All India Council for Technical Education (AICTE)

(A Statutory Body of Government of India)
Nelson Mandela Marg, Vasant Kunj, New Delhi – 110 070
Website: www.aicte-india.org

Announces Admissions Under

QUALITY IMPROVEMENT PROGRAMME (QIP)

for Teachers of Engineering Institutions

Advt. No. AICTE/QIP/2019

Applications are invited from Regular Teachers of AICTE approved Degree Level Engineering Institutions for the admission to Master Degree and Advance admission to Ph.D Programme under QIP for year 2020-2021.

Candidates shall submit their application form on-line (compulsory) by registering themselves at **www.iitg.ac.in/cet/qip.html**

The candidate should send printed version of the on-line application form duly forwarded by the Principal/ Head of the Institution, as per instructions laid in the Information Brochure 2020-2021, along with the relevant enclosures to the address mentioned below:

Principal Coordinator QIP
Head, Centre for Educational Technology
Indian Institute of Technology Guwahati,
Guwahati – 781039, Assam

The detailed information brochure and instructions are available at:

www.aicte-India.org http://cce.iisc.ernet.in www.qip.iitb.ac.in http://cepqip.iitd.ac.in
www.iitg.ac.in/cet/qip.html www.iitk.ac.in/qip www.cep.iitkgp.ac.in/cep www.iitm.ac.in/qip
www.iitr.ac.in/qip www.iitbhu.ac.in/qip

Starting date for submission of on-line applications : 20 September 2019 (Friday)

Closing date for submission of on-line applications : 18 October 2019 (Friday), 17:00 hrs

Last date of receipt of hard copies of duly forwarded application along with relevant enclosures : 31 October 2019 (Thursday)

Member Secretary

QIP

QUALITY IMPROVEMENT PROGRAMME

Admission to Master Degree Programme for the academic year 2020-2021
(for the Full Time/Permanent Faculty of AICTE approved Degree Level Engineering Institutions)

INFORMATION BROCHURE
(Master Degree Programme)

Sponsored by

All India Council for Technical Education
(A Statutory Body of Government of India)

Admission coordinated by

Principal Coordinator QIP
Indian Institute of Technology Guwahati
Guwahati-781039, Assam
www.iitg.ac.in/cet/qip.html

DATES TO REMEMBER	
Opening of online Application Portal	20 September, 2019 (Friday)
Closing of online Application Portal	18 October, 2019 (Friday) 17.00 hrs
Last date for receipt of duly forwarded Applications along with enclosures	31 October, 2019 (Thursday)

Both online and hardcopy of the application are required for processing.
Single version of the application will not be considered.

Cover photo credits: Prof. Chandan Mahanta, Dept. of Civil Engineering, IIT Guwahati

Dear Prospective QIP Scholar

Your interest in the Quality Improvement Programme (QIP) sponsored by All India Council for Technical Education (AICTE) is appreciated. The principle objective of this programme is to enhance and upgrade the expertise and capabilities of faculty members of the AICTE approved degree-level engineering institutions. The programme, launched by the Government of India in the year 1970, is now being implemented and monitored by the National QIP Coordination Committee (NQCC) funded through AICTE.

There are three main activities under QIP scheme for the faculty of degree-level engineering institutions:

- Providing opportunities to teachers of the degree-level engineering institutions to improve their qualifications by offering admissions to M.Tech. and PhD programme.
- Organizing Short Term Courses at the QIP Centres for serving teachers in various emerging areas of technology and research.
- Curriculum Development Cell activities which helps to improve the classroom teaching and learning.

These activities are undertaken by nine major QIP centres at IITs and IISc. Admission to M. Tech. and Ph.D. programme is also offered (in selected areas) in institutions recognized as Minor QIP centres. A large number of teachers from engineering institutions from all over the country have pursued M.Tech. and Ph.D. programme under this scheme. These activities are aimed at improving the standard and quality of technical education through improvement in the qualification of the faculty members of the various engineering institutions.

In the past, a Curriculum Development Cell was also set up at major QIP Centres for improving the effectiveness of technical education in the country. Its activities included curriculum development and revision or preparation of monographs, textbooks, teachers' manuals, teaching aids and other resource materials, examination reforms, organizing inter institutional programs, seminars, workshops and panel discussions, development of educational technology, creation of methodologies for formal and informal trainings, technical education of the handicaps, etc. A number of short term courses have also been organized by major QIP centres for the benefit of the faculty members of Engineering Institutions across the country.

The following QIP websites will give you necessary information about the programme as well as about the requirements and procedure to apply for admission in M.Tech./Ph.D. programme: www.aicte-India.org, http://cce.iisc.ernet.in, www.qip.iitb.ac.in, http://cepqip.iitd.ac.in, www.iitg.ac.in/cet/qip.html, www.iitk.ac.in/qip, www.cep.iitkgp.ac.in/cep, www.iitm.ac.in/qip, www.iitr.ac.in/qip, www.iitbhu.ac.in/qip. The details of the disciplines and specializations available at various centres are listed on the website and are also available in the admission brochure to enable you to make appropriate choices. You can navigate through the links on the left hand side of the main web page for admission and can download the admission brochure.

Access to the online portal for submission of application opens on **September 20, 2019 (Friday)**. The last date for the online submission of the application is **October 18, 2019 (Friday)**. Please note that the last date for submission of the hard copy of the application is **October 31, 2019 (Thursday)**. Submission of online as well as hard copy of the application is mandatory. The hard copy should be sent to: **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati-781039, Assam.**

The procedure of admission under QIP involves the following steps:

- Scrutiny of all applications in the office of the Principal Coordinator QIP.
- Shortlisting of candidates by the QIP centres for interview and dispatch of call letters to the selected candidates.
- Recommendations by the QIP centres to the National QIP Coordination Committee.
- Final selection by the National QIP Coordination Committee, and
- Offer of Admission by the Institution where the final selection has been recommended by the NQCC.

The schedule of interview at various QIP Centres is given in the brochure, so that you can plan your travel for attending/appearing at the interview at places of your choice. For further information about the QIP, the application form or any associated item, you may contact the Principal Coordinator QIP or any of the Coordinators of the QIP Centres listed in the QIP websites and the brochure.

For further information about a particular institution or a particular department therein, you may directly write to the Head of concerned department or the QIP Coordinator of the institution.

The website www.iitg.ac.in/cet/qip.html will be updated periodically at each of the timelines. Please visit this website periodically to check for updates in the application and selection process.

Wish you all the best!

Prof. Hemant B Kaushik
Principal Coordinator QIP
Head, Centre for Educational Technology
IIT Guwahati, Guwahati-781039, Assam

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I. GENERAL INFORMATION

1. The major QIP Centres at IITs and IISc offer admission to Master degree programme in several disciplines. In addition, institutions recognized as the minor QIP Centres also offer admission to Master degree programme under QIP in some specific departments.

2. The duration of the Master Degree Programme is 24 months.

3. Candidate should visit the website www.iitg.ac.in/cet/qip.html for submitting on-line application and to check for updated information related to receipt of completed application, list of candidates called for interview, selected list of candidates and all other information pertaining to QIP admission.

4. Candidate should read the **Information Brochure** thoroughly before i) filling **in the online application**, and ii) sending the final print-out of application **(duly forwarded by the Head of Institution).**

5. Candidates must first submit their application form on-line through www.iitg.ac.in/cet/qip.html . Applications without on-line submission will not be considered. Candidate should make sure that proper Institute / Discipline codes are entered and all relevant details are duly filled in the respective fields. Access to the link for online submission of application opens on ***September 20, 2019 (Friday).*** Last date for online submission of application is ***October 18, 2019 (Friday), 17:00 hrs.*** The last date for receipt of duly forwarded hard copy of the application along with all the relevant enclosures is ***October 31, 2019 (Thursday).***

6. After filling the application online, candidates should send the **relevant number** of prints of the **online** completed form, duly forwarded by the Principal/Head of the Institution, as instructed along with all enclosures and receipt of payment for Rs.1000/- (Rs.500/- for SC/ST/PD/Female Candidates) to **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam.**

7. The candidate and the Principal/Head of the Institution forwarding the application should ensure that the application is to be sent to **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam**, so as to reach **on or before *October 31, 2019 (Thursday)*. Applications received after this date will not be considered.** Acknowledgement of the receipt of the application will be sent by email.

8. Information given by the candidate in the application for all the options chosen, must be uniform and correct. In case of any difference observed in the data related to experience, marks, designation, addresses, age, etc., **his/her candidature is liable to be cancelled at any stage even after the selection/ admission.**

9. **Application submitted without the full support and recommendation of the candidate by the appropriate authorities (Head/Principal of the Institution) with seal, and/or without the required enclosures will automatically be rejected. Please note that no corrections/ additions/deletions to the recommendation format is permitted. Changes to the format of the forwarding/ recommendation note will not be accepted.**

10. The application number allotted during **online registration** should be quoted in all correspondences, and **such correspondences should be routed through the Principal/ Head of the candidate's parent institution.** If the application number changes due to some unavoidable circumstances, this change will be intimated through email to the candidate. The changed application number may then be quoted in all cases.

11. Short-listed candidates will receive Interview Call/ Admission letter from the respective QIP Coordinator of the Institute, where they have applied to seek admission. **The Principal Coordinator QIP will not send any Call letter to the candidates directly.**

12. **Interview schedule is final and cannot be altered /changed under any circumstances.** Candidates are required to appear for interview at the Institute(s), where he/she would like to seek admission. Candidates may plan their travel accordingly.

13. Concessions, relaxation, and reservations for candidates belonging to SC/ST/OBC/Physically Disabled/Female Candidates are as per rules. The reservation rules of GOI will be applied to overall admissions by the NQCC. The selection of a candidate is considered only after the recommendation of the major/minor QIP center.

II. INSTITUTIONS OFFERING MASTER DEGREE PROGRAMME UNDER QIP AND THEIR CODES

Sl. No.	Name of the Institute/University	Code
Institutions that are Major QIP Centres: The following institutions have QIP Centres which offer admission to Master degree (2- years).		
1.	Indian Institute of Science, Bangalore – 560 012	**BG**
2.	Indian Institute of Technology Bombay, Mumbai – 400 076	**BM**
3.	Indian Institute of Technology Delhi, New Delhi – 110 016	**DL**
4.	Indian Institute of Technology Guwahati, Guwahati – 781 039	**GW**
5.	Indian Institute of Technology Kanpur, Kanpur – 208 016	**KN**
6.	Indian Institute of Technology Kharagpur, Kharagpur – 721 302	**K**
7.	Indian Institute of Technology Madras, Chennai – 600 036	**MD**
8.	Indian Institute of Technology Roorkee,, Roorkee – 247 667	**RR**
9.	Indian Institute of Technology (BHU) Varanasi-221 005	**VN**
Other Institutions that are Minor QIP Centres: The following recognized institutions also offer admission to Master Degree (2 years) Programme under QIP in some specific departments as given below:		
10.	Anna University, AC Technology Campus, Chennai – 600 025 (i) Chemical Engineering (ii) Leather Technology (iii) Ceramic Technology (iv) Applied Science and Technology (v) Textile Technology (vi) Bio Technology (vii) Rubber & Plastic Technology	**AU**
	Anna University, College of Engineering Gunidy, Chennai – 600 025 (i) Civil Engineering (ii) Electrical Engineering (iii) Information and Communication Engineering (iv) Mechanical Engineering	
	Anna University, Madras Institute of Technology, Chennai – 600 044 (i) Aerospace Engineering (ii) Automobile Engineering (iii) Electronics Engineering (iv) Instrumentation Engineering (v) Production Technology	
11.	Indian Institute of Engineering Science and Technology, Shibpur – 711 103 (i) Civil Engineering (ii) Electrical Engineering (iii) Mechanical Engineering (iv) Mining Engineering (v) Aerospace Engineering and Applied Mechanics (vi) Information Technology (vii) Metallurgy & Materials Engineering	**BE**
12.	B.M.S. College of Engineering, Bangalore – 560 019 (i) Mechanical Engineering	**BS**
13.	Indian Institute of Technology (Indian School of Mines), Dhanbad – 826 004 (i) Fuel & Mineral Engineering (ii) Mining Engineering	**IS**
14.	Jadavpur University, Kolkata – 700 032 (i) Electrical Engineering (ii) Electronics & Telecommunication Engineering (iii) Mechanical Engineering (iv) Production Engineering	**JU**
15.	Malnad College of Engineering, Hassan – 573 201 (i) Civil Engineering	**ML**
16.	Motilal Nehru National Institute of Technology, Allahabad – 211 004 (i) Applied Mechanics (ii) Civil Engineering (iii) Computer Science and Engineering (iv) Electrical Engineering (v) Electronics Engineering (vi) Mechanical Engineering (vii) GIS Cell	**MN**
17.	National Institute of Industrial Engineering, Mumbai – 400 087 Industrial Engineering	**NI**

18.	National Institute of Technology, Calicut - 673 601 (i) Civil Engineering (ii) Computer Science & Engineering (iii) Electrical Engineering (iv) Electronics & Communication Engineering (v) Mechanical Engineering	**CL**
19.	National Institute of Technology Karnataka, Surathkal – 575 025 (i) Applied Mechanics & Hydraulics (ii) Chemical Engineering (iii) Civil Engineering (iv) Computer Engineering (v) Electrical & Electronics Engineering (vi) Electronics & Communication Engineering (vii) Mathematical & Computational Science (viii) Mechanical Engineering (xi) Metallurgical & Materials Engineering	**SK**
20.	National Institute of Technology, Rourkela – 769 008 (i) Ceramic Engineering (ii) Chemical Engineering (iii) Civil Engineering (iv) Computer Science and Engineering (v) Electrical Engineering (vi) Electronics and Communication Engineering (vii) Mechanical Engineering	**RK**
21	National Institute of Technology, Tiruchirappalli – 620 025 (i) Civil Engineering (ii) Computer Science & Engineering (iii) Electrical and Electronics Engineering (iv) Mechanical Engineering (v) Metallurgical Engineering (vi) Production Engineering	**TR**
22.	National Institute of Technology, Warangal – 506 004 (i) Civil Engineering (ii) Electronics & Communication Engineering (iii) Electrical Engineering (iv) Mechanical Engineering	**WR**
23.	PSG College of Technology, Coimbatore – 641 004 (i) Computer Science & Engineering (ii) Electrical & Electronics Engineering (iii) Mechanical Engineering (iv) Production Engineering (v) Textile Technology	**PS**
24.	Shri G. S. Institute of Technology and Science, Indore – 452 003 (i) Electrical Engineering	**GS**
25.	JSS Science and Technology University (formerly Sri Jayachamarajendra College of Engineering), Mysore – 570 006 (i) Civil Engineering (ii) Electronic and Communication (iii) Instrumentation Technology (iv) Mechanical Engineering	**SJ**
26.	University Visveswaraya College of Engineering, Bengaluru – 560 056 (i) Civil Engineering	**UV**
27.	Visvesvaraya National Institute of Technology, Nagpur – 440 011 (i) Civil Engineering (ii) Electrical Engineering	**VR**

III. CODES FOR DEPARTMENTS OFFERING MASTER DEGREE PROGRAMME AT VARIOUS INSTITUTIONS

Department/Centre	Code	Institution(s) Offering Master Degree Programme
Advance Technology Development Centre	AT	**KH**
Applied Science and Technology	AT	**AU**
Aerospace Engineering	AE	**BG, BM*, KH, KN, MD, AU**
Aerospace Engineering and Applied Mechanics	AE	**BE**
Agriculture and Food Engineering	AG	**KH***
Hydro and Renewable Energy	HR	**RR***
Applied Mechanics	AM	**DL, MD*, MN**
Applied Mechanics Hydraulics	AM	**SK***
Architecture and Planning	AR	**RR***
Architecture and Regional Planning	AR	**KH**
Automobile Engineering	AU	**AU**
Biomedical Engineering	BM	**VN, DL**
Biochemical Engineering	BC	**VN**
Bio Sciences & Bio Engineering	BM	**BM**
Biotechnology	BT	**KH, RR, AU**
Energy Studies (Centre)	EN	**DL**
Material Science & Engineering (Centre)	PS	**DL***
Centre for Atmospheric and Oceanic Science	AS	**BG**
Centre of Studies in Resources Engineering	SR	**BM**
Centre of Educational Technology	ET	**KH**
Centre for Oceans, Rivers, Atmosphere and Land Sciences	EV	**KH**
Center for Product Design & Manufacturing	PD	**BG**
Chemical Engineering	CH	**AU, BG, BM, DL, GW*, KH, KN, MD, RK, RR, SK*, VN**
Ceramic Engineering	CM	**RK, VN**
Ceramic Technology	CM	**AU**
Civil Engineering	CE	**AU, BE, BG*, BM*, CL*, DL*, GW*, KH*, KN*, MD*, ML, MN, RK*, RR*, SJ, SK*, TR*, UV, VR, WR*, VN**
Computational & Data Science	CD	**BG**
Computer Engineering	CS	**SK***
Computer Science & Automation	CS	**BG**
Computer Science & Engineering	CS	**BM, DL, GW, KH, KN, MD, MN, PS, RK*, TR, RR, CL***
Cryogenic Engineering Centre	CR	**KH**
Chemistry	CY	**RR**
Disaster Mitigation & Management	DM	**RR**
Earthquake Engineering	EQ	**RR***
Electrical & Electronics Engineering	EE	**PS*, SK, TR**
Electrical Communication Engineering	EC	**BG**
Electrical Engineering	EE	**AU, BE, BG, BM*, CL*, DL, GS, JU*, KH*, KN*, MD*, MN, RK, RR*, VR, WR, VN***
Electronics & Electrical Engineering	EE	**GW***

Department/Centre	Code	Institution(s) Offering Master Degree Programme
Electronics and Communication	IL	**SJ**
Electronics & Communication Engineering	EC	**RK*, SK*, WR*, CL*, RR***
Electronics & Telecommunication Engineering	EC	**JU***
Electronics Systems Engineering	ED	**BG**
Electronics & Electrical Communication Engineering	EC	**KH***
Electronics Engineering	EC	**AU, MN, VN**
Energy Science and Engineering	EN	**BM, KH**
Environmental Science & Engineering	EV	**BM**
Fuel and Mineral Engineering	FM	**IS**
Earth Sciences	ES	**BM***
Center for Earth Sciences	ES	**BG**
GIS Cell	GI	**MN**
Humanities and Social Sciences	HS	**BM**
Hydrology	HY	**RR**
Information Technology	IT	**BE**
Industrial and Management Engineering	IM	**KN**
Industrial Engineering & Operations Research	IO	**BM**
Industrial Engineering	IE	**NI**
Industrial & System Engineering	IM	**KH**
Industrial Tribology Machine Dynamics and Maintenance Engineering	TR	**DL**
Industrial Design Center	ID	**BM**
Information and Communication Engineering	IC	**AU**
Instrumentation & Applied Physics	IN	**BG**
Instrumentation Technology	IN	**SJ**
Instrumentation Engineering	IN	**AU**
Leather Technology	LT	**AU**
Material Science	MS	**KH, KN**
Materials Science & Engineering	MT	**KN**
Mathematical and Computational Sciences	MC	**SK**
Mathematics	MA	**KH, MD**
Mechanical and Industrial Engineering	ME	**RR**
Mechanical Engineering	ME	**BG, BM*, DL, GW, VN*, KH, MD, AU, BS, BE, JU*, MN, CL*, RK*, TR*, WR, PS*, SJ , KN, SK***
Medical Science & Technology	MB	**KH**
Metallurgical and Materials Engineering	MT	**KH, SK*, BE**
Metallurgical and Materials Engineering	MM	**MD**

Department/Centre	Code	Institution(s) Offering Master Degree Programme
Metallurgical Engineering & Materials Science	MM	**BM***
Metallurgical Engineering	MT	**TR*, VN**
Metallurgical Engineering and Material Engineering	MT	**RR**
Materials Engineering	MT	**BG**
Material Science & Technology	MS	**VN**
Microelectronic System	ML	**BG**
Mining Engineering	MI	**BE, IS, VN**
Nuclear Engineering and Technology	NE	**KN**
Nanotechnology	NT	**RR**
Ocean Engineering	OE	**MD***
Ocean Engineering and Naval Architecture	OE	**KH**
Paper Technology	PP	**RR***
Physics	PH	**DL, MD, RR*, KH**
Photonic Science & Engineering	LS	**KN**
Production Engineering	PE	**JU*, PS*, TR***
Production Technology	PT	**AU**
Infrastructure Design & Management	ID	**KH**
Reliability Engineering (Centre)	RE	**KH**
Rubber Technology	RT	**KH**
Rubber & Plastic Technology	RT	**AU**
Signal Processing	SP	**BG**
Systems and Control Engineering	SC	**BM**
Systems Engineering and Automation	SA	**BG**
Textile Technology	TX	**DL, PS, AU**
Centre for Transportation Systems (CTRANS)	TS	**RR**
School of Water Resources	WR	**KH**
Water Resources Development & Management	WR	**RR***
Design	ID	**DL**
Mining Engineering	MN	**KH**

***** Specializations have to be indicated while opting for the particular department. Code for the specializations is given along with the details corresponding to the particular institution (Depts. & Field of Specialization).

