INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Information Brochure

M.Tech. /M.Tech.+Ph.D.(Dual Degree)

Admissions 2025-26

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I. Important Guidelines for M.Tech. Application

1. Please read the instructions given in the brochure carefully before filling up the application form.
2. **Online** Application Form & Information Brochure (including the admission schedule along with the important dates) is available on the Institute website https://acad.iitb.ac.in/admissions/masters/mtech
   You are required to submit the application **ONLINE**. No Downloadable Forms will be available. After filling the form, you are advised to take a print of your application and keep the same for the record.
3. The application fee is as follows,

Category	Application fee for Regular Period (In Rs.)	Application fee for Extended period (In Rs.)
Women candidates	150/-	650/-
SC/ST/PwD category candidates	150/-	650/-
All other candidates	300/-	800/-

   The fee is to be paid by SBI Internet Banking/ Online Payment System and you do not have to submit the hard copy of the application. **Applications without online payment details will not be considered.**

   APPLICATION FEE IS NON-REFUNDABLE.
4. Please refer to the Institute website https://acad.iitb.ac.in/admissions/masters/mtech for filling ONLINE application form.
5. Please note that you can submit only ONE application.
6. You can apply for more than one programme and can select up to 10 preferences. If a discipline has multiple specialization, each specialization is counted as one option.
7. OBC-NC candidates may note that the limit of annual income is Rs. 8 lakhs for determining the creamy layer among Other Backward Classes (OBCs) candidates.

   The OBC-NC certificate issued for the financial year 2025-26 by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form and submitted at the time of admission.

   The OBC reservation update Information is available in the public domain https://acad.iitb.ac.in/admissions/masters/mtech under OBC Reservation Update.
8. Economically Weaker Sections(EWS) candidates may note that the limit of annual income is Rs. 8 lakhs for determining the eligibility for benefit under Economically Weaker Sections(EWS) reservation.

   The EWS certificate issued by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form and submitted at the time of admission.

   The EWS reservation update Information is available in the public domain https://acad.iitb.ac.in/admissions/masters/mtech under EWS Reservation Update.
9. PwD candidates will be given extra time during Written test/Interview, as per GOI rules on request by the candidate. Such requests need to be addressed to Head of the concerned academic units through email/hard copy well in advance.
10. Requirement of First Class/60% for PG admission at IIT Bombay :
    As given under A.5 “ELIGIBILITY FOR M.TECH./M.TECH.+Ph.D.(DUAL DEGREE) PROGRAMMES”.

11 You MUST upload the following while submitting the M.Tech. Application.
- Scanned version of photograph
- Scanned version of signature
- Marksheet of the last semester/ Consolidated marksheet of the qualifying degree.
  (Exam pending/result awaited candidates have to upload their latest/previous semester marksheet).
- Caste Certificate (OBC-NC/SC/ST), if applicable. An affidavit for having applied in case the certificate is not yet received.
- Economically Weaker Sections(EWS) candidates needs to submit EWS certificate issued by the Competent Authority in the prescribed format.
- PwD Certificate, if applicable
- Statement of Purpose, if applicable
- Project Staff/ Institute Staff should submit No Objection Certificate (NOC)' a letter of recommendation from the Principal Investigator (PI)/ Head/Office-In-Charge at the time of application

12 You should check the Institute website https://acad.iitb.ac.in/admissions/masters/mtech for results/ important announcements.

13 Merely fulfilling eligibility criteria doesn't entitle a candidate to be called for the test and/or interview. Admission is based on GATE/Written test/Interview performance and additional eligibility criteria for different admission categories and, different disciplines and specializations are specified in Table A.5.3 of this brochure.

14 You should check emails sent to the email address provided in your application, for all important communications and announcements.

15 Candidates, if called for written test/interview should show/bring with them (i) Photo ID Card (ii) Hard copy of the application submitted online (iii)/Final year thesis / dissertation / report / publication / copy of certificates / Marksheets.

16 Candidates having degree from foreign universities should submit equivalence certificate from Association of Indian Universities (AIU), New Delhi for qualifying Exam and proof of having First class or 60% (55% for SC/ST/PwD) marks or equivalent in qualifying examination.

17 Seats are reserved for Economically Weaker Sections(EWS)/ Other Backward Class Non-Creamy Layer (OBC-NCL)/ Scheduled Caste (SC)/ Scheduled Tribe (ST) and Person with Benchmark Disability (PwD) Categories , as per Government of India rules.

18 Read the Frequently Asked Questions (FAQ) given on Institute website https://acad.iitb.ac.in/admissions/masters/mtech for more details.

19 Contact Details for
- M.Tech./M.Tech. + Ph.D. (Dual Degree) - pgadm@iitb.ac.in
- Ph.D. - phd_unit5@iitb.ac.in

20 Students must submit self-attested copies of his/her qualifying degree certificate & final transcripts on or before **29th August, 2025,** failing which admission will stand cancelled.

Candidates need to apply ONLINE only.

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SCHEDULE **II. IMPORTANT DATES : TENTATIVE** SCHEDULE FOR ADMISSION TO M.TECH. PROGRAMME 2023-24 **{AUTUMN SEMESTER}**

- **as available on the webpage https://acad.iitb.ac.in/admissions/masters/mtech**

The results will be be uploaded/declared on the Common Offer Acceptance Portal (COAP) **for TA//TAP/RA/RAP category**. Candidates needs to login on COAP website https://gate.iisc.ac.in/coap2025/index.php to see offers and choose one of the option given.

The result of **written test and or interview for TA/SW/IS/PS/IIT B.Tech. category** will be declared on IIT website: https://acad.iitb.ac.in/admissions/masters/mtech by Academic Office.

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A) GENERAL

A.1) THE INSTITUTE

The Indian Institute of Technology Bombay (IIT Bombay) is one of the higher Institutes of Technology in the country set up with the objectives of making available facilities for higher education, research and training in various fields of Science and Technology. It was established in 1958.

The Institute is located at Powai in a campus extending over 220 hectares amidst picturesque surroundings with Vihar and Powai lakes on either side.

At present, Undergraduate (B.Tech.), Postgraduate (M.Tech.), M.S. By Research and Doctoral (Ph.D.) programmes are offered at IIT Bombay on the Institute website https://acad.iitb.ac.in/admissions/masters/mtech

Programmes	Discipline [Academic Unit : Department, Centre, Interdisciplinary Group]
M.Tech./M.Tech.+ Ph.D.(Dual Degree)	Aerospace Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Science & Engineering, Earth Sciences, Electrical Engineering, Energy Systems Engineering, Environmental Science & Engineering, Geoinformatics and Natural Resources Engineering, Industrial Engineering & Operations Research,Mechanical Engineering, Metallurgical Engineering & Materials Science,Materials, Manufacturing and Modeling, Systems and Control Engineering, Technology and Development, Educational Technology, Centre for Climate Studies
M.Des. and M.Des. By Research Programmes **(New)**	Industrial Design Centre
MBA	Shailesh J. Mehta School of Management
MBA (Executive)	Shailesh J. Mehta School of Management
M.Sc.-Ph.D. (Dual Degree) in Energy	Energy Science and Engineering
MPP	Centre for Policy Studies
M.S. by Research	Computer Science & Engineering, Data Science and Artificial Intelligence (CMINDS), Healthcare Informatics (KCDH)
MA+Ph.D. (Dual Degree) in Philosophy	Humanities & Social Sciences
Master of Arts by Research(MA.Res.)	Humanities & Social Sciences
Master in Development Practice (MDP)	Centre for Technology Alternatives for Rural Areas
Ph.D.	Aerospace Engineering,Biosciences and Bioengineering, Chemical Engineering, Chemistry, Civil Engineering, Climate Studies, Computer Science and Engineering, Industrial Design Centre, Earth Sciences, Educational Technology, Electrical Engineering, Energy Science & Engineering, Environmental Science and Engineering, Economics, Geoinformatics and Natural Resources Engineering Humanities and Social Sciences, Industrial Engineering & Operations Research, Management, Mathematics, Mechanical Engineering, Metallurgical Engineering and Materials Science, Nanotechnology & Science, Physics, Policy Studies, Systems & Control Engineering,Technology and Development, Urban Science & Engineering, Digital Health,Machine Intelligence and Data Science, Desai Sethi School of Entrepreneurship

The Institute on an average admits **1735** candidates for the Undergraduate programmes and **1891** candidates for different Postgraduate and Doctoral programmes every year. Students from Bangladesh, Egypt, Ethiopia, Fiji, Iran, Iraq, Pakistan, Jordan, Mauritius, Malaysia, Nepal, Palestine, Sri Lanka, Vietnam and Yemen are also undergoing training in various programmes. In addition to these academic programmes, the Dean (Educational Outreach) organizes short, intensive courses in specialized topics both for practicing engineers as well as for teachers from engineering colleges; and also conducts seminar and conferences on current scientific and technological developments. Further, teachers from various engineering colleges also join Institute for the postgraduate and doctoral programmes. under Dean (Educational Outreach).

A.2) RESEARCH FACILITIES

All the academic units of the Institute have well equipped research laboratories and workshop facilities. In addition, there are a number of central facilities, which include Computer Centre, Central Library and Central Workshop. The Central Library has a very large collection of books, back volumes of periodicals, standards specifications and other literature in print and electronic format. The Library now holds more than 5 lakh books and bound volumes, 20,000 e-books, and subscriptions to more than 20,000 current journals in the domains of science, engineering, humanities and social sciences, management, and associated fields. More than 30 databases, including Bloomberg terminal, financial, bibliographical, and citation databases, are also subscribed by the Central Library. Additionally, the Central Library offers users access to use research-supporting technologies like grammarly, overleaf, Turnitin, Drillbit plagiarism detection tools, and provides access to millions of electronic theses.

The Institute has many research collaborations with leading universities in USA, Europe, Japan, and other East Asian countries. As part of these collaborations, the post graduate students get opportunities to carry out joint research projects with faculty and students from these universities.

The location of IIT Bombay, in close proximity to several leading R&D Centers and major industrial establishments, offers excellent opportunities to interact with them and plan some research programmes in collaboration with them. The Industrial Research and Consultancy Centre (IRCC) coordinates collaborative projects with industry and other research organizations such as BARC, TIFR and CSIR. The Institute is actively collaborating with several organizations of other countries on a bilateral basis.

A.3) STUDENTS AMENITIES

The Institute is fully residential and has 18 hostels for students. Each hostel is an independent entity with its own mess facilities, recreation areas, etc. Some flatlets are available for married research scholars.

Extra-curricular activities are provided by the Students' Gymkhana. These activities include Sports, Cultural programmes and Social Service. Various clubs of the Gymkhana encourage individual talents of students in hobbies such as painting, modeling, music, photography, aeromodelling and fabrication of electronic devices. A swimming pool is an additional facility. A well-planned Student Activities Centre (SAC) routinely organizes several vibrant extra curricular events.

A.4) M.TECH. PROGRAMME

The Institute offers Master of Technology programmes in various disciplines. The aim of the programme is to train the students in deeper theoretical knowledge which will enable them to tackle practical complex problems of design and development in industrial fields, as well as pursue further academic achievements through research. For fulfilling this aim, the programme structure provides sufficient flexibility in coursework and thesis project.

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The Institute offers a full-time programme of 2-year and a part-time programme of 3-year duration. Students are admitted to the full-time programme under the categories of Teaching Assistantship (TA), Teaching Assistantship through Project (TAP), Fellowship Award (FA), and Sponsored (SW). The part-time programme is available to the students admitted under the categories of Sponsored (SW), Institute Research Assistantship (RA), Research Assistantship through Project (RAP), Project Staff (PS) and Institute Staff (IS). PS and IS categories are only for persons employed at IIT Bombay. The working hours for the full-time and part-time programmes are the same. The lectures are scheduled in time slots extending from 8.30 a.m. to 8.00 p.m.

ADMISSIONS

Some of the departments and interdisciplinary groups, offer direct admission to a limited number of candidates solely based on higher GATE score. Candidates, who are offered direct admission, have to confirm the admission by paying the fees on the dates mentioned under Important Dates as per schedule of this brochure. However, such candidates have an option of not accepting the direct admission offer in given specialization, but to appear for written test / interview in a discipline of his/her higher preferences.

Seats remaining vacant after Direct Admissions may be filled through written test and/or interview/ spot admissions.

Economically Weaker Sections(EWS)/Other Backward Class Non-Creamy Layer(OBC-NCL)/Scheduled Caste (SC)/ Scheduled Tribe (ST) and Person with Benchmark Disability (PwD) Categories

Seats are reserved for Economically Weaker Sections(EWS)/ Other Backward Class Non-Creamy Layer(OBC-NCL)/Scheduled Caste (SC), Scheduled Tribe (ST) and Person with Benchmark Disability (PwD) categories as per Government of India rules.

