



ENVIRONMENTAL SCIENCE AND ENGINEERING

DEPARTMENT HANDBOOK 2022-2023



**INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY**



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DISCLAIMER

Though the ISCP (Institute Student Companion Program) had taken care while compiling the handbook, neither the council nor the Institute can be held responsible for errors/inadequacies that may inadvertently creep in the process. This handbook cannot be used as a basis for making a claim on facilities/concessions/interpretation of rules/statues or the like. If there is some critical information to which the reader of this handbook refers, it is with his or her own responsibility that it is put to use, with cross verification if need be.

MESSAGE FROM HOD

Prof. Subhankar Karmakar

Head of the Department

ESED, IIT Bombay

Email: head.esed@iitb.ac.in

skarmakar@iitb.ac.in



Dear Students,

I warmly welcome you all to the Environmental Science and Engineering Department (ESED) at IIT Bombay. Many congratulations on achieving your goal of pursuing higher studies in this department. This training will enable you to engage in solving numerous environmental problems facing our country.

This booklet provides preliminary information on campus life, academic matters, and information on various ongoing research and development activities in the department.

We promote an environment where faculty members, post-doctoral fellows and students can interact freely and work in harmony. In addition, the department provides a conducive environment for the students to develop analytical and practical skills.

In your first year, you will be taking various theory and laboratory courses to provide a strong foundation in multiple facets of Environmental Science and Engineering. The courses would introduce you to a variety of domains. Together with basic concepts, they would also introduce you to advances in the area and emerging concerns. Please make every effort to grasp the concepts since they will enable you to navigate the challenges you start contributing to this field.

MESSAGE FROM HOD

In your second year, you will be expected to commence your M.Tech./M.Sc. Project. However, doctoral students will be expected to start working with their research studies from the first semester itself. We expect each of you to be engaged in all aspects of the project, from formulation of the objectives to successfully completing the proposed work. We hope this will be a challenging and rewarding experience for you and contribute towards solving societal problems and advancing R&D in this field.

I assure you that all the faculty members of the department are very approachable. Please do not hesitate to talk to them about your doubts and dilemmas. The faculty advisor associated with your batch would reach out to you and be your first contact point in the department. Do not hesitate to contact them and Head of the Department regarding any matter.

Work is worship. The way we researchers serve the society is by learning new things on a daily basis. Use your time here to transform yourselves as resilient human beings through continued learning. Feel free to utilize the facilities at IIT Bombay to your maximum advantage and achieve an all-around value addition to your personality. Last two years during the pandemic were unfortunate as we couldn't interact in person with the new entrants. We look forward to meeting you all this time! And I sign off this message by wishing you success at every step.

Welcome again to ESED, IIT Bombay.



FACULTY ADVISORS



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Prof. Manoranjan Sahu
(M.Tech. Faculty Advisor)
mrsahu@iitb.ac.in



Prof. Abhishek Chakraborty
(M.Sc.-Ph.D. Faculty Advisor)
abhishekc@iitb.ac.in



Prof. Swatantra Pratap Singh
(M.Sc.-Ph.D. Faculty Advisor)
swatantra@iitb.ac.in

MESSAGE FROM FACULTY ADVISORS

Dear Students,

We take immense pleasure in welcoming you all M.Tech. and M.Sc.-Ph.D. students to ESED at IITB. Congratulations on your success! We believe that you are healthy and safe amidst these tough and crucial times.

The Department has nominated us as your Faculty Advisors and has assigned us the responsibility of monitoring your academic progress. As faculty advisors, we would be helping you (along with the senior students) with several aspects of your academic life at ESED, IITB. We are your primary point of contact to discuss all the academic and non-academic matters, where you may need advice/suggestions to make your academic program progressive and your stay on the campus comfortable. All the academic and administrative communications between you and the Institute must be routed through us, which also include approval of course registration for your degree, and recommendation for your leave till you are assigned a supervisor.

You will be having your First Semester (also called Autumn Semester) from July to December 2022. Depending on the Covid situation and the decision of the Institute, the classes can be online, offline or in hybrid mode. While taking classes online allows you the convenience of doing so from your home/hostel, offline lectures will offer you a wholesome experience of attending lectures in classrooms and having direct interactions with your peers and course instructors.

MESSAGE FROM FACULTY ADVISORS

You might still have many questions about the mode of instruction, exams, class participation, internet connectivity issues, interacting with your friends and seniors, and many other matters. We will listen to your worries and uncertainties patiently and make all necessary attempts to address most of your concerns and doubts.

You are expected to be in regular contact with us, respond to our communications without delay, and keep us in the loop on all academic matters. The most effective way of communication with us could be through email, with a copy to your Advisors. However, in the case of an urgent situation/ emergency, you may call us on our phone, or visit us in the office without prior intimation, if on campus.

IITB provides an exceptional platform for learning far beyond what is taught within four walls of your class room. As always, we firmly believe that you will definitely take up the challenge to learn and develop yourself holistically, work smart and hard, relish the learning process and shine in your academics, regardless of whether you learn residing at your home or on campus.

We do wish that we all meet in person at the campus very soon.

Welcome you all to ESED, IITB !



ISCP CORE TEAM



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Cabinet Member
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MESSAGE FROM ISCP

Dear new entrants,

Heartfelt congratulations for embarking on one of life's most memorable journeys - the journey of learning at IIT. On the behalf of our prestigious institute of IIT Bombay, team ISCP welcomes you aboard.

Give a pat on your shoulder for having achieved this feat. Your dedication, hard work and perseverance brought you here, and we know that your experience will lead you towards great opportunities. We can guarantee that your time here on this colossal campus will be exciting and knowledgeable. A degree will just be a small portion of what you will be leaving this institute with. You will also leave with beautiful memories of late-night conversations, interesting wing cultures, and crazy birthday parties (oh you are going to miss those!!). You will have the opportunity to mingle in various clubs and societies where individuals strive to become experts in their fields and devote endless hours. As a result, there will be many chances to learn inside and outside the classroom. So entering this new universe in itself presents both exhilaration and potential difficulties. This is where we will help you by providing the tips you need to handle these difficulties and enjoy your time at IIT Bombay.

Now, you should be thinking what on earth is this ISCP? Institute Student Companion Programme (ISCP) is a student body with the primary objective of building a relationship of trust and comfort between the on-roll students and the incoming students of the PG programmes. We are here to help you get familiar with the ways of IITB, guide you through your ups and downs and make sure that each voice is heard. You will become part of a culture where people want to perfect their craft and thus work day in and day out. Various events are being organised by the cultural, technical, and sports clubs in the institute throughout the year. Managing these along with lectures might seem daunting at first, and hence, to help you with a world of problems, including these, we assign you a student companion.

MESSAGE FROM ISCP

The student companions are self-motivated volunteers who will genuinely want to help you in low and high tides as an act of giving back what they received from the programme. You can rely on the team for any advice or information on anything you are venturing out into, whether it be academics or extracurriculars, any issues that you are facing, any support or requirements that you want to raise as a part of the student community. And at last but undoubtedly not least just for regular interaction because that is all the programme holds at its core. The knowledge and the experience that our student companions have gained with their stay on campus will help your transition become smooth. From campus tours to classroom lectures, from the grading system to completing the syllabus, from the profile to placements, from Schezwan Frankie to curry-pakora, they will be there for you.

We are sure that the last couple of years has been rough for many of you. But as we know that life moves on. So, make sure that you make the best out of your journey at IIT Bombay. Come and contribute to this vast store of knowledge and help it become more vibrant and colourful.

The campus of IIT Bombay awaits your presence; see you there.



MESSAGE FROM PGAC

Mohit Meena

Institute Secretary

Academic Affairs (Masters) (ISAA)

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Welcome Freshers!

We all have gone through a lot in these past couple of years, so firstly congratulations to all of you for securing admission in one of the prestigious institutes in the country. IIT Bombay provides the best exposure to its students in all aspects, both academically as well as non-academically. The skills you develop here, and the interactions you have with people here will stay with you throughout your life. The post-graduation demands something additional compared to under-graduation, more time, more effort, more determination and a ton of dedication. For meeting these primary requirements, often we find ourselves in a daunting situation.