IV. ELIGIBILITY CRITERIA

1. **Only candidates (such as Lecturers, Workshop Superintendent, Readers, Assistant Professors, Associate Professors and Professors) with a minimum of two-years teaching experience as full-time regular/permanent teachers of AICTE approved Degree level Engineering Institutions, as on September 30, 2019 (Monday) are eligible to apply.** Admissions to Master degree programme under QIP are open only to candidates with a basic degree in Engineering or Technology or Architecture or such other equivalent qualification.

2. **Please note that according to the AICTE notification F.No:37-3/Legal/2010 dated 22 January, 2010 and subsequent publication in Gazette of India dated 5th March, 2010, the appointment of a permanent (regular) faculty as Assistant Professor at degree level, requires a minimum qualification of Master's degree in the relevant branch. Thus, applications of those candidates, who have been appointed to permanent teaching position after 2010 without a Master's degree, will be declined.**

3. The candidate should satisfy the minimum eligibility criteria prescribed by the individual Department (and/or the Institution) to which admission is sought.

4. Computer Programmers, Systems Programmers, Workshop Staffs, Guest Lecturers, Visiting Lecturers, Teaching Assistants, Ad-hoc/Contract or Part-time Teachers, Technical Assistants, Research Engineers, Scientific Officers and other such categories of staff **are not eligible.**

5. Teachers of the Major QIP centers **are not eligible**.

6. Teachers of the Minor QIP centres **are eligible to apply to Major QIP Centres.**

7. Teachers of the minor QIP centres are permitted to apply for a field of specialization available in another minor QIP centres, which is not available in their parent department on the specific recommendations of the Department's and Institute's Head stating that a faculty in the particular specialization is required for their Institution.

V. SCHOLARSHIP AND CONTINGENCY GRANT

The candidates admitted for the Master degree programme under QIP will receive a sum of Rs.4,000/- per month as living expenditure allowance and a contingency grant of Rs.5,000/- per annum for two years.

VI. CONDITIONS FOR ADMISSION

1. Admission is possible only to the **Institutions** and the **Departments** listed in the Information brochure.

2. The **final admission of the candidate will be subject to the clearance and approval by the Admission Wing (Section)** of the **concerned institution** as per its rules and regulations in force at the time of admission. **Applicant's candidature is liable to be cancelled at any stage even after the selection/ admission.**

3. The candidate, if selected, should be relieved from the parent institution to join the programme in time for the session to which he/she is admitted.

4. The candidate joining the Master degree programme under QIP on deputation would be entitled to receive his/her salary and allowances, which must be paid by the parent institution sponsoring him/her.

5. **Conditional recommendation by the Principal/Head of the Institution will not be accepted.**

6. The Principal/Head of the Institution of a candidate who is selected for admission should ensure that the **sponsorship certificate** is produced by the candidate at the time he/she joins the course.

7. If a QIP scholar **discontinues** the Master degree programme, **the scholar has to refund the scholarship and contingency received to the AICTE through the QIP Centre, and the parent institution may seek refund of the salary and allowances paid to him for the period he/she attended the programme.**

VII. INSTRUCTIONS FOR COMPLETING THE ONLINE APPLICATION

General Instructions

1. The website link for application is: www.iitg.ac.in/cet/qip.html Click on **"QIP Admission 2020-21"**.

2. The candidate should first register by clicking "New Registration". An email confirming the registration will be sent by assigning an Application Number and a Password. The application number and the password are required for subsequent operations. Hence the candidate should remember them or keep them at a safe place.

3. Candidate can start filling up the on-line application by logging in through "View/Edit Application".

4. On-line application can be completed in one or more sessions by revisiting the website using the assigned application number and password.

5. The candidate should enter all required information correctly in all fields of the on-line application.

6. After filling the fields, the candidate can save the information in between by using the **SAVE** button. The candidate can edit data in any field till the final submission and printout is taken. The last date for on-line submission of application is ***October 18, 2019 (Friday), 17:00 hrs.***

Personal Information

7. After completing the Name, Designation, Department and Address fields (using the pull-down menu) enter Date of Birth; Gender as 'Male' or 'Female'; the category by 'General', 'SC', 'ST', or 'OBC'; put 'Yes' if you belong to Physically Disabled Category and "No' if you do not; Married as 'Yes' if you are married and 'No' if you are single.

Educational Qualifications and Academic Data

8. During the process of entering the application details, additional sub-links are provided in appropriate places. For example, while entering the overall performance of the candidate under "Educational Qualifications", there will be a link through which the candidate can furnish the semester wise / year wise particulars.

9. For filling academic data and additional qualification, if the absolute marks are awarded, then fill, e.g. 650/800 where the total marks obtained is 650 out of a total of 800. If the Grade Point Average (GPA) is awarded, fill, e.g. 6.7/10 where 6.7 is GPA obtained on a scale of 10. If the candidate has failed in any subject during any semester examination and cleared that subject in a later semester, the marks obtained in that subject should be added back to the semester in which it was supposed to have been cleared and then the total marks is to be calculated. **Candidate should take the marks of all the semesters for Calculating the overall percentage or CGPA (irrespective of the methodology adopted by the university/college in awarding final class/division).**

10. During the entry of details like detailed semester wise / year wise information, detailed teaching experience, etc., the candidate has to enter the details for which documents of proof are to be attached.

Institute and Department Preferences

11. A candidate can apply to a maximum of three institutions and a maximum of two departments in each of the chosen Institutes (i.e., maximum of total six options only).

12. Select the Institution by using the pull-down-menu as per the order of your preference. Then enter the programme code desired as per preferred choices with valid code.

13. Appropriate list of 'valid codes' can be viewed using links provided. The code contains 6 characters; the first 2 alphabets identify the Institute, the next 2 alphabets identify the department within the Institute and the last 2 digits identify the field of specialization. For example, a code 'RRME01' represents the Specialization of *Machine Design Engineering* in the *Department of Mechanical and Industrial Engineering* at *IIT Roorkee*.

Preview of Application

14. Once the complete details about the candidate are entered and saved, the online application can be printed. To preview the completed application, the candidate can print a draft copy of the application. The candidate should check the completeness and correctness of the information; if needed, corrections can also be made before the final submission.

Final Confirmation and Printouts

15. After finalizing the contents of the application, the candidate should invoke the FINAL version of the application. Click here for printing the FINAL version of the application. **Once the FINAL version option is chosen, the candidate will not be allowed to modify the contents of the application. The FINAL version should be printed only on A4 sheet with the print orientation as 'portrait'**, and margins **as 20 mm (left, right, top and bottom).** The **print report** contains multiple copies of the application. The first copy corresponds to the 'copy for **The Principal Coordinator QIP**, and one copy each for the preference code **related to the number of institutions and departments, a candidate proposes to apply to**. Please note that you are required to send all the copies to: **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam**.

16. The following table indicates the number of printouts to be taken and the number of sets of enclosures required as **related to the number of institutions and departments a candidate proposes to apply.**

No. of Institutions chosen	Total No. of Departments (streams or specializations) chosen	No. of applications to be printed and No. of sets of enclosures required
1	1	2
1	2	3
2	2	3
2	3	4
2	4	5
3	3	4
3	4	5
3	5	6
3	6	7

17. In each copy, the candidate should affix his/her recent stamp-size photograph in the space provided.

18. The candidate should thoroughly verify the contents of the printed documents and sign at the appropriate places.

19. In the "**Forwarding Note**" of the Application Form, the space provided for the Name of the Candidate and Teaching Experience must be duly filled in and **signed by the Principal / Head of the Institution along with the Office Seal**.

20. Applications submitted without signatures of the candidate and the appropriate authorities with seal, and/or without the required enclosures will **automatically be deemed invalid.**

VIII. APPLICATION FEE

Online Payment receipt of Rs. 1000/- for General/OBC Category and Rs. 500/-for SC/ST/PD/ Female Candidate should be attached with the form marked as, **Copy for Principal Coordinator** on top of the form. Candidate should write their application number, name, address and courses applied on back side of the receipt. Candidate should note that the fee paid by other means, i.e., by **DD**, **IPO, cheques, etc. are not acceptable. Application fees once paid cannot be refunded.**

Procedure for Payment of Application Fee:
An online payment portal is created within the application process for payment of Application Fee. The candidates should first follow the registration steps as mentioned above. The fee will be required to be paid using the online portal just before printing the final version of the application.

IX. CHECKLIST FOR EACH COPY OF THE APPLICATION FORM

- **In Forwarding Note, the candidate should check his/her Name, years and months of experience, signature (Head of Institution), date, and office seal with full contact details Name, Designation, Contact No., E-mail and AICTE affiliation No. of the parent institute.**
- **Photographs:** Affix recent stamp size photographs at space provided on all printed copies of Application Forms including the **Copy for Principal Coordinator**.
- **Signatures of the Applicant:** The candidate should sign in all the printouts at relevant places.
- Candidate should ensure that all information are properly filled in and required number of print-outs taken and all copies are to be send in a **single envelope to The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam**.

Enclosures

1. **Application Fee: Receipt of** Online Payment of Rs.1, 000/- for General/OBC Category and Rs.500/- for SC/ST/PD/Female candidates should be enclosed with the **copy of the Principal Coordinator QIP form only.**
2. Candidates belonging to **SC, ST** or **OBC** category, must attach an attested copy of the **caste certificate** issued by a **competent authority as** per the Government of India rules.
3. **Physically Disabled** candidates must attach a copy of the certificate issued by a **competent authority as** per Government of India rules.
4. **Checklist**: Enclose attested copies of all the relevant certificates (one set with each print-out of application)
   - Certificates of the Qualifying Examination and other Degrees
   - Proof of age
   - Mark Lists of all years/semesters of qualifying examination (mark sheets clearly showing total marks obtained out of

maximum marks according to semester or year)

- Teaching Experience arranged in chronological order with currently held position as first (Experience certificate from current institute must be enclosed)
- Industrial/Research Experience Certificates
- Certificates of Short Term Courses attended
- All Research Publications
- Any other Academic Qualifications/Awards, etc.

X. INSTRUCTIONS FOR DESPATCHING

1. For the convenience of the candidate, a check list is also provided under point No. IX. One can use this list and ensure the completeness of application. Once completed, the entire bunch (all copies in a single envelop) is to be dispatched ONLY to **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati– 781039, Assam** along with the copy of Online Payment receipt. The envelop containing all the copies and enclosures should preferably be sent by Speed Post or a Courier Service so as to reach **on or before October 31, 2019 (Thursday)**. **Applications received after this date will not be considered.** For any clarification contact us: Phone: 0361-2583007, 0361-2583008; Fax: 0361-2690762; Email: qip@iitg.ac.in

2. **Before mailing the completed forms, please ensure that each copy of application form and its enclosures are properly fastened with a tag separately at the left-hand top corner.**

3. In case, your applications are submitted by your sponsor, it is your responsibility to ensure that the application is forwarded to the above mentioned address so as to reach **on or before October 31, 2019 (Thursday)**. **Applications received after this date will not be considered.**

4. In case, the candidate has forgotten the password, the candidate should send an email (using the email ID mentioned in the on-line application) to **qip@iitg.ac.in** furnishing the following details: Application Number, Name of the Candidate, Date of Birth, and Address for Correspondence, Gender and Category. After verification, the candidate will be informed about the password through email only.

XI. LAST DATE

The last date for on-line submission of application is **October 18, 2019 (Friday)**. The last date for hard copy submission of application is **October 31, 2019 (Thursday)**. **Applications received after this date will not be considered**.

XII. PROCEDURE FOR ADMISSIONS UNDER QIP

1. **Short-listing** of the candidates will be done first by the office of the Principal Coordinator QIP, then finally at the Department/ Institute concerned. Interview letters will be sent to the short-listed candidates by the Department/ Institute concerned.

2. **Interviews** will be conducted in the Departments at the individual Institutions. **Schedule of interviews** is provided in the next Section. Please note that **No TA/DA will be paid to candidates** for attending the interviews.

3. **Selections** will be made by the National QIP Coordination Committee (NQCC) based on the recommendations of various concerned institutions.

4. **Final Results** will be available at the website: www.iitg.ac.in/cet/qip.html

5. **Admission** letters will be issued to the selected candidates by the respective QIP Centres or Academic section of the institutions offering the admission. His/her candidature is liable to be cancelled at any stage even after the selection/ admission.

XIII. SCHEDULE OF INTERVIEWS FOR ADMISSION TO MASTER DEGREE PROGRAMME UNDER QIP

The following dates of interview at various QIP Centres, finalized by Principal Coordinator QIP/National QIP Coordination Committee (NQCC), are final and cannot be altered under any circumstances.

S.No	Institute	Interview Date	Day
1	Indian Institute of Engineering Science and Technology, Shibpur	06/01/2020	Monday
2	Jadavpur University, Kolkata	07/01/2020	Tuesday
3	Indian Institute of Technology Kharagpur	13/01/2020	Monday
4	National Institute of Technology, Rourkela	17/01/2020	Friday
5	Indian Institute of Technology (Indian School of Mines), Dhanbad	20/01/2020	Monday
6	Indian Institute of Technology Guwahati	24/01/2020	Friday
7	Indian Institute of Technology Delhi	29/01/2020	Wednesday
8	Indian Institute of Technology (BHU), Varanasi	05/02/2020	Wednesday
9	Motilal Nehru National Institute of Technology, Allahabad	07/02/2020	Friday
10	Indian Institute of Technology Kanpur	14/02/2020	Friday
11	SGS Institute of Technology & Science, Indore	17/02/2020	Monday
12	Indian Institute of Technology Roorkee	20/02/2020	Thursday
13	Indian Institute of Technology Bombay	25/02/2020	Tuesday
14	National Institute of Industrial Engineering, Mumbai	26/02/2020	Wednesday
15	Visvesvaraya National Institute of Technology, Nagpur	02/03/2020	Monday
16	JSS Science and Technology University, Mysore	04/03/2020	Wednesday
17	Malnad College of Engineering, Hassan	05/03/2020	Thursday
18	Indian Institute of Science Bangalore	13/03/2020	Friday
19	UVCE, Bangalore	16/03/2020	Monday
20	BMS College of Engineering, Bangalore	17/03/2020	Tuesday
21	National Institute of Technology Karnataka, Surathkal	20/03/2020	Friday
22	Indian Institute of Technology Madras	23/03/2020	Tuesday
23	Anna University, Chennai	24/03/2020	Tuesday
24	National Institute of Technology, Tiruchirappalli	26/03/2020	Thursday
25	PSG College of Technology, Coimbatore	30/03/2020	Monday
26	National Institute of Technology, Calicut	07/04/2020	Tuesday
27	National Institute of Technology, Warangal	13/04/2020	Monday

XIV. DEPARTMENTS AND FIELDS OF SPECIALISATION AT VARIOUS INSTITUTIONS

The departments offering admission to Master degree (2 years) programs at various institutions and the fields of specialization in the departments are listed in the Tables given below.

Specializations mentioned indicate only areas of interest and are not exhaustive. There may not be admissions open to all the areas indicated, and candidates, if found suitable, may be admitted to related areas also.

The details given are subject to variation and change from time-to-time and only those operating in the respective institutions at the time of actual admissions are applicable. Candidates desirous of more information such as for accommodation, fee structure etc. may write/contact to the QIP Coordinator of the individual institution or visit their website.

1. Indian Institute of Science Bangalore - BG

In all cases, the minimum eligibility is second class or equivalent grade point in the qualifying examination or Bachelor's degree in Science with Physics and Mathematics in the curriculum followed by the professional diploma as relevant to individual departments.