Scheduled Caste and Scheduled Tribe candidates are offered direct admission solely based on their GATE Score and their preferences.

Admission for IIT degree holders

Candidate having all Bachelor's degree undergraduate course leading to a Bachelor's, Integrated Master's or Bachelor-Master Dual Degree in Engineering, Sciences or Architecture offered by IITs (admitted through JEE) and having a CGPA/CPI score of 8.00 or above (on a scale of 0-10) and above are exempted from requirement of GATE qualification. They may be admitted to M.Tech. Programme under TA/RA positions through written test and/or interview

A.5) ELIGIBILITY FOR M.TECH./M.TECH.+PH.D. (DUAL DEGREE) PROGRAMMES

A.5.1) General Eligibility for M.Tech. Programme in all Academic Units (Departments, Centres, Schools, Interdisciplinary Groups, Cross Departmental Programmes)

Qualifying degree

B.E./ B.Tech./ B.Sc. (Engineering) / Bachelor of Architecture /Bachelor of Planning/M.Sc. / M.C.A./MBBS (Medicine) / BDS (Dental), B.Pharm/B.V.Sc., B.P.Th. ,B.O.Th., B.ASLP, Pharma. D (Duration 4 years or more) recognized equivalent to B.E. / B.Tech. earned through Associate Membership Examinations conducted by recognized professional bodies (like Institution of Engrs. (India)(IE), Institute of Chemical Engrs., including Polymer and Environmental Group (IIChE), Aeronautical Society of India(AeSI), Institute of Electronics & Telecommunication Engrs. IIETE), Indian Institute of Metals (IIM), Indian Institute of Industrial Engineers (IIIE). Candidates who posses certification from any of the professional societies must ensure that those examinations are approved by MoE/AICTE/UGC/UPSC as equivalent to B.E./ B.Tech./ B.Arch./ B. Planning.

Marks / CGPA / CPI in qualifying degree

For GN/EWS/OBC (NC) category

(1) a minimum of 60% marks in aggregate,
OR
(2) a First Class as specified by the University,
OR
(3) a minimum Cumulative Grade Point Average (CGPA) / Cumulative Performance Index (CPI) of 6.0 on the scale of 0-10;
OR
(4) an equivalent to 6.0 on other corresponding proportional requirements when the scales are other than 0-10.

For SC/ST/PwD category
(1) a minimum of 55% marks in aggregate,
OR
(2) a minimum Cumulative Grade Point Average (CGPA) / Cumulative Performance Index (CPI) of 5.5 on the scale of 0-10;
OR
(3) an equivalent to 5.5 on other corresponding proportional requirements when the scales are other than 0-10.

Additional eligibility criteria for different admission categories and, different disciplines and specializations are specified in Table A.5.3 of M.Tech. Information brochure.

A.6) FEES AND DEPOSITS

Various fees, deposits and Hostel Rent are listed in -**as available on the following webpage https://acad.iitb.ac.in/fees-structure-prospective-students - will be updated soon.**

A.7) APPLICATION CATEGORIES AND FINANCIAL SUPPORT

The Institute admits M.Tech. candidates under the following categories:
(a) Teaching Assistantship (TA) / Teaching Assistantship through Project (TAP) / Fellowship Awardee (FA) [duration: 2 Years]
(b) Research Assistantship (RA) / Research Assistantship through Project (RAP) [duration: 3 Years]
(c) Project Staff (PS), for Project staff of IIT Bombay [duration: 3 Year)
(d) Institute Staff (IS), for faculty/staff of IIT Bombay [duration: 3 Year)
(e) Sponsored candidates (SW) [duration: 2/3 Year)

Fulfillment of #A.5.1 w.r.t. qualifying degree and marks / CGPA / CPI in qualifying degree is mandatory for all application categories (a-e).

Programme duration for (a) is 2 Years, for (b-d) is 3 Years, and for (e) is 2/3 Years. Admissions to all categories are subject to the availability of seats. The continuation of the financial support (if any) and the registration under each category will remain subject to satisfactory academic performance and fulfillment of the other academic and nonacademic requirements, as per rules.

A.7.1) TEACHING ASSISTANTSHIP (TA)

A.7.1.1) A valid GATE score is mandatory. Passing an additional Test / Interview may be needed.
A.7.1.2) Candidates admitted as TA shall not accept or hold any appointment (paid or otherwise) or receive any emoluments, salary, stipend from any other source during TA tenure.
A.7.1.3) Candidates admitted as TA will be considered for a financial assistantships of Rs.12,400/- (per month) for a maximum period of 24 months subject to serving as a teaching assistant in a course / laboratory for 8 hours per week as assigned by the concerned academic unit. The assistantship will be paid on the basis of monthly attendance.
A.7.1.4) The continuation of assistantship will be subject to monthly attendance and satisfactory academic performance.

A.7.1.5) Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.

A.7.2) TEACHING ASSISTANTSHIP THROUGH PROJECT (TAP)

A.7.2.1) A valid GATE score is mandatory. Passing an additional Test / Interview may be needed.
A.7.2.2) A candidates is admitted under TAP category against a sponsored R&D project (being carried out at IITB), will be required to work for the same project for 8 hours per week and undertake the M.Tech. dissertation work under the same project investigator(s), and will be considered for a financial assistantships from the sponsored project as per the norm for a period of 24 months. The assistantship will be paid on the basis of successful performance in the sponsored project and monthly attendance.
A.7.2.3) Candidates admitted under TAP category shall not accept or hold any appointment (paid or otherwise) or receive any emoluments, salary, stipend from any other source during TAP tenure.
A.7.2.4) The continuation of assistantship will be subject to monthly attendance and satisfactory academic performance
A.7.2.5) Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.
A.7.2.6) The information of availability of TAP seats will be available with / published by individual academic units.

A.7.3) FELLOWSHIP AWARD (FA)

A.7.3.1) Fellowships for this category are usually available from government agencies such as Aeronautics Research & Development Board (ARDB), Department of Science and Technology (DST), Atomic Energy Regulatory Board (AERB), Department of Atomic Energy (DAE), Maharashtra Pollution Control Board etc. and several other organizations such as Forbes Marshall, Textile Machinery Manufacturers' Association (TMMA), International Energy Initiative, Larsen & Toubro, etc.
A.7.3.2) Candidates may apply to be considered under FA category as per advertisement,
A.7.3.3) A valid GATE score is mandatory. Passing an additional Test / Interview may be needed.
A.7.3.4) The continuation of fellowship will be subject to monthly attendance and satisfactory academic performance
A.7.3.5) Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.

A.7.4) RESEARCH ASSISTANTSHIP (RA)

A.7.4.1) A valid GATE score is mandatory. Passing an additional Test / Interview may be needed.
A.7.1.2) Candidates admitted as RA shall not accept or hold any appointment (paid or otherwise) or receive any emoluments, salary, stipend from any other source during RA tenure.
A.7.1.3) Candidates admitted as RA will be considered for a financial assistantships of Rs.13,400 (per month) for a maximum period of 36 months subject to serving as a research assistant in a course / laboratory for 20 hours per week as assigned by the concerned academic unit. The assistantship will be paid on the basis of monthly attendance.
A.7.1.4) The continuation of assistantship will be subject to monthly attendance and satisfactory academic performance
A.7.1.5) Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.
A.7.1.6) The information of availability of RA seats will be available with / published by individual academic units.

A.7.5) RESEARCH ASSISTANTSHIP THROUGH PROJECT (RAP)

A.7.5.1) A valid GATE score is mandatory. Passing an additional Test / Interview may be

needed.
A.7.5.2) A candidates is admitted under RAP category against a sponsored R&D project (being carried out at IITB), will be required to work for the same project for 20 hours per week and undertake the M.Tech. dissertation work under the same project investigator(s), and will be considered for a financial assistantships from the sponsored project as per the norm for a period of 36 months. The assistantship will be paid on the basis of successful performance in the sponsored project and monthly attendance.
A.7.5.3) Candidates admitted under RAP category shall not accept or hold any appointment (paid or otherwise) or receive any emoluments, salary, stipend from any other source during RAP tenure.
A.7.5.4) The continuation of assistantship will be subject to monthly attendance and satisfactory academic performance
A.7.5.5) Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.
A.7.5.6) The information of availability of RAP seats will be available with / published by individual academic units

A.7.6) PROJECT STAFF (PS)

A.7.6.1) This category is valid only for the persons employed in a sponsored research project at IITB.
A.7.6.2) Completion of 6 months of service in a project at the time of applicaton and a valid GATE score are mandatory. Passing an additional Test / Interview may be needed. The requirement of valid GATE score is waived if a candidate has a total experience of 2 year (after the qualifying degree) of which 6 months is in the sponsored project at IITB (The waiver of valid GATE score requirement is NOT APPLICABLE for CSE department).
A.7.6.3) The students admitted in Project Staff (PS) category will continue to work on the sponsored project and carry out the tasks as assigned by the Principal Investigator of the concerned project and undertake the M.Tech. dissertation work under the same Project Investigator(s).

The candidates should upload ‘No Objection Certificate (NOC)’ a letter of recommendation from the Principal Investigator (PI) of the project where he/she is working as ‘Project Staff’ at the time of filling the application is given in **Appendix-III .**

A.7.7) INSTITUTE STAFF (IS)

A.7.7.1) This category is only for the ‘permanent’ persons employed as Institute Staff at IIT Bombay.
A.7.7.2) The candidate should have completed at least ONE year of service at the Institute and should have TWO years of service remaining at the time of application. The candidates to this category are selected subject to having (i) Valid GATE score OR 2 year total experience (after the qualifying degree), and (ii) performance in Written Test / Interview. The option of 2 years of relevant professional experience for waiver of valid GATE score requirement is not applicable for CSE department. The candidates need to submit NOC, from the Head/Office-In-Charge, at the time of application.
A.7.7.3) If an employee admitted under this category ceased to be serving as an Institute Staff while pursuing the degree, then he/she cannot continue under the IS category but may seek for changing his/her category to self-financed (SF) category through proper channel.

A.7.8) SPONSORED CANDIDATES (SW)

A.7.8.1) The candidates must be from reputed Industrial Organization / Academic Institutions.
A.7.8.2) A valid GATE score OR 2 year of relevant professional experience after the qualifying degree is mandatory. Passing an additional Test / Interview may be needed. The option of 2 years of relevant professional experience for waiver of valid GATE score requirement is not applicable for CSE department.
A.7.8.3) Candidates admitted under this category are not eligible for any financial assistance from the Institute. A sponsorship certificate (with / without Financial Support from the employer) as given in **Appendix-I/II** is required to be submitted at the time of admission.

A.8) GUIDELINES FOR FILLING UP THE APPLICATION FORM

Please refer to the Institute website https://portal.iitb.ac.in/mtechapp/Help.jsp under 'Instructions' for filling ONLINE application form.

A.9) M.Tech. + Ph.D. (Dual Degree) Programme

In addition to M.Tech. Programme, IIT Bombay offers Dual Degree M.Tech.+ Ph.D. Programmes in certain disciplines.

A.9.1) Admission to M.Tech.+ Ph.D.(Dual Degree) Programme with Teaching Assistantship (TA)

Some of the disciplines offer admissions to the M.Tech. + Ph.D. (Dual degree) programme. The program is designed to induct bright students who have completed their B.E./B. Tech./M.Sc. degrees directly to the doctoral programme. Key features of this programme are:

- The timelines and key milestones of this programme are aligned with the M. Tech and Ph.D. programmes currently offered.
- The student will be required to complete mandatory coursework in the first three semesters (similar to that of M. Tech programme).
- Successful completion of annual progress seminar/qualifier examination after first year may entitle the student to Assistantship as admissible for a Ph.D. student with Master's qualification after the date of successful examination of Research Proposal, for a maximum of FIVE years from the commencement of the M.Tech. degree.
- On successful completion and examination of the Doctoral Thesis, BOTH the degrees (M.Tech. and Ph.D.) are awarded to the candidate.
- Under exceptional circumstance when a student is unable to complete the requirments of the Ph.D. programme, an exit option with the M.Tech. degree is available subject to completion of required coursework and M.Tech. dissertation.

The interested candidates should apply by filling up the M.Tech. admission form and indicating their interest to be considered for this programme at the appropriate location in the form.