In order to make your stay at IIT Bombay convenient, the institute has established the PGAC (Post Graduate Academic Council). Any technical necessity, any placement-related assistance, any research queries or any academic grievances, you can always reach out to us. Each department has its own AURAA (Academic Unit Representative of Academic Affairs), whom you can approach directly in case you find any difficulties. Wishing you all a really convenient and productive IIT journey!

Regards,

Mohit Meena



MESSAGE FROM DC



Ayan Das
M.Tech., ESED

**DEPARTMENT COORDINATORS (DC)
INSTITUTE STUDENT COMPANION
PROGRAMME (ISCP)
IIT BOMBAY**



Sourabh Singh Rawat
M.Sc. - Ph.D., ESED

Dear freshies,

Heartiest congratulations to all of you for being selected for M.Tech./M.Sc. - Ph.D. Programme at Environmental Science and Engineering Department, and we, the ISCP ESED team, extend our warm welcome to IIT Bombay!!! Kudos to you for your hard work and devotion to making up one of the finest institutes in India. You are about to embark on a journey of knowledge and exploration. Exciting, right?? We are also eager to welcome you and start a new journey with you guys where we can gain through sharing experiences and extending support.

The M.Tech./M.Sc. course is rigorous and requires a proactive approach to learn the requisite skills as a researcher, an academician, and an author. Due to the course's interdisciplinary nature, you get a fantastic opportunity to examine concepts from several social science disciplines and gain a comprehensive grasp of socio-economic reality. The institute has excellent resources both in academic and non-academic areas. Numerous extracurricular activities will keep you fascinated and active. So get in with all of your commitment and make the most of it.

We know that adapting to a new environment may cause uncertainty and anxiety, and managing several academic and non-academic things at once can be demanding and challenging. So, we will do our best to get you in the flow and are here to support and assist you every step. Reach out to us anytime, and don't hesitate with any problem. Get your queries answered, have your doubts cleared, seek clarifications or just connect with us for some chit-chat!!!!

Wish you all the best. Take care. Stay happy and safe, and do connect with us!



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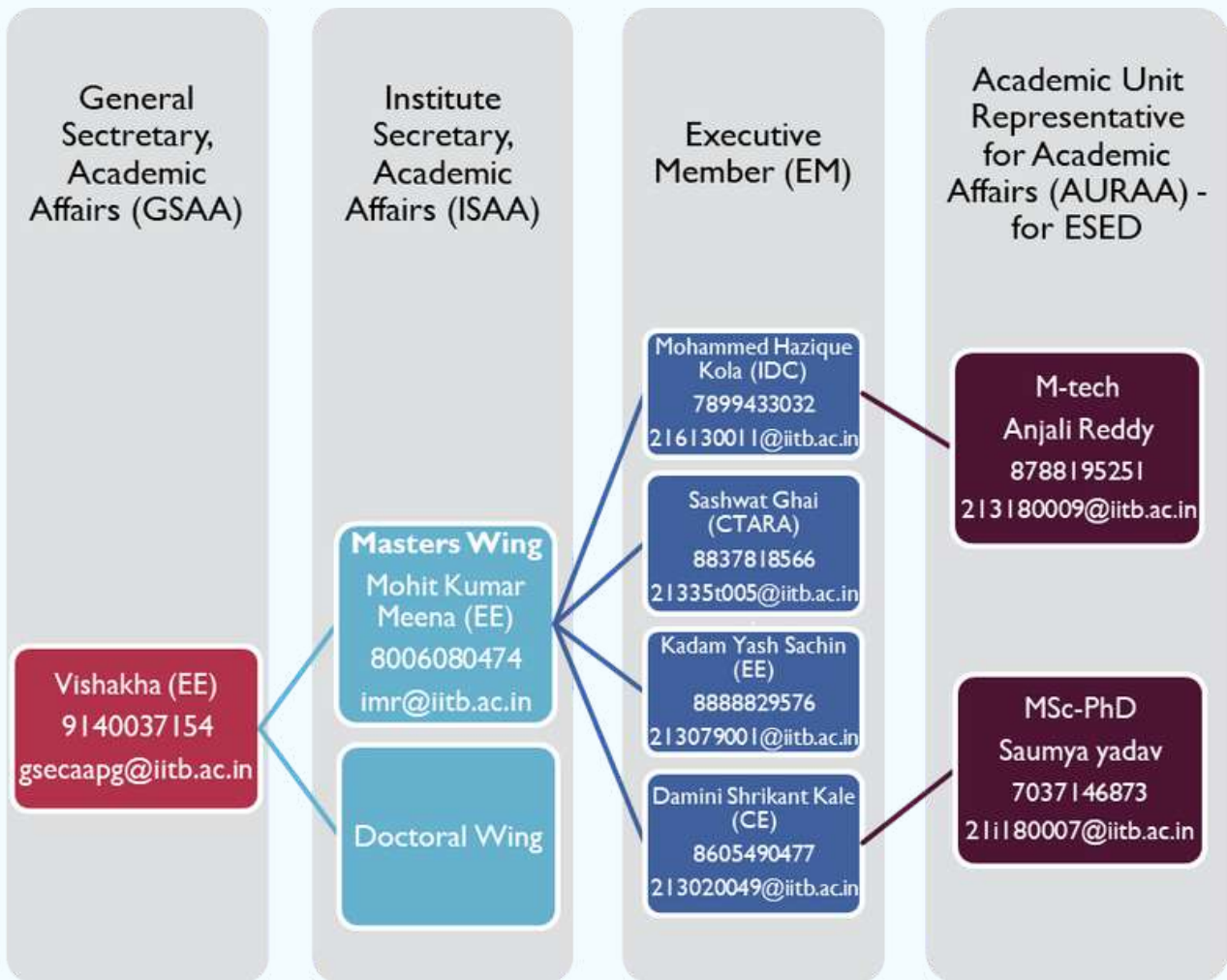


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PGAC MASTERS WING



AURAA



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ABOUT THE INSTITUTE



“An island of dappled green, the campus at Powai is nestled amongst hills and flanked by the Powai and Vihar lakes. It is special both in terms of its physical beauty and location – a place where you could be away from the world, yet still be a part of it. Education and research are the twin pillars of this institute and the ambience is one in which new ideas and creativity can flourish.”

Established in 1958, IIT Bombay has a total of 15 Academic Departments, 37 Centres, 3 Schools and 4 Interdisciplinary Programs with over 10,000 students and 600 faculties. IIT Bombay was the first to be set up with foreign assistance. The funds from UNESCO came as Roubles from the then Soviet Union. In 1961 Parliament decreed the IITs as ‘Institutes of National Importance’. Since then, IITB has grown from strength to strength to emerge as one of the top technical universities in the world. The institute is recognized worldwide as a leader in the field of engineering education and research. Reputed for the quality of its faculty and the outstanding calibre of students graduating from its undergraduate and postgraduate programs, the institute attracts the best students from the country for its bachelor's, master's and doctoral programs.

ABOUT THE INSTITUTE



Research and academic programs at IIT Bombay are driven by an outstanding faculty, many of whom are reputed for their research contributions internationally. IIT Bombay also builds links with peer universities and institutes, both at the national and the international levels, to enhance research and enrich its educational programs. The alumni have distinguished themselves through their achievements in and contributions to industry, academics, research, business, government and social domains. The institute continues to work closely with the alumni to enhance its activities through interactions in academic and research programs as well as to mobilize financial support.

Educational programs here extend beyond the physical sciences and engineering into social sciences like English, Philosophy, Sociology, Economics and Psychology, including the recent School of Management. Over the years, the institute has created a niche for its innovative short-term courses through continuing education and distance education programs. Members of the faculty of the institute have won many prestigious awards and recognitions, including the Shanti Swaroop Bhatnagar and Padma awards.

Located in Powai, one of the northern suburbs of Mumbai, the residents of the institute reap the advantage of being in the busy financial capital of India, while at the same time enjoying the serenity of a campus known for its natural beauty. A fully residential institute, all its students are accommodated in its 18 hostels with in-house dining; the campus also provides excellent amenities for sports and other recreational facilities.