Code	Department	Fields of Specialization	Minimum Qualification
BGAE01	Aerospace Engineering	Structures, Aerodynamics, Propulsion, Control and Guidance of Aircraft, Rockets and Spacecraft.	BE/B.Tech. or equivalent degree in Aeronautical, Chemical, Civil, Mechanical Engineering, Instrumentation & Control, Electrical, Electronics, OR Communication or B.Sc. or equivalent degree followed by AMIE/ AMAeSI/ AMIIChE/ IETE, GRAD.
BGCH01	Chemical Engineering	Alternative Energy; Biochemical Engineering; Biophysics; Catalysis; Complex Fluids; Alleviation of Environmental Pollution; Nanotechnology; Optimization and Control; Modeling, Design and Intensification of chemical processes; Molecular Simulations; Theoretical Biology; Thermodynamics; Transport Phenomena	BE/B.Tech or equivalent degree in Chemical Engineering or BSc or equivalent degree with Mathematics as one of the subjects followed by AMIE in Chemical Engineering or AMII ChE
BGCE01	Civil Engineering	Civil Engineering with major in Geotechnical Engineering, Structural Engineering and Water Resources & Environmental Engineering	BE/BTech or equivalent degree in Civil Engineering
BGCE02		Transportation and Infrastructure Engineering	B.E./B.Tech in any discipline
BGCS01	Computer Science and Automation	**Theoretical Computer Science** - Algorithms; Complexity Theory; Combinatorial Optimization; Graph Theory; Information and Coding Theory; Cryptography; Cryptology; Security; Secure Distributed Computing; Computational Geometry; Computational Topology; Algorithmic Algebra; Computational Biology; Automata Theory; Formal Verification. **Computer Systems and Software** - Computer Architecture; Multi-Core Computing; Parallel and High Performance Computing; Operating Systems; Storage Systems; Computer Systems Security; Database Systems; Cloud Computing; Distributed Computing; Modeling and Simulation; Compiler Design; Program Analysis; Programming Languages; Software Engineering; Adhoc Mobile and Sensor Networks; Graphics and Visualization. **Intelligent Systems** - Data Mining; Data Analytics; Deep Learning; Information Retrieval; Machine Learning; Pattern Recognition; Reinforcement Learning; Convex Optimization; Stochastic Control and Optimization; Game Theory; Auctions and Mechanism Design; Electronic Markets; Social Network Analysis; Cognitive Systems; Natural Language Processing; Computational Neural Modeling, Computational Brain Imaging.	BE/B.Tech or equivalent degree in Computer Science and /or Engineering (CS) or Information Technology (CS) or Information Science and Engineering (CS).
BGPD01	Centre for Product Design & Manufacturing	Product Design and Engineering	B.E./ B.Tech or equivalent degree in any discipline(GATE/CEED) or B.Des (CEED) or B. Arch. (GATE or CEED
BGSA01	Systems Engineering and Automation (Jointly conducted by departments of Electrical Engg. & Computer Science and Automation)	Dynamics of Linear Systems, Stochastic Models, Linear and Non-linear Optimization, Cryptography, Data Mining, Machine Learning, Game Theory, Computer Communication Systems. Digital Image processing, Speech Information Processing, Computer Vision, Medical Imaging and Processing.	BE/B. Tech. or equivalent degree Computer Science/ Engineering, Electrical, Electronics, Communication ,Instrumentation, Mechanical or Chemical Engineering, OR B.Sc. or equivalent degree followed by AMIE in Electrical, Electronics and Communication, Mechanical or Chemical Engineering, GRAD. IETE, AMIChE, Candidates should have done a formal course in Programming in Language.
BGEC01	Electrical Communication Engineering	Communications and Networking; Information and Coding Theory; Microelectronics; Microwaves; Photonics; Signal Processing; Optical Communication; Wireless Communication Information Theory and Coding.	BE / B Tech or equivalent degree (with a GATE Paper in EC).
BGEE01	Electrical Engineering	Dynamics of Linear Systems, Power System Dynamics and Control, Computer Control of Power Systems, Advanced Power Systems Analysis; Power Electronics, Electric Drives, Switched Mode Power Conversion, Embedded Systems Design for Power Applications, Electromagnetism, Generation and Mesaurement of High Voltages, EHV Power Transmission, HV Power Apparatus, Overvoltages in Power Systems	BE/B.Tech. or equivalent degree in Electrical, or Electrical & Electronics or B.Sc. or Equivalent degree followed by AMIE in Electrical.
BGME01	Mechanical Engineering	Solid Mechanics, Fluid Mechanics, Thermal Science, Design and System Analysis, Material Science, Technical Acoustics, IC Engines, MEMS, Bio-Mechanics, Computational Mechanics.	BE/B.Tech or equivalent degree in Mechanical Engineering or B.Sc. equivalent degree with Mathematics followed by AMIE in Mechanical Engineering, or AMI Mech E(I)
BGMT01	Materials Engineering	Mechanical Behavior of Metals, Ceramics, Polymers Glasses and Thin Films. Biomaterials Engineering. Polymer Nanocomposites. Organic Electronics. Sensors. Mineral Processing. Biohydrometallurgy. Extractive Metallurgy. Process Modeling. Physical Metallurgy. Phase Stability and Transformation. Diffusion. Solidification. Li-ion batteries.	BE/ B. Tech or equivalent degree in Metallurgy/ Mechanical Engineering/ Chemical Engineering /Ceramic Engineering/ Technology or B.Sc. or equivalent degree with Mathematics,

Code	Department	Fields of Specialization	Minimum Qualification
		Electrocatalysts, printed electronics.	Physics &Chemistry followed by AMIE in Metallurgical Engineering or AMIIM.
BGML01	Microelectronics System (Jointly conducted by, Electrical Communication Engg. & Dept. of Electronic Systems Engineering)	Digital VLSI Design; FPGA; ASIC; Nano CMOS Technology; Analog and RF Circuits Design; MEMS; Photonic Integrated Circuits. Optics	BE/ B Tech or equivalent degree (with a GATE Paper in EE; EC; CS; IN).
BGSP01	Signal Processing (Jointly conducted by Elect. Engg & Electrical Communication Engg.)	Digital Signal Processing; Image Processing; Signal Compression; Neural Networks; Biomedical Signal Processing; Speech/Audio Info. Processing; Array Processing; Pattern Recognition; Signal Processing for Communication; Sparse Signal Processing; Compressed Sensing Indoor Localization. Detection and Estimation.	BE / B Tech or equivalent degree (with a GATE Paper in EE; EC).
BGED01	Electronic Systems Engineering	Communication and Computer Networks, Cyber Physical Systems, Embedded Systems, Nanoelectronics, Power Semiconductors, Power Conversion, VLSI Design, Electronic Packaging, Instrumentation, Microengineering, Biomedical Devices.	BE/ B.Tech or equivalent degree in Electrical (EE), Electronics and Communication (EC), Computer Science (CS), Instrumentation with Electronics (IN) or B.Sc. or equivalent followed by AMIE a relevant area of specialization OR M.Sc.in Physics with Electronics as the special subject. (M.Sc. degree or equivalent degree holders should possess 2-years' experience in Electronic Hardware)
BGIN01	Instrumentation and Applied Physics	Semiconductor Devices and Circuits, Quantum computation, Control Systems, Nanoelectronics, Quantum dots, Sensors and related Instrumentation, Materials Engineering, Microscopy and Imaging, Analytical Instrumentation, Electronic Instrumentation, Lasers and Optical Instrumentation, Microfluidic Devices, Vacuum and Thin Films, Micro and Nano Systems.	M.Sc. or equivalent degree with specialization in Instrumentation / Physics / equivalent or B.E. / B.Tech. or equivalent in Instrumentation, Engineering Physics or Electronic Engineering
BGCD01	Computational and Data Sciences	Multidisciplinary Program Addressing: Computational and Data Science. Topics include: Numerical Linear Algebra, Numerical Methods, Modeling and Simulation, Optimization, Scalable systems, Cloud computing, scalable methods, data analysis, visualization, Deep Learning, and Big Data platforms. (http://cds.iisc.ac.in/academics/degree-programs/)	BE/B.Tech or equivalent degree in any discipline M.Sc. or equivalent degree in any discipline or M.C.A. in all cases strong mathematical and programming background is required.
BGAS01	Centre for Atmospheric & Oceanic Sciences	Atmospheric Sciences , Oceanic Sciences	BE/ B. Tech. or equivalent degree in Aerospace Civil, Chemical, Electronics & Communication, Electrical, Mechanical Engineering, Engineering Sciences or M. Sc or equivalent degree in Physical Sciences.
BGES01	Centre for Earth Sciences	Paleoclimate reconstruction; Atmospheric and Ocean Chemistry, Application of Major and Trace Element Geochemistry and Traditional and Non-traditional Stable Isotope Geochemistry to Modern-Day and Early Earth Processes. Lithosphere and Mantle Dynamics, Paleotectonics; Metamorphic Processes: Geochoronology and Crustal Evolution Planetary Magnetism and Core Dynamics; Seismotectonics and Seismic Hazard Subduction Zone Earthquakes.	B.E./ B.Tech or equivalent degree in any discipline or M Sc. or equivalent degree in any branch of Science or Graduate of 4-year Bachelor of Science programme.

2. Indian Institute of Technology Bombay – BM

In all cases, the minimum eligibility is a First Class or equivalent (Min.60%) Bachelor' Degree in Engineering/Technology (55% for SC/ST)

Code	Department	Fields of Specialization	Minimum Qualification
BMAE01	Aerospace Engineering	lynamics	Bachelor's degree in Aerospace, Aeronautical, Mechanical, Civil or its equivalent
BMAE02		mic and Control	Bachelor's degree in Aerospace, Aeronautical, Mechanical, Electrical/ Electronics/ Instrumentation or its equivalent.
BMAE03		pace Propulsion	Bachelor's degree in Aerospace, Aeronautical, Mechanical or its equivalent.
BMAE04		pace Structures	Bachelor's degree in Aerospace, Aeronautical, Mechanical, Civil or its equivalent
BMCH01	Chemical Engineering	**Research Areas:** **Process Systems Engineering:** Process Simulations, Optimizations, Process Integration and Scheduling, Energy Conservation and Optimal Resource Management, Artificial Intelligence and Mathematical Modeling, Multi-scale Modeling. Systems Identification and Process Safety Analysis, Nonlinear control, fault diagnosis. **Biotechnology & Bio-Systems Engineering:** Metabolic & Genetic Engineering, Bio-separations, Bioinformatics, Systems Biology, Drug Discovery, Enzymology, Bioprocess Development, Bio-fuels. **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. **Catalysis & Reaction Engineering:** Catalysis, Multiphase Reaction, Bio-reaction Engineering and Reactor Modeling, Process intensification & reactive distillation Micro- reactors. **Transport, Colloids & Interface Science:** Granular flows, Powder Mixing, Membrane Separations, Rheology of Complex Fluids, Colloids, Sol-gels, Emulsions & Foams, Paints and Coatings, Micro-structural Engineering, Acrosols, Electro-hydrodynamics. Fluid Mechanics & Stability, Computational Fluid Dynamics, Heat & Mass transfer, Porous media, and Surfactants Micro- fluidics. **Energy and Environment:** Climate change, Coal Gasification, Energy Integration, Green Engineering, Renewable Resources, Waste Management, Pollution Control, Air Pollution Prediction & Control, sustainability studies. **Thermodynamics and Molecular Simulations:** Properly prediction through molecular simulation, fuel cell, catalytic systems, biological systems, polymers.	Bachelor's degree in Chemical Engineering OR equivalent
BMCE01	Civil Engineering (Code no. of specialization to be indicated in the datasheet)	Transportation Systems Engineering	B.E/B.Tech. in Civil Engineering or equivalent. First class or equivalent (60%) in qualifying degree (55% for SC/ST) is essential for general eligibility.
BMCE02		Geotechnical Engineering	
BMCE03		Water Resources Engineering	
BMCE04		Structural Engineering	
BMCE05		Ocean Engineering	
BMCE06		Remote Sensing	
BMCE07		Construction Technology and management	

Code	Department	Fields of Specialization	Minimum Qualification
BMBM01	Bio Sciences & Bio Engineering	• 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	First class or 60% marks (55% marks for SC/ST) in *: * as specified in the clause A.7.3 in the "Important Guidelines for M.Tech. Application" of this brochure. Qualifying Disciplines i. B.Tech./B.E./AMIE or equivalent in Biomedical, Biotechnology, Chemical, Computer Science, Electrical, Electronics, Instrumentation, Mechanical Engineering, Metallurgy and Materials Science, Telecommunications Engineering, Engineering Physics, Pharmaceutical Technology and other engineering; OR ii. M.Sc. or equivalent in Maths, Biochemistry, Biophysics, Biotechnology, Ceramics, Chemistry, Electronics, Ergonomics, Materials Science, Mathematics, Molecular Biology, Physics, Physiology and other science; OR iii. ** MBBS/BDS OR iv. ** B. Pharm/M. Pharm OR v. ** B.V.Sc., B.P.Th. and B.O.Th. degree (Duration 4 years or more) Entrance examination requirement for TA/RA/TAP/RAP Category Valid GATE score in any discipline for engineering and science graduates (for i and ii above), AIIMS/NEET-PG/JIPMER/PGI Chandigarh/AFMC-Pune/DNB Part I/Pre-M.D.S. national level medical and dental postgraduate entrance examinations or GATE Life Sciences examination for medical and biological sciences (for iii above). GPAT / All India level selection examination for B.Pharm. (for iv above) All India level post graduate entrance examination for M.V.Sc., M.P.Th. and M.O.Th. (for v above) ** Candidate with qualifications mentioned against (iii), (iv) & (v) 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 Eligibility/rank certificates for all such All India level entrance examinations are required (for iii, iv and v above). Shortlisted candidates will be called for written test / interview.
BMCS01	Computer Science and Engineering		B.E/ B.Tech in CS &E with first class or MCA/ B.E/ B.Tech in any branch with valid CS GATE

Code	Department	Fields of Specialization	Minimum Qualification
BMEE01	Electrical Engineering	**Communication Engineering:** 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.	(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 (EC), Physics (PH)
BMEE02		**Control & Computing:** Linear systems Theory, Optimal Control & Optimization, Modeling and Identification of Dynamical Systems, Control of Distributed Parameters Systems, Non-Linear Systems, Modern Filter & Network Theory, Behavioral Systems Theory, Computational Methods in Electrical Engineering Software and System Reliability Cryptography and Security, GPU-based Computing.	(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), Instrumentation Engineering (IN), Energy Engineering (EN) ii). M.Sc. or equivalent in Electronics/Electronic Sciences (EC), Mathematics (MA), Physics (PH)
BMEE03		**Power Electronics & Power Systems:** 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.	(i). B.E./B.Tech./AMIE or equivalent in Computer Science & Engineering Information Technology (CS), Electronics/ Telecommunication Engineering (EC), Electrical Engineering (EE), instrumentation Engineering (IN), Energy Engineering (EN)
BMEE05		**Electronic Systems:** Electronics Systems, Electronic Instrumentation, Signal Processing Applications, Speech and Audio Processing, Bio-medical Electronics, Embedded System Design.	(i). B.E./B.Tech./AMIE or equivalent in Biomedical Engineering (BM), Electrical Engineering (EE), Electronics/ Telecommunication Engineering (EC), Engineering Physics (EP), Instrumentation Engineering (IN), Energy Engineering (EN), Computer Science and Engineering/ Information Technology (CS) (ii). M.Sc. or equivalent in Electronics / Electronic Sciences (EC)
BMEE06		Integrated Circuit & System: Digital System Design • Analog/Mixed-signal/RF Integrated Circuits and Systems • Sensing Device Design and Fabrication • Miniature Sensor Systems • Energy Harvesting and Power Management • Data Converters, Phase Locked Loops • High-Speed Serial Links/Interfaces	(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)
BMEE07		**Solid State Devices** ● 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	(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), Insrumentation Engineering (IN) (ii). M.Sc. or equivalent in Electronics / Electronic Sciences (EL), Physics (PH)
BMME01	Mechanical Engineering	Thermal and Fluids Engineering	First class in B.E. /B.Tech or Equivalent Degree (with 60% Minimum; 55% for SC/ST) in Mechanical Engineering/ Aerospace Engineering/ Chemical Engineering/ Automobile Engineering.

Code	Department	Fields of Specialization	Minimum Qualification
BMME02		Design Engineering	First class in B.E/ B.Tech. or Equivalent Degree (with 60% Minimum; 55% for SC/ST) in Mechanical Engineering/ Aerospace Engineering/ Aerospace Engineering/ Chemical Engineering/ Automobile Engineering/ Applied Mechanics.
BMME03		Manufacturing Engineering	First class in B.E/ B.Tech. or Equivalent Degree (with 60% Minimum; 55% for SC/ST) in Mechanical/ Production/M/c Tool/Industrial Engineering/ Aerospace/ Metallurgical Engineering
BMMM01	Metallurgical Engineering and Materials Science	Materials Science	MM1: (i) B.E./B.Tech./AMIE or equivalent in Ceramic Engineering (CG), Chemical Engineering (CH), Electrical Engineering (EE), Electrochemical Engg. (EH), Engineering Physics (EP), Mechanical Engineering (ME), Metallurgical Engineering /Materials Science & Engineering (MT), Polymer/plastic Engineering (PO) (ii). M.Sc. or equivalent in Chemistry (CY), Materials Sciences (MS), Physics (PH)
BMMM02		Process Engineering	(i). B.E./B.Tech./AMIE or equivalent in Chemical Engineering (CH), Electrochemical Engineering (EH), Mechanical Engineering (ME), Metallurgical Engineering /Materials Science & Engineering. (MT) **(ii).** M.Sc. or equivalent in Chemistry (CY), General or specialization in Physical or Inorganic Chemistry Materials Science (MS)
BMMM03		Steel Technology Corrosion Science & Engineering	B.E./B.Tech./AMIE or equivalent in Chemical Engineering(CH) Mechanical Engineering(ME),Metallurgical Engineering / Materials Science & Engineering(MT).
BMMM04		Corrosion Science & Engineering	(i).B.E./ B.Tech./ AMIE/ AMIIM or equivalent in Aeronautical / Aerospace Engineering (AE), Chemical Engineering (CH) Civil Engineering (CE), Electrical Engineering (EE) Electrochemical Engineering (EH),Mechanical Engineering (ME) Metallurgical Engineering / Materials Science & Engineering (MT)
BMEN01	Department of Energy Science and Engineering M.Tech in Energy Systems Engineering	**Energy Efficiency / Improvements in conventional Energy Systems:** Heat pumps, Energy integration, Process integration for resource optimization, Pinch Analysis - Development of techniques for optimization of Utility systems, Demand Side Management/ Load Management in the Power Sector, Variable Speed Drives, Power Generation and Systems Planning, Energy Management and Auditing, Efficient Motor Drive Systems, Electronics Ballasts, Static VAR compensators, Illumination control, Power Electronics in Energy Efficient Systems, Electric Vehicles, Boilers and Fluidised Bed Combustion, Exhaust Heat Recovery, Cogeneration, Building Energy Management, Efficient Air Conditioning Systems, Hydrogen Generation and Storage, Thermal energy Storage. **Renewables:** Biomass Gasifier Design, Development and Testing, Pyrolysis for liquid fuels and chemical, CNG Kit development, Testing of Solar Collector and systems, Passive Solar Architecture, Development of Carbon PV cell, Decentralised Power Systems -Grid Integration Issues, Hybrid Systems for Rural Electrification, Wind Energy, Low Cost Solar Drier, Fuel Cells, Thin film solar cells, Carbon nanotubes for hydrogen storage, Solar photovoltaic concentrator, Waste to Energy Electrochimical energy Storage. **Clean Coal Technologies:** Underground Coal Gasification, Chemical Looping, Clean Combustion, CO_2 sequestration **Nuclear:** Nuclear Safety, Nuclear Waste management, Thermal Hydraulics, Computer Simulation Models for Analysis of Transients in Pressurised Heavy Water Reactor **Oil and Gas:** Wax deposition, Oil-water separation, Enhanced oil recovery, Gas hydrate formation, etc.	Candidates with First class or 60% (55% for SC/ST) in bachelor's degree in Mechanical, Electrical, Chemical, Energy Systems. Thermal Power, Automobile, Aerospace, Aeronautical, Metallurgical or Civil Engineering or equivalent with valid GATE score in any discipline are eligible for admission

Code	Department	Fields of Specialization	Minimum Qualification
BMEV01	Environmental Science and Engineering	Environmental Monitoring, Industrial Air & Water Pollution Control, Solid and Hazardous Waste Management, Air & Water Quality Modeling, Environmental Systems Optimization, Environmental Microbiology & Biotechnology, Bioremediation, Indoor, Air Quality, Aerosol Science and Technology, Environmental Impact Assessment and Global Issues.	Bachelor of Engineering degree in Aeronautical / Aerospace, Agricultural, Chemical, Civil, Energy, Biotechnology, Environmental, Mechanical, Metallurgical Engineering/ Materials Science & Engineering, and Mining Engineering or a Master of Science degree in Atmospheric Science, Biochemistry, Biotechnology, Chemistry, Earth Sciences, Environmental Toxicology, Environmental Sciences, Meteorology, Microbiology and Physics for M.Sc graduates, Mathematics is mandatory at Higher Secondary/ Intermediate (10+2) level.
BMIO01	Industrial Engineering and Operations Research	The specific problems of research interests include: production planning, scheduling and control systems; distribution and service systems; industrial scheduling, facilities planning, project management, quality management, materials management and productivity management; Data Analytics & Data Management. Supply chain analysis, reverse logistics, closed-loop supply chains and RFID applications, product variety management. Operations Research applications in management of technology and resource allocation; convex optimization; mixed-integer programming; Markov decision processes; optimal control in deterministic and stochastic systems; (differential) game theory; applications of game theory; modeling and simulation of supply chains, manufacturing and service systems; theory and applications of distributed and hybrid simulations, 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. Supervised learning & Unsupervised Learning; Online and reinforcement Learning. Deep Learning, Longitudinal data analysis, Kernel methods. Development and applications of modern information systems for managing manufacturing, supply chain and service organizations. The IEOR programme is unique in its contemporary flavor, with new courses in Financial Engineering, Supply Chain Management, Game Theory, Markov decision process, System Dynamics, Machine Learning Services Management, Manufacturing systems to name a few. The programme is equally in background building, with updated courses in optimization, stochastic models, simulation, & knowledge based systems.	Candidates having a first class Bachelor's degree in any branch of Engineering with valid GATE Score in any discipline are eligible to apply.