A.9.2) Conversion from M.Tech. Programme to M.Tech. + Ph.D. (Dual Degree) Programme

The Students who are admitted to M.Tech. Programme at IIT Bombay can convert themselves to the Dual Degree (M.Tech.+Ph.D.) Programme after the first stage of evaluation of the Masters' dissertation – with the concurrence of the proposed Doctoral Supervisor and Postgraduate Programme Committee of the concerned academic unit. Successful completion of annual progress seminar/ qualifier examination may entitle the student to enhanced scholarship at Ph.D. Level.

- A student who moves to this Dual Degree Programme is eligible for Assistantship as admissible for a Ph.D student with Master's qualification after the date of successful examination of Research Proposal, for a maximum of SIX years from the commencement of the M.Tech. Degree.
- On successful completion and examination of the Doctoral Thesis, BOTH the degrees (M.Tech. and Ph.D.) are awarded to the candidate.
- Under exceptional circumstances, when a student is unable to complete the requirements of the Ph.D. Programme, an exit option with the M.Tech. Degree is available at any time after the end of the final semester of the normal M.Tech. Programme, subject to completion of required coursework and M.Tech. Dissertation.

The details about Conversion from M.Tech. Programme to M.Tech. + Ph.D. (Dual Degree) Programme is available at https://www.iitb.ac.in/newacadhome/DDMPhDd.pdf

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A.10) Termination of Studentship

Failure to meet academic performance criterion set by the Institute for the M.Tech. programme will cause termination of studentship.

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Table A.1 : Fees, Deposits & Hostel Rent for M.Tech. Students (subject to revision as per MoE/BoG decision

-as available on the following webpage

https://acad.iitb.ac.in/fees-structure-prospective-students

For Academic Fees : will be updated soon
https://acad.iitb.ac.in/files/PG_Ph.D._Spring_Semester_2024_25_Fees.pdf

For Hostel Fees : will be updated soon
https://www.iitb.ac.in/newacadhome/Hostel_Fee_Circular_Autumn_24_25_for_New_PG._Ph.D.pdf

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Table A.5.2 : Summary of M.Tech. Programmes

Discipline [Academic Unit : Department, Centre, Interdisciplinary Group]	Specialization	Code
1. Aerospace Engineering [Department of Aerospace Engineering]	Aerodynamics Dynamics & Control Aerospace Propulsion Aerospace Structures	AE1 AE2 AE3 AE4
2. Biomedical Engineering [Department of Biosciences and Bioengineering]	Biomedical Engineering	BM
3. Chemical Engineering [Department of Chemical Engineering]	Chemical Engineering	CH
4. Civil Engineering [Department of Civil Engineering]	Transportation Systems Engineering Geotechnical Engineering Water Resources Engineering Structural Engineering Ocean Engineering Remote Sensing Construction Technology and Management	CE1 CE2 CE3 CE4 CE5 CE6 CE7
5.Computer Science & Engineering [Department of Computer Science and Engineering]	Computer Science & Engineering	CS
6. Climate and Sustainability [Centre for Climate Studies)	Climate and Sustainability	CMS
7. Earth Sciences [Department of Earth Sciences]	Geoexploration Petroleum Geoscience	GS PG
8. Electrical Engineering [Department of Electrical Engineering]	Communication Engineering Control & Computing Power Electronics & Power Systems Electronic Systems Integrated Circuit & Systems Solid State Devices	EE1 EE2 EE3 EE5 EE6 EE7
9. Energy Systems Engineering [Department of Energy Science and Engineering]	Energy Systems Engineering	EN
10. Environmental Science & Engineering [Environmental Science and Engineering Department]	Environmental Science & Engineering	EV
11. Geoinformatics and Natural Resources Engineering [Centre of Studies in Resources in Engineering]	Geoinformatics and Natural Resources Engineering	GNR
12. Industrial Engineering & Operations Research [Interdisciplinary Group in Industrial Engineering & Operations Research]	Industrial Engineering & Operations Research	IO
13. Mechanical Engineering [Department of Mechanical Engineering]	Thermal & Fluids Engineering. Design Engineering Manufacturing Engineering	ME1 ME2 ME3
14. Metallurgical Engineering & Materials Science [Department of Metallurgical Engineering & Materials Science]	Materials Science ~~Process Engineering - Discontinued from the AY 2025-26~~ Steel Technology Corrosion Science & Engineering Computational Materials Engineering * Semiconductor Materials and Processing * * new Specialisation introduced from AY 2025-26	MS ~~PE~~ ST CR CME SMP
15. Materials, Manufacturing and Modeling [Cross-Departmental Programme of Mechanical Engineering,[Metallurgical Engineering & Materials Science and Mathematics]	Materials, Manufacturing and Modeling	MMM

16. Systems and Control Engineering	Systems and Control Engineering	SC
17. Technology and Development [Centre for Technology Alternatives for Rural Areas]	Technology and Development	TD
18. Educational Technology (Interdisciplinary Programme in Educational Technology)	Educational Technology	ET

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TABLE-A.5.3 : ELIGIBILITY FOR M.TECH. ADMISSION TO DIFFERENT DISCIPLINES

Discipline [Academic Unit : Department, Centre, Interdisciplinary Group]/Specialization	Degree/Qualifying Discipline First class or 60% marks (55% marks for SC/ST/PwD) as specified in the clause A.5.3.	GATE Requirement
Aerospace Engineering (AE) [Department of Aerospace Engineering] Aerodynamics (AE1)	B.E./B.Tech./AeSI/AMIE or equivalent in Any ---------- Civil Engineering (CE) Mechanical Engineering (ME)	AE ---------- AE,CE,ME
Aerospace Engineering (AE) [Department of Aerospace Engineering] Dynamics and Control (AE2)	B.E./B.Tech./AeSI/AMIE or equivalent in Any ---------- Electronics/ Telecommunications Engineering (EC) Electrical Engineering(EE) Instrumentation Engineering(IN) Mechanical Engineering (ME)	AE ---------- AE, EC, EE, IN, ME
Aerospace Engineering (AE) [Department of Aerospace Engineering] Aerospace Propulsion (AE3)	B.E./B.Tech./AeSI/AMIE or equivalent in Any ---------- - Mechanical Engineering (ME)	AE ---------- -- AE,ME
Aerospace Engineering (AE) [Department of Aerospace Engineering] Aerospace Structure (AE4)	B.E./B.Tech./AeSI/AMIE or equivalent in Any ---------- - Civil Engineering (CE) Mechanical Engineering (ME)	AE ---------- -- AE,CE,ME
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Biomedical Engineering (BM) (Department of Biosciences & Bioengineering)	(i) B.E./B.Tech. /AMIE or equivalent in Biomedical Engineering (BM) Biotechnology (BT) Chemical Engineering (CH) Computer Science and Engineering/ Information Technology (CS) Electrical Engineering (EE) Electronics/ Telecommunications Engineering (EC) Engineering Physics (EP) Instrumentation Engineering (IN) Mechanical Engineering (ME) Metallurgy & Materials Science (MT) Pharmaceutical Technology (PY) Other Engineering (ZE)	Any discipline

	Optics (OP), Optoelectronics(OPE), Photonics(PU), Robotics(RO), Robotics Engineering(ROE), Automation and Robotics(AUR), Mechatronics (MTE), Data Science and Artificial Intelligence (DSA), Data Science and Engineering (DSE), Artificial Intelligence (AI), Engineering Sciences ((ZE) --- (ii) M.Sc. or 5-year Integrated B.S.-M.S. program or equivalent in Biochemistry (BY) Biophysics (BP) Biotechnology (BT) Ceramics (CG) Chemistry (CY) Electronics / Electronic Sciences (EC) Ergonomics (ER) Materials Science (MS) Mathematics (MA) Molecular Biology (MG) Physics (PH) Physiology (PS) Other Science (ZS) Optics(OP), Optoelectronics(OPE), Photonics(PU), Cognitive Science (COS), Neuroscience (NS) --- “(iii)** Health Sciences (such as MBBS (Medicine) / BDS (Dental), B.Pharm/B.V.Sc.,B.P.Th., B.O.Th., B.ASLP, Pharm D (Duration 4 years or more)”.	--- Any discipline --- All India level post graduate entrance examination for corresponding disciplines such as INI_CET/ NEET-PG/ NEET-MDS JIPMER/ PGI Chandigarh/AFMC-Pune/ DNB Part I, AIIPMR for MBBS / BDS, GPAT/ All India level selection examination for B.Pharm., All India level post graduate entrance examination such as AIIPMR for M.V.Sc., M.P.Th., M.O.Th. and M.ASLP. GATE examination for all such health science background where applicable. --- Eligibility/rank certificates for all such All India level entrance examinations are required (for iii, above). The candidate should have

		qualified the entrance exam (as per the qualification criterion of the respective exam for that exam year and category) and the score obtained should be valid (as per the duration of validity for the respective exam) at the time of application to the M.Tech. program.
**Candidate with qualifications mentioned against (iii)must submit a certificate for their having First class or 60% marks (55% for SC/ST) * in qualifying degrees, failing which, they will not be eligible for admission to M.Tech. In Biomedical Engineering.		
Chemical Engineering (CH) [Department of Chemical Engineering]	B.E./B.Tech./AMIE or equivalent in Chemical Engineering (CH) or equivalent	CH
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Civil Engineering (CE) [Department of Civil Engineering] Transportation Systems Engineering(CE1)	B.E./B.Tech. or equivalent in Civil Engineering (CE)	CE
Civil Engineering (CE) [Department of Civil Engineering] Geotechnical Engineering CE2)	B.E./B.Tech. or equivalent in Civil Engineering (CE)	CE
Civil Engineering (CE) [Department of Civil Engineering] Water Resources Engineering (CE3)	B.E./B.Tech. or equivalent in Civil Engineering (CE) Agricultura Engineeringl (AG)	CE,AG
Civil Engineering (CE) [Department of Civil Engineering] Structural Engineering(CE4)	B.E./B.Tech. or equivalent in Civil Engineering (CE)	CE
Civil Engineering (CE) [Department of Civil Engineering] Ocean Engineering(CE5)	B.E./B.Tech. or equivalent in any engineering discipline.	CE, ME, NM, PE, XE
Civil Engineering (CE) [Department of Civil Engineering] Remote Sensing(CE6)	B.E./B.Tech. or equivalent in any engineering discipline.	CE or Geomatics Engineering (GE)
Civil Engineering (CE) [Department of Civil Engineering] Construction Technology and Management (CE7)	B.E./B.Tech. or equivalent in Civil Engineering (CE)	CE
(i) Out of SEVEN specialisation choices (CE1,CE2,CE3,CE4, CE5, CE6, CE7) in Civil Engineering, the candidates has to choose only two in the order of their preference. (ii) Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by a reputed organisation. They are not eligible for award of Teaching/Research Assistantship.		
Computer Science & Engineering(CS) [Department of Computer	(i).B.E./B.Tech./AMIE or equivalent in any engineering discipline.	CS

Science & Engineering]	(ii)Bachelor degree in Science (BS) (4 year degree) (iii). M.Sc. or equivalent in any science or mathematical discipline. (iv). MCA (undergraduate degree B.Sc. with Physics & Mathematics or BCA) or equivalent.	
Valid GATE score (CS) is required for all applicants (including Project staff (PS)/ Institute Staff(IS) and Sponsored (SW) candidates), except commissioned officers of the armed forces and IIT B.Tech degree holders with CGPA/CPI of 8.00 or above (on a scale of 0-10). However, non CS/CSE IIT B. Tech degree holders availing this exemption will not be admitted under TA/TAP categories, but are eligible for admission in other categories.		
Climate and Sustainability (Centre for Climate Studies)	B.E./ B.Tech./ Bachelor of Architecture /Bachelor of Planning/M.Sc. / M.C.A. / AMIE in in any engineering/ science discipline	a valid GATE score in Any Discipline irrespective of background.
Earth Sciences (ES) [Department of Earth Sciences] Geoexploration (GS)	M.Sc./ M.Sc. Tech in Geology/Applied Geology (GL) Geophysics/Applied Geophysics (GP)	GG
Earth Sciences (ES) [Department of Earth Sciences] Petroleum Geoscience (PG)	M.Sc./ M.Sc. Tech in Geology / Applied Geology (GL) Geophysics / Applied Geophysics (GP)	GG
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Educational Technology (ET) [Interdisciplinary Programme in Educational Technology]	(i) B.Tech / B.E / B.Pharm / B.Arch / AMIE in any engineering discipline OR 4-year B.S. in any science discipline OR M.Sc / M.A / MCA *OR* Int. M.Tech / Int. M.E / Int. M.Sc / Int. B.S-M.S or Dual Degree in engineering/ technology	Any discipline
Candidates with a qualifying degree and without a GATE score can apply under the “Sponsored” category (with financial support) if they have a minimum of two years of experience in education technology-related work. Candidates must show the official sponsorship letter from the sponsoring company at the time of the interview. Only candidates with paid-leave from the sponsoring company for the full duration of the program will be considered. Conversion to the self-financed category or applying under the self-financed category is not allowed.		