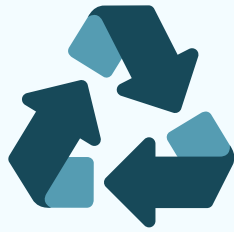
ABOUT THE DEPARTMENT

BACKGROUND

Indian Institute of Technology Bombay is one of the first Institute in the country that initiated Environmental Science and Engineering Education in India. Although Environmental Engineering courses for undergraduate students were offered by a group of faculty members from different disciplines since 1974, an Interdisciplinary Programme offering M.Tech. and Ph.D. degrees in Environmental Science and Engineering (ESE) was officially launched in 1977. From this interdisciplinary programme, the Centre for Environmental Science and Engineering (CESE) was established in 1985. Recently, in February 2019 the Centre has been renamed as Environmental Science and Engineering Department (ESED).

The M.Sc.-Ph.D. and the B.Tech.-M.Tech. integrated dual degree programmes were launched in 2010 and 2018, respectively. In addition, 'Minor' in Environmental Science and Engineering is also offered to undergraduate students from other disciplines. On the mandate of the Honourable Supreme Court of India, a core course on 'Environmental Studies' is offered for all undergraduate students irrespective of their discipline. This course was initiated to familiarize students with major environmental problems and the responsibilities of citizens and other stakeholders towards pollution abatement, prevention and environmental sustainability.

The department is involved in teaching and research activities in most domains of environmental science, engineering and management. Some of these include climate change, water and wastewater management, air pollution management, solid and hazardous waste management and health risk assessment. The course curriculum for the various academic programmes is designed to cover all aspects of environmental education so that the students gain an excellent understanding of the fundamentals and are capable of addressing real-world problems.



ABOUT THE DEPARTMENT

BACKGROUND

The faculty members work in collaboration with industries, municipal corporations, pollution control boards and relevant ministries to provide feasible solutions and are working towards framing appropriate policy documents. Several studies on environmental auditing of various organizations and environmental impact assessment of proposed activities have been undertaken by the faculty members. Moreover, several faculty members are serving as expert on high level committees formed by or on the order of the Honourable Supreme Court and High Courts, National Green Tribunal, Ministries, Pollution Control Boards and Municipal Corporations to provide advice on environment related matters. The Department receives extramural funding for research projects from various government funding agencies, such as DST, DBT, MoES, MoEFCC, MNES, CSIR and from other private research organizations and industries as well.

BROAD AREAS OF RESEARCH

Broad areas of research in Environmental Science and Engineering Department are as follows:

- Air quality management and pollution control: This includes air quality assessment, source identification and mitigation; satellite remote sensing for air quality; emission measurements and emission factor estimation; particulate matter characterization; air pollution exposure modelling and health effects.
- Environmental systems & water resources modelling: This includes modelling of hydro-climatic extremes at a national-scale; mapping vulnerability to natural and human-induced hazards using GIS; development of optimization models for surface water quality monitoring and management; design and evaluation of water & wastewater conveyance systems.



ABOUT THE DEPARTMENT

BROAD AREAS OF RESEARCH

- Water and wastewater treatment, reuse and management: This includes removal of geogenic contaminants from groundwater; biological processes in engineered and natural treatment systems for removal of carbonaceous organics pollutants and nutrients from wastewater; advanced oxidation processes for treatment of recalcitrant industrial effluents and micropollutants; greywater recycling and reuse; treatment and reuse of sewage and industrial sludge.
- Solid and hazardous waste management: This includes municipal solid waste (MSW) treatment and recycling by biological and hydrothermal processes; energy from waste through incineration and gasification processes; life cycle assessment for prediction of environmental impacts; management of hazardous industrial waste.

ADVISING/MENTORING

Advising and mentoring are two very important elements in a graduate student's career. Upon acceptance into the ESED department, graduate students enrolling as Ph.D. research scholars are assigned a faculty advisor, who is identified to the student in the acceptance letter from the department. In most cases, the student will have indicated an area of interest in their application, and the faculty advisor will be specialized in that subdiscipline.

Graduates enrolling for master's program (M.Tech.) are assigned faculty advisor after the end of first semester when projects are being assigned. The faculty coordinator will provide initial guidance on overall academic requirements, program and university policies and procedures, while the faculty dissertation advisor serves more as a mentor providing direction on research, advice on program of study, and guidance on other areas of academic and personal life.

LABORATORIES

TEACHING LABORATORIES AT ESED:

In addition to a full range of research equipment used for environmental analysis of air and water, the laboratories used for teaching purposes are as follows:

- Environmental Chemistry Laboratory
- Environmental Microbiology Laboratory
- Air Pollution Monitoring Laboratory
- Instrumentation Laboratory
- Computer Laboratory

LABORATORIES

INSTRUMENTS GALLERY



Scanning Mobility Particle Sizer



High Performance Liquid Chromatography



UV Spectrophotometer



TKN Sampler



Drop Analyzer



Carbon Analyzer

And Many More.....

ESED FACULTY



Prof. Abhishek
Chakraborty ES 408
Chemistry of
Atmospheric Pollutants
Laboratory (CAP)

Real-time air pollution monitoring, Physicochemical characterization of aerosols, Atmospheric processing of organic aerosols, Source apportionment, Air pollution control and general environmental engineering related issues.



Prof. Amritanshu
Shrivastav
ES 512
Shrivastav Laboratory

Ecology of microorganisms, Water and wastewater treatment, Algal bio-refinery for biofuel production, Algal bacterial photo-bioreactors, Remediation of heavy metal contamination.



Prof. Anil Kumar
Dikshit
ES 410
Environmental
Infrastructure and Clean
Tech Laboratory
(EICTL)

Water Supply; and Water & Wastewater Treatment, Urban and Industrial Solid Waste Management, Environmental Management; and Environmental Systems Modelling & Optimization, GIS for Environment, Industrial Effluent and Sludge Management.



Prof. Anurag Garg
ES 311
Solid and Liquid Waste
Research Laboratory
(SLWRL)

Advanced oxidation processes (catalytic wet oxidation and Fenton) for the removal of persistent organic and inorganic compounds from industrial wastewater, Nutrients removal from wastewater using a combination of physico-chemical and biological processes, Treatment of leachate (generated from Municipal solid waste landfill) using physico-chemical processes, Mechanical biological treatment of municipal solid waste (MSW), Energy recovery from solid recovered fuel (derived from MSW) and sludge generated from sewage treatment plants and industries.

ESED FACULTY



Prof. Harish Phuleria
ES 406

Air and Noise Pollution
Exposure Research
Group (ANERG)

Aerosol & air quality characterization with a focus on nano/ ultra-fine particles, Size-resolved outdoor PM chemical composition, Improved cook stoves efficiency, longevity and adoption assessment, Environmental noise exposures, Exposure modelling using GIS, Land use, questionnaire data.



Prof. Manoranjan Sahu
ES 507
Aerosol and
Nanoparticle
Technology Laboratory
(ANT)

Aerosol and air pollution research (Indoor/Outdoor Aerosol Monitoring, Characterization and Modelling, Aerosol technology and advanced applications), Nanotechnology & Application to Environment and energy: Nanomaterials synthesis, advanced characterization and application to solve various societal problems (wastewater treatment, air contaminant and other areas of application), Climate Change: CO₂ capture, GHG emission and nanomaterials application for CO₂ reduction to useful products, Chemical Process Research and Development: Process research and development, scale-up and technology transfer from lab scale to pilot scale to commercialization (solar energy, silicon materials, specialty polymers).



Prof. Munish Kumar
Chandel
ES 411

Environmental Research
Laboratory (ERL)

Carbon Capture and Storage. Chemical Looping Combustion, Fluidized Bed Combustion, Greenhouse Gas Mitigation, and Solid Waste Management.



Prof. Sanjeev Chaudhari
ES 305
Water Research
Laboratory (WRL)

Arsenic removal from water, biological nutrient removal from wastewater, Application of Natural coagulants for water and Wastewater treatment, Treatment of textile wastewater by biological and physicochemical processes.

ESED FACULTY



Prof. Shyam Asolekar
ES 205
Preventive
Environmental
Management Group
(PEM)

Hazardous, municipal & biomedical waste management, Eco-industrial networking, Eco-centric and low-cost wastewater treatment, Treatment of leachate and special industrial wastewaters, Environmental policy and preventive environmental management.