Code	Department	Fields of Specialization	Minimum Qualification
BMID01	IDC School of Design	M Des: Industrial Design Communication Design Animation Interaction Design Mobility and Vehicle Design	In all cases the minimum eligibility is 55% in Bachelor Degree and 50% for SC/ST **Industrial Design (ID)** 1. Bachelor's Degree in Design/Engineering/Architecture/ Interior Design: 10+2+4 years (minimum four year Bachelor's course). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. 2. Professional Diploma in Design: 10+2+4 years (minimum four year diploma program). **Communication Design (CD)** 1. Bachelor's Degree in Design/Engineering/Architecture/ Interior Design: 10+2+4 years (minimum four year Bachelor's course). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. 2. Professional Diploma in Design: 10+2+4 years (minimum four year diploma program). 3. BFA (4 Year professional program with entry after 10+2) 4. GD Art (4 year program after 1 year foundation. Minimum entry requirement 10th pass). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. **Animation Design (AN)** 1. Bachelor's Degree in Design/Engineering/Architecture/ Interior Design: 10+2+4 years (minimum four year Bachelor's course). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. 2. Professional Diploma in Design: 10+2+4 years (minimum four year diploma program). 3. BFA (4 Year professional program with entry after 10+2) 4. GD Art (4 year program after 1 year foundation. Minimum entry requirement 10th pass). **Interaction Design (IN)** 1. Bachelor's Degree in Design/ Engineering/ Architecture/ Interior Design: 10+2+4 years (minimum four year Bachelor's course). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. 2. Professional Diploma in Design: 10+2+4 years (minimum four year diploma program). 3. BFA (4 year professional program with entry after 10+2) 4. Master's Degree in Arts, Science (3+2 year program with entry after 10+2). 5. Master's Degree in Computer Application (3 year or 2 year in case of lateral entry to second year after BCA program with entry after 10+2+3 years for graduation). 6. GD Art (4 year program after 1 year foundation. Minimum entry requirement 10th pass). **Mobility and Vehicle Design (MD)** 1. Bachelor's Degree in Design/ Engineering/ Architecture/ Interior Design: 10+2+4 years (minimum four year Bachelor's course). Note: B.Plan. considered equivalent to B.Arch. Four year B.Sc (Engg) course after HSC considered equivalent to BE/B.Tech. 2. Professional Diploma in Design: 10+2+4 years (minimum four year diploma program). 3. BFA Sculpture (4 year professional program with entry after 10+2).

Code	Department	Fields of Specialization	Minimum Qualification
BMSC01	Systems & Control Engineering	Geometric mechanics, differential geometry, nonlinear control, satellite and space-craft dynamics, robotics Higher order sliding mode control and observation, adaptive sliding mode control for discrete-time system Optimization-based control, control under communication constraints, stochastic control, switched and hybrid systems Game theory, optimization, economics, information theory and combinatorics, systems biology Global optimization, GPU supercomputing, fractional order differentiation and applications Cooperative control, guidance of autonomous vehicles, resource allocation Adaptive control, decentralized adaption, multi-agent systems, time varying feedback Embedded control systems, path planning of autonomous vehicles, vision based navigation, hardware/software co-design Distributed parameter systems, output regulation, periodic systems, parameter identification in PDEs, hardware/software co-design Control theory, nonlinear and geometric control, NMR spectroscopy, quantum control	Candidates having a Bachelor's Degree in Aeronautical / Aerospace / Chemical / Electrical / Electronics/ Instrumentation / Mechanical/ Metallurgical Engineering. Candidate should have undergone a basic course in Classical Control at their undergraduate level & also involved in teaching courses related to Systems and Control in their college..
BMES01	Earth Sciences	**Geoexploration: (GS)** The programme is structured such that the students can learn various aspects of mineral, petroleum and groundwater exploration. It offers a wide range of courses in exploration methods, well logging, exploration geophysics, basin analysis, mineral resources, remote sensing, and groundwater hydrology.	Candidates with first class or equivalent (Min. 60% marks; 55% marks for SC/ST) in Master's degree in Geology/Applied Geology/Geophysics/Applied Geophysics with valid GATE score in Geology (GL) or Geophysics (GP) are eligible for admission.
BMES02		**Petroleum Geoscience: (PG)** This specialization was introduced from July 2007. It prepares the students for a career in petroleum exploration and development. The programme provides skills in basin analysis, applied micropalaeontology, petrophysics, seismic interpretation, well logging, and data interpretation using workstations and softwares as used in the petroleum industry.	
BMSR01	Centre of Studies in Resources Engineering	Remote Sensing and GIS applications, Surface and ground water resources, Terrain evaluation, Land use planning, Mineral and hydrocarbon exploration, Glacier, 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, Digital image processing, Stereo Image analysis and digital cartography, Microwave remote sensing, Global Positioning Systems, Geographic information Systems and Science, Spatial Data Mining, Digital Agriculture	Candidates with first class or 60% marks (55% marks for SC/ST) in Bachelor Degree in Engineering, Master degree in Science with the valid GATE score in any of the following papers are eligible for admission to this programme. Agricultural Engineering. Civil Engineering. Computer Science & Engineering. Electronic & Communication Engineering. Electrical Engineering Geology & Geophysics Information Technology Mathematics Mining Engineering Physics Environment Engineering Architecture Geoinformatics Geomatics (GI)

Code	Department	Fields of Specialization	Minimum Qualification
BMHS01	Humanities and Social Science	Applied Microeconomics, Open-economy Macroeconomics & International Finance, Applied Econometrics, Environmental Economics, Energy Economics, Empirical International Trade and Strategic Trade Theory and Policy, Evaluation of Economic Policies with Special Reference to India, Productivity Estimation: Measurement Issues, Comparisons and Determinants, Empirical Development Economics, Industrial Economics, Industry-Environment Linkages, Socio-Economic Impacts of Climate Change, Green Accounting, Natural Resource and Water Resource Economics, Climate Change: Impacts and Policy, Financial Economics, Monetary Economics, Corporate Investment: Theory and Econometric Applications, Health Economics, Corporate governance, Labour Economics, Applied Game Theory, Behavioural Economics, Experimental Economics, and Agricultural Economics. Narratology; Intertextuality; Victorian Novel; Indian Writing in English; Films and Disnarration; Women's Studies; Autobiography Studies; "Crisis" in English Studies; African American Writing; Morpho-Syntax; Linguistic Theory; First Language Acquisition; Endangered Languages Documentation; The Partition of 1947; the 'Turbulent 40s' in Bengal; South Asian Fiction-in English; and in Translation; Postcolonial Theory and Literature; Feminist Theory and Women's Writing; Cultural Studies; Feminist Theory; Literary Theory; Film Studies; Regional Literatures; and Cultures in India; Environmental Sociology; Social and Environmental Movements; Environmental Politics with a focus on Social inequality and Natural Resource Conflicts especially in Rural India; Issues of Livelihood and Problems of Marginalized Class and Political Ecology; Adaptation Studies; Shakespeare and Renaissance Drama; European Literature; 19th Century Bengali Literature; Literature and Other Arts; Translation Studies; World Literature; Historical Musicology & Ethnomusicology, Theatre Historiography, Performance Philosophy, Colonial Theatre, Performance and Ethnography, Aesthetics, Critical Theory, Ecocriticism Metaphysics, Philosophy of Science, Philosophical Logic, Philosophy of Language, Professional Ethics, Philosophy of Wittgenstein, Sartre, Kripke, Quine, Moore, Hare, Bhartrahari, Philosophy of Mind, Philosophy of Education and Environmental Ethics, Indian Philosophy and Comparative Philosophy, Buddhist Philosophy, Sankhya Philosophy and Vedanta Philosophy, Philosophy of Artificial Intelligence, Philosophy of Mind, Cognitive Science, Analytic Philosophy, Twentieth Century European Philosophy; Moral, Social and Political Philosophy, Social Epistemology, Moral theory, Alfred Korzybski- 'General Semantics' and related areas, Philosophy of Language, Wittgenstein, Culture and Value, Ethics/Moral Philosophy, Social and Political Philosophy, Classical American Pragmatism, Feminist Philosophy, Twentieth century Continental Philosophy 20th Century Continental Philosophy: Heidegger, Foucault, Husserl, Gadamer, Phenomenology and Hermeneutics, Epistemology: Implications of the Historicity of Knowledge for its Universal Validity Metaphysics: Implications of an Ontology of Events for Political Philosophy History of Western Philosophy Psychological Perspectives and Theory, Organizational Behaviour, Personality Studies, Qualified MBTI user, Organizational Culture and Values, Role of Psychology in Development - Health and Contraceptive Use, Developmental Neuropsychology, Education and Child Development, Eyewitness Testimony, Cognitive Ergonomics, EEG / Event Related Potential, Working Memory and Prospective Memory and Developmental Dyslexia, Organization behavior, HRM, Culture and Values in organizations, Personality studies, Positive organization behavior and well-being. Urban Studies, Development Studies, Rural/Agrarian Sociology, Law and Governance Legal Pluralism, Vulnerability and Adaptation to Climate Change, Gender and Development, Disaster Studies, Ethnicity and Multiculturalism, Urban Studies, Sociological Theory, Sociology of Development, Anthropology of corruption, constitutional law, sociology of higher education, sociology of religion and kinship, conversion, Christianity in India. Caste today, religious institutions, hierarchy/stratification, sociology in/of India, contemporary Karnataka, Sociology of Development and Environment, Natural Resource Conflicts, Issues of livelihoods and problems of marginalized class, resource rights, subaltern resistance and movements and Political Ecology, Sociology and political economy Of finance, Political economy of development, Indian political economy, Theories of money, Classical political economy, New and old Institutionalism and History of economic thought, Issues of gender and sexuality, medical anthropology, anthropology of the body and embodiment, post- colonial studies, post-modern feminist studies and Southern theories, Caste, Civility and Democracy, Civil Society Ethnography Studies, Inclusion and Exclusion. Indian Science and Technology, Indian Philosophy, Logic and Epistemology, Sanskrit language, Paninian Grammar, Philosophy of Language.	M.Phil. Programme 1) Master's degree in Arts, Commerce or equivalent with a minimum of 55% marks or equivalent letter grade (50% marks for SC/ST) from a recognized university or deemed university. 2) B. Tech./ M.Sc. degree or equivalent with adequate background in Social Sciences with a minimum of 60% marks or equivalent letter grade (55% marks for SC/ST). Admission to this programme is open to those who qualify in M.Phil. Entrance Test (MET) / GATE/ UGC-JRF/ UGCNET. Those appearing for the above exams may also apply. Those who are in service can apply as sponsored candidates. The selection will be based on performance in the qualifying test and interview.

3. Indian Institute of Technology Delhi – DL

In all cases, the minimum eligibility is a graduate degree in Engineering/ Technology in the specified field with a minimum of 60% marks (6.00 CGPA) in aggregate (of all the year/semesters of the qualifying examination) or equivalent grade point average (as determined by IIT Delhi). For SC/ST/PD category candidates the minimum performance in the qualifying degree is relaxed from 60% to 55% (6.00 to 5.50 CGPA).

Code	Department	Fields of Specialization	Minimum Qualification
DLAM01	Applied Mechanics	Engineering Analysis and Design Engineering with specializations in Engineering Mechanics or Product Design or Materials Engineering.	Bachelor's degree in Aeronautical, Automobile, Civil, Industrial, Chemical, Mechanical, Design, Marine Engineering, Naval Architecture, or Production Engineering.
DLCH01	Chemical Engineering	All topics in Chemical Engineering	Graduate degree in Engineering/ Technology in the specified field with a minimum of 60% marks (6.00 CGPA) in aggregate (of all the year /semesters of the qualifying examination) or equivalent grade point average (as determined by IIT Delhi). For SC/ST/PD category candidates the minimum performance in the qualifying degree is relaxed from 60%
DLBM01	Centre for Biomedical Engineering	M.Tech. in Biomedical Engineering	B.Tech./ B.E. in Biomedical, Chemical, Computer Science, Electrical, Electronics and Communications, Instrumentation and Mechanical Engineering, Engineering Physics, Biochemical Engineering and Biotechnology, Materials Science. & Technology OR M.Sc. or equivalent in Biotechnology, Chemistry, Electronics, Materials Science, Mathematics, Polymer Science and Technology, Physics OR M.B.B.S or B.D.S OR B. Pharma. (duration 4 years and more).
DLEN01	Centre for Energy Studies	Energy Studies (JES)	B.Tech./ B.Engg. in Chemical Engineering, Electrical Engineering, Electrical and Electronics Engineering, Engineering Physics, Energy Engineering, Mechanical Engineering, M.Sc. in Physics.
DLEN02		Energy & Environment Technologies and Management (ESN)	B.Tech./ B.Engg. in Chemical Engineering, Electrical Engineering, Electrical and Electronics Engineering, Engineering Physics, Energy Engineering, Mechanical Engineering, M.Sc. in Physics.
DLEN03		Renewable Energy Technologies and Management (ESR)	4- year B.Tech./ B.Engg./ B.Sc./ BS in Chemical Engineering, Civil Engineering, Electrical Engineering, Electrical and Electronics Engineering, Engineering Physics, Energy Engineering, Mechanical Engineering, Industrial Engineering, Industrial Physics, Renewable Energy Engineering and M.Sc. in Physics.
DLPS01	Department of Materials Science & Engineering	**M.Tech. in Polymer Science and Technology** Synthesis of polymers, Structure-property correlation in polymers, Rheology and processing of polymers, polymers, polymers matrix composites, tribology and mechanical behavior of polymers, membranes for various applications, antifouling and antibiofouling materials. Polymer blends and alloys, biodegradable polymers, nanocomposites, hydro/cryogels for bio medical applications, surface functionalization.	B.Tech. in Polymer Science and Engineering or Plastic & Rubber Technology or Chemical Engineering, Chemical Technology, Plastic Engineering, Fiber Science & Technology or Material Science or M.Sc. in Chemistry or Physics or Materials Science, or Polymer Science.

Code	Department	Fields of Specialization	Minimum Qualification
DLPS02		**M.Tech. in Material Engineering** Structure-property correlation in advanced materials, Metal matrix composites, 3D printing, nano-scale friction and wear, Auxetic materials, Materials characterization using advanced microscopy, phase transformation, tools, functionally graded materials, nanomaterials, Advanced ceramics, high entropy alloys, materials for extreme environments, thermal barrier coatings, Alloy processing and properties, refractory metals and compounds, First principle Density Functional Theory (DFT) based material design, Micromagnetic simulations, Semiconductor nanostructures and device applications, Magnetic nanowires and magnetic tunnel junctions for spintronic device applications; Organic electronics.	B.Tech. in or Materials Engineering, Metallurgical Engineering, Ceramic Engineering, Mechanical Engineering.
DLCE01	Civil Engineering (Code no. of the specialization to be indicated in the data sheet)	Construction Engineering & Management	In all cases, the minimum eligibility is a graduate degree in Engineering/ Technology in the specified field with a minimum of 60% marks (6.0 CGPA) in aggregate (of all the year/semesters of the qualifying examination) or equivalent grade point average (as determined by IIT Delhi). For SC/ST/PD category candidates the minimum performance in the qualifying degree is relaxed from 60% to 55% (6.0 to 5.5 CGPA). Civil Engineering or Architectural Engineering.
DLCE02		Environmental Engineering & Management	Civil Engineering, Chemical Engineering, Biochemical and Biotechnology, Environmental
DLCE03		Rock Engineering & Underground Structures	Civil Engg or Mining Engineering
DLCE04		Geotechnical & Geoenvironmental Engineering	Civil Engineering
DLCE05		Structural Engineering	Civil Engineering
DLCE06		Transportation Engineering	Civil Engg, Architecture, Mechanical Engg, Urban and Regional Planning.
DLCE07		Water Resources Engineering	Civil or Agricultural Engineering.
DLCS01	Computer Science & Engineering	Computer Science & Engineering	Electrical/ Computer Science (≥ 80% or 8.0 CGPA in B.E. / B.Tech./ M.Sc./ MCA after B.Sc. with Mathematics). For SC/ST/PH it is 75% or 7.5 CGPA.
DLEE01	Electrical Engineering	Communication Engineering, Computer Technology, Control and Automation, Electrical Machines and Drives, Integrated Electronics and Circuits, Power Electronics Power Systems.	B.E. or B.Tech. in Electrical Engineering/ Electronics Engineering/ Electronics & Communication Engineering/ Computer Science & Engineering, or Equivalent for IEC add Electrical and Electronics, Electronics & Instrumentation, M.Sc. Physics / Electronics.
		Opto-electronics and Optical Communications (Jointly run by the Department of Electrical Engineering & Physics)	B.E. or B.Tech. in Electrical Engineering/ Electronics Engineering/ Electronics & Communication Engineering or M.Sc. (Physics).
DLME01	Mechanical Engineering	Mechanical Design	Aeronautical/ Auto-mobile/ Mechanical/ Production/ Manufacturing Science & Engineering.
		Industrial Engineering	Any Engineering Discipline.
		Production Engineering	Aeronautical/ Auto-mobile/ Industrial/ Mechanical/ Metallurgy/ Production/ Manufacturing Science & Engineering.
		Thermal Engineering	Aeronautical/ Automobile/ Chemical Food Engineering Technology/ Mechanical Engineering/ Power Plant Engineering/ Engineering Physics.
DLPH01	Physics	1. Solid State Material 2. Applied Optics 3. Optoelectronics and Optical Communications. (Jointly run with Dept. of Physics and Electrical Engineering)	M.Sc. Physics or B.Tech. / B.E. in Electrical Engineering/ Electronics & Communication, Engineering Physics, Mechanical Engineering.

Code	Department	Fields of Specialization	Minimum Qualification
DLTX01	Textile Technology	Textile Engineering	Mechanical Engineering, Manufacturing Science & Engineering, Production Engineering, Textile Engineering/ Technology, Apparel Technology.
		Fiber Science & Technology	Biochemical Engineering/ Biotechnology, Chemical Engineering, Polymer and Rubber Technology, Textile Chemistry, Textile Engineering/ Technology, Material Science, M.Sc. Physics and M.Sc. Chemistry.
DLTX02		Textile Chemical Processing	Biochemical Engineering / Biotechnology, Chemical Engineering, Physics, Polymer and Rubber Technology, Textile Chemistry, Textile Engineering/ Technology, Materials Science, M.Sc. Physics and M.Sc. Chemistry.
DLTR01	Industrial Tribology Machine Dynamics & Maintenance Engineering	Industrial Tribology & Maintenance Engineering	Mechanical Engineering/ Automobile Engineering/ Marine Engineering/ Mining/ Production/ Manufacturing Science and Industrial Engineering.
DLID01	Design (SeNSE)_	Master of Design (M. Des.) in Industrial Design	Bachelors in any branch of Engineering/ Architecture/ Design.