Electrical Engineering (EE) [Department of Electrical Engineering] Communication Engineering (EE1)	(i). B.E./B.Tech./AMIE or equivalent in Computer Science and Engineering / Information Technology (CS) Electronics/ Telecommunication Engineering (EC) Electrical Engineering (EE) Engineering Physics (EP) (ii). M.Sc. or equivalent in Electronics / Electronic Sciences (EL) Physics (PH)	CS, EC, EE
Electrical Engineering (EE) [Department of Electrical Engineering] Control & Computing (EE2)	(i).B.E./B.Tech./AMIE or equivalent in Aeronautical/Aerospace Engineering (AE) Computer Science and Engineering / Information Technology (CS) Electronics/ Telecommunication Engineering (EC) Electrical Engineering (EE) Engineering Physics (EP) Energy Engineering (EN) Instrumentation Engineering (IN) ii). M.Sc. or equivalent in Electronics/Electronic Sciences (EL) Mathematics (MA) Physics (PH)	CS, EC, EE, IN,
Electrical Engineering (EE) [Department of Electrical Engineering] Power Electronics & Power Systems (EE3)	(i). B.E./B.Tech./AMIE or equivalent in Computer Science & Engineering Information Technology (CS) Electronics/ Telecommunication Engineering (EC) Electrical Engineering (EE) Energy Engineering (EN) Instrumentation Engineering (IN)	EC, EE, IN
Electrical Engineering (EE) [Department of Electrical Engineering] Electronic Systems (EE5)	(i).B.E./B.Tech./AMIE or equivalent in Biomedical Engineering (BM) Computer Science and Engineering/ Information Technology (CS) Electrical Engineering (EE) Electronics/ Telecommunication Engineering (EC) Engineering Physics (EP) Energy Engineering (EN) Instrumentation Engineering (IN) (ii). M.Sc. or equivalent in Electronics/ Electronic	CS,EC, EE, IN,BM

	Sciences (EL)	
Electrical Engineering (EE) [Department of Electrical Engineering] Integrated Circuit & System(EE6)	(i).B.E./B.Tech./AMIE or equivalent in Biomedical Engineering (BM) Computer Science and Engineering/ Information Technology (CS) Electrical Engineering (EE) Electronics/ Telecommunication Engineering (EC) Engineering Physics (EP) Energy Engineering (EN) Instrumentation Engineering (IN) (ii). M.Sc. or equivalent in Electronics / Electronic Sciences (EL)	CS,EC, EE, IN,
Electrical Engineering (EE) [Department of Electrical Engineering] Solid State Devices (EE7)	(i). B.E./B.Tech./AMIE or equivalent in Computer Science & Engineering / Information Technology (CS) Electronics/ Telecommunication Engineering (EC) Electrical Engineering (EE) Engineering Physics (EP) Energy Engineering (EN) Metallurgical Engineering/ Materials Science & Engineering (MT) Instrumentation Engineering (IN) (ii). M.Sc. or equivalent in Electronics/ Electronic Sciences (EL) Physics (PH)	CS, EC, EE, IN, PH, MT
(i) Out of the six specialization choices (EE1, EE2, EE3, EE5, EE6, EE7) in Electrical Engineering, each candidate is permitted up to THREE choices in the order of his/her preference. All admission procedures will be conducted only for the FIRST three choices pertaining to the Electrical Engineering. (ii) Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Energy Systems Engineering (EN) [Department of Energy Science & Engineering]	B.E./B.Tech./AMIE or equivalent in Automobile Engineering (AU) Aeronautical / Aerospace Engineering (AE) Chemical Engineering (CH) Civil Engineering (CE) Electrical Engineering (EE) Energy Systems Engineering (EN) Mechanical Engineering (ME) Metallurgical Engineering / Materials Science &	Any discipline

	Engineering (MT) Thermal Power Engineering (TP)	
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Environmental Science & Engineering (EV) Environmental Science and Engineering Department (ESED)	(i). B.E./B.Tech./AMIE or equivalent in Aeronautical/Aerospace Engineering (AE) Agricultural Engineering (AG) Biotechnology (BT) Chemical Engineering (CH) Civil Engineering (CE) Energy Engineering (EN) Environmental Engineering (EV) Mechanical Engineering (ME) Mining Engineering (MN) Metallurgical Engineering/ Materials Science & Engineering (MT) ---------- (ii). M.Sc. or equivalent in Atmospheric Science (AT) Biotechnology (BT) Biochemistry (BY) Chemistry (CY) Earth Sciences (ES) Environmental Toxicology (ET) Environmental Science (EM) Meteorology (MO) Microbiology (MB) Physics (PH)	AE, AG, BT, CH, CE, ES, ME, MN, MT, XE, XL ---------- BT, CY, GG, PH, ES, EY, XE, XL
(i) For candidates with M.Sc., Mathematics is essential at Higher Secondary/ Intermediate (10+2) level. (ii) Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship/ M.Tech (RA)-3 year programme.		
Geoinformatics & Natural Resources Engineering (GNR) [Centre of Studies in Resources Engineering (CSRE)]	B.E. / B.Tech. / B.Arch./ B. Plan./ AMIE /M.Sc. / MCA or equivalent from any recognized university	AG, AR, CE, CS, EC, EE, GG, MA, MN, PH, XE-H, ST, GE,ES, DA
(i) For candidates with M.Sc. as qualifying degree, mathematics subject is mandatory at Higher Secondary / Intermediate (10+2) level. (ii) Candidates without valid GATE score or score below the specified cut-offs in the concerned GATE disciplines may be admitted in PS/IS/SW categories provided they satisfy the requirements listed in A.7.6, A.7.7 and A.7.8. A maximum of five candidates will be admitted under these three categories combined, based on the performance in Written Test / Interview. They are not eligible for award of Teaching/Research Assistantship.		
Industrial Engineering & Operations Research (IO) [Interdisciplinary Group in Industrial Engineering & Operations Research (IE&OR)]	(i) B.E./B.Tech./AMIE or equivalent in any Engineering discipline (ii) M.Sc. Or equivalent in any science disciplines	Valid GATE Score from any one of the following papers only required. AE,AG,BM,BT,CE,CH,CS,DA,EC, EE,ES,IN,MA,ME,MN,MT,PE,PH,

		PI, ST, TF, XE ,XH-C1, NM, GE
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Mechanical Engineering (ME) [Department of Mechanical Engineering] Thermal & Fluids Engineering (ME1)	B.E./B.Tech./AMIE or equivalent in Aeronautical / Aerospace Engineering (AE) Automobile Engineering (AU) Chemical Engineering (CH) Mechanical Engineering (ME)	Any discipline
Mechanical Engineering (ME) [Department of Mechanical Engineering] Design Engineering(ME2)	B.E./B.Tech./AMIE or equivalent in Aeronautical / Aerospace Engineering (AE) Automobile Engineering (AU) Mechanical Engineering (ME) Machine Tool Engineering (MC) Production / Industrial Engineering (PI)	Any discipline
Mechanical Engineering (ME) [Department of Mechanical Engineering] Manufacturing Engineering (ME3)	B.E./B.Tech./AMIE or equivalent in Mechanical Engineering (ME) Machine Tool Engineering (MC) Production / Industrial Engineering (PI)	Any discipline
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Metallurgical Engineering and Materials Science (MM) [Department of Metallurgical Engineering and Materials Science] Materials Science (MS)	(i). B.E./B.Tech./AMIE or equivalent in a recognised branch of engineering or technology (ii). M.Sc. or equivalent in a recognised branch of science.	CH,CY, ME,MT,PH, XE*,PI * XE with any two of the following subjects : Materials Science (code : C), Thermodynamics (code : E), Polymer Science and Engineering (code : F)
~~Metallurgical Engineering and Materials Science (MM)~~ ~~[Department of Metallurgical Engineering and Materials Science]~~ ~~Process Engineering (PE) -~~		**Discontinued from the AY 2025-26. New Specialisation CM and SM Introduced.**
Metallurgical Engineering and Materials Science (MM) [Department of Metallurgical Engineering and Materials Science] Steel Technology (ST)	i). B.E./B.Tech./AMIE or equivalent in a recognised branch of engineering.	CH,ME,MT,PI,MN
Metallurgical Engineering and Materials Science (MM) [Department of Metallurgical Engineering and Materials Science] Corrosion Science & Engineering (CR)	i). B.E./B.Tech./AMIE or equivalent in a recognised branch of engineering or technology ii). M.Sc. or equivalent in a recognised branch of science.	AE,CE,CH,CY,EE,ME,MT,XE,PI

Metallurgical Engineering and Materials Science (MM) [Department of Metallurgical Engineering and Materials Science] Computational Materials Engineering (CME)* *New Specialisation introduced from the AY 2025-26	i). B.E./B.Tech./AMIE or equivalent in a recognised branch of engineering or technology ii). M.Sc. or equivalent in a recognised branch of science.	XE,CY,PH,CH,ME,PI,MT
Metallurgical Engineering and Materials Science (MM) [Department of Metallurgical Engineering and Materials Science] Semiconductor Materials and Processing (SMP)* *New Specialisation introduced from the AY 2025-26	i). B.E./B.Tech./AMIE or equivalent in a recognised branch of engineering or technology ii). M.Sc. or equivalent in a recognised branch of science.	XE,CY,PH,CH,EE,EC,ME,PI,MT
(i) For candidates with M.Sc., Mathematics as a subject at B.Sc. degree level is essential.		
Materials, Manufacturing and Modeling (MMM) [Cross-Departmental Programme of Mechanical Engineering, Metallurgical Engineering & Materials Science, and Mathematics]	B.E./B.Tech./AMIE or equivalent in in a recognised branch of engineering or technology	MT,PI,ME
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Systems & Control Engineering (SC) [Centre for Systems & Control]	B.E./B.Tech./AMIE or equivalent in any engineering discipline	AE, ME, EE, EC, IN, CH, CS
Candidates having two years of relevant work experience are exempted from requirement of GATE score, provided their candidature is sponsored by the employer. They are not eligible for award of Teaching/Research Assistantship.		
Technology & Development (TD) [Centre for Technology Alternatives for Rural Areas] (CTARA)	(i). BE/B.Tech/B.Arch//B.Plan or equivalent in any engineering discipline. (ii). M.Sc. or equivalent in any science discipline	Any discipline
Candidates with a qualifying degree (BE/ B.Tech./ B.Arch./M.Sc.) without a GATE score can apply under “Sponsored” category if they have minimum two years experience in development related work.		

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B) M.TECH. PROGRAMMES

The Master's degree programme in Aerospace Engineering provides education in, multi-disciplinary areas involving Aerodynamics, Dynamics & control, Aerospace Propulsion and Aerospace structures.

B.1) Aerospace Engineering AE (AE1, AE2, AE3, AE4)
[Department of Aerospace Engineering]

The Master's degree programme in Aerospace Engineering provides education in multi-disciplinary areas involving Aerodynamics, Dynamics & Control, Aerospace Propulsion and Aerospace Structures.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Aerodynamics (AE1)
Experimental Aerodynamics, Experimental Hypersonic Aerothermodynamics, Shock Waves and their applications, computational Hypersonic Aerothermodynamics, Computational Fluid Dynamics, computational Electromagnetics , Vortex and particle methods, vortex flows, Aero-acoustics, Aircraft Design, Air Transportation, Turbulence modeling and applications, Computational studies of scramjet intakes, Supersonic mixing, Computation of high enthalpy flows, plasma assisted flow control, Thermoacoustics , Morphing Aircraft, Unmanned Aerial Vehicles, and Lighter-Than- Air Systems.

Dynamics and Control (AE2)
Flight mechanics , guidance, trajectory optimization, navigation, state and parameter estimation, tracking and control of launch vehicles, missiles, aircraft, manned and unmanned aerial vehicles, mini aerial vehicles(MAVs), satellites, multi-agent systems, nonlinear adaptive and robust flight control, integrated navigation systems, air-breathing and gas turbine engine control, swarm, path planning and formation flying of aerial vehicles, hardware –in -loop-simulation, co-operative missions for MAVs.