Prof. Srinidhi
Balasubramanian
ES 310
Climate and Air Quality
Research Laboratory
(CARES)

Air quality with focus on model development and implementation, reactive nitrogen, sustainable agriculture, and food systems, climate change, GIS for environmental management, indoor air quality



Prof. Subhankar
Karmakar ES 211
Environmental Systems
Research Laboratory
(ESRL)

Environmental and Water Resources Systems: Development of optimization models for surface water quality management, irrigation water management, floodplain planning and management, landfill leachate contamination risk assessment, optimal design of water & wastewater conveyance systems, design & evaluation of water quality monitoring network, Uncertainty Modelling and Decision Science for Environmental Systems: probabilistic, fuzzy and interval approaches; multi-attribute decision making, Hydro-climatic Extremes and Flood Management: multivariate flood and drought frequency analyses, non-stationary modelling of hydro-climatic extremes, mapping vulnerability to natural and human-induced hazards using GIS, flood risk mapping, near-real-time flood forecasting, Environ metrics: multivariate statistical surface water quality assessment, evaluation of trophic states, rationalization of water quality monitoring stations.



Prof. Suparna Mukherji
ES 513
Treatment Remediation
and Applied
Microbiology Laboratory
(TRAM)

Biotransformation and toxicity evaluation of complex organic pollutants, Fate and transport of pollutants in aquatic and subsurface systems, Physicochemical and biological treatment processes, Hazardous waste minimization and pollution prevention, Environmental statistics and design of experiments.

ESED FACULTY



Prof. Swatantra Pratap
Singh
ES 405
Environmental
Nanotechnology
Research Laboratory
(EnNano)

Desalination and wastewater treatment by membranes (biofouling control by nanomaterials), Analytical environmental chemistry, Fate & transport of organic and emerging contaminants in the environment, Environmental quantum chemical modelling, Physicochemical & biological treatment processes.



Prof. Tabish Nawaz
ES 605
Wastewater & Resource-
Recovery Laboratory
(WRRL)

Wastewater treatment coupled with resource recovery, Source-separated wastewater treatment and water reuse, Ion-exchange and Adsorption systems, Physico-chemical treatment and separation processes, Nanoparticle, nanofiber and membrane synthesis.



Prof. V. S. Vamsi
Botlaguduru
ES 306
Environmental Process
Engineering Laboratory
(EPEL)

UV-based Advanced Redox Processes for water/wastewater treatment, Removal of emerging contaminants from water/wastewater, Air Quality Trends Analysis.



Prof. Virendra Sethi
ES 509 & ES 510
Air Pollution Research
Laboratory (APRL)

Aerosol and air quality, Hot gas clean-up (thermal gasification), Nano-Powder synthesis, Satellite remote sensing for air quality.

NON TEACHING STAFF



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DISSERTATION AND SEMINAR TOPICS (M.TECH.)

Name	Seminar Topic (Guide)	MTP Topic (Guide)
Nandhini A	Human health and ecological risks of toxic metals around tailings, ash ponds and abandoned mines (Prof. H. Phuleria)	Sustainable Eco-centric Treatment of Source-Separated Domestic Wastewater using Household Constructed Wetland: Circular Economy of Decentralized Water Reuse (Prof. S. Asolekar) (Co-guide: Prof. Bakul Rao, CTARA, IITB)
Sumeet Pradeep Kshatriya	Covid impact on secondary aerosol formation (Prof. A. Chakraborty)	Air Pollution from Shipping and Port Operations (Prof. S. Balasubramanian) (Co-Guide: Prof. V. Sethi)
Chevli Keshmina Sanjaykumar	Status of advanced waste to energy systems for municipal solid waste management (Prof. M. Chandel)	Satellite applications for Air Quality Management (Prof. Vamsi) (Co-guides: Dr. Harish Gadhavi , SAC, ISRO, Ahmedabad + Prof. V.Sethi)
Bharrathi A S	Removal of Emerging Water Contaminants with Reductive Processes (Prof. Vamsi)	Rainwater characteristics and monsoon impact on air quality (Prof. A. Chakraborty)
Madhumitha S	Photocatalytic nanoparticle/nanocomposites-based processes for removal of antibiotics and other pharmaceuticals from water and influence of water quality on performance (Prof. S. Mukherji)	Covid lockdown impact on air quality: Satellite and ground-based measurements (Prof. A. Chakraborty)
Vinutha S R	Membrane Bioreactor for Wastewater Treatment (Prof. A. Shriwastav)	Life cycle assessment of carbon capture storage and utilization in India (Prof. M. Chandel)

DISSERTATION AND SEMINAR TOPICS (M.TECH.)

Name	Seminar Topic (Guide)	MTP Topic (Guide)
Nitin Saini	Integrating bioenergy with carbon capture and storage (Prof. M. Chandel)	Comparative analysis of fluoride removal from Hydroxiappatite and Activated Alumina (Prof. S. Chaudhari)
Rushikesh Sanjay Hiwrekar	Application of Satellite Data for Air Quality Management (Prof. M. Sahu)	Developing Treatment Technologies for Recovery of Resources from Household-cum-Community Food Wastes (Prof. A. Dikshit)
Anjali Reddy	Biomass Burning as a Source of Air Pollution (Prof. V. Sethi) (Co-Guide: Professor Sanjay Mahanjani, CL)	Evaluation of sugarcane bagasse recycling options (Prof. A. Garg) (Co-guide: Prof. Yogendra Shastri, ChED)
Varsha Meena	Air Quality Assessment and Management in Smart Cities (Prof. M. Sahu)	Coastal Flood Vulnerability Mapping for India (Prof. S. Karmakar)
Akhil Maheshkumar Chauhan	Resource recovery opportunities and methods for electronic waste (Prof. T. Nawaz)	Low-cost membrane-based water purifier for rural area. (Prof. S.P. Singh)
Roshan Lakra	Technologies for de-sludging Urban sewerage system (Prof. A. Dikshit)	Assessment of a polluted river and evaluation of diverse restoration strategies (Prof. S. Mukherji) (Co-guide: Prof. Anurag Garg)
Keshav Agarwal	Chromium removal from surface and ground water (Prof. S. Chaudhari)	Nutrient recovery from poultry litter wastewater using ion-exchange/adsorption systems (Prof. T. Nawaz)

DISSERTATION AND SEMINAR TOPICS (M.TECH.)

Name	Seminar Topic (Guide)	MTP Topic (Guide)
Ranjit Kumar	Climate change and human health in India: Current impacts and future risks (Prof. H. Phuleria)	Traffic noise pollution: Drivers of honking behaviour in urban areas (Prof. H. Phuleria) (Co-Supervisor: Viswanath Pingali, IIM Ahmedabad)
Apoorva Vasant Lambat	Waste Management in Sugar Industries (Prof. A. Garg)	Physico-chemical characterization of residential outdoor PM _{2.5} in urban areas across India (Prof. H. Phuleria)
Ayan Das	Restoration of Contaminated Rivers (Prof. S. Mukherji)	Application of Satellite Data for Air Quality Management using Advanced Statistical Modelling (Prof. M.Sahu)
Nitin Kumar	A vision for improving flood forecasting in India (Prof. S. Karmakar)	Application of Machine Learning Approach for Predicting Air Pollutant Concentration (Prof. M. Sahu)
Abhishek Kumar	Air Pollution Emissions from Handling Dusty Raw Materials (Prof. V. Sethi) (Co-Guide: Professor Ajay Deshpande, CPS)	Development and performance evaluation of materials for particulate matter filters (Prof. V. Sethi) (Co-guide: Prof. S.P.Singh, ESED)
Siddharth Raj Anand	Technologies for controlling TDS in treated wastewater (Prof. A.K. Dikshit)	Removal of Nitrate from Water (Prof. A. Shrivastav)

PROJECT AND SEMINAR TOPICS (M.Sc.-Ph.D.)

Name	Seminar Topic (Guide)	Project Topic (Guide)
Aswin AV	Evaluating the mechanisms of Airborne Covid transmission (Prof. A. Chakraborty)	Nanoparticle emission in wastewater streams (Prof. T. Nawaz)
Sourabh Singh Rawat	Wastewater Management in Pulp and Paper Industry (Prof. A. Garg)	Pre-treatment of sugarcane bagasse for improvement in resource recovery (Prof. A. Garg)
Saumya Yadav	RO membranes for desalination and wastewater treatment: Challenges and current status (Prof. S. P. Singh)	Climate implications and social costs accounting of agricultural systems in India (Prof. S. Balasubramanian)
Sweta Singh	Indoor Air Purifiers for Virus-Sized Particles (Prof. Virendra Sethi) (Co-Advisor: Prof. H. Phuleri)	Coastal Flood Hazard Assessment (Prof. S. Karmakar)

ABOUT ESEA

Vision:

The Environmental Science and Engineering Association (ESEA), represents the entire community of academicians, students and professionals dedicated to the cause of environmental protection and sustainability. Essentially, it is a student organization of the Environmental Science and Engineering Department, Indian Institute of Technology-Bombay.