4. Indian Institute of Technology Guwahati –GW

Relaxation of SC/ST/PD candidates: Eligibility criteria will be relaxed by 5% in percent marks or 0.5 point in CPI in all cases.

Code	Department	Fields of specialization	Minimum Qualification
GWCH01	Chemical Engineering	Petroleum Refinery Engineering	Bachelor Degree in Engineering / Technology in an appropriate area (having Mass Transfer, Heat Transfer, Fluid Mechanics, Thermodynamics, Reaction Engineering & Process Control as subjects in UG.) with minimum CPI of 6.5/10 or 60% or First Class.
GWCH02		Material Science & Technology	
GWCE01	Civil Engineering	Structural Engineering	Bachelor's degree in Engineering/ Technology in an appropriate area with a minimum CPI of 6.5/10 or 60% marks or First Class.
GWCE02		Water Resources Engineering and Management	
GWCE03		Geo-technical Engineering	
GWCE04		Environmental Engineering	
GWCE05		Transportation Systems Engineering	
GWCE06		Infrastructure Engineering & Management	
GWCE07		Earth System Science and Engineering	**A. Eligibility:** For admission a candidate must satisfy one of the following criteria: **1)** Four year Bachelor's degree in Civil Engineering, Petroleum Engineering, Mining Engineering, Mineral Engineering, Geosciences Engineering, Agriculture Engineering, Engineering Physics (or equivalent), Engineering Mathematics (or equivalent) with a minimum CPI of 6.5 or 60% of marks or first class. **2)** M.Sc. degree in Geology (or equivalent), Geophysics (or equivalent), Physics including Soil Physics with a minimum of 6.5 or 60% of marks. **3)** M.Sc. degree in Mathematics, Chemistry and allied areas in natural sciences with a minimum CPI of 7.0 or 65% marks. **B. Gate Paper for the eligibility criteria:** **1)** Civil Engineering (CE), **2)** Geology and Geophysics (GG), **3)** Petroleum Engineering (PE), **4)** Mining Engineering (MN), **5)** Physics (PH), **6)** Chemistry (CY), **7)** Mathematics (MA), **8)** Agriculture Engineering (AG)
GWCS01	Computer Science & Engineering	Computer Science & Engineering	Bachelor's degree in Engineering/ Technology or equivalent in an appropriate area or M.Sc. (Computer Science/Information Technology) or MCA from a Recognized Institution with a minimum CPI of 6.5/10 or 60% marks
GWEE01	Electronics & Electrical Engineering.	Signal Processing	Bachelor's degree in Electrical/ Electronics Engineering or Equivalent or M.Sc. (Electronics) with a minimum CPI of 6.5 / 10 or 60% marks or First Class.
GWEE02		VLSI	
GWEE03		Communication Engineering	
GWEE04		Power and Control	
GWEE05		RF and Photonics	
GWME01	Mechanical Engineering	Fluids and Thermal Engineering	Bachelor's degree in Engg/ Technology in an appropriate area with a minimum CPI of 6.5/10 or 60% marks or First Class.
GWME02		Machine Design	
GWME03		Computer Assisted Manufacturing	
GWME04		Computational Mechanics	

5. Indian Institute of Technology Kanpur, Kanpur 208016 –KN

For eligibility to the M .Tech programme, one is required to have passed the qualifying examination, i.e., B.Tech./B.E. or M.Sc. In the appropriate area.

Code	Department	Fields of specialization	Minimum Qualification
KNAE01	Aerospace Engineering	Aero dynamics, Flight Mechanics and Control, Propulsion, Structures, Structural Dynamics & Aero elasticity.	Degree in Aeronautical/ Aerospace, Mechanical, Civil, Chemical, or Naval Architecture Engineering, Electronics
KNCH01	Chemical Engineering	Transport Phenomena, Chemical Reaction Engineering, Applied Kinetics and Catalysis, Thermodynamics, Membrane Separation Processes, Process Systems Development, Computer Aided Design, Optimization and Control, Petroleum Engineering, Polymer Science and Engineering, Environmental Pollution Control, Unconventional Energy Resources, Dynamics of Nonlinear Systems ,Zeolite Catalysis, Colloids and Interface Engineering, CFD, Rheology, Non-Newtonian Fluid Mechanics, Nanotechnology, Numerical Methods Engineers, Mathematical Methods in Chemical Engineering, Modeling and Simulation in Chemical Engineering, Computational Biology and Bioinformatics, Modeling and Simulation of Separation Processes, Molecular Modeling, Tissue Engineering.	First class degree in Chemical Engineering. or Equivalent
KNCE02	Civil Engineering (Code No. of the specialization to be indicated in the Data Sheet)	Geo-Informatics(Code14)	B.Tech/ B.E. degree in Civil/ Mining/ Electrical/ Computer Science/ Electronics Engineering/ Information Technology/ Geoinformatics, or M.Sc. degree in Earth Science streams/ Geography/ Physics/ Mathematics/ Environmental Science. Candidate with M.Sc. degree must have mathematics as one of the subject at B.Sc. level.
KNCE03		Geotechnical Engineering(Code 08)	B.Tech/ B.E. degree in Civil Engineering.
KNCE04		Structural Engineering(Code 17)	B.Tech/ B.E. degree in Civil Engineering. Some Candidates with Bachelor's degree in Architecture, Building Construction and allied subject may also be considered.
KNCE05		Transportation Engineering(Code20)	B.Tech/ B.E. degree in Civil/ Mechanical/ Aerospace Engineering.
KNCE06		Hydraulics and Water Resources Engineering(Code 11)	B.Tech/B.E. degree in Civil/ Agriculture Engineering. The candidate must have taken at least one mathematics course at the undergraduate level.
KNCE07		Infrastructure Engineering and Management	Bachelor's degree in Civil Engineering. Some candidates with Bachelor's degree in Building Construction and allied subjects may also be considered.
KNCE08		Environmental Engineering (EE)	Bachelor's degree preferably in Civil Engineering / Chemical Engineering / Mechanical Engineering / Agricultural Engineering / Biotechnology or Master of Science in all areas. All candidates must have mathematics as a subject at least up to 10+2 level.
KNCS01	Computer Science & Engineering	**Algorithms**: Graph-Theoretic, Algebra and Number Theoretic, Data Streaming, Game theoretic, Randomized. **Systems:** Computer Architecture, Cloud Computing, Cyber-Security, Embedded Systems, Internet Technologies, Mobile Computing, Programming Languages Implementation, Cyber Physical Systems, Robotics **Theory:** Complexity, Information Theoretic Complexity, Algebraic Computation, Computational arithmetic and Geometry, Quantum Computing, Computational Game Theory, Logic for CS, Cryptography. **Artificial Intelligence**: Computer Vision, Machine Learning, Natural Language Processing, Knowledge and Data Discovery, Data Mining, Graph Databases	Bachelor's Degree in Computer Science and Engineering or in a closely related field.
KNME01	Mechanical Engineering	Solid Mechanics & Design, Fluid and Thermal Sciences, Manufacturing Science, Robotics and Automation.	First class Bachelor's Degree in Mechanical Engineering **Note**: Candidates with first class Degree in Production Engineering are eligible for admission only to Manufacturing Science.

Code	Department	Fields of specialization	Minimum Qualification
KNMT01	Materials Science and Engineering	Heat and Mass Transfer in Metallurgical System, Process Design and Development in Extractive Metallurgy, Optimization, Electro-deposition, Physical Metallurgy, Alloy Development Thermodynamics and Kinetics of Phase Transformations, Heat Treatment, Solidification, Mechanical Processing, Processing and Advanced Structural Steel, Processing-Steel Making, Structure-Property Relations, Nano structural Materials, Micro structural Characterization and Stereology Textures, Environmental Degradation of Materials, Corrosion, Powder Metallurgy, Structural Ceramics and Composite, Tribology, Welding, Magnetic Materials, Electromagnetic Materials, Thin Film Technology, Op to-Electronic Materials and Devices, Ferroelectric Ceramics, Electronic Materials, Organic semiconductor, Display Materials and Technologies, Bio-materials. Multiferroic Materials & Thin films, Clean energy, Photovoltaic and energy materials & devices.	B.E/ B.Tech. degree in Metallurgical or Materials Engineering, Materials Science, Ceramic Engineering, Chemical Engineering, Mechanical Engineering or other Engineering disciplines must have Minimum 60% marks or a CPI of 6.0/10 in B.E./ B.Tech./ M.Sc. degree in Physics, Chemistry, Life Sciences, Materials Science, Nano science/ Nanotechnology or appropriate areas (with Mathematics at B.Sc level) must have Minimum 60% marks or a CPI of 6.0/10 in B.Sc. & Minimum 60% marks or a CPI of 6.0/10 in M.Sc
KNMS01	Materials Science (Interdisciplinar y programme)	Electronic and Optoelectronic Materials/Devices, Advanced ceramics and composites. Nanoscale materials, Nano tubes Materials for non- conventional Energy Solar cells, fuel cells, hydrogen storage, Materials for sensors, flexible electronics. Thin films. Magnetic materials. Organic Semiconductors. Piezoelectric and ferroelectric materials Optical spectroscopy Polymeric materials hydrogen Energy storage materials Materials synthesis	B.Tech./ B.E./ B.Sc.(Engg.) degree in Ceramic, Chemical, Electrical, Electronics and Communication, Materials, Mechanical, or Metallurgical Engineering/Technology ;or any equivalent branch of engineering/ technology or Master's degree in Physics, Applied Physics, Chemistry, Materials Science with Mathematics and Physics or Chemistry at Bachelor's level.
KNNE01	Nuclear Engineering and Technology	Computerized Tomography, Reactor Dynamics, Transport Theory, Thermal Fluids Analysis, Instrumentation.	Degree in any branch of Engineering.
KNEE01	Electrical Engineering (Codes mentioned against specializations	Power Engineering	Bachelor's Degree in Electrical or Electronics Engineering or equivalent.
KNEE02		including Power Systems, Power Electronics & High Voltage Engineering, Control & Automation	
KNEE03		Information Systems	
KNEE04		including Communications, Telecom Networking and Signal Processing), RF & Microwaves	
KNEE05		Photonics	
KNEE06		Microelectronics and VLSI	
KNIM01	Industrial and Management Engineering	Services Management, Management of Technology, Innovation and Entrepreneurship, Marketing Management, Manufacturing, Operations and Supply Chain, Quantitative Methods & Decision Making, Organizational Behaviour, Human Resource Management, Business Economics, Infrastructure and Public Systems, Corporate Governance, Finance, Risk Management and Insurance, Financial Markets and Models, Enterprise Information and Knowledge Systems, Leadership, Ethics, Strategic Management, Business Policy, Energy Economics, Policy and Regulation etc, Intellectual Property Management, Sustainability, Project Management, Business Process Management, E- Governance, Information Systems, Change Management, Business Analysis. Operations Research; Operations Management and Big- Data.	The applicant must have a Bachelors' degree in Engineering / Technology with marks/CPI not below the Specified Minimum.
KNLS01	Photonics Science & Engineering	Laser spectroscopy, Bio-medical applications of lasers, Fem to second Pulse Shaping, Nonlinear Spectroscopy, Coherent Control, Multi photon Imaging, Quantum Computing, Quantum Optics, Imaging in Complex Media & Biological Tissues, Interferometric Tomography, Laser & Rainbow Schliern, Imaging Growth of Protein Crystals, Quantum Cryptography, Nonlinear Fibre-Optics, Optical Fiber Communication, Electromagnetics and RF, Opto-Electronics, Semiconductor Device & Lasers, Millimetric & Microwave Circuits, Nonlinear Optics, Photonic Band Gap Structures, Laser Ranging, Laser imaging and cross-section, Flash and scanning laser applications, Digital Holography, Particle Image Velocimetry, Laser Schlieren, Experimental Stress Analysis, Smart Materials, Development and analysis of reconstruction algorithms for nonlinear tomography , Shape-based tomography, Numerical solutions to partial differential equations in electromagnetic, Subsurface imaging, Quantitative Phase Imaging, Optical Metrology, Applied Signal Processing, Fringe Analysis, Biophotonics, Fiber and integrated optics, Infrared and terahertz frequency sensors, Long-period gratings, Fiber optic Bragg gratings, Plasmonics and metamaterials.	Bachelor degree in any branch of Engineering. or Master's degree in Science with some exposure to Optics or Photonics.

6. Indian Institute of Technology Kharagpur -KH

In all cases the minimum eligibility is degree in engineering with a minimum of 60% marks or equivalent.

Code	Department	Fields of specialization	Minimum Qualification
KHAE01	Aerospace Engineering	Aerospace Engineering	Degree in Aerospace, Mechanical/ Civil Engineering/ Electrical Engineering with Specialization in Control System
KHAG01	Agricultural and Food Engineering	Farm Machinery & Power	Degree in Agricultural Engineering (All Specializations), and Degree in Mechanical Engineering
KHAG02		Land and Water Resources Engineering	Degree in Agricultural Engineering (All Specializations)
KHAG03		Food Process Engineering	Degree in Agricultural Engineering (All specializations) Degree in Chemical/ Mechanical Engineering. Degree in Food Technology (4 year B.Tech), and Degree in Food Process Engineering (4 year B.Tech)
KHAG05		Aquacultural Engineering	For M.Tech in Aqua cultural Engineering, the minimum qualification is B.Tech, in Agricultural Engineering (All Specializations), Civil Engineering, Chemical Engineering, Mechanical Engineering and Naval Architecture. For Ph.D, the minimum qualification is M.Tech. in the above disciplines with working experience in Aquacultural Engineering, and Masters in Fisheries Science with NET Qualification
KHAG06		Agricultural Systems & Management.	Degree in Agricultural Engineering (All specialization)
KHBT01	Biotechnology	Biotechnology and Biochemical Engineering	Degree in Biotechnology/ Biochemical/ Chemical Engineering
KHET01	Centre for Educational Technology	Multimedia Information Processing	B.Tech in ECE, COMP, EE, INST, PH, MA
KHCE01	Civil Engineering	Hydraulic and Water Resources Engineering.	Degree in Civil Engineering
KHCE02		Transportation Engineering	Degree in Civil Engineering
KHCE03		Environmental Engineering & Management	Degree in Civil Engineering/Chemical Engineering
KHCE04		Geotechnical Engineering	Degree in Civil Engineering
KHCE05		Structural Engineering	Degree in Civil Engineering
KHCH01	Chemical Engineering	Chemical Engineering	Bachelor degree in Chemical Engineering / Chemical Technology.
KHCR01	Cryogenic Engineering Centre	Cryogenic Engineering	Degree in Chemical/ Mechanical/ Aerospace/ Electrical / Agriculture /Metallurgical and Materials Engineering, M.Sc. in Physics/Materials Science.
KHCS01	Computer Science and Engineering	Computer Science & Engineering.	Degree in Computer Science & Engineering or Information Technology
KHEC02	Electronics and Electrical Communication Engineering	Micro Electronics & VLSI Design.	Degree in Electronics and Electrical Communication Engineering
KHEC03		R F & Microwave Engineering	
KHEC04		Telecommunication System Engineering	
KHEC05		Visual Information and Embedded Systems Engineering	
KHEE01	Electrical Engineering	Machine Drives and Power Electronics.	Degree in Electrical (KHEE01,KHEE04), Electronics and Electronics Communication (KHEE02,KHEE04), Instrumentation (KHEE02, KHEE04) Engineering
KHEE02		Control System Engineering	
KHEE03		Power & Energy System	
KHEE04		Instrumentation and Signal Processing	
KHIM01	Industrial and Systems Engineering	Industrial Engineering. & Management	Degree in Aerospace Engineering, Agricultural Engineering, Chemical Engg., Civil Engineering, Computer Science & Engg., Electrical Engineering, Electronics & Communication Engineering, Information Technology, Instrumentation Engineering, Industrial Engg., Mechanical Engineering, Manufacturing Engineering, Metallurgical Engg., Mining Engineering,

Code	Department	Fields of specialization	Minimum Qualification
			Naval Architecture & Production Engineering
KHMA01	Mathematics	Computer Science and Data Processing.	M.Sc. degree in Mathematics, Physics or Statistics. B.Tech in Electrical Engineering & Electrical Communication & Engineering
KHME01	Mechanical Engineering	Manufacturing Science and Engineering	Degree in Mechanical (all specializations) Aerospace (KHME02, KHME03), Energy (KHME02), Metallurgical (KHME01), Production (KHME01) Engineering
KHME02		Thermal Science and Engineering	
KHME03		Mechanical Systems Design	
KHMN01	Mining Engineering	Mining Engineering	B.E/ B.Tech. Degree in Mining Engineering, Civil Engineering, Mechanical Engineering, Petroleum Engineering, Mineral Processing, Mining Machinery. MSc Tech (Applied Geology and Geophysics) MSc Geology and Geo-informatics
KHMS01	Materials Science	Materials Science and Engineering.	B.Tech/B.E Degree in Chemical Engineering/Technology, Ceramic and Glass Technology, Materials Technology, Plastic and /or Rubber Technology, Polymer Science and Technology with 60% marks minimum. M.Sc. in Physics, Chemistry, Material Science, Polymer Chemistry, Electronic Science with 60% marks minimum.
KHMT01	Metallurgical and Materials Engineering	Metallurgical and Materials Engineering	Degree in Metallurgical, Chemical, or Mechanical Engineering or Production Engineering or Manufacturing Science and Engineering or in Glass and Ceramic or Materials Science/Technology
KHOE01	Ocean Engineering & Naval Architecture	Ocean Engineering & Naval Architecture	Degree in Aerospace, Civil, Marine Engineering, Mechanical, Production, Ocean Engineering, Naval Architecture, Ship-building technology or equivalent.
KHPH01	Physics	Solid State Technology	M.Sc. (Physics/Applied Physics/Solid State Physics), Bachelor in Engineering Physics/Polymer Engineering, M.Sc. (Polymer Physics/Polymer Science), M.Sc. (Electronic Science/Materials Science/Chemistry with Mathematics at the B.Sc. level), M.Sc. (Applied Optics), Bachelor in Electronics Engineering, /Electronics and Electrical.
KHRT01	Rubber Technology	Rubber Technology	Degree in Chemical, Materials, Plastics and/or Rubber, Polymer or Textile Technology, Mechanical or Production Engineering or Master in Chemistry, Applied Chemistry.
KHID01	Ranbir and Chitra Gupta School of Infrastructure Design and Management	Infrastructure Design and Management	B.Tech. in Civil, Electrical, Mechanical or B.Arch./ B.Plan.
KHEN01	School of Energy Science & Engineering	Energy Science and Engineering	Degree in Electrical Engineering, Mechanical Engineering or Chemical Engineering.
KHEV01	Centre for Oceans, Rivers, Atmosphere and Land Sciences	Earth System Science & Technology	B.E./B.Tech. or equivalent in Aerospace Engineering, Agricultural Engineering, Embedded Controls and Software, Civil Engineering, Naval Architecture/ Marine Engineering, Mechanical Engineering. M. Sc. with Mathematics both at +2 and B. Sc. Level in Earth Sciences/Geological Sciences, Environmental Engineering, Geology/ Geophysics/ Applied Geology/ Applied Geophysics, Mathematics/ Applied Mathematics, Physics/ Applied Physics/ Solid State Physics
KHAT01	Advanced Technology Development Centre	Embedded Systems and Software	B.E./B.Tech. or equivalent / M.Sc. with Mathematics at +2 level/ M. Sc. with Mathematics both at +2 and B. Sc. Level/

Code	Department	Fields of specialization	Minimum Qualification
			in Computer Science and Engineering, Electronics and Communication Engineering, Electrical Engineering, Instrumentation
KHWR01	School of Water Resources	Water Engineering & Management	B.E./ B.Tech. or equivalent in Agricultural Engineering/ Civil Engineering/ Environmental & Chemical Engineering/ Mining Engineering.
KHMB01	Medical Science and Technology	Medical Imaging and Informatics	Bachelor's degree in Engineering/Technology/Architecture/M. Sc or equivalent professional degrees (AMIE etc.)
KHRE01	Reliability Engineering Centre	Reliability Engineering	Degree in Electrical Engineering, Electronics & Communication Engineering, Civil Engineering, Chemical Engineering, Computer Science, Industrial Engineering and Management, Mechanical Engineering, Aerospace Engineering, Production Engineering, Instrumentation Engineering, Manufacturing Engineering, Information Technology, Mining Engineering and allied branches.
M.C.P. Degree Program			
KHAR01	Architecture & Regional Planning	Master of City Planning	Degree in Architecture (B.Arch.) or Civil Engineering, (B.Tech./BE) or Bachelor of Planning (B.Planning). Students with MA/M.Sc. degree in Geography or Economics or Sociology are also eligible for admission, after clearing NET

7. Indian Institute of Technology Madras-MD

The minimum eligibility is a graduate degree with first class or minimum of 60% aggregate marks (or equivalent grade point average) in the corresponding or specified branch.