Aerospace Propulsion (AE3)
Aircraft and spacecraft Propulsion, Experimental and numerical studies on detonations, Combustion instabilities , Development of new techniques for emission reduction from combustion systems, Heat Transfer, Infrared Signatures of Aerospace Vehicles, Micro-Channel cooling of Gas Turbine Blades.CFD of propulsive systems, Aerodynamic design and performance analysis of axial flow turbomachines, Flow control of turbomachines and internal duct flows, Computational Hypersonic aerothermodynamics, Turbulence modeling and applications, Computational studies of scramjet engines, Supersonic mixing and combustion, Computation of high enthalpy flows, Plasma assisted combustion and flow control, Thermoacoustics, Non- Equilibrium , Thermodynamics of Dissipative Structures , Entropy Generation Studies in Micro-Flows , Fuel atomization and sprays, Optical diagnostics of combustion systems.

Aerospace Structures (AE4)
Structural Health Monitoring, Machine Learning Assisted Uncertainty Quantification, Defects and Damages in Composites, Additive Manufacturing, Wave Propagation in Structures, Aeroelasticity, Aerothermoelasticity, Aeroservoelasticity, Reduced-order Modeling, Structural Dynamics & Stability, Multidisciplinary Optimization, Mechanics of Materials, Computational Materials Science,Experimental Mechanics, Continuum and Computational Mechanics, Electromagnetic Interactions with Solids,
Biomechanics, Multiscale modeling of materials, Fracture and Fatigue in Materials.

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B.2) Biomedical Engineering (BM)
[Department of Biosciences and Bioengineering]

Introduction

The Biomedical Engineering Group (BME) at IIT Bombay was set up in 1988. It is now a part of Department of Biosciences and Bioengineering (BSBE). Biomedical Engineering is one of the youngest disciplines in engineering and has made tremendous progress in the last 4 decades. This has been aided by rapid advancements in Semiconductor Technology, Information Technology, and Biotechnology. In the field of Biomedical Engineering, researchers with expertise in diverse areas work towards the unified goal of creating products and techniques for better health care. The backgrounds of faculty in BME at IIT Bombay reflect the wide spectrum of expertise required to make better and more affordable health care a reality. Further, the students admitted to the program have backgrounds in Engineering, Physical Sciences, Life Sciences and Medicine, making it the only program in the country to offer M.Tech. admission to such a unique mix of candidates. The creation of a heterogeneous class composition promotes interaction between students and faculty of different backgrounds and provides opportunities for research in exciting interdisciplinary areas.

Course work & Project

Over the first two semesters, M.Tech. students are required to do substantial amount of course work to complement their undergraduate or masters level education. The third semester is devoted mostly to the M.Tech. project although some courses may be taken during that period. The fourth semester is fully devoted to completion of the project. The curriculum has been designed to provide all students with a general background in Biomedical Engineering followed by more specific knowledge in the area of their choice. The former is achieved through core (for everyone) and compulsory (for students with a particular background) courses in the first semester. Electives taken during the second and third semester provide specialized knowledge in the area of the individual interest.

In the first semester, students with backgrounds in life sciences and medicine are required to take compulsory courses in mathematics, electronic circuits and instrumentation. Students with backgrounds in physical sciences and engineering take courses in physiology. There are other elective courses to be taken as well.

In the second semester, all students have to go through a core course on Biostatistics. Further, everyone is required to present a seminar on a topic related to Biomedical Engineering under the guidance of a faculty. The rest of the courses are electives, which the students choose after consultation with the faculty adviser.

Electives are offered in biopotentials, bioelectricity, ergonomics, medical sensors, biosensors, bioMEMS, medical imaging physics, biomaterials, drug delivery, cellular & tissue engineering, microfluidics, computational modeling, biomechanics, etc. All students are required to take a course designated as an Institute Elective offered by departments other than BSBE. In special cases, electives other than the institute elective may be taken from other departments in IIT after obtaining necessary permissions from the Department Post Graduate Committee.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

Admission will be based on a written test followed by in-person interview of shortlisted candidates.

Written test will have the following six sections and a candidate has to mandatorily attempt at least two (2) of these six (6) sections:
Biology
Physiology
Chemistry

Physics
Mathematics
Engineering
Syllabus for each section will be at a level comparable to that for GATE 2023 examination or equivalent test/exam. There will be no negative marking.

Candidates who get shortlisted for the interview will be assessed for their interest in complementary subjects (i.e. interest of applicants with bio/physiology/health sciences, etc. background in mathematics and interest of applicants with engineering /physics/chemistry/math, etc. background in biology/physiology) through basic questions during the interview.

AREAS OF RESEARCH

Currently fundamental and applied research is being conducted in the following broad areas, which the students can choose to do projects in:

- Biomedical transducers and sensors including biosensors and bioMEMS devices
- Biomaterials and tissue engineering
- Bionanotechnology
- Biophysics, cellular mechanics and computational biology
- Controlled drug delivery systems
- Computational neurophysiology
- Microfabrication and microfluidics
- Telemedicine and knowledge based systems
- Biophotonics, Tomography, Inverse Problems
- Movement neurophysiology, neural plasticity, non-invasive brain stimulation, rehabilitation technology.

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B.3) Chemical Engineering (CH)
[Department of Chemical Engineering]

A wide variety of courses are offered to enable a student to obtain proficiency in various facets of the Chemical Engineering Profession–Design, Production, Research and Development, and academics. The programme provides strong core courses together with a set of elective courses in the following areas : Biotechnology and Bio-Systems Engineering; Energy and Environment; Transport, Colloids and Interface Science; Catalysis and Reaction Engineering; Materials Engineering; Process Systems Engineering and Control.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Biotechnology & Bio-Systems Engineering

Metabolic & Genetic Engineering, Bio-separations, Bioinformatics, Systems Biology, Drug Discovery, Enzymology, Bioprocess Development, Vermiculture for Waste Management, Dehydration of Food Systems, Controlled Atmosphere Storage, and Process Development of Food Systems.

Energy and Environment

Climate change, Coal Gasification, Energy Integration, Green Engineering, Renewable Resources, Waste Management, Pollution Control, Air Pollution Prediction & Control and Vermiculture.

Transport, Colloids and interface Science

Fluidization, Granular flows, Powder Mixing, Membrane Separations, Rheology of Complex Fluids, Colloids, Sol-gels, Emulsions & Foams, Paints and Coatings, Microstructural Engineering, Aerosols, Electro-hydrodynamics, Fluid Mechanics & Stability, Computational Fluid Dynamics, Heat & Mass transfer, Porous media, and Surfactants.

Catalysis and Reaction Engineering

Catalysis, Multiphase Reaction, Bio-reaction Engineering and Reactor Modelling, Process

intensification & reactive distillation.

Materials Engineering
Polymer materials, Polymer Reaction Engineering, Polymer Processing, Polymer Physics, Polyurethane, Rubber, Polymer Rheology, Ceramics, Polymers, Biomaterials, Drug Delivery, Food Engineering, Microscopy, Nano-composites, Statistical Thermodynamics, and Supercritical Fluids.

Process Systems Engineering and Control
Process Simulation, Optimization, Process Integration and Scheduling, Energy Conservation and Optimal Resource Management, Artificial Intelligence and Mathematical Modelling, Multi-scale Modelling, Systems Identification and Process Safety Analysis, Nonlinear control, fault diagnosis.

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B.4) Civil Engineering CE (CE1, CE2, CE3, CE4, CE5, CE6, CE7)
[Department of Civil Engineering]

The programme is geared to meet the growing demand for designers, consultants, development engineers, research-scientists and faculty.

A student entering the M.Tech. programme in Civil Engineering can pursue one of the following streams :
(i) Transportation Systems Engineering(CE1)
(ii) Geotechnical Engineering (CE2)
(iii) Water Resources Engineering (CE3)
(iv) Structural Engineering (CE4)
(v) Ocean Engineering (CE5)
(vi) Remote Sensing (CE6)
(vii) Construction Technology and Management (CE7)

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Transportation Systems Engineering: Transportation Planning: Sustainable urban transportation planning, Travel survey design and analysis, Travel demand modelling, Travel behaviour and choice modelling, Transport system analysis and economic evaluation, Land use and transport planning models, Air travel demand modelling, Freight transport modelling, public transport planning and design, and Transport network modelling. Traffic Engineering: Traffic flow theory and capacity analysis, Traffic management, operations and control, Pedestrian flow modelling, Intelligent Transportation Systems, and traffic impact assessment and externalities. Highway Planning and Design: Optimal alignment design, Performance based geometric design, Road safety. Pavement Engineering: Characterization and performance tests of pavement materials, Recycled and warm mix asphalt mixes, Asphalt rheology, Constitutive modelling of pavement materials, Pavement maintenance, rehabilitation and management systems, and design and performance evaluation of concrete pavements.

Geotechnical Engineering: Geotechnical earthquake engineering; Geoenvironmental engineering; Energy geotechnics; Computational geomechanics; Foundation engineering; Seismic hazard study; Liquefaction; Constitutive modelling of soil; Soil-structure interaction; Offshore geotechnical engineering; Pipeline geotechnics; Soil Characterization, Foundation for offshore structures, Bio-geo interface study; Earth dam problems; Rock Mechanics and tunnelling; Soil dynamics; Soil stabilization; Expansive soils; Earth retention structures; Slope stabilization; Ground improvement; Reinforced soil structures and geosynthetics; Physical modelling in geotechnics; Centrifuge modelling of geotechnical problems; Optimization techniques and environmental geotechnics; Landslides; GIS applications for geotechnical problems; Earthquake resistant design of geotechnical structures; Reliability analysis; Dynamic soil characterization; Landfills and waste containment engineering; Seawalls; Railway Geotechnics.

Water Resources Engineering : a) *Experimental Fluid Mechanics and Computational Fluid Dynamics* - Fluid flow investigation by experimental and numerical studies, Turbulent flows, Sedimentation and erosion problems, Fluid transients in closed conduits, Pipe network analysis; b) *Groundwater Flow, Transport Process and Remediation*- Groundwater movement and recharge, Seawater intrusion in coastal aquifers, Transport of pollutant in aquifers and aquifer remediation; *c) Surface water Hydrology:* River and lake hydrodynamics, Contaminant transport process, River basin and watershed scale modelling of hydrologic processes, Hydraulic structures; Conceptual IUH; hydrologic time series analysis and forecasting Reservoir sedimentation modelling; Chaos and Singular Spectrum analysis d) *Floods and Droughts studies*; e) *Water Resource System and Optimization* - Reservoir operation and management; *f) Urban water management* - Urban water supply, Storm water and wastewater management, Water quality modelling; g) *Hydroinformatics* - GIS and remote sensing applications in water resources, Use of Artificial Intelligence Techniques; h) Simulation - optimization for water resources environmental engineering problems; i) *Climate change and Impact Studies* - Detection and attribution of hydrologic change; Modelling of hydroclimatic extremes, Hydrologic statistics;

Structural Engineering: Computational Mechanics; Finite element techniques; Composite materials and mechanics; Reinforced and prestressed concrete structures; Steel structures; Strength, stability and dynamics of thin membranes; Plates and shells; Structural optimization; Structural resilience, Structural response to blast, impact and shock loading; Pressure vessels; Reliability analysis; Seismic vulnerability and fragility assessment of structures; Bridge engineering; Machine learning; Probabilistic design methods; Curved grid; Cable networks; Plastic analysis techniques; Structural dynamics; Earthquake engineering; Earthquake disaster management; Vibration control of structures; Wind effects on structures; Inverse problems and artificial intelligence applications; Offshore structures; Shell foundation; Structural health monitoring; Uncertainty quantification; Shell and membrane structures; Risk analysis

Ocean Engineering: (a) Physical modelling – WaveStructure Interactions, floating body dynamics, oU̓shore and maritime infrastructures design, nearshore dynamics, nonlinear waves and sediment transport;
(b) Numerical modelling - coastal processes, tidal hydrodynamics, pollutant dispersion in coastal waters, wave-current interactions, tsunami, storms, surges and extreme events, sea level rise, climate change impacts on met-ocean parameters, oil spill dispersions, coastal erosion, shoreline changes;
(c) AI/ML techniques - Application of statistical, stochastic and neural networks analysis on ocean parameters;(d) Remote Sensing and GIS - Application of RS and GIS for assessment of coastal vulnerability and nearshore processes.

Remote Sensing: Development of methods and algorithms for digital analysis of Remotely Sensed Data (RSD); Remote sensing and GIS Applications for Hydrology and Water Resources, Ocean Sensing, Decision Support Systems in Watershed Development; Remote sensing for snow and glacier Studies, Remote sensing data assimilation, Thermal Remote Sensing; Microwave remote sensing; Uncertainty modelling in Geospatial datasets; Unmanned Aerial Systems (UAS) based applications in Civil Engineering.