Mission:

- Exchange of knowledge between industry and academicians.
- Improve public appreciation of environmental issues.
- Advancing environmental engineering and technology.
- To promote the causes of environment.

Current Committee:

The ESEA committee is headed by the head of the department as president followed by any faculty member as vice-president. The remaining team is constituted by the students from both M.Tech. as well as Ph.D. The present President of ESEA is Prof. Subhankar Karmakar and Vice - President is Prof. Manoranjan Sahu and Prof. Srinidhi Balasubramanian.

ESEA MEMBERS



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Vice-President
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ACTIVITIES AND EVENTS

EXTRACURRICULAR ACTIVITIES

IIT Bombay, having the motto 'Knowledge is the supreme goal', is the place where hobbies become talents and talents meet opportunities. Who says engineers can't be artistic? What sets IITB apart is the enthusiasm for extracurriculars that you will discover here. Sing, dance, act, speak, write, paint, shoot, play: do what you like the best with the best. IITB is a pleasantly surprising treasure hub of a plethora of activities that will not fail to dazzle you. Along with that, many tech clubs are waiting for your participation, like the team Shunya, team zero waste, sustainability cell, team zero waste and many more.

Area	Name of Clubs
CULTURAL CLUBS	FILM & MEDIA - SILVER SCREEN AND IIT BOMBAY BROADCASTING CHANNEL MUSIC - SYMPHONY DANCE - INSYNC DRAMATICS - FOURTH WALL SPEAKING ARTS - WE SPEAK AND COMEDY CONS INDIAN LANGUAGES - VAANI LITERARY ARTS - LITERATI CLASSICAL AND FOLK ARTS - ROOTS DESIGN - THE DESIGN CLUB STYLEUP
TECH CLUBS	AEROMODELLING CHEMISTRY CLUB ELECTRONICS AND ROBOTICS CLUB KRITTIKA - THE ASTRONOMY CLUB MATH N PHYSICS TINKERERS' LAB WEB AND CODING CLUB STUDENT READING GROUP

ACTIVITIES AND EVENTS

EXTRACURRICULAR ACTIVITIES

Area	Name of Clubs
TECH TEAMS	<p>IIT BOMBAY RACING INNOVATION CELL IIT BOMBAY PRATHAM TEAM SHUNYA AUV-IITB MARS ROVER TEAM TEAM ZERO WASTE 8. ABHYUDAY THE SUSTAINABILITY CELL</p>



ACTIVITIES AND EVENTS

DEPARTMENT ACTIVITIES & SEMINARS

EVENTS/SEMINARS/WORKSHOPS/WEBINARS

- “Sustainable Wastewater Management in Oil and Gas Sector” which was a part of Conclave organized by Centre of Excellence in Oil, Gas and Energy
- International conference on Environmental Science and Engineering (ICESE 2022) 20-22th Jan 2022
- Faculty Development Workshop on “Application of Nanotechnology in Water and Wastewater Treatment”
 - Faculty Development Workshop on “An Overview of Recent Advances in Water and Wastewater Treatment Technologies”
- Webinar on the Development of innovative technologies for waste recycling and sustainable management under Swachhata Pakhwada 2021.
- International Conference on Environmental Science and Engineering (ICESE-2022)
- Session Chair: International Conference on Sustainable Materials and Practices for Built Environment (SMPBE-2021).
- "Scope for Technology Development & Entrepreneurship in Climate Studies" on 17 March 2021, Interdisciplinary Program in Climate Studies (IDPCS)
- "Climate Resilient Engineering Design" on 24 March 2021, Interdisciplinary Program in Climate Studies (IDPCS)
- E-School on Climate Science & Policy, 16-27 August 2021, Interdisciplinary Programme in Climate Studies (IDPCS)
- National Jal Jeevan Mission (NJJM) Level-1 course titled "Climate change risk assessment and water security challenges," conducted during 23-24 February 2022 (Session-1)
- National Jal Jeevan Mission (NJJM) Level-1 course titled "Climate change risk assessment and water security challenges,"

ACTIVITIES AND EVENTS

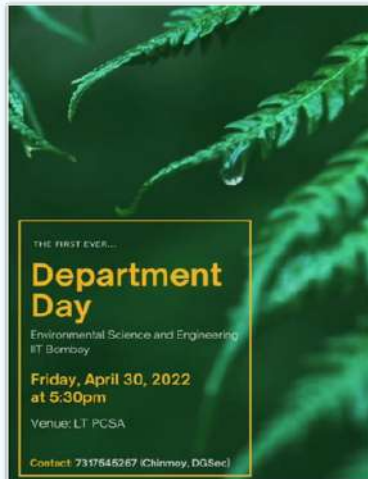
DEPARTMENT ACTIVITIES & SEMINARS

EVENTS/SEMINARS/WORKSHOPS/WEBINARS

- Technical session TS5 on Climate Change Impact on Water Resources, 26th International Conference on Hydraulics, Water Resources and Coastal Engineering HYDRO 2021 INTERNATIONAL at SVNIT Surat, Gujarat, India December 23-25, 2021.
- Webinar-6 of ICFM on “Real-time Urban Flood Forecasting: Current Status and Future Challenges”
- Faculty Development Workshop on “Application of Nanotechnology in Water and Wastewater Treatment”
- Faculty Development Workshop on An Overview of Recent Advances in Water and Wastewater Treatment Technologies
- Webinar on the development of innovative technologies for waste recycling and sustainable management under Swachhata Pakhwada
- NJJM Training Course on the Greywater Management
- A Symposium on Emerging Contaminants Fate, transport Remediation Aspects Organized to celebrate Azadi ka Amrit Mahotsav
- A symposium on Sustainable Developments in Local Land and Food Systems: Socioeconomic, Technological, and Environmental Aspects, A symposium as part of Shastri Indo-Canada Lecture Series Grant funded by Shastri Indo-Canadian Institute
- In-house Training Course on Selection, Design, Construction and Operation & Maintenance of Water Treatment for the National Jal Jeevan Mission
- Symposium on Emerging Contaminants: Fate, Transport & Remediation Aspects, as part of Azadi ka Amrit Mahotsav.

ACTIVITIES AND EVENTS

FIRST EVER DEPARTMENT DAY IN 2022



ACTIVITIES AND EVENTS

ESED - SPORTS

Sports is an integral part of life at IITB. Sports is required for a healthy body and mind; keeping that in mind IITB provides all kinds of sports activities here on the campus. The facilities here are unparalleled by any other Indian institutes. If you have ever fancied some sport, then surely IITB will not disappoint. You will find players at all levels here for each and every sport. Even pro players will find peers to match them step for step. IITB also organizes camps for different sports where even total beginners can learn up to an intermediate level. We have clubs for different sports waiting to welcome you.

Since the academic curriculum of IITB is monotonous, it is very important to have some recreational activity and IITB has all facilities for each and every sports one wants to play. Various sports events throughout the semester will keep engaged, and physically and socially active. It will also help to improve the skills and to learn new games. IITB has facilities for many sports like Cricket, Badminton, Football, Volleyball, Aquatics, Basketball, Hockey, Lawn Tennis, Table Tennis, Squash, Kho-Kho, Board Games and many more. As competition brings more excitement and gives motivation to each and every player whether playing individually or in team, so to bring that excitement, every year PGGC and Hostel GC is organized in IITB. Let's take a glance at some of the facilities provided by IITB.