Code	Department	Fields of specialization	Minimum Qualification (The candidate should possess the following degree in B.E./B.Tech or equivalent)
MDAE01	Aerospace Engineering	Aerodynamics, Propulsion, Structures	Aerospace Engineering, Automobile Engg., Chemical Engg., Civil Engg., Computer Science & Engineering, Electronics & Communication Engg., Electrical & Electronics Engg., Energy Engineering, Instrumentation, Mechanical Engineering, Manufacturing Engg., Metallurgical Engg., Naval Architecture, Production Engineering.
MDAM01	Applied Mechanics	Computational and Experimental Mechanics	Aerospace Engineering, Chemical Engineering, Civil Engineering, Energy Engineering, Mechanical Engineering, Metallurgical Engineering, Naval Architecture.
MDAM02		Biomedical Engineering	Biomedical Engineering, Electrical and Electronics Engineering, ECE, Civil, Mechanical, E&I Engineering, Computer Science Engineering / Computer Science
MDCH01	Chemical Engineering	Transport and Reaction Engineering, Systems and Control, Biochemical Engineering, Environmental Engineering, Materials and processes	B.E./B.Tech or equivalent degree in Chemical Engineering, Biochemical Engineering, or Environmental Engineering
MDCE01	Civil Engineering	Building Technology & Construction Management	Architecture(B.Arch.),Civil Engineering
MDCE02		Environmental Engineering	Agricultural Engineering, Biotechnology, Chemical, Engineering, Environmental & Civil Engineering, M.Sc .in Life science.
MDCE03		Geotechnical Engineering	Civil Engineering
MDCE04		Hydraulic & Water Resources Engineering	Agricultural Engineering, Environmental and Civil Engineering
MDCE05		Structural Engineering	Civil Engineering
MDCE06		Transportation Engineering.	Architecture (B.Arch.), Civil Engineering
MDCS01	Computer Science & Engineering	Computer Science & Engineering	B.E./ B.Tech (CSE, CS, or IT) or MCA with a prev. B.Sc. degree or M.Sc (CS)
MDEE01	Electrical Engineering	Communications, Networks, Signal processing, Speech & Image Processing Information Theory	Electronics & Communication Engg.
MDEE02		Power Systems & Power Electronics	Electronics & Communication Engineering, Electrical & Electronics Engineering, Instrumentation Engineering.
MDEE03		Micro Electronics & VLSI Design	Electronics & Communication Engg.
MDEE04		Control and Instrumentation	Electrical and Electronics Engineering, Electronics and Communication Engg., Control and Instrumentation Engineering.
MDEE05		Microelectronics	B.E/ B.Tech. /M.Sc., in Electrical & Communication Engg./ Instrumentation Engg. / Electrical & Electronics Engineering / Physics who qualify with GATE subject EE/EC/IN/PH.
MDEE06		Integrated Circuits and Systems	Electronics & Communication Engg., Electrical & Electronics Engineering, Instrumentation Engineering.
Code	**Department**	**Fields of specialization**	**Minimum Qualification (The candidate should possess the following degree in B.E./B.Tech or equivalent)**
MDME01	Mechanical Engineering	Thermal Engineering Stream: (Combustion & Propulsion, Heat Transfer & Thermal Power, I.C. Engines &Gas Turbines, Refrigeration & Air Conditioning, Turbo machines)	Aeronautical/ Aerospace Engineering, Automobile Engineering, Chemical Engineering, Energy Engineering, Mechanical Engineering, Marine Engineering, Petroleum Engineering
MDME02		Design Stream: (Mechanical Design)	Aeronautical/ Aerospace Engineering, Automobile Engineering, Mechanical Engineering, Production Engineering
MDME03		Manufacturing Engineering Stream: (Manufacturing and Precision	Aerospace Engineering, Automobile

		Engineering)	Engineering, Computer Science &Engineering, Electronics& Communication Engineering, Electrical &Electronics Engineering, Industrial Engineering, Instrumentation, Mechanical Engg, Manufacturing Engg., Machine Tool Engineering, Naval Architecture, Production & Industrial Engineering, Production Engineering
MDMM01	Metallurgical & Materials Engineering	Metallurgical & Materials Engineering	BE/ B.Tech or equivalent in Biotechnology, Chemical Engineering, Ceramics Manufacturing Engineering, Materials Technology, Mechanical Engineering, Metallurgical Engineering, Nanotechnology, Production Engineering or other appropriate branch of Engineering/Technology. Science postgraduates (M.Sc. or equivalent) in Physics, Chemistry, Materials Science, Nanoscience, Nanotechnology or other appropriate branch of Science with exceptional merit and research or industrial experience may be considered
MDOE01	Ocean Engineering	Ocean Engineering	Civil Engineering, Naval Architecture, Mechanical Engineering, Marine Engineering, Aerospace Engineering OR M. Sc. in Oceanography
MDOE02		Petroleum Engineering	Chemical Engineering, Civil Engineering, Marine Engineering, Mechanical Engineering ,Naval Architecture, Petroleum Engineering Or any other appropriate engineering discipline OR M.Sc in Physics, Mathematics, Statistics Oceanography, Geology and Geophysics
MDMA01	Mathematics	Industrial Mathematics and Scientific Computing	M.Sc. in Mathematics or Physics or BE/ B.Tech or equivalent in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Science & Engineering, Electronics & Communication Engineering, Electrical & Electronics Engineering, Mechanical Engineering, Metallurgical Engineering, Naval Architecture
MDPH01	Physics	Functional Materials & Nanotechnology	M.Sc. Physics/ Applied Physics, M.Sc. Material Science, B.Tech or equivalent in Electronics and Communications Engineering, Electrical and Electronics Engineering, Metallurgical and Materials Engineering. Materials Science Engineering, Engineering Physics, Nanotechnology

8. Indian Institute of Technology Roorkee – RR

Minimum qualification for candidates of general category seeking admission to the PG programme must have at least 60% marks or 6.00 CGPA on a 10 point scale at qualifying degree level. For SC/ST/PD category candidates this percentage is 55% or 5.50 CGPA on a 10 point scale. The percentage of marks will be considered as aggregate awarded in qualifying degree examination.

(a) Candidates must have a minimum of two years of full-time work experience till the last date submission of application form. For a candidate employed in an educational Institution, it should be recognized by AICTE.

OR

Candidates having AMIE/AMIS/AMIIChE/AMIIM/Grad IETE, who possess B.Sc. or Diploma in engineering and have at least 3 years teaching experience at the submission of last date of application acquired in relevant field, are also eligible to apply for admission to M.Tech courses.

(b) Candidates should submit the sponsorship certificate and copy of appointment letter with a proof of regular/permanent teacher along with the application, duly signed by the Head of the Institution/Organization.

Code	Department	Fields of specialization	Minimum Qualification
RRHR01	Hydro and Renewable Energy	Alternate Hydro Energy Systems	Bachelor's Degree in Civil /Electrical/ Instrumentation Engineering/ Mechanical / Industrial / Chemical/ Electronics / Computer/ Agricultural / Environmental Engineering or its equivalent.
RRHR02		Environmental Management of Rivers and Lakes	Bachelor's Degree in Civil / Electrical/ Mechanical/ Industrial /Chemical/ Agricultural/ Environmental Engineering/ Biotechnology/ Architecture / Town Planning or its equivalent. OR Master Degree in Science in any subject with Mathematics at graduation level.
RRAR01	Architecture and Planning	M.Arch.	B.Arch or its equivalent.
RRAR02		M.U.R.P.	B.Arch or its equivalent. or Bachelor Degree in Civil Engineering/ B. Planning
RRCH01	Chemical Engineering	Chemical Engineering	B.Tech./B.E. in Chemical Engineering/ Chemical Technology
RRCE01	Civil Engineering	Environmental Engg.	Bachelor's degree in Civil Engg./ Chemical Engg. /Environmental Engg. or its equivalent.
RRCE02		Geomatics Engg.	Bachelor's degree in Civil Engg./Electronics Engg./ Electrical Engg. / Computer Science / Information Technology/Marine Engg./Mining Engg. /Environmental Engg./Agricultural Engg./Communication Engg./ Architecture or its equivalent.
RRCE03		Geotechnical Engg.	Bachelor's degree in Civil Engg./ Infrastructure/ Construction Engineering or its equivalent.
RRCE04		Hydraulic Engg.	Bachelor's degree in Civil Engg. or its equivalent.
RRCE05		Structural Engg.	Bachelor's degree in Civil Engg. or its equivalent.
RRCE06		Transportation Engg.	Bachelor's degree in Civil Engg. or its equivalent.
RREQ01	Earthquake Engineering	Soil Dynamics.	Bachelor's degree in Civil Engineering / Structural Engineering or its equivalent.
RREQ02		Structural Dynamics	Bachelor's degree in Civil Engineering / Structural Engineering or its equivalent.
RREQ03		Seismic Vulnerbility and Risk Assessment	Bachelor's degree in Civil Engineering/Structural Engineering or its equivalent.
RREE01	Electrical Engineering	Instrumentation & Signal Processing	Bachelor's Degree in Electrical Engineering / Electronics & Communication / Instrumentation Engineering or its equivalent.
RREE02		Systems & Control	Bachelor Degree in Electrical Engineering or Electronics & Communication / Instrumentation Engineering, or its equivalent.
RREE03		Power System Engineering	Bachelor Degree in Electrical Engineering or its equivalent.
RREE04		Electric Drives & Power Electronics	Bachelor's Degree in Electrical Engineering or its equivalent.
RREC01	Electronics and Communication Engineering	Communication Systems	Bachelor's Degree in Electronics & Communication Engineering or its equivalent
RREC02		RF & Microwave Engineering	Bachelor's degree in Electronics and Communication Engineering or its equivalent
RREC03		Microelectronics & VLSI	M.Sc. (Physics), M.Sc. (Electronics), Bachelor's degree in Electronics & Communication Engineering or its equivalent.
RRCS01	Computer Science & Engineering	Computer Science & Engineering	BE/B.Tech. degree in Computer Science & Engineering/ Information Technology.

RRHY01	Hydrology	Hydrology	Bachelor's degree in Civil / Agricultural Engineering / Hydrology or its equivalent. M.Sc. / M.Tech (Master's) degree in Chemistry / Geology/ Geophysics / Applied Geology / Applied-Geophysics /Physics/Meteorology/Geography/Atmospheric Physics / Environmental Science with Mathematics in B.Sc. (Bachelor's) course as one of the subjects. OR M.Sc. (Master's) degree in Statistics with Physics or Mathematics at B.Sc. (Bachelor's) level OR M.Sc. (Master's) degree in Mathematics with Physics in B.Sc. (Bachelor's) level or its equivalent.
RRME01	Mechanical and Industrial Engineering	Machine Design Engineering	Bachelor's degree in Mechanical / Industrial / Production Engineering or its equivalent.
RRME02		Production & Industrial System Engineering	Bachelor's degree in Mechanical / Industrial / Production Engineering or its equivalent.
RRME03		Thermal Engineering	Bachelor's degree in Mechanical/ Industrial / Production Engineering or its equivalent
RRME04		Welding Engineering	Bachelor's degree in Mechanical/ Industrial/ Production Engineering or its equivalent.
RRME05		CAD,CAM & Robotics	Bachelor's degree in Mechanical / Industrial / Production Engineering or its equivalent.
RRMT01	Metallurgical Engineering & Materials Engineering	Industrial Metallurgy	B.Tech./B.E. in Metallurgy/Materials Engineering/ Mechanical Engineering/Production Engg/ Production and Industrial Engg /Ceramic Engineering
RRMT02		Materials Engineering	B.Tech./B.E. in Metallurgy/Materials Engineering, Mechanical Engineering/Production Engineering/ Production and Industrial Engg /Ceramic Engineering/Polymer Engg./Nanotechnology; or M.Sc. in Physics/Chemistry /Material Science/Polymer / Nanotechnology with Mathematics course at B.Sc. level
RRNT01	Nanotechnology	Nanotechnology	B.Tech. (Met. & Mat. Engg./Mech. Engg./ E&C/Electronics/ Chemical Engg./ Biotechnology/ Civil/ Biochemical Engineering/ Biomedical Engineering/ Bioengineering/ Polymer Engg/ Polymer Technology/ Pharmaceutical Technology/Industrial Biotechnology/ Nanotechnology) or equivalent; M.Sc. (Physics/ Chemistry/ Biotechnology/ Life Science/ nanotechnology), with Maths at 10+2 or higher level.
RRPH01	Physics	Solid State Electronic Materials	B.Tech. Engineering Physics / M.Sc. (Physics) / Bachelor's degree in Electrical / Electronics / Metallurgical Engineering, or its equivalent.
RRPH02		Photonics	M.Sc. (Physics/ Electronics/ Applied Physics/ Photonics/ Engineering Physics), B.Tech. (Engineering Physics/ Electronics/ Communication/ Electrical/ Instrumentation/ Materials/ Metallurgy/ Nanotechnology)
RRPP01	Paper Technology Saharanpur Campus	Pulp & Paper	Bachelor's degree in Pulp & Paper Engg. / Chemical Engg./ Mechanical Engg. / Polymer Engg./ Cellulose Technology/ Biotechnology or its equivalent. Note: The two years post B.Sc. diploma awarded by the IPT/DPT plus a minimum of two years relevant experience in Industry/ Research Organization will be considered equivalent to a B.Tech/ B.E. degree.
RRPP02		Packaging Technology	M.Sc. in Chemistry (PCM at B.Sc. level)/ Polymer Science (PCM at B.Sc. level)/ or B.Tech. in Pulp and Paper Technology/ Biotechnology/ Chemical Engg./Chemical Technology/ Polymer Engg. / Process Engg. / Mechanical Engg./ Production Engg./ Packaging Technology/ Printing Technology / Textile Technology/ PG Diploma in Packaging / Biochemical Engineering. Industry sponsored candidate with aforesaid academic qualifications along with two years experience in Paper / Polymer / Packaging Technology. Additional Requirement: GATE qualified except for industry sponsored candidate.
RRWR01	Water Resources Development & Management	Irrigation Water Management	Bachelor's degree in Civil Engineering or its equivalent /Agricultural Engineering or M.Sc. Agriculture in Agronomy, Soil Science, Agrometeorology, with Mathematics as one of the papers at the level of B.Sc. / B.Sc. Agriculture.
RRWR02		Water Resources Development	Bachelor's degree in Civil / Electrical / Mechanical / Electronics & Telecommunication Engineering, or its equivalent.
RRDM01	Disaster Mitigation and Management	Disaster Mitigation and Management	B,Tech. (Civil, Structural, Mechanical, Industrial, Chemical Engineering and Biotechnology /Computer Science & Engineering or equivalent,; B.Arch. & B. Planning, M.Tech. in Geological Technology and Geophysical Technology or its quivalent, M.B.A.; M.C.A.;

			M.Sc. in Physics/ Geophysics/ Geology/ Mathematics, Computer Science, Environmental Sciences, or its equivalent (with Maths in B.Sc.).
RRTS01	Centre for Transportation Systems (CTRANS)	Infrastructure Systems	B.E./B.Tech. (Civil/ Mechanical & Industrial/ Electrical/ Chemical Engineering/Electronics & Communication Engg/ Computer Science and Information Technology/ B.Arch./ B.Planning/B.Design or its equivalent.
RRBT01	Biotechnology	Bioprocess Engineering	B.E./B.Tech. or its equivalent degree in Chemical Engineering/ Biochemical Engineering/ Bioprocess Engineeing/ Chemical Technology/ Food Technology/ Agricultural Engineering/ Biomedical Engineering/ Bioengineering/ Polymer Engineering/ Polymer Technology/ Plastic Technology/ Paper Technology/ Ceramic Technology/ Petrochemical Engineering/ Textile Engineering/ Biotechnology or in allied field with Maths in 10+2 level

9. Indian Institute of Technology (Banaras Hindu University) Varanasi - VN

Code	Department	Fields of specialization	Minimum Qualification
VNMT01	Metallurgical Engineering	Extractive Metallurgy, Alloy Technology, Metals and Materials Processing	Degree in Metallurgical Engineering
VNMI01	Mining Engineering	Mine Planning, Mine Environment, Rock Mechanics	Degree in Mining Engineering
VNCH01	Chemical Engineering	Energy, Environment, Transfer Processes	Degree in Chemical Engineering
VNCE01	Civil Engineering	Structural Engineering, Environmental Engineering, Geotechnical Engineering, Hydraulics & Water Resource Engineering, Transportation Engineering, Geoinformatics Engineering, Engineering Geology	Degree in Civil Engineering
VNEE01	Electrical Engineering	Electrical Machines and Drives, Power Systems, Control Systems and Power Electronics	Degree in Electrical Engineering
VNEE02		Systems Engineering(Inter disciplinary)	Degree in Electrical, Electronics, Computer Engineering
VNME01	Mechanical Engineering	Machine Design, Thermal & Fluids, Production Engineering	Degree in Mechanical Engineering.
VNME02		Industrial Management	Degree in any branch of Engineering
VNEC01	Electronics Engineering	Microwave Engineering, Digital Techniques & Instrumentation, Microelectronics, and Communication Systems Engineering.	Degree in Electronics or Electrical Engineering
VNBM01	Biomedical Engineering	Biomedical Engineering	Degree in Biomedical/ Ceramic/ Chemical/ Computer/ Electrical/ Electronics (Telecommunication/ Instrumentation/ Control)/ Mechanic /Metallurgical Engineering/ OR M. Sc. Degree in Physics
VNMS01	Material Science & Technology	Material Science & Technology related current areas	Degree in Chemical Sciences, Material Science and Physical Sciences, Ceramic/Chemical Engineering/Electrical/Civil/Electronics/Polymer/Plastic Technology/Materials Technology/ Nanotechnology/Metallurgical Engineering /Dentistry/ Orthopedics/ENT/Rasshastra
VNBC01	Bio Chemical Engineering	Bio Chemical Engineering	B. Pharm./ B.Tech. or an equivalent degree in Biochemical/Biotechnology/ Chemical/ Food Engg./ OR M.Sc. degree in Biochemistry/ Bio- Technology/ Microbiology or in Chemistry with specialization in Biochemistry or Physical Chemistry.
VNCM01	Ceramic Engineering	Ceramic Engineering	B.Tech. or an equivalent degree in Ceramic/ Civil/ Electronics/Electrical/ Mechanical/ Metallurgical Engg./ Chemical Engg. And Technology/Materials Science & Technology/ Silicate Technology or M.Sc. Physics (with special papers in Solid State/ Electronics) or Electronics or Chemistry (with special papers in Physical/ Inorganic/Solid State Chemistry) provided the candidate has passed B.Sc./ B.Sc.(Hons.) Examination with Physics, Chemistry and Mathematics.