Construction Technology and Management: Building Materials, Concrete Technology, Construction Management; Infrastructure Project Management, Sustainability Modelling and Simulation Analytics, Building and Urban Informatics, Heritage Construction, Residue Valorisation, Mineral Carbonation, Corrosion Control in Reinforced Concrete Structures.

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B.5) Computer Science and Engineering (CS)
[Department of Computer Science and Engineering

The M.Tech. programme in Computer Science is a flexible, second level programme offering students wide choice of electives from areas such as algorithms, programming languages,

databases, machine intelligence, computer graphics and vision, networks, architecture, distributed computing and formal methods. The programme is aimed at generation of high quality technical manpower for Research, Design and Development in Computer Science and Computer Applications by exposing students to courses in theory as well as application areas. The department has strong ties with the computer industry and many M.Tech. students work on sponsored projects.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Theoretical Computer Science: Algorithms, Combinatorial Optimization, Combinatorics, Complexity Theory, Cryptography and Graph Theory.

Natural Language Processing: Natural language understanding; Machine translation, Semantics Extraction; Document understanding; Cross lingual information Retrieval; Intelligent interfaces.

Visual Computing: Computer graphics, Geometry processing, Image and signal processing, Computer vision and medical image computing.. Rendering (photorealistic, non-photorealistic, real-time, immersive); animation (character, physics-based); sketch-based systems; augmented and virtual reality; camera and imaging systems. Image and geometry reconstruction; restoration; compressed sensing; compression; pattern recognition; localization; segmentation; tracking; registration; quantization; shape analysis; group analysis; retrieval; affective computing. Machine learning methods; deep learning; matrix analysis; statistical methods.

Computer Security and Applied Cryptography: Information flow-based security modeling, language and OS security, web and browser security, security analytics, secure multi-party communication, verification of cryptographic protocols, side channel attacks and hardware security, computation on encrypted data.

Computer Networks: Performance modeling, analysis and design of wired and wireless networks, Implementation and verification of network security protocols. Deployment, data management, communication and energy-efficiency issues in Sensor Networks, Design of content distribution networks for data dissemination, Architectures and protocols for metro optical networks, Network algorithms, Utility and Pricing models, Quality of service protocols, Mobile Computing, Voice Routing, Voice over IP, RFID networks, Enterprise networks, Access and Broadband networks.

Database and Information Systems: Query Optimization, with a focus on parallel and distributed databases (aka Big Data systems), Holistic optimization of database applications, data generation for testing and grading SQL queries, Real time databases, Database support for Embedded and IoT systems, Spatial databases.

Machine Learning and Information Retrieval: Data integration models and algorithms, Graphical models, Information extraction and retrieval, Forecasting and smart e-business, Text and Web data mining. Integrated mining with relational DBMS, Temporal mining, Integrating mining with OLAP

Distributed Systems: Performance Evaluation, fault tolerance and scalability issues in distributed systems; Distributed object-based systems, Programming models and runtimes for generic agents, Parallel Computing, High performance cluster computing, Distributed operating systems, Self-configuration using abstract performance and capacity models of distributed component based applications, Topology based problem detection and root cause isolation in enterprise environments.

Formal Methods: Formal specification, design and verification of hardware and software systems including distributed systems; Logic, automata theory and their applications in

reasoning about systems; Automated theorem proving; Model checking; Reachability analysis of large and infinite state spaces: exact and approximate techniques.

Programming languages and Compilers: Theory of code optimization; Optimizing and parallelizing compilers; Analysis and implementation of functional and logic programming languages; Theory of programming languages.

Real-Time, Embedded, Cyber Physical Systems: Functional Programming Applications, Reconfigurable computing, Automobile Telematics, Embedded control units, Design and development of robots and sensor platforms, temporal constraints, time critical applications

Software Engineering and Paradigms: Software Architecture, Program Synthesis and Analysis, Design, Evolution and Re-engineering of Programs, Conceptual Models of Programs, Abstractions and Paradigms, Design Quality of Program Structure.

Refer to the department web page (www.cse.iitb.ac.in) for more information about various RESEARCH AREAS. Candidates are also encouraged to visit individual faculty member's home page to learn about his/her research interest.

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B.6) Climate and Sustainability (CMS) [Centre for Climate Studies]

The Centre for Climate Studies (CCS) was initiated at the Indian Institute of Technology Bombay, in January, 2012, at the doctoral level as an interdisciplinary program. The curriculum is designed to establish a focus on climate science and climate impacts, adaptation and mitigation science and solutions, sustainability and risk computations, policy responses to the severe local and remote climate impacts faced by the subcontinent as well as projects oriented towards climate services, climate solutions, and climate policies.

CCS has 7 core faculty and over 30 faculty participants drawn from 12 departments, across IIT Bombay, with expertise in Climate Processes, Climate Impacts and Adaptation, Climate Mitigation, Climate Solutions and Policy. The M.Tech. curriculum in the CCS includes four core courses and several advanced courses in the tracks of climate science, climate change impacts and adpatation, and climate policy, on a broad range of theoretical and practical topics.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines..

AREAS OF RESEARCH

The key research themes in the Centre for Climate Studies are: Climate Processes, Climate Impacts and Adaptation, Climate Mitigation, Climate Solutions and Policy. These themes collectively span the entire spectrum of "Climate and Sustainability". The Centre envisions fostering interdisciplinary research across these themes, focusing on producing integrated outcomes rather than isolated results from individual themes.

Climate Processes: Climate change and variability, Cloud, circulation & climate feedbacks, Monsoon Dynamics, Ocean dynamics and mixing, Ocean circulation, Land-Atmosphere interaction, Terrestrial ecosystem, Ecohydrology and Ecological climatology, Climate & Weather extremes, Detection, attribution and prediction of climate extremes, factors affecting the Indian monsoon, aerosol radiative processes, DNS/LES of cloud processes, causality analysis and data assimilation, impact on hydrology and water resources, Machine Learning applications in Climate

Climate Impacts and Adaptation: Climate change impacts on cities, drivers and costs of adaptation; Water resource management, vulnerability analysis at national, subnational and community levels; social & economic implications of climate change.

Climate Mitigation: Energy-emissions-economy modelling, Energy transitions, Strategies for low-carbon development, Climate mitigation and air quality, Climate finance, Clean energy access

Climate Solutions and Policy: Early warning system, Climate engineering, Enhanced carbon capture systems, Energy policy analysis, Climate policy analysis

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B.7) Earth Sciences (GS, PG)
[Department of Earth Sciences]

The M.Tech programme of the department lays special emphasis on developing skills for exploration of mineral, petroleum and groundwater. The students of this programme have good placement opportunities in leading national and international mineral & oil exploration companies, Geological Survey of India, National Mineral Development Corporation, Atomic Mineral Division, Mineral Exploration Corporation and software companies.

a. Geoexploration : GS

The programme is structured such that the students can learn various aspects of mineral, petroleum and groundwater explorations. It offers wide ranging courses in exploration Well Logging, Basin Analysis, Marine
Mineral Resources, Groundwater Hydrology, Environmental Geology and Hydrogeochemistry.

b. Petroleum Geoscience : PG

This Specialization is introduced from July 2007. It prepares graduates for a career in petroleum exploration and development. The course provides advanced skills in seismic interpretation, basin analysis and applied micropaleontology, sequence stratigraphy, reservoir sedimentology, petrophysics, wireline logging tools and data interpretation using workstations and software as used in the industry.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

- Active Tectonics and Tectonics
- Economic Geology and Ore Deposit Modelling
- Electromagnetism
- Engineering Geology
- Geochronology and Thermochronology
- Geomagnetism
- Geomechanics
- Geophysical Signal Processing
- Geostatistics
- GPS and Geodesy
- Gravity and Magnetic
- Hydrogeology
- Ichnology
- Igneous Petrology
- Isotope Geology, Geochemistry and Geochronology
- Machine learning applications in Geophysics
- Metamorphic Petrology
- Micropalaeontology
- Mineralogy
- Near Surface Geophysics : Groundwater, Mineral and Hazards Applications
- Numerical modelling in Geophysics
- Organic Geochemistry
- Passive Seismology: Earthquake Seismology, Seismic Ambient Noise and Seismic Tomography
- Petroleum Geology
- Petrophyiscs
- Planetary Geophysics
- Reservoir Geophysics
- Satellite Geophysics : Satellite gravity, magnetic and Hydrogeodesy
- Sedimentology
- Seismic Imaging, Wave propagation and Inverse Problems
- Stratigraphy
- Structural Geology

- Vertebrate Palaeontology
- Volcanology

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B.8) EDUCATIONAL TECHNOLOGY (ET)
[Centre for Educational Technology]

The Interdisciplinary Programme in Educational Technology (IDP-ET) at IIT Bombay is actively involved in research and education in the area of technologies to improve the teaching-learning process. IDP-ET focuses on designing learning environments leveraging effective pedagogy and innovative technology scaffolds for supporting individual and collaborative learning in formal and informal contexts. IDP-ET is composed of core faculty members with additional associate members from various disciplines across IIT Bombay covering engineering, sciences, humanities and social sciences, design, and management.

The 2 year M.Tech program in Educational Technology focuses on training students on applying theories of learning and principles of Human-Computer Interaction (HCI) for creating teaching-learning content and designing learning environments. In addition, the program focuses on teaching students how to evaluate online and offline training programs and learning environments using data analytics and other forms of evaluation.

Core courses in the program focus on Learning Sciences, effective pedagogy, cognitive processes, human-computer interaction for educational technology, educational data mining, instructional systems design, and research methods in education. In addition, students will complete project work and elective courses based on their interest.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

The admissions process will be similar to M.Tech in other departments and centres at IIT Bombay. This will include a written test and interview, with a minimum GATE score requirement.

- For other admission-related details, please visit the Admissions page of the IDP in Educational Technology: __https://www.et.iitb.ac.in/academics/admission/

Please visit https://www.et.iitb.ac.in/academics/admission/ for details regarding the research group and recent activities.

B.9) Electrical Engineering EE (EE1, EE2, EE3,-EE5,EE6,EE7)
[Department of Electrical Engineering]

AREAS OF SPECIALIZATION

Communication Engineering	EE1
Control and Computing	EE2
Power Electronics and Power Systems	EE3
Electronic Systems	EE5
Integrated Circuits & Systems	EE6
Solid State Devices	EE7

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Communication Engineering (EE1)
- Communication Systems
- Communication Networks and Internet
- Computational Electromagnetics

- Image Processing and Computer Vision
- Microwaves, RF and Antennas
- Multimedia Systems
- Optical Communication and Photonics
- Signal Processing
- Speech Processing
- Wireless and Mobile Communication
- Information Theory and Coding
- Magnetic Resonance Imaging
- Machine Learning and Data Science

Control and Computing (EE2)
- Linear Systems Theory
- Optimal Control and Optimization
- Modeling and Identification of Dynamical Systems
- Control of Distributed Parameter Systems
- Nonlinear Systems
- Modern Filter and Network Theory
- Behavioral Systems Theory
- Computational Methods in Electrical Engineering
- Software and System Reliability
- Cryptography and Security
- GPU-based Computing

Power Electronics and Power Systems (EE3)
- FACTS, HVDC and Power Quality
- Distributed Generation
- Power System Restructuring
- Wide Area Measurements and System Protection
- EMI / EMC
- Coupled Field Computations
- Electrical Machines: Modeling, Analysis, Design and Control
- Special Machines
- Power Electronic Converters, Electric Drives
- Power Electronics for Non-conventional Energy Sources
- Reliability in Power Systems and Power Electronic Systems
- Smart Grids for Energy Harvesting
- Power System Planning, Operations and Control
- Power System Economics
- Use of wide band gap devices in Power Electronic converters
- Electric Vehicles
- Insulation diagnostics

Electronic Systems (EE5)
- Electronic Instrumentation
- Signal Processing Applications
- Speech and Audio Processing
- Biomedical Electronics
- Embedded System Design

Integrated Circuits & System (EE6)
- Development of microprocessor architectures along with design, test and verification methodologies
- RF and millimeter wave IC (integrated circuit) design for communication, navigation and imaging applications
- Electronic and photonic IC design for high-speed wireline and optical interconnects
- Power amplifiers for wireless communications
- CAD (computer aided design) techniques for VLSI design
- Integrated circuits for biomedical, agricultural and IoT applications
- FPGA based designs and techniques for hardware acceleration and AI/ML applications.
- ICs for power management and energy harvesting

Solid State Devices (EE 7)