Bronze in Table-Tennis



Bronze in Triathlon



Gold in Discus Throw



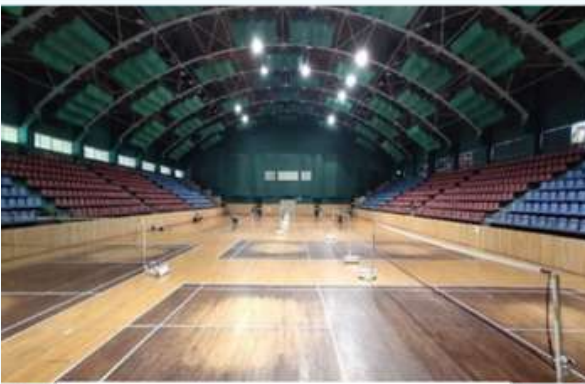
Bronze in 400m relay

ACTIVITIES AND EVENTS

ESED - SPORTS



IIT Bombay Gymkhana Ground



Indoor Badminton Court



Kho-Kho Arena



Indoor Nets

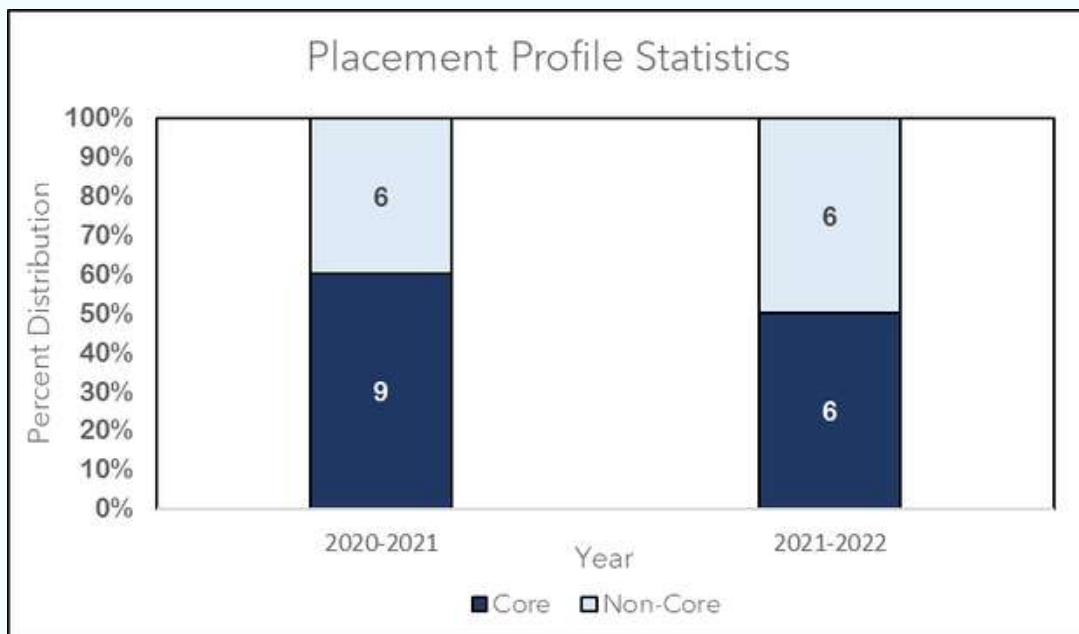
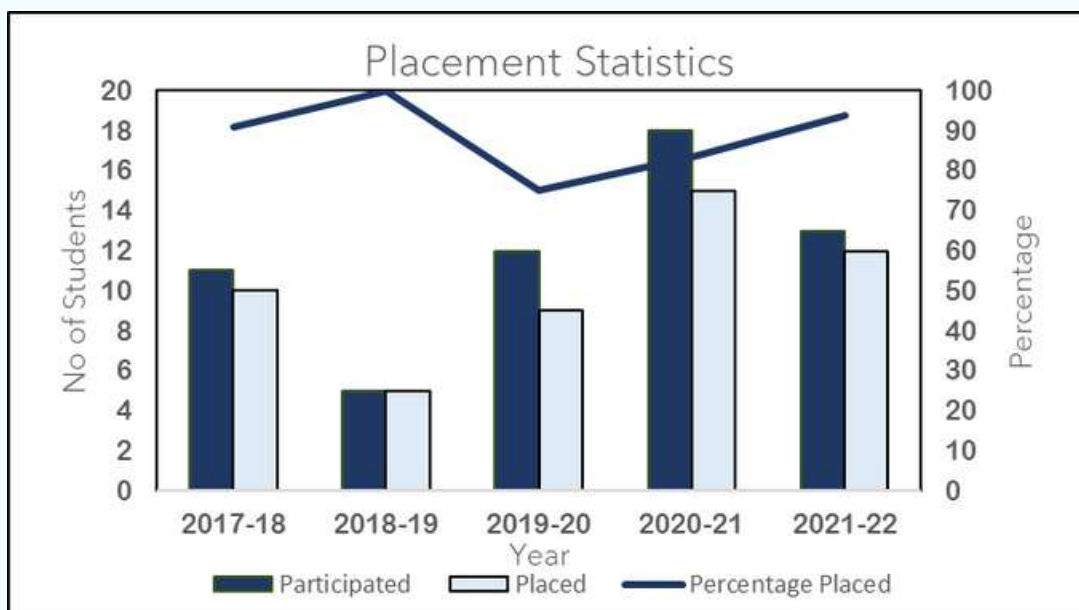


Table Tennis Arena

PLACEMENT STATISTICS

The Placement Drive at IIT Bombay is a year-long event, which starts in the month of July and ends in June next year. The placements are successfully completed in two phases, clearly demonstrating the demand of graduates among the top recruiters in various segments of the economy.

Below are the graphs showing the placement statistics of last 5 years at ESED.



PLACEMENT STATISTICS

The major companies participating for ESED in the placement drive at IIT Bombay are given below.



PLACEMENT COORDINATORS



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Keshmina Chevli
Department Placement Coordinator
213180010@iitb.ac.in

GENDER CELL



IIT Bombay believes that its employees and students have a right to be treated with dignity and respect. The Gender Cell (GC) works proactively towards developing a safe and secure environment for employees, and to ensure that all students may gain their education without fear of prejudice, gender bias, hostility or sexual harassment.

The IIT Bombay Gender Cell inquiries into complaints of sexual harassment through its Internal Complaints Committee (GC-ICC). The GC and GC-ICC strive to work towards an egalitarian environment where men and women are afforded equitable treatment and equality of opportunity conducive to their professional growth.

Procedure to Complain

- Do not ignore harassment in the hope that it will stop on its own. Come forward and complain.
- Do not feel the sense of shame. Tell the harasser clearly that you find behaviour offensive.
- If informal methods such as telling the perpetrator to stop harassing do not help, the victim can contact any of the member of gender cell directly through their email or phone call and should lodge complaint at gender cell.
- One can take help of their companion for filing complaint and can talk to someone who they trust.
- Keep a record of all incidents of harassment, so that it will be helpful when you register a complaint.
- The complainant's name and identity is always kept confidential.

Contact Details:

3rd Floor, Main Building,

Next to Student Wellness Centre,

IIT Bombay, Powai, Mumbai- 400076

Email id: gendercell@iitb.ac.in

Website: <http://www.gendercell.iitb.ac.in/>

STUDENT WELLNESS CENTRE

After securing admission at the Institute and starting your stay here, you may feel that a lot of parameters around you are different. You would have more responsibilities to handle at the hostel and at the academic level. Take heart, you will not be the only one. There are a few issues that almost everyone in the Institute faces initially like academic concerns, social (family and peer) pressure etc, leading to feelings of loneliness, low confidence, anxiety, stress, anger and sadness, to name a few. It is important to understand that students often lose their focus and give in to these pressures. If not attended to at the right time, this could lead to poor performance -- both academically and personally.

To help you refrain from losing focus and being unhappy, we as Counsellors encourage you to approach us for any problem that you are facing- be it academic, emotional, social or financial- without hesitation.

Counselling provides an opportunity for individuals to learn to make better choices, improve interpersonal skills, develop confidence and increase educational effectiveness. In a one-on-one meeting with a counsellor, students are helped to explore and express feelings, examine beliefs and ways of thinking about their present situation, reflect on patterns of behavior, and work toward making healthier and happier changes.

Typical concerns of students who seek counselling are :

- Transition and change
- Uncertainty about values and goals
- Academic pressure
- Dealing with new academic patterns
- Personal relationships with the special one and with friends
- Family concerns
- Issues of grief and loss
- Stress, depression and anxiety
- Lack of motivation; concentration difficulties, etc.

Student Wellness Centre provides

1. Individual Counselling

- student get space to talk with no pressure
- confidentiality is maintained
- no judgment, criticism and assumptions
- you can unburden yourself



STUDENT WELLNESS CENTRE

Counsellors will...