10 Anna University, Chennai- AU

Code	Department	Fields of specialization	Minimum Qualification
AC Tech Campus, Chennai-25			
AUCH01	Chemical Engineering	Petroleum Refining and Petrochemicals, Ceramic Technology, Chemical Engineering, Polymer Science and Engineering. Environment Science and Technology	Degree in Engineering/Tech .in the appropriate branch
AULT01	Leather Technology	Leather Technology, Footwear Science & Engineering.	
AUCM01	Ceramic Technology	Ceramic Technology	
AUAT01	Applied Science and Technology	Industrial Safety and Hazards Management	
AUTX01	Textile Technology	Textile Technology	
AUBT01	Bio-Technology	Bio-Technology, Computational Biology, Nano Science and Technology, Food Technology, Bio-Pharmaceutical Technology	
AURT01	Rubber and Plastics Technology	Rubber Technology	
College of Engineering, Guindy, Chennai-25			
AUCE01	Civil Engineering	Environmental Engineering, Structural Engineering, Hydrology and Water Resources Engineering, Construction Engineering and Management, Irrigation Water Management, Urban Engineering, Remote Sensing and Geomatics, Soil Mechanics and Foundation Engineering, Integrated Water Resources Management, Transportation Engineering, Environmental Management, Coastal Management	Degree in the appropriate branch in Engineering with preferably 55% or more marks in the aggregate or its equivalent in the Grade system.
AUEE01	Electrical Engineering	Power Systems Engineering, Control and Instrumentation, Power Electronics and Drives, High Voltage Engineering, Electronics Engineering, Instrumentation Engineering, Power Engineering and Management, Embedded System Technologies	Degree in the appropriate branch in Engineering with preferably 55% or more marks in the aggregateor its equivalent in the Grade system.
AUIC01	Information and Communication Engineering	Optical Communication, Medical Electronics, Applied Electronics, Communication Systems, Laser and Electro Optical Engineering, Computer Science & Engineering, Software Engineering, VLSI Design, Computer Science and Engineering(Specialization in Big Data Analytics), Systems Engineering and Operations Research, Multimedia Technology, Information Technology	Degree in the appropriate branch in Engineering with preferably 55%ormore marks in the aggregate or its equivalent in the Grade system
AUME01	Mechanical Engineering	Internal Combustion Engineering, Thermal Engineering (with Specialization in Refrigeration and Air-conditioning), Energy Engineering, Engineering Design, Solar Energy, Computer Aided Design, Product Design and Development, Manufacturing Systems Management.	Degree in the appropriate branch in Engineering with preferably55%ormore marks in the aggregate or its equivalent in the Grade system
Madras Institute of Technology Campus, Chennai-44			
AUAE01	Aerospace Engineering	Aeronautical Engineering, Aerospace Technology, Avionics	Degree in Aeronautical, Mechanical, Mechatronics
AUAU01	Automobile Engineering	Automobile Engineering	Degree in Automobile, Mechanical, Production
AUEC01	Electronics Engineering	Communication and Networking, Wireless Technologies, VLSI Design and Embedded Systems	Degree in ECE/EEE/E&I/CSE/IT/ Electronics/ Instrumentation
AUIN01	Instrumentation Engineering	Instrumentation Engineering	Degree in Instrumentation and control, Electronics and Instrumentation(E&I), Control and Instrumentation, Instrumentation Engineering
AUPT01	Production Technology	Production and Manufacturing Engineering, Green Manufacturing, Manufacturing Engineering, Mechatronics	Degree in Mechanical, Production, Manufacturing, Metallurgy, Industrial Automobile, Mechatronics.

11. Indian Institute of Engineering Science and Technology, Shibpur – BE
(Formerly Bengal Engineering and Science University, Shibpur)

Code	Department	Fields of specialization	Minimum Qualification
BECE01	Civil Engineering	Structural Engineering and Concrete Technology Soil Mechanics and Foundation Engineering, Water Resources Engineering, Environmental Engineering, Highway and Traffic Engineering.	Degree in the relevant field in Engineering Or equivalent
BEEE01	Electrical Engineering	Power Systems, Electrical Machines, Control Systems, Power Electronics & Drives.	Degree in the relevant field in Engineering Or equivalent
BEME01	Mechanical Engineering	Machine Design, Heat Power Engineering, Production Engineering	Degree in the relevant field in Engineering Or equivalent
BEMI01	Mining Engineering	Mining Engineering	Degree in the relevant field in Engineering Or equivalent
BEAE01	Aerospace Engineering and Applied Mechanics	Mechanics of Solids, Mechanics of Fluids	Degree in the relevant field in Engineering Or equivalent
BEIT01	Information Technology	Information and Communication Engineering	Degree in the relevant field in Engineering Or equivalent
BEMT01	Metallurgy and Materials Engineering	Physical Metallurgy.	Degree in the relevant field in Engineering Or equivalent

12. BMS College of Engineering, Bengaluru - BS

Code	Department	Fields of specialization	Minimum Qualification
BSME01	Mechanical Engineering	Machine Design	Bachelor Degree holder in Mechanical Engineering/ Industrial & Production Engineering. Automobile Engineering/ Manufacturing Engineering/ Industrial Engineering. & Management or equivalent degree with not less than 55% marks in the qualifying degree, However in case of candidate belongs SC/ST & category 1, minimum marks shall not be less than 45%.

13. Indian Institute of Technology (Indian School of Mines), Dhanbad – IS
The eligibility for M.Tech Programme is 1st class or equivalent in bachelor degree.

Code	Department	Fields of specialization	Minimum Qualification
ISFM01	Fuel & Mineral Engineering	Mineral Engineering Fuel Engineering	Degree in Chemical/ Mechanical/ Metallurgical / Mining/ Mineral Engineering.
ISMI01	Mining Engineering	Mining Engineering Opencast Mining Geomatics Tunneling & Underground Space Technology	Degree in Mining Engineering

14. Jadavpur University, Kolkata – JU

Code	Department	Fields of specialization	Minimum Qualification
JUEE01	Electrical Engineering	Electrical Machines	Degree or equivalent in Engineering in the appropriate branch with at least 60% marks.
JUEE02		Control Systems	
JUEE03		Power Systems	
JUEE04		High Voltage	
JUEE05		Electrical Measurements	
JUEC01	Electronics and Telecommunication Engineering	Communication Engineering	Degree or equivalent in Engineering in the appropriate branch with at least 60% marks.
JUEC02		Computer Engineering	
JUEC03		Control Engineering	
JUEC04		Electronic Devices	
JUEC05		Microwave Engineering	
JUME01	Mechanical Engineering	Applied Mechanics	Degree or equivalent in Engineering in the

Code	Department	Fields of specialization	Minimum Qualification
JUME02		Heat Power Engineering	appropriate branch with at least 60% marks.
JUME03		Fluid and Hydraulic Engineering	
JUME04		Production Engineering	
JUME05		Machine Design.	
JUPE01	Production Engineering	Production Technology: CAD/CAM, Robotics, Tribology, Flexible Manufacturing, Computer Integrated Manufacturing, Ergonomics, Designing for Production.	Degree in Production/ Industrial/ Mechanical/ Manufacturing Engineering with at least 60% marks.
JUPE02		Production Management Quantitative Management, Terotechnology, Reliability, Behavioral Science, Simulation Theory and Applications.	

15. Malnad College of Engineering, Hassan - 573 201 ML

The minimum eligibility is a graduate degree with not less than 50% of the marks in the aggregate of all the years of degree examination (cumulative sum of secured marks of all the semester/years divided by the sum of Max. marks). However in case of candidates belonging to SC/ST candidate, marks shall not be less than 45%.

Code	Department	Fields of specialization	Minimum Qualification
MLCE01	Civil Engineering	Computer Aided Analysis & Design of Structures (CADS)	Bachelor's Degree in Civil Engineering/ Construction Technology & Management.

16. Motilal Nehru National Institute of Technology, Allahabad-MN

Code	Department	Fields of specialization	Minimum Qualification
MNAM01	Applied Mechanics	Engineering Mechanics and Design	Eligibility Criteria to M.Tech admission will be 6.5 CPI/CGPA (on a 10-point scale) or 60% (first class) for OC/OB/OM whereas 6.0 CPI/CGPA (on a 10- point scale) or 55% in case of SC/ST candidates in the qualifying degree. **(Duration: 2 Year (4 Semesters)**
		Material Science and Engineering	
		Fluids Engineering	
		Biomedical Engineering	
		Biotechnology	
MNCE01	Civil Engineering	Environmental Engineering	
		Geotechnical Engineering	
		Structural Engineering	
		Transportation Engineering	
MNCS01	Computer Science and Engineering	Computer Science & Engineering	
		Information Security	
		Software Engineering	
MNEE01	Electrical Engineering	Control & Instrumentation/ Power Systems	
		Power Electronics& ASIC Design.	
MNEC01	Electronics Engineering	Digital Systems	
		Microelectronics & VLSI Design	
MNME01	Mechanical Engineering	Design Engineering	
		Production Engineering	
		Computer Aided Design and Manufacturing	
		Product Design& Development	
MNGI01	GIS Cell	GIS & Remote Sensing	

17. National Institute of Industrial Engineering, Mumbai – NI

Code	Department	Fields of specialization	Minimum Qualification
NIIE01	Industrial Engineering (PGDIE)	Industrial Engineering	Bachelor's Degree with 60% aggregate marks in Engineering/Technology (relax able by 5% in case of SC/ST candidates) and a minimum of two years' experience in the concerned field.

18. National Institute of Technology Calicut - CL

Code	Department	Fields of specialization	Minimum Qualification
CLCE01	Civil Engineering	Structural Engineering	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in aggregate in Civil Engineering.
CLCE02		Traffic and Transportation Planning	
CLCE03		Offshore Structures	
CLCE04		Environmental Geotechnology	
CLCS01	Computer Science and Engineering	Computer Science & Engineering.	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in aggregate in Computer Science & Engineering/ Information Technology/ First class MCA (60% marks or 6.5/10* CGPA)
CLCS02		Computer Science & Engineering. (Information Security)	
CLEE01	Electrical Engineering	Instrumentation and Control Systems	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electrical Engineering / Electrical and Electronics Engineering /Instrumentation and Control Systems/ Applied Electronics and Instrumentation.
CLEE02		Power Systems	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electrical Engineering / Electrical and Electronics Engineering
CLEE03		Power Electronics	
CLEE04		Industrial Power & Automation	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electrical Engineering / Electrical and Electronics Engineering/ Instrumentation and Control Systems/ Applied Electronics and Instrumentation/ Electronics and Instrumentation/ Instrumentation.
CLEE05		High Voltage Engineering	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electrical Engineering / Electrical and Electronics Engineering
CLEC01	Electronics and Communication Engineering	Electronics Design and Technology	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electronics and Communication/ Electronics Engineering/ Electrical & Electronics/ Applied Electronics and Instrumentation.
CLEC02		Microelectronics and VLSI Design	
CLEC03		Telecommunication	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electronics and Communication/ Electronics Engineering/ Telecommunication Engineering
		Signal Processing	Bachelor's Degree with 60% marks/CGPA of 6.5/10* in Electronics and Communication/ Electronics Engineering
CLME01	Mechanical Engineering	Industrial Engineering and Management	Bachelor's degree with 60% marks/CGPA of 6.5/10* in Mechanical Engineering/Aerospace Engineering/ Agricultural Engineering/ Automobile Engineering/ Material Science & Engineering/ Manufacturing Engineering/ Mechatronics/ Metallurgical Engineering/ Industrial Metallurgy/ Production Engineering/ Production & Industrial Engineering/ Production & Management/Textile Engineering & Fiber Science / Industrial Engineering.
CLME02		Thermal Sciences	Bachelor's degree with 60% marks/CGPA of 6.5/10* in Mechanical Engineering/Aerospace/ Aeronautical/ Automobile/ Energy/ Manufacturing/ Nuclear/ Production Engineering.
CLME03		Manufacturing Technology	Bachelor's degree with 60% marks/CGPA of 6.5/10* in Mechanical Engineering/ Automobile/ Manufacturing/ Material Science & Engineering/ Mechatronics/ Metallurgical/ Production Engineering/ Production & Industrial Engineering/ Production & Management.
CLME04		Energy Engineering & Management	Bachelor's degree with 60% marks/CGPA of 6.5/10* in Mechanical Engineering/ Chemical Engineering/ Aeronautical/ Aerospace/ Automobile/ Energy Engineering/ Nuclear Engineering/ Renewable Energy.
CLME05		Materials & Science & Technology	Bachelor's degree with 60% marks/CGPA of 6.5/10* in Mechanical Engineering/ Automobile/Material Science & Engineering/ Engineering Physics/ Manufacturing/ Mechatronics/ Metallurgical/ Industrial Metallurgy/ Nano Technology/ Production/ Production & Industrial Engineering/ Production & Management.

(*) For SC/ST Candidates 55% marks or 6.0/10 CGPA will be sufficient for all specializations.

19. National Institute of Technology Karnataka, Surathkal – SK

Admission to M.Tech. Programme shall be open to Indian nationals who have passed the prescribed qualifying examination with a Cumulative Grade Point Average (CGPA) of at least 6.5 in the 0-10 scale grading system, OR not less than 60% marks in the aggregate (taking into account the marks scored in all the subjects of all the public/university examinations conducted during the entire prescribed period for the degree programme). However, this prescribed minimum shall be a CGPA of 6.0 OR 55% marks in the aggregate for SC/ST/PD candidates.

Code	Department	Fields of specialization	Minimum Qualification
SKAM01	Applied Mechanics Hydraulics	Marine Structures	i) B.E./B.Tech.in Civil Engineering/B.Sc (Civil Engineering)/ B.E. Ocean Engineering ii) AMIE in Civil Engineering
SKAM02		Water Resources Engineering & Management	i) BE./BTech in Civil Engineering in (Civil Engineering) ii) AMIE in Civil Engineering/ B.E. Water Management
SKAM03		Remote Sensing & Geographic Information Systems	i) B.E./B.Tech. B.Sc.(Engineering in Civil, Mining, Environmental. Engineering, Transportation Engineering, Geo Informatics. ii) AMIE in Civil Engineering
SKCH01	Chemical Engineering	Chemical Plant Design	i) B.E./ B.Tech in Chemical Engineering/Polymer Technology/ Ceramic and Cement Technology/Bio-Chemical Engineering/ Biotechnology/Petrochemical Engineering. ii) AMIE (Chemical Engineering)/ A.M.I.I.Chemical Engineering
SKCH02		Industrial Pollution Control	i) B.E./ B.Tech in Chemical Engineering/Mechanical / Mining Engineering/ Polymer Technology/ Ceramic and Cement Technology/ Environmental Engineering/ Bio-Chemical Engineering/ Biotechnology/ Petrochemical Engineering. ii) AMIE (Chemical Engineering)/A.M.I.I.Chemical Engineering
SKCH03		Industrial Biotechnology	i) B.E./B.Tech. in Biotechnology/ Chemical Engineering/ Biochemical Engineering. ii) M.Sc. in Biotechnology
SKCE01	Civil Engineering	Structural Engineering	i) B.E./B.Tech./B.Sc. (Engineering) in Civil Engineering of any Recognized Indian Universities ii) AMIE in Civil Engineering.
SKCE02		Geotechnical Engineering	i) B.E./B.Tech./B.Sc. (Engineering) in Civil Engineering of any Recognized Indian Universities ii) AMIE in Civil Engineering.
SKCE03		Environmental Engineering	i) B.E./B.Tech./B.Sc. (Engineering) in Civil Engineering /Chemical/ Mechanical /Metallurgical/ Mining Engineering/ Environmental Engineering/Biochemical Engineering/ Biotechnology ii) AMIE in Civil Engineering/Chemical/Metallurgical/ Mechanical/Mining Engineering iii) M.Sc. in Industrial Chemistry/ Applied Chemistry/ Bio-Chemistry/ Biotechnology
SKCE04		Transportation Engineering	i) B.E./B.Tech./B.Sc.(Engineering) in Civil/Engineering/ Transportation Engineering of any Recognized Indian Universities ii) AMIE in Civil Eng.
SKCE05		Construction Technology & Management	i) B.E./B.Tech./B.Sc.(Engineering) in Civil or Mining Engineering of any recognized Indian University. ii) B.E./B.Tech./B.Sc.(Engineering) in Transportation Engineering/ Environmental Engineering/ Structural Engineering/ Construction Technology& Management of any recognized Indian University. iii) AMIE in Civil/ Mining Engineering iv) Bachelors' Degree in Architecture (B.Arch./B.E. or B.Tech. in Architecture of any recognized Indian University).
SKCS01	Computer Engineering	Computer Science & Engineering	B.E/B.Tech. in Computer Science/ Engineering, Computer Science & Engineering, Information Science & Engineering /Technology, Information Science, Information Engineering & Information Technology
SKCS02		Computer Science & Engineering-Information Security	B.E/B.Tech. in Computer Science/ Engineering, Computer Science & Engineering, Information Science & Engineering /Technology, Information Science, Information Engineering & Information Technology
SKEE01	Electrical & Electronics Engineering	Power and Energy Systems	i) B.E./ B.Tech./B.Sc (Engineering) in Electrical Engineering or Electrical & Electronics Engineering ii) AMIE in Electrical Engineering
SKEC01	Electronics & Communication Engineering	VLSI Design	i) B.E./B.Tech./B.Sc. (Engineering) in E&C, Electronics & Telecommunications/ Instrumentation Technology/ E&E/ Computer Science & Engineering/ Electronics & Control Engg. ii) AMIETE (Electronics & Telecommunication)

Code	Department	Fields of specialization	Minimum Qualification
SKEC02		Communication Engineering	i) B.E./ B.Tech./ B.Sc.(Engineering) in E&C, Electronics & Telecommunications. ii) AMIETE (Electronics & Telecommunication).
SKMC01	Mathematical & Computational Science	Computational Mathematics	B.E./B.Tech./B.Sc.(Engineering) any branch; M.Sc. (Mathematics), M.Sc. (Statistics), M.Sc. (Physics), MCA (Master of Computer Applications), M.Sc.(Computer Science/ Information Science/Information Technology, Electronics)
SKME01	Mechanical Engineering	Thermal Engineering	B.E./B.Tech./AMIE) in Mechanical Engineering/ Automobile Engineering/ Aerospace Engg./Energy System Engg./Marine Technology/Power Plant Engg./Renewable Energy Engg.
SKME02		Manufacturing Engineering	B.E/B.Tech./AMIE) in Mechanical Engineering/ Industrial Engineering/Industrial & Production Engineering/ Industrial Engineering and Management/ Manufacturing Engineering/ Production Engineering Mechatronics/ Aeronautical Engineering,Auto-Mobile Engineering/Metallurgy/Tool Engg.
SKME03		Mechatronics Engineering	B.E./B.Tech./ AMIE in Mechanical Engineering/ Electronics & Communication Engineering/ Electrical & Electronics/ Mechatronics Industrial Production /Production Engineering/ Industrial Engineering/ /Instrumentation/ Aeronautical Engineering/ Automobile Engineering/ Manufacturing Engg.
SKME04		Design & Precision Engg.	B.E./B.Tech/AMIE in Mechanical Engg./Automobile Engg./Manufacturing Engg./Aeronautical Engg./ Aerospace Engg.
SKMT01	Metallurgical & Materials Engineering	Process Metallurgy	i) B.E./ B.Tech./ B.Sc. (Engineering) in Metallurgical Engineering /Industrial & Production Engineering/ Metallurgy/ Metallurgical & Materials Engineering Engineering/Metallurgical Engineering & Materials Science/Metallurgical & Materials Technology/Mechanical Engineering/ Chemical Engineering/Production Engineering. ii) AMIE in Metallurgical Engineering /Mechanical Engineering (by Examination) iii) Associate Member of the Indian Institute of Metals (by Examination) – A.M.I.I.M. iv) M.Sc. Chemistry (Physical/ Analytical/ Industrial/ Applied M.Sc. (Materials Science)/ Master Degree in Mineral Beneficiation/ Mineral Processing/Ore Dressing
SKMT02		Materials Engineering	i) B.E./ B.Tech./ B.Sc.(Engineering) in Metallurgy/ Mechanical Engineering/Chemical Engineering/ Industrial Production/ Polymer Technology/ Ceramic and Cement Technology/ Manufacturing Engineering / Industrial & Production Engineering/ Metallurgical & Materials Engineering/ Metallurgical Engineering/Metallurgical Engineering & Materials Science/Polymer Science & Technology/ Polymer Science & Rubber Technology/Metallurgy & Materials Technology /Production Engineering. ii) AMIE in Mechanical/Metallurgical Engineering by Examination. iii) AMIIM (by Examination) of Indian Institute of Metals. iv) M.Sc. (Materials Science/Physics (Solid State
SKMT03		Nanotechnology	i) M.Sc. in Physics, Chemistry, Material Science, Bio-Technology. ii) B.Tech/AMIE in Civil, Mechanical, E&E, E&C, Instrumentation, Chemical, Metallurgy, Mining Engg., Metallurgical & Materials Engineering. iii) Associate member of the Indian Institute of Metals (by examination) AMIM.