- Non-volatile memory technologies (Flash, RRAM, FERAM, MRAM, etc.)
- Device Fabrication (CMOS, Solar cells, Detectors, etc.)
- Theory, modeling, and simulation of Electronic devices
- Novel materials and devices (III-V, Graphene, 2D, etc.)
- Spintronics, Quantum Computing, Quantum sensing, and related technologies
- Photonics, MEMS, Neuromorphic Engineering
- Photovoltaics - c-Si, Organics, Perovskite, quantum dots, etc.
- Reliability of semiconductor devices and systems (e.g., Solar panels, PV systems)
- Nanoscale energy conversion
- Flexible devices and sensors (bio, chemical, and quantum)
- Light emitting diodes (III-Nitride UV) and photodetectors (quantum dot, etc)
- Wide Bandgap Power Devices

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B.10) Energy Systems Engineering (EN)
[Department of Energy Science & Engineering]

Energy is a critical input required for development. To address climate issues and depleting fossil fuel reserves, there is a pressing need to develop viable cost effective clean and sustainable alternatives. Renewable and Nuclear Energy can provide possible long-term solutions for the energy problems. However, there are various challenges in the large-scale development and deployment of these alternatives that need to be addressed. In the short run, countries like India must aggressively pursue energy efficiency, adoption of clean and sustainable energy production, electrification of transport sector and demand side management for clean. The development of new energy technologies provides technological challenges as well as significant business opportunity. To address this challenge, the Energy Systems Engineering interdisciplinary programme was established in 1981. Department of Energy Science and Engineering (DESE) is a leading energy interdisciplinary energy education and research hub in the country, with a mission to develop sustainable energy systems and solutions for the future. The Department of Energy Science and Engineering offers M. Tech. programme in Energy Systems Engineering, which has a mix of core and elective courses that can be chosen according to the specialization and interest of the students. The ESE programme has several world class labs on the related areas. DESE students are actively involved in the research and development activities through different teaching labs/facility, such as Thermal Hydraulics facility, Gasification Laboratory, Heat Pump Laboratory (Mechanical Engineering), Power Electronics, Machines and Power Systems Laboratory (Electrical Engineering) to name a few. Moreover, DESE faculty has been organizing several Continuing Education Programmes on a continuous basis on various topics, such as, Renewable Energy, Energy Management, Process Integration, Electric Vehicle Charging Infrastructure and its grid integration, Solar Passive Architecture and have initiated a series of programmes as well. DESE has established linkages with several industries like Eaton, Tata Power, ABB, Thermax, Borosil, Forbes Marshall, BSES, Mahindra & Mahindra, BHEL, organizations like NITI Aayog, Atomic Energy Regulatory Board, Ministry of New and Renewable Energy, Ministry of Power, Maharashtra Electricity Regulatory commission (MERC) and with academia like Aalborg University (Denmark), University of Twente (Netherlands), The Technical University of Munich, Loughborough University, Imperial College, UNSW Sydney, National University of Singapore, Carnegie Mellon University (US), Washington University (US), Monash University (Australia), Nottingham University (UK), Purdue University (US), Northwestern University (US), RICE University (US), Technical University of Denmark – DTU. Furthermore, several M.Tech/Ph.D projects have been sponsored by Industry and Academia. This has ensured the relevance of the ESE research output.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

The DESE is inter-disciplinary in nature and has the following major areas of research:

Clean & Renewable Energy : Perovskite solar cells, Transparent conducting oxides, Atomic layer deposition, Cheap and abundant materials for photovoltaic applications, Bandgap engineering of materials for photoelectrochemical energy conversion, Light-matter interaction, metamaterials, hyperbolic materials, Thin film solar photovoltaics, Solar thermal energy, Refrigeration and heat pump systems, Concentrating solar power, Power cycles, and polygeneration plants, Energy sustainability, Grid integration of renewables, Power system dynamics and control, EV-grid integration, WAMS, WAMPAC, Smart grid and microgrid, Converter topologies and control, Grid integration of distributed energy resources, Characterization, modelling and simulation of solar cells and modules, Performance and reliability of photovoltaic, Infrared thermography, Solar PV, Battery, & Ultracapacitor systems for renewables integration.

Electric Mobility: High-performance control of motor drives for electric vehicles**,** Charging of electric vehicles, Design, modulation and control of power electronic converters, EV-grid integration, Vehicle-to-Grid, Smart charging of Electric vehicles, Model-based design and optimization of Li-ion batteries and other metal-ion batteries.

Storage: Solid state hydrogen storage materials, Hydrogen storage systems, Materials for photovoltaic applications, Fuel cells - direct methanol fuel cells, and Polymer electrolyte membrane fuel cells, Flow batteries, Precious metal, and Non-precious metal catalysts, Electrochemistry of layered materials, Modelling & numerical simulation of electrochemical energy storage systems, Model-based design and optimization of Li-ion batteries and other metal-ion batteries, Electrofabrication of nanostructured materials, Electron microscopy, Polycrystalline nano dendritic growth, Scanning electro-chemical microscopy (SECM), Lithium-ion Battery, electrode materials, Na-ion batteries, electrode materials, Metal Sulphur, Hybrid Ionic electrolyte, Lithium-ion battery analysis, Hydrogen production from renewable sources, Development of low-temperature hybrid fuel cells, Optimum design of fuel cells systems, Solid oxide fuel cell (SOFC) modelling at the electrode and cell levels, Flow battery modelling

Biofuel, Oil and Clean Coal: Biomass gasification, Solid combustion, Alternate fuels in IC Engines, Solid waste management , Renewable energy systems, Conceptual design of processes and process simulation, Fischer-Tropsch Synthesis, Reactive distillation, Gasification, Integration of renewable energy (biomass) and fossil energy resources, Waste to Energy, Flow of granular materials, Complex fluid dynamics & multiphase flows, Molecular dynamic simulation of particulate flows, Coal gasification, IC Engines and Combustion, Advanced low-temperature combustion, Optical diagnostics, Exhaust after-treatment, Alternative fuels in IC Engines, Engine performance and emissions, Wax deposition, pipeline shut-in, and restart processes, Thermal management of living space, battery, Water purification/oil-water separation, Population balance modelling

Energy Efficiency, Planning & Policy : Energy management & efficiency, Energy systems modelling, planning & policy, Process integration, Pinch analysis, Industrial energy conservation, Advanced numerical methods for neutron diffusion and fluid flow, Stability Analysis of Nuclear Reactors, Solar thermal, Analytical solution of multilayer heat conduction problems, Heating, ventilation and air conditioning Systems , Energy recovery exchangers, Cogeneration, Building energy management, Demand side management/Load Management in the Power sector, Power generation and systems planning, Energy management and auditing, Efficient motor drive systems

Nuclear: Nuclear safety, Nuclear waste management, Thermal hydraulics research, Computer simulation models for analysis of transients in pressurized heavy water reactor, Advanced numerical methods for neutron diffusion and fluid flow, Twophase flow modelling, Nuclear thermal hydraulics and safety, Analytical solution of multilayer heat conduction problems.

FELLOWSHIPS

Several fellowships are normally available to DESE students ranging from Rs. 8000 to Rs.15000/- per month. Most of the fellowships also include tuition fee waiver. Fellowship will be offered on the basis of separate interviews.

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B.11) Environmental Science & Engineering (EV)
[Environmental Science and Engineering Department (ESED)]

The interdisciplinary programme in Environmental Science and Engineering aims to offer a balanced training in scientific, engineering and social aspects of this field. The course has been designed to meet the requirements of industry, consultancy services, academic and R & D organizations related to Environmental Management, treatment of emission and effluents and remediation of contaminated environment. The programme provides ample choice of electives to enable students to delve deeper in to various aspects related to this discipline, i.e. Environmental Monitoring and Modeling, Environmental Impact Analysis, Environment Biotechnology, Industrial Air & Water Pollution Control, Industrial Ecology, Clean Technology and Hazardous Waste Management and Aerosol Science and Technology.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

The research and development activities of the ESED encompass a wide spectrum of areas in Environmental Science and Engineering with special emphasis on the solution of real-life environmental problems. Following are the research areas: Air Pollution Control, Air Quality Monitoring and Modeling, Aerosol Chemistry, Air Pollution Health Effects, Emerging Contaminants, Resource Recovery, Water and Wastewater Treatment, Nanotechnology in Water Treatment, Environmental Microbiology in Bioremediation, Environmental Management, Climate and Health Risk Assessment, Disaster Risk Assessment, Big Data Analysis, Machine Learning and Stochastic Modeling, Solid and hazardous waste management, Waste to Energy, Carbon Capture and Storage, Life Cycle Assessment.

For further details visit www.esed.iitb.ac.in

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B.12) Geoinformatics & Natural Resources Engineering)(GNR)
[Centre of Studies in Resources Engineering (CSRE)]

Centre of Studies in Resources Engineering offers an M.Tech. programme in Geoinformatics & Natural Resources Engineering which is multidisciplinary in nature. The emphasis of the programme is on the use of modern technological tools such as Satellite Remote Sensing, Geographic Information Systems, Global Positioning Systems, etc. for natural resources studies. The course provides a balanced coverage on natural resources exploration and management as well as on the application areas of interest such as Precision/Digital Agriculture, Atmospheric Studies including Ozone Depletion, Coastal and Marine Environment, Machine Learning, Digital Image Processing and Computer Vision, Digital Photogrammetry, Natural Hazard Assessment and Disaster Mitigation, Snow, Avalanche and Glacial Studies, Terrain Evaluation, Water Resources (Surface and Ground water), High Performance Computing, etc.

Due to multidisciplinary nature of the subject of Geoinformatics and Natural Resources Engineering, emphasis is laid on training the students with an integrated approach to various issues pertaining to natural resources exploration and scientific management using the most modern tools and techniques. The courses offered cover fundamentals to advanced topics in the use of Remote Sensing, GIS and GPS to natural resources of Land, Earth and Atmosphere as well as natural hazards and disasters.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Remote Sensing and GIS applications, Surface and ground water resources, Terrain evaluation, Landuse Planning, Agro-Informatics, Sensor Networks and UAVs in Precision Agriculture, Mineral and hydrocarbon exploration, Snow and avalanche studies, Hazards of landslide, Drought and desertification, Marine and coastal environmental studies,

Atmospheric remote sensing, Development of tools and techniques of spatial data processing, Machine Learning, Digital Image Processing and Computer Vision, Digital Photogrammetry and Cartography Microwave remote sensing, Geo-computational systems, Climate change aspects, etc.

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B.13) Industrial Engineering and Operations Research (IO)
[Department of Industrial Engineering and Operations Research (IE&OR)]

The M.Tech. program in Industrial Engineering and Operations Research (IEOR) is interdisciplinary and accepts students from all branches of engineering and mathematics. Besides the core areas of IEOR the programme also offers new courses in Financial Engineering, Data Analytics, Machine Learning, Deep Learning, System Dynamics, and others.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

The group is interested in research related to modeling, quantitative analysis and optimal resource allocation from decision problems in deterministic and stochastic contexts. Broad areas of application are in manufacturing systems, supply chains, logistics, transport including railways, e-commerce, finance, services, health care, infrastructure and other industrial systems; application of quantitative methods in quality and maintenance management systems; development and application of decision support, intelligent and knowledge -based systems.

Specific applications include optimal control in stochastic systems; applications of game theory, modeling and simulation of supply chains, manufacturing and service systems; theory and applications of distributed simulation, discrete event and system dynamics simulations; applied stochastic models; scheduling and control of railways and other transport operations; time tabling of services, crew and vehicle scheduling for transport operations; optimization and design problems arising from e-commerce, including auctions and mechanism design for electronic exchanges; risk analysis and contract design; revenue management; quantitative models for financial engineering; applications of deep learning; development and applications of modern information systems for managing manufacturing, supply chain and service organizations.

The IEOR programme is unique in its contemporary flavour, with new courses on Financial Engineering, Machine Learning for Operations Research, Optimization for Data Science, Longitudinal Data Analysis, Computer Vision and Multimedia Analytics for IE, and Machine Learning to name a few. The programme is equally strong in background building, with updated courses in Optimization Techniques, Stochastic Models and Simulation.

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B.14) Mechanical Engineering ME (ME1, ME2, ME3)
[Department of Mechanical Engineering]

Areas of Specialization
1. Thermal and Fluids Engineering (ME1)
2. Design Engineering (ME2)
3. Manufacturing Engineering (ME3)

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Thermal and Fluids Engineering (ME1)

Fluid Mechanics, Fluid Machinery, Fluid Power Control and Fluidics, Analysis of Thermal Systems, Numerical prediction of convective and radiative heat transfer, Combustion,

Fluidised bed combustion, Refrigeration and Airconditioning, Cryogenics, Miniature Cryorefrigerators, Food preservation, Performance Studies on IC Engines, Alternate Fuels, Nuclear Energy and Reactor Physics, Fuel Cells, Nuclear Reactor Thermal Hydraulics, Electronics Cooling, Microfluidics and Microscale Heat Transfer, Transport in porous media, Computational Fluid Flow and Heat Transfer, Analysis of Turbulent Flows, Low Temperature Plasma Modelling, Molecular Gas Dynamics, Enhanced Oil Recovery.