- respect you and your problems
- will help you to consider the different options and make choices
- surely will make an attempt to reduce the problem
- will intervene with right people to help you if required

Appointments are available from 10.30 am to 5.30 pm Monday-Friday and students are usually seen for 45 minutes, depending on demand. Students can take an appointment by visiting the following link:

<https://www.iitb.ac.in/swc/en/user/login?destination=node/1183>

Intake appointments are scheduled with students at times and dates which are convenient to them, depending on their academic commitments.

In either case, the goal of the first meeting is to help the student identify the issues that are causing them the most concern.

If a student wishes to continue in counselling, he/she usually continues to meet with the same counsellor seen in intake or Walk-In.

2. Psychological Assessment

In some cases where more precise diagnoses are required, we conduct psychological assessments. These tests are administered by a trained psychometrician. These tests help all those who are concerned with the student's wellbeing to decide upon the best possible intervention.

3. Workshops and Events

The Wellness centre also organizes different workshops and events during each academic year. The workshops and events are organized on different topics related to mental health and are based on the need of the students like dealing with stress, time management, relationship issues etc.

Contact Details:

3rd Floor, Student Wellness Centre

Above Academic Section, Main Building,

IIT Bombay, Powai, Mumbai- 400076

Phone: 022-2576-9070

Email: wellness@iitb.ac.in

REACHING IITB

IIT Bombay is located at Powai, which is in the North-Eastern part of Mumbai. One can travel by auto-rickshaws or taxis to reach IIT from the nearest stations. The nearest stations for Central Railway are Kanjur Marg and Vikhroli. The nearest station for Western Railway is Andheri. International flights land at Sahar Airport which is about 7kms from IIT.

The Domestic Airport Santa Cruz is about 11kms from IIT Bombay and autorickshaws/prepaid cabs are easily available from there for IIT.

From the Airport:

Those travelling by air can take taxis/auto-rickshaws from the domestic (40-60 min travel time)/international (20-40 min travel time) airport to reach IIT Bombay.

From Central Railway:

If travelling by the central railway line [with tickets to Kalyan/Thane/Kurla/Dadar/CST, get down at Kalyan/Thane/Dadar and take a local train to Kanjur Marg/Vikhroli, which are the nearest stations to IIT Bombay. Come out through the western-side gate and take a bus or, auto-rickshaw to IIT main gate.

From Western Railway:

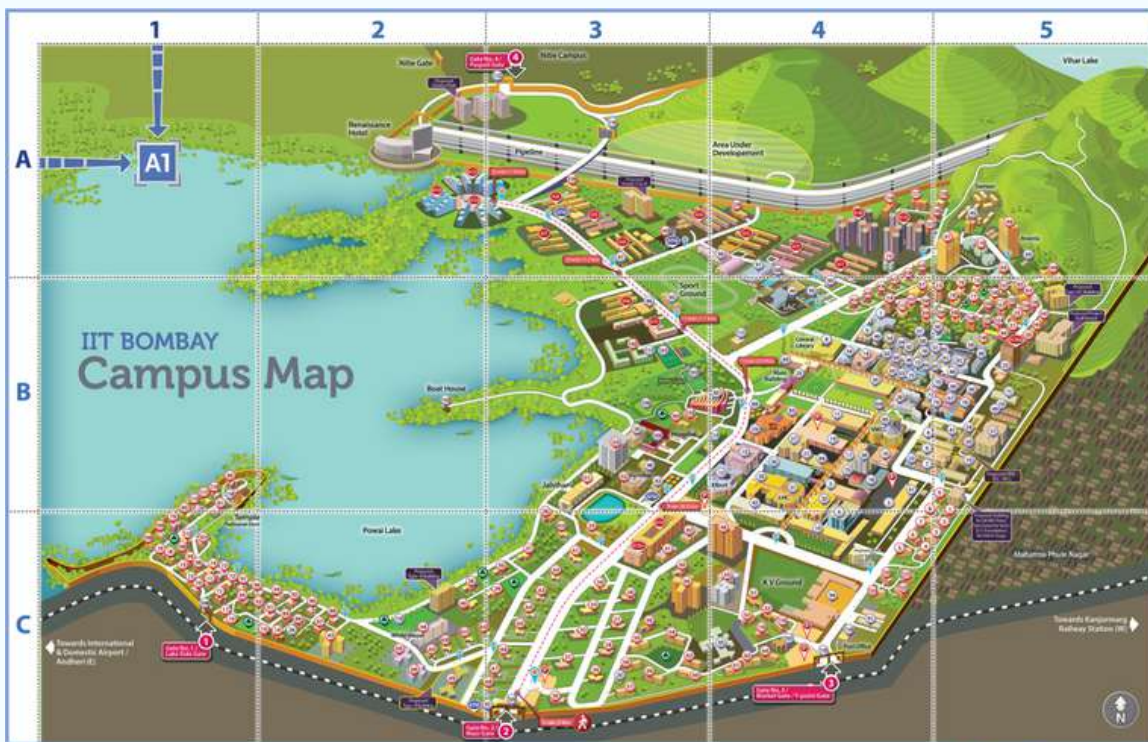
If you are coming by the western railway line, get down preferably at Borivali/Bandra/Andheri. From Bandra (local railway station) west, you can take the 422 bus to IIT Bombay main gate. From Borivali East and Andheri East, there are a number of buses which come to the IIT main gate. Alternatively, you can take a three-wheeler or taxi from these stations. If you get down at Mumbai Central, then travel in the reverse direction to Dadar (Western Railway). From Dadar Western Railway, you will have to change to Dadar Central Railway. To reach IIT Bombay from Dadar Central Railway, follow the instructions given under Central Railway.

Reaching IIT Bombay Guest House, there are three gates to IIT Bombay. It is advised to enter through the main gate. If you are coming by an auto-rickshaw/taxi, enquire from the security at the main gate for the directions to IIT-B Guest House (Van Vihar/Jal Vihar/Padma Vihar Guest House).

Reaching IIT Bombay Hostels:

There are three gates to IIT Bombay. It is advised to enter through the main gate. If you are coming by an auto-rickshaw/taxi, enquire from the security at the main gate for the direction.

CAMPUS MAP



Indian Institute of Technology Bombay, Powai, Mumbai - 400075, INDIA
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Map Design
 Shilpa Bhargava, IITB, IITB

Project Guide
 Prof. Manda Ranu, IITB, IITB

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 Version 20th Feb 2015

Map is not to scale



ACADEMIC, NON ACADEMIC & SERVICES

Academic & Non-academic	ITB Students Activity Centre	84, 44
ACSE / Advanced Centre for Research in Electronics	SACER	84, 45
Aeronautics Engineering	SME / CSSE	84, 38
Applied Engg. Centre	SOM / Shaikh J. Mehta School of Management	84, 29
Bio-science & Bio-engg.	Sophisticated Analysis Instrument Facility (SAIF)	84, 31
Bio-science & Bio-engineering Centre	SSE Substation Unit	84, 46
Computer Science & Engg.	Stores and Estate Office	84, 47
Department (New)	Systems and Control Engg.	84, 5
Central Library	Waikarua Research Centre	84, 6
Centre for Environmental Science and Engineering	For Bio-science & Bio-engg.	84, 6
Chemical Engineering	Water & Wastewater	84, 48
Chemistry Department	Advanced Mfg. engg. Lab.	84, 48
Civil Engineering	Bio-Steel Lab./Bio-Steel Plant	84, 49
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CSSE / SMC / Centre of Studies in Resources Engineering	Computer Science & Engg.	84, 52
CTARA / Centre for Technology Alternatives for Rural Areas	Computer Science & Engg. Department	84, 13
Earth Science Department	Computer Science & Engg. Department	84, 14
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Electrical Engg. Annex	CSRE / SMC / Centre of Studies in Resources Engineering	84, 16
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Env. Maintenance Division	Earth Science Department	84, 18
Env. Maintenance Division	Electrical Engineering	84, 19
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Engineering Office	Elect. Maintenance Dept.	84, 20
Engineering Office	Env. Maintenance Division	84, 21
Estate Stores/Office 1	Env. Maintenance Division	84, 22
Estate Stores/Office 2	Energy Science B.	84, 23
Estate Stores/Office 3	Engineering Office	84, 24
Estate Stores/Office 4	Engineering Office	84, 25
Gas & Gasoline Building	Estate Stores/Office 1	84, 26
G. G. Building Site Dept.	Estate Stores/Office 2	84, 27
Humanities and Social Sciences (HSS)	Estate Stores/Office 3	84, 28
Indo-Indo Building	Estate Stores/Office 4	84, 29
Indo-Indo Building	Gas & Gasoline Building	84, 30
Indo-Indo Building	G. G. Building Site Dept.	84, 31
Lecture Hall Complex 1	Humanities and Social Sciences (HSS)	84, 32
Lecture Hall Complex 2	Indo-Indo Building	84, 33
Lecture Hall Complex 3	Indo-Indo Building	84, 34
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Mechanical Engineering	Indo-Indo Building	84, 37
Metallurgical Engg. B.	Indo-Indo Building	84, 38
Metallurgical Science Dept.	Indo-Indo Building	84, 39
Minerals Research Centre	Indo-Indo Building	84, 40
Nano Electronics Building	Indo-Indo Building	84, 41
Nano Tech. & Science Research Centre (NRTS)	Indo-Indo Building	84, 42
NASA/Non-Academic Staff Association	Indo-Indo Building	84, 43
National Centre for Mathematics (Math.)	Indo-Indo Building	84, 44
NCAR / National Centre for Aerospace Innovation and Research	Indo-Indo Building	84, 45
ODGC / Undergraduate Civil Gasification Research Centre (UGRC)	Indo-Indo Building	84, 46
Physics Department	Indo-Indo Building	84, 47
Placement Office	Indo-Indo Building	84, 48
Power House	Indo-Indo Building	84, 49
Pre-Fab Building	Indo-Indo Building	84, 50
Ponding Area	Indo-Indo Building	84, 51

