir.iitb.ac.in

IR Office Staffs



Mrs. Chandrika Naik
(Clerical Assistant)

- Outbound Student Coordinator
- MoUs
- Foreign Language Classes



Ms. Sangita Kanjibillya
(Executive Officer)

- Admission
- Degree Program Fellowships



Dr. Pushpa Kumari
(Project Manager)

- Internationalization and Digital Promotions
- Joint Fellowship and Funding
- Consortium/Alliance



Dr. Ipsita Das
(Sr. Project Manager)

- Delegations Visit
- Summer/Winter School



Mrs. Rebecca Jane Jadin
(Project Manager)

- Faculty Research Workshops
- Short Term Program
- Event Coordinator



Mr. Piyush Kumar
(Jr. Administrative Assistant)

- Inbound Student Coordinator
- Finance

* Entries as per the staff joining

**We welcome new partnerships and
look forward to your feedback on the
way forward after today's session**

Thank you...

www.iitb.ac.in