Design Engineering (ME2)
Stress and Vibration Analysis – Analytical, numerical (Finite Element and Boundary Element Methods) and experimental methods, Fatigue and Fracture-Linear elastic and elastic-plastic fracture mechanics, Fracture of composite materials, Fatigue-creep-corrosion interaction, Tribology and Machinery Maintenance, Pressure Vessel Design, Computer Aided Simulation and Design Optimization, Linear and non-linear vibrations, Chaos, Vehicle Dynamics, Rotor Dynamics, Acoustics and Noise, Active Vibration and Noise Control, Smart Structure, Robotics, Kinematics and control of Rigid and Flexible Manipulators, Microprocessor based control and automation, Mechatronics, Mobile Robots, Textile Machinery, MEMS.

Manufacturing Engineering (ME3)
CAD / CAM / CIM, CNC, Computer Assisted Process Planning, Design for Manufacturing and Assembly, Manufacturing Automation & Control, Intelligent Manufacturing Systems, Rapid Prototyping and Tooling.
Design, Optimization and Modelling of Manufacturing Processes (Casting, Forming, Machining, and Welding), Precision and Micro-Manufacturing Processes, Computer Aided Tool Design.

Applications of IE & OR in Manufacturing, Logistics, Quality and Maintenance Systems.

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B.15) Metallurgical Engineering and Materials Science MM
[Department of Metallurgical Engineering and Materials Science]

Areas of Specialization

Materials Science	(MS)
Process Engineering	(PE)-**Discontinued from the AY 2025-26**
Steel Technology	(ST)
Corrosion Science & Engineering	(CR)
Computational Materials Engineering	(CME) *
Semiconductor Materials and Processing	(SMP) *

*** new Specialisation introduced from AY 2025-26**

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Faculty in the Metallurgical Engineering and Materials Science Dept. carry out research on a range of materials:

Metals: Process analysis, instrumentation and control, Iron and Steel making, deformation behaviour and microstructure evolution during creep and superplasticity, mineral processing and extractive metallurgy, metal forming, mechanical behaviour, welding, physical metallurgy, phase transformation, structure property relationship, thermomechanical processing and texture analysis.

Ceramics: Electronic ceramics, bio-ceramics, glasses and glass ceramics – electrical and optical properties, magnetic materials, dielectric and piezoelectric ceramics and devices, ceramic foams, industrial ceramics, high temperature ceramics, near net shape forming, gel casting, rheology of suspensions.

Semiconductors and magnetic materials: Devices of thin film elemental semiconductors and alloy systems, surface treatment and surface engineering, chemical vapor deposition, structure property correlation in nanocrystalline magnetic materials,

magnetoresistor materials In addition, research into materials for sensors and batteries, superconductors, thermoelectric materials, organic semiconductors, solar cells, nano-photonics, synthesis and processing of ion conductors, materials for energy generation and storage materials for quantum computing and ultrahigh vacuum systems for thin film systems is going on in the Dept. iv. Polymers and Composites: Polymer blends, Polymer – carbon nanotube composites, polymer thin films, polymer nanocomposites, thermodynamic, mechano-rheological, mechanical properties of polymers, responsive, functional and conjugated polymers, metal matrix composites, structure property relations.

Wear and Corrosion: Fracture and failure, non-destructive evaluation, aqueous corrosion, metallurgy of corrosion, oil and gas corrosion, and protective coatings (paints, high temperature coatings etc.).

Computational Materials Science: Modelling of metallurgical processes, heat and mass transport, modelling of metal forming, Optimization, Monte Carlo simulations, Dislocation dynamics simulations, molecular dynamics simulations, phase field modelling, first principle calculations, crystal plasticity.

FACILITIES AVAILABLE

Basic XRD with Xcelerator and thin film attachment

1600 Degree Horizontal Single Sample Dilatometer with Accessories

Image Intensifier System and ExRay Source

High Temp. Attachment and Texture and Stress Attachment Unit

Air Vacuum Induction Melting System

Hitachi Scanning Electron Microscope

Zeiss Crossbeam focused ion beam plus electron beam

FEI Themis transmission electron microscope

Gleeble – Thermomechanical simulator

Simultaneous Thermal Analysis System

R/S SST Plus with Coaxial Cylinder Rheometer

Atomic Absorption Unit AVANTAP

Carbon Sulphur Analyser

High Temp. Furnaces up to 1800 °C.

UV Visible Spectrophotometer

Broadband Dielectric Spectroscopy

Ferroelectric and piezoelectric characterisation facility

Atomic Force Microscopy with modules for PFM, CSAFM and KPFM

Thin film processing units

Pulsed Laser Deposition

MTS machines

Vibrating sample magnetometer

National facility on OIM and stress determination by XRD

Electrochemical Measurement Systems

State of the art Model PAR 338.

Potentiostat model Wenking PSG 581

Automated 10 Ton/SCC systems.

Thermogravimetry analysers.

High Temperature Confocal Scanning Laser Microscope

Optical & Stereo microscopes

Acoustic Emission Systems.

Wear and Corrosion Machines.

Facilities for testing Paint and Other Coatings.

Dynamic loop system.

High temperature high pressure autoclaves DST-FIST High Performance Computing facility, with standard open-source scientific software

Computational software: FactStage, ThermoCalc, ChemApp

Dual Vacuum High Resolution Scanning Electron Microscope (JEOL-JSM-IT800SHL)

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B.16) Materials, Manufacturing and Modeling (MMM)
[Cross-Departmental Programme of Mechanical Engineering, Metallurgical Engineering & Materials Science and Mathematics]

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines. BACK TO INDEX

B.17) Systems & Control Engineering (SC)
[Centre for Systems & Control Engineering (SC)]

The programme provides a balanced choice of courses in Systems and Control Engineering with focus on theory and application. It provides an interdisciplinary background to all the students by exposing them to all areas of systems and control. The exercises, examples, and projects are based on real world systems, so as to impart a deep understanding of the subjects and their applications.

The programme also aims to develop deeper mathematical fundamentals of systems and control engineering for future academics/researchers.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

AREAS OF RESEARCH

Systems Theory: PDEs, mechanics, dynamical systems, optimization, game theory, linear and nonlinear systems theory, probabilistic methods, information theory, AI and learning theory, approximation theory.
Control: optimal control, robust control, stochastic control, adaptive control, linear and nonlinear control, geometric control, quantum control, embedded control.
Robotics and Autonomous Systems: modeling, perception, planning and control of autonomous vehicles, ground robots, underwater and aerial drones, multirobot systems and swarm robotics, autonomous systems, modular and reconfigurable robotics, robot learning and control.
Quantum Control: quantum systems and control, quantum information, quantum computing, qubit control and quantum technologies.
Control of Aero-Mechanical Systems: satellite control, aerial and space robotics, vibration control, modeling and control of thermal systems, flexible structures, and electromechanical systems.
Artificial Intelligence and Networked Systems: networked systems, social systems, financial systems, multiagent systems, artificial intelligence, reinforcement learning, imitation and transfer learning, multiagent learning, analytics and data science, internet-ofthings.

All applicants are advised to look at the faculty webpage

(https://www.sc.iitb.ac.in/coreFaculty.html) and the corresponding research areas before applying. BACK TO INDEX

B.18) Technology and Development (TD)
[Centre for Technology Alternatives for Rural Areas (CTARA)]

The two-year trans-disciplinary course is designed to prepare professionals in the area of “Technology and Development” to work in diverse fields and in different roles for managing / influencing / consulting/ innovating / choosing in different public, private and civil society organizations. The core courses will deal with important rural resource assessment (land, water, energy), techniques for choice of technology, development theory and policy, social science research methods and system dynamics models, and project management. Students will be able to choose electives based on their background and interest.

ELIGIBILITY FOR ADMISSION- as given in Table A.5.3 - Eligibility for Admission to Different Disciplines.

FACILITIES AVAILABLE
Metal and wood working workshop, Food Processing laboratory, contacts with active organization in the region for practical training and field-based project work.

AREAS OF RESEARCH

- Technology and Development
- Rural/Agro-based Industries
- Natural Resources (Energy, water, Land use)
- Environment, Climate Change and Development
- Public Policy and Governance
- Agriculture and Biodiversity
- Rural and regional planning

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STATEMENT OF PURPOSE(SoP)/Additional information

1. Candidates applying to M.Tech. in (i) Technology & Development (TD) of IIT Bombay

Statement of Purpose (SoP) is your opportunity to share with the admission committee your thoughts and feeling about Postgraduate studies at IIT Bombay including your preparation for the same. Include a brief description of past project/ research work done by you. Restrict yourself to 500-600 words. The personal SOP will aid the admission committee in evaluating your application.

2. Candidates applying to M.Tech. in (i) Centre for Educational Technology of IIT Bombay

The Statement of Purpose (SoP) is your chance to share with the admission committee your aspirations and motivations for pursuing postgraduate studies at IIT Bombay. Elaborate on your passion for educational technology and briefly describe a relevant project or research work you've undertaken in this field. Restrict yourself to 200 words.

1. **Name**:

_____

2. **Programme of study:** M.Tech. Discipline **:** _____
(TD/ ET)

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Appendix-I

Sponsorship Certificate for full-time (2 years) candidates
(On the letterhead of the Sponsoring Organization)

SPONSORSHIP CERTIFICATE
(With/Without Financial Support)

To,
The Director,
Indian Institute of Technology Bombay,
Mumbai - 400076.

Subject: Sponsoring of an employee for Masters Programme (full-time) at IIT Bombay

Dear Sir,

We hereby sponsor the candidature of Shri / Smt. / Kum. _____, employed in our organization as _____ *(designation)*, for joining _____ *(degree)* programme in _____ *(discipline)* at _____ *(department)* of your Institute as a full-time candidate.

He / She is an employee of our organization since _____. We shall fully relieve him / her from duties during the entire period of the _____ *(degree)* programme, to enable him / her to devote full time to his / her studies in the Institute.

In case any intellectual property (IP) is created during the course of the doctorate degree / Ph.D. programme of Shri. / Kum. / Smt. _____, then, we hereby agree to enter into a MoU/Agreement with IIT Bombay specifying the terms of ownership and management of such IP(s), before filing of IP application(s).

We understand that the duration for full-time _____ *(degree)* programme is 2 years. We shall / shall not sponsor the total expenses of his / her studies.

Date: Signature and seal of the Sponsoring Authority

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Appendix-II

Sponsorship Certificate for part-time (3 years) candidates
(On the letterhead of the Sponsoring Organization)

SPONSORSHIP CERTIFICATE
(With/Without Financial Support)

To,
The Director,
Indian Institute of Technology Bombay,
Mumbai - 400076

Subject: Sponsoring of an employee for Masters Programme (part-time) at IIT Bombay

Dear Sir,

We hereby sponsor the candidature of Shri / Smt. / Kum. _____, employed in our organization as _____ *(designation)*, for joining _____ *(degree)* programme in _____ *(discipline)* at _____ *(department)* your Institute on a part-time basis.

He/ / She is an employee of our organization since _____. We shall fully relieve him / her from duties during working hours to undergo the programme as per IIT Bombay, time-table. It is noted that normal Instructional hours are from 8.30 a.m. to 5.00 p.m. and also some courses are in evening slots.

In case any intellectual property (IP) is created during the course of the doctorate degree / Ph.D. programme of Shri. / Kum. / Smt. _____, then, we hereby agree to enter into a MoU/Agreement with IIT Bombay specifying the terms of ownership and management of such IP(s), before filing of IP application(s).

We understand that the duration for part time _____ *(degree)* programme is expected to be 3 years. We shall / shall not sponsor the total expenses of his / her studies.

Date: Signature and seal of the Sponsoring Authority

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Appendix-III

No Objection Certificate (NOC) from Principal Investigator (PI)

This is to certify that _____ (name) has been working in Project _____ from dt. _____.

The duration of the project is _____ years. Appointment of _____ _____ (Name) is for the period of _____ years. His / Her appointment is likely to be extended for the further period.

I have no objection if he/she register for M.Tech. Programme in _____ (academic unit) under Project Staff category.

Signature _____

Prof. _____

Principal Investigator: _____

Project Code : _____

Project Title : _____

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