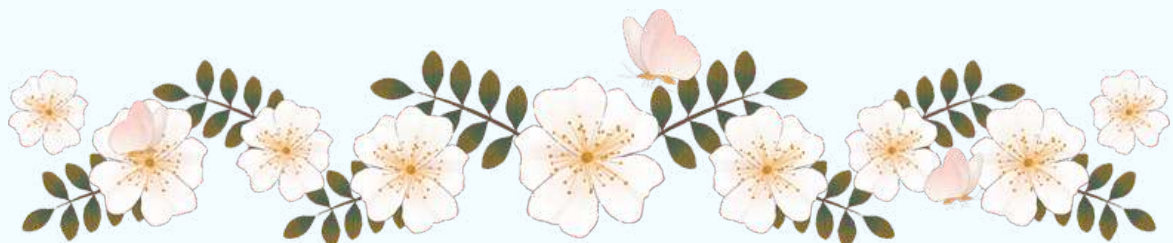
SEARCH LOCATION BY GROUPS AND SERIAL NUMBERS

Andhra and Madh.	Constitution Hall	84, 82
	G. Gellon Lecture Hall	84, 27
	Lecture Hall Complex 1	84, 30
	Lecture Hall Complex 2	84, 31
	Lecture Hall Complex 3	84, 32
	PC Seminar Auditorium (A)	84, 82
	Seminar Hall	84, 84
	VICC/Victor Menezes Convention Centre	84, 85
Food	Breadberry Cafe	84, 96
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	Galvanic Cafeteria	84, 43
	Galvanic Restaurant	84, 43
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Bank and ATM	ATM - Canara Bank	84, 83
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School	Central School	84, 93
	Central School	84, 94
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Residential & Hostels	Residential C-Block	84, 95
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Office & Medical	Admin Centre	84, 83
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KNOW YOUR SENIORS



Full Name	Personal Info	Area of Interest <i>POR</i> Extra-Curricular Activities
Akhil Maheshkumar Chauhan	9328444801 Environmental Engineering akhilchauhan058@gmail.com Palanpur, Gujarat	Event & Project Management, Data analysis <i>Class Representative, Interview Coordinator, Student Companion</i> Quizomania
Anjali Reddy	8788195251 Chemical Engineering anj6419@gmail.com Mumbai, Maharashtra	Core placement <i>AURAA</i> Secured 3rd place in both fabricact and product photography in PGCult
Apoorva Vasant Lambat	9689985331 Civil Engineering lambatav@gmail.com Chandrapur, Maharashtra	Core and Non-core <i>Public Relations Coordinator, ESEA</i> Trekking
Aswin AV (MSc - Ph.D.)	7306351721 7306351721 Chemistry aswinaviitb@gmail.com Kerala	SDG, ESG
Ayan Das	8617469688 Agricultural Engineering raja152smailbox@gmail.com Durgapur, West Bengal	Data Analysis <i>Interview Coordinator, Department Coordinator, Student Companion</i> Playing Badminton
Bharrathi A S	9080084213 Biotechnology saranbharrathi03@gmail.com Karur, Tamil Nadu	Core jobs or govt jobs <i>NSS volunteer</i> <i>General Secretary, ESEA</i> <i>Interview coordinator</i>

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Chevli Keshmina Sanjaykumar	9714972369 Environmental Engineering keshminachevli@gmail.com Gujarat	Core- Eenvt Policy, EIA, ESG <i>Student Companion</i> <i>Department Placement Coordinator</i> PG cult - Design
Keshav Agrawal	9576253040 Civil Engineering keshav.ag18@gmail.com Jharkhand	Govt. Job <i>Media Coordinator, ESEA</i> Poetry, Badminton
Madhumitha S	9789259169 Biotechnology madhumithasai10@gmail.com Trichy, Tamilnadu	Data analytics, BA, APM <i>Interview Co-ordinator</i> <i>Company Co-ordinator</i>
Nandhini A	7598966517 Biotechnology nandhu.anand26@gmail.com Salem, Tamilnadu	ESG, Sustainability, Government Jobs <i>PG Dramatics coordinator, Interview coordinator, NSS volunteer, PAF Fine arts coordinator, Core team member of Sustainability Cell</i> Music, Arts, Design, Photography, Anchoring in Tamilfest and ESED day
Nitin Kumar	8096350476 Civil Engineering nitin3747@gmail.com Bahadurgarh, Haryana	Data analytics, Core <i>Interview coordinator</i> <i>Student Companion</i> Swimming, Table tennis
Nitin Saini	9045007626 Chemical Engineering nsaini12345@gmail.com Saharanpur, Uttar Pradesh	Govt Jobs Debate Competition, TT, Chess, Meditation

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Roshan Lakra	7061604876 Chemical Engineering lakra.roshan173@gmail.com Ranchi, Jharkhand	Business startups Served NPCIL main plant operations as Nuclear Engineer Cycling
Rushikesh Hiwrekar	9028588346 Civil & Water Management engineering hiwrekarrushikesh@gmail.com Aurangabad, Maharashtra	Air pollution, Project Management <i>PG Representative, ESED</i> Football, Table Tennis, Dance
Saumya Yadav (M.Sc.-Ph.D.)	7037146873 Chemistry saumyayadav.bils@gmail.com Badaun, Uttar Pradesh	Research/Academia <i>AURAA</i>
Siddharth Raj Anand	7004027436 Civil Engineering rsiddharth024@gmail.com Nawada, Bihar	Government Jobs Cricket,Swimming, Workout
Sourabh Singh Rawat (M.Sc.-Ph.D.)	7808763141 Environmental Engineering sumeet.esed.iitb@gmail.com Nashik, Maharashtra	Waste water treatment <i>Department Co-ordinator</i>
Sumeet Kshatriya	9045007626 Chemical Engineering nsaini12345@gmail.com Saharanpur, Uttar Pradesh	Core job <i>Department Cultural Secretary, Interview Coordinator, Student Companion</i> Fourthwall (Dramatics), Speaking Arts, Quiz (Literati), Online Sudoku Competition

Full Name	Personal Info	Area of Interest <i>POR</i> Extra-Curricular Activities
Sweta Singh (M.Sc.-Ph.D.)	8858323914 Chemistry sweta2207singh@gmail.com Mirzapur, Uttar Pradesh	Data Modelling <i>Student Companion</i>
Varsha Meena	9560736448 Civil engineering Vershameher@gmail.com Rajasthan	Govt jobs Table Tennis
Vinutha S R	9742793662 Biotechnology vinutharajnakar1999@gmail.com Bangalore, Karnataka	Life cycle analysis and topic related to Biotechnology <i>Core team member of Sustainability Cell</i> <i>Student Companion</i>



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