20. National Institute of Technology Rourkela – RK

Minimum eligibility is B.E./ B. Tech./ M. Sc. or equivalent degree in the discipline as mentioned below with not less than 60% marks or 6.5 CGPA in the qualifying examination.

Code	Department	Fields of specialization	Minimum Qualification
RKCM01	Ceramic Engineering	Ceramic Engineering	B.E. or B. Tech. (Ceramic/ Metallurgy/ Chemical) or M.Sc. (Physics/ Chemistry/ Material Science) with not less than 60% marks or 6.5 CGPA in the qualifying examination.
RKCH01	Chemical Engineering	Chemical Engineering	B.E. or B. Tech. in Chemical/ Biochemical/Biotechnology with not less than 60% marks or 6.5 CGPA in the qualifying examination.
RKCE01	Civil Engineering	Structural Engineering;	Bachelor of Engineering in Civil Engineering with 60% marks in aggregate.
RKCE02		Soil Mechanics & Foundation Engg	
RKCE03		Transformation Engineering	
RKCS01	Computer Science & Engineering	Computer Science	BE, B. Tech. in Computer Science & Engineering / [Electronics / Electrical Engineering / IT or MCA or M.Sc. (Computer Science)]
RKCS02		Information Security	
RKEE01	Electrical Engineering	Power Control & Drives	B.E. or B. Tech. In Electrical Engineering.
RKEC01	Electronics & Communication Engineering	Telematics & Signal Processing	B.E. or B. Tech. in Electronics
RKEC02		VLSI Design & Embedded System	
RKME01	Mechanical Engineering	Production Engineering	Bachelor Degree in Mechanical Engineering Or equivalent with 60% marks in aggregate.
RKME02		Machine Design Analysis	
RKME03		Thermal Engineering	

21. National Institute of Technology Tiruchirappalli –TR

Minimum 60% marks in the qualifying examination for General Category and 55% for SC/ST candidates.

Code	Department	Fields of Specialization	Minimum Qualification
TRCH01	Chemical Engineering	Chemical Engineering	Bachelor's Degree in Chemical Engineering/Petrochemical Engineering/ Chemical and Electrochemical Engineering
TRCH02		Process control and Instrumentation	Bachelor's Degree in ChemicalEngineering/Petrochemical Engineering/ Chemical and Electrochemical Engineering/ Electrical & Instrumentation Engineering/Electrical & Electronics Engineering
TRCE01	Civil Engineering	Transportation Engg. & Management.	Bachelor's Degree in Civil/Highway/Transportation/ Engineering/ Transportation Urban Planning/ Civil & Transpiration Engineering/ Civil & Transpiration Technology
TRCE02		Structural Engineering.	Bachelor's Degree in Civil Engineering, Structural Engineering, Civil Engineering & Planning, Civil Technology.
TRCS01	Computer Science & Engineering	Computer Science	Bachelor's Degree in Computer & Communication Engineering/Computer Engineering/ Computer Engineering & Application/Computer Networking/ Computer Science/ Computer Science and Engineering/ Computer Science & Information Technology/ Computer Science & Systems Engineering/Computer Science & Technology/Computer Technology/Computing in Computing/Computing in Multimedia/Computer in Software/Electrical & Computer Engineering/Information Engineering/ Information Science/Information Science & Engineering/Information Science & Technology/Information Technology/ Information Technology & Engineering,/Electronics & Communication Engineering/ Electronics & Computer Engineering/Electronics & Electrical Communication Engineering/ Electronics & Information Systems/ Electronics & Telecom Engineering/ Electronics & Telematics Engineering
TREE01	Electrical & Electronics Engineering	Power Systems	Electrical & Instrumentation Engineering/Electrical & Electronics Engineering/Electrical & Power Engineering/ Electrical and Computer Engineering/ Electrical and Electronics (Power Systems)/ Electrical & Mechanical Engineering/ Electrical Engineering/ Electrical Engineering

			& Industrial Control/ Electrical Engineering (Power)/Electrical Instrumentation & Control Engineering/ Electrical Power Engineering/ Control & Electrical Engineering / Electronics & Electrical Communication Engineering/ Electronics & Electrical Engineering/ Electronics & Power Engineering/ Power Control & Drives/ Power Electronics Power Engineering/ Power Electronics & Instrumentation Engineering
TRME01	Mechanical Engineering	Thermal Power Engineering	Mechanical Engineering
TRME02		Industrial Safety Engineering	Mechanical Engineering /Production Engineering /Chemical Engineering / Electrical and Electronics Engineering / Civil Engineering/Electrical Engineering
TRMT01	Metallurgical Engineering	Welding Engineering	Industrial Metallurgy, Materials Science & Engineering/ Material Science & Metallurgical Engineering/ Material Science & Technology/ Material & Metallurgical Engineering/ Metallurgical & Materials Engineering/ Metallurgical & Materials Technology/ Metallurgical Engineering & Materials Science Metallurgy, Metallurgy & Materials Technology/ Mechanical Engineering/ Aerospace Engineering/ Automobile Engineering/ Automotive Technology, Electrical and Mechanical Engineering, Industrial and Production Engineering/ Manufacturing Engineering/ Manufacturing Engineering & Automation / Manufacturing Process/ Manufacturing Science & Engineering, Manufacturing Technology/ Mechanical & Automation Engineering/ Mechanical Engineering(Design & Manufacturing)/ Mechanical Engineering (Repair and Maintenance)/ Mechanical Engineering Automobile/ Nuclear Engineering/ Nuclear Science & Technology/ Production & Industrial Engineering/ Production Engineering/ Production Engineering & Management/ Ship building Engineering
TRMT02		Materials Science and Engineering	Material Science & Engineering/ Industrial Metallurgy/ Material Science & Metallurgical Engineering/ Material Science & Technology/ Material & Metallurgical Engineering/ Metallurgical & Materials Engineering/ Metallurgical & Materials Technology/ Metallurgical Engineering/ Metallurgical Engineering & Material Science Metallurgy/ Metallurgy & Material Technology/ Mechanical Engineering/ Production Engineering/ Chemical Engineering (Plastic & Polymer)/ Ceramic Technology/ Ceramic Engineering & Technology/ Ceramic Engineering/ Ceramic and Glass Technology/ Cement and Ceramic Technology/ Mechatronics, Nano Technology/ Nuclear Engineering/ Nuclear Science & Technology/ Polymer Technology/ Polymer Science & Technology/ Polymer Science & Chemical Technology/ Polymer Engineering & Technology/ Polymer Engineering/ Plastics Technology/ Plastics Engineering/ Plastic & Industrial Engineering/ Rubber Technology/ Solar & Alternate Energy/ Surface Coating Technology/ Industrial and Production Engineering/ Industrial Engineering. **M.Se. degree in** Physics/ Chemistry/ Material Science/ Applied Science/ Applied Physics/ Applied Chemistry/ Engineering Physics
TRPE01	Production Engineering	Manufacturing Technology	Automobile Engineering/ Industrial & Production Engineering/ Industrial Manufacture Engineering/ Manufacturing Engineering/ Manufacturing Engineering & Automation/ Manufacturing Process/ Manufacturing Process & Automation Engineering/Manufacturing Science & Engineering/Manufacturing Technology/ Mechanical & Automation Engineering/ Mechanical Engineering/ Mechanical Engineering (Design & Mechatronics)/ Production & Industrial Engineering/ Production Engineering/ Production Engineering & Management
TRPE02		Industrial Engineering and Management	Automobile Engineering/ Automotive Engineering/ Automotive Technology/ Industrial & Management Engineering / Industrial & Production Engineering / Industrial Engineering/ Industrial Management / Industrial Engineering & Management/ Industrial Manufacturing Engineering/ Manufacturing Engineering / Manufacturing Engineering & Automation/ Manufacturing Process/ Manufacturing Process & Automation Engineering Manufacturing Science & Engineering/ Manufacturing Technology/ Mechanical & Automation Engineering/ Mechanical Engineering/ Mechatronics/ Production & Industrial Engineering/ Production Engineering/ Production Engineering & Management.

22. National Institute of Technology Warangal - WR

Minimum Eligibility: First class Bachelor degree in Engineering with a minimum of 60% marks in aggregate. In case of SC/ST candidates, the minimum aggregate marks is 55%.

Code	Department	Fields of specialization	Minimum Qualification
WRCE01	Civil Engineering	Engineering Structures	B.E./B.Tech. in Civil Engineering or equivalent
WRCE02		Geotechnical Engineering	B.E./B.Tech. in Civil Engineering or equivalent
WRCE03		Transportation Engineering	B.E./B.Tech. in Civil Engineering/ B.Arch. or equivalent
WRCE04		Water Resources Engineering	B.E./B.Tech. in Civil Engineering/Agricultural Engineering or equivalent
WRCE05		Remote Sensing & GIS	B.E./B.Tech. in Civil Engineering/ B.Arch. or equivalent
WRCE06		Environmental Engineering	B.E./B.Tech. in Civil Engineering or M.Tech. Engg., Bio-Technology, Chemical Engg. Or equivalent
WRCE07		Construction Technology & Management	B.E./B.Tech. in Civil Engineering/ Construction Technology Management or equivalent.
WREC01	Electronics & Communication Engineering	Electronic Instrumentation.	B.E./B.Tech. in ECE, E&I, EEE.
WREC02		VLSI System Design.	B.E./B.Tech. in ECE, CSE.
WREE01	Electrical Engineering	Power Systems Engineering Power Electronics & Drives Engineering	B.E./B.Tech. in Electrical/IEEE.
WRME01	Mechanical Engineering	Thermal Engineering.	B.E./B.Tech. in Mechanical
		Manufacturing Systems Engineering	B.E./B.Tech. in Mechanical/Production/ Mechatronics/Industrial Engineering.

23. PSG College of Technology, Coimbatore - PS

Code	Department	Fields of specialization	Minimum Qualification
PSCS01	Computer Science & Engineering	Computer Science & Engg.	BE/B.Tech – ECE/IT/CSE/ Software Engineering. (OR) MSc (2 Years/5 Years) Software/ IT/CS/(OR) MCA
		Software Engineering	
PSEE01	Electrical & Electronics Engineering	Applied Electronics	BE/B.Tech - EEE/ECE/EI/IC/Instrumentation/ Electronics/Bio- Medical/ Bio Medical Instrumentation/ Medical Electronics
PSEE02		Control Systems	BE/B.Tech – EE/ECE/EI/Instrumentation/ IC/ Electronics
PSEE03		Power Electronics & Drives	BE/B.Tech - EEE/ECE/EI/Instrumentation/IC/ Electronics
PSME01	Mechanical Engineering	Engineering Design	BE/ B.Tech – Mechanical/ Production/ Manufacturing/ Auto/ Industrial Engg./ Mechatronics/ Marine.
PSME02		Industrial Engineering.	BE/ B.Tech - Industrial/ Mechanical/ Production/Mining/ Manufacturing/ Printing/ Aeronautical/ MSE/ Metallurgical/ Mechatronics/Automobile.
PSME03		Computer Integrated Manufacturing	BE/ B.Tech - Mechanical/ Production/ Auto/ Manufacturing/ Metallurgy/ Industrial Engg./ CIM/ Mechtronics/ Material Science
PSME04		Energy Engineering	BE/ B.Tech – Mechanical/ Chemical Engineering/ Energy & Environmental/Mechanical Energy.
PSPE01	Production Engineering	Production Engineering	BE/B.Tech – Mechanical/Production/Auto/ Manufacturing/ Metallurgy/ Industrial Engg. /Mechatronics/ Material Science.

Code	Department	Fields of specialization	Minimum Qualification
PSPE02		Product Design & Commerce	BE/B.Tech - Mechanical/Production/Auto/ Manufacturing/ Industrial Engg./ Mechatronics
PSPE03		Virtual Prototyping and Digital Manufacturing	BE/B.Tech - Mechanical/Production/Auto/ Manufacturing/ Industrial Engg./ Mechatronics / Civil / Computer Science
PSTX01	Textile Technology	Textile Technology	BE/B.Tech – Textile Technology / Textile Chemistry/Apparel Technology/Fashion Technology (Textile Technology)

24. Shri G.S. Institute of Technology and Science, Indore – GS

Code	Department	Fields of specialization	Minimum Qualification
GSEE01	Electrical Engineering	Power Electronics, Digital Techniques and Instrumentation.	Degree in the appropriate branch of Engineering.

25. JSS Science and Technology University, University (formerly Sri Jayachamarajendra College of Engineering) Mysore - SJ

Minimum eligibility is a Bachelor's Degree with minimum of 50% marks in Aggregate fall the years of the degree Examinations (or equivalent grade Point average) in the relevant field.

Code	Department	Fields of specialization	Minimum Qualification
SJCE01	Civil Engineering	Industrial Structures	Bachelor’s Degree in Civil Engineering./ Construction Technology & Management
SJIL01	Electronics and Communication	Industrial Electronics	Bachelor’s Degree in Electronics & Communication/ Electronics and Instrumentation Engineering / Instrumentation Technology/ Electronics and Telecommunications / Telecommunication / Electrical & Electronics/ Bio- Medical Engineering / Medical Electronics.
SJIN01	Instrumentation Technology	Bio-medical Signal Processing & Instrumentation	Bachelor's Degree in Computer Science and Engineering/ Information Science & Engineering / Telecommunication Engineering / Bio-Medical Engineering/ Medical Electronics/ Instrumentation Engineering / Electronics and Communication Engineering/ Electronics Instrumentation Engineering/ Electrical and Electronics Engineering.
SJME01	Mechanical Engineering	Maintenance Engineering	Bachelor’s Degree in Mechanical Engineering/ Industrial Production Engineering / Automobile Engineering / Industrial & Manufacturing Engineering / Industrial Engineering & Management / Mining Engineering.

26. University Visveswaraya College of Engineering, Bengaluru - UV

Code	Department	Fields of specialization	Minimum Qualification
UVCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Environmental Engineering, Construction Technology; Highway Engineering, Water Resources Engineering, Pre-stressed Concrete. & Earthquake Engineering.	Degree in Civil Engineering with minimum 60% marks.

27. Visvesvaraya National Institute of Technology, Nagpur - VR

Code	Department	Fields of specialization	Minimum Qualification
VRCE01	Civil Engineering	Environmental Engineering	B.E./ B.Tech. in Civil Engineering./ Environmental Engineering.
VREE01	Electrical Engineering	Power System	B.E. / B.Tech. Degree in Electrical Engineering / Power Electronics / Electronics and Power / Electrical and Electronics Engineering.

QUALITY IMPROVEMENT PROGRAMME

Application for M.Tech. Degree Programme 2020-21
Copy to Principal Coordinator QIP

Specimen Application and NOT to be used for filling application

Affix Stamp Size Photo

1. Application Number	**:**			
2. Name	**:**			
3. Designation	**:**			
4. Department	**:**			
5. College Address	**:**			
6. Contact Address	**:**			
7. Phone (Office)	**:**		**8. Mobile :**	
9. Phone (Residence)	**:**		**10. Email :**	
11. Date of Birth	**:**		**12. Gender:**	
13. Category	**:**		**14. Married:**	**Yes/No**
15. Physically Disabled	**:**	**Yes/No**		
16. UG Degree	**:**			
Year	**:**	University	**:**	
Class/Division	**:**	Overall Percentage/CGPA	**:**	
17. PG Degree	**:**			
Year	**:**	University	**:**	
Class/Division	**:**	Overall Percentage/CGPA	**:**	
18. Teaching Experience as on September 30, 2019 (Monday)			**:**	
19. Industrial / Research Experience as on September 30, 2019 (Monday):				
20. Number of QIP/ISTE/AICTE/IMPACT Courses Attended				
a) 4 to 7 days Duration:		b) Two weeks Duration:		c) More than 2 weeks:
21. Number of Research Papers: a) In Refereed journals:		b) In Conference Proceedings:		

22. Institutions and Departments to which Admissions are sought

	Name of the Institute	Choice of Specialization	
		First Choice	Second Choice
Preference 1			
Preference 2			
Preference 3			

23. Academic Data (Examination Passed B.E/B.Tech/B.Arch/B.Sc (Engg)/Equivalent)

Semester/Year	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

24. Academic Data (Examination Passed M.E/M.Tech. or Equivalent)

Semester/Year	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

25. Any other Qualification

Degree	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

26. Teaching Experience at Degree Level as on September 30, 2019 (Monday)

Sl.No	Name and Address of Employer & Institution	From (Date)	To (Date)	Years-Months	Designation

27. Industrial/Research Experience as on September 30, 2019 (Monday)

Sl.No	Name of the Organization	From (Date)	To (Date)	Years-Months	Designation

28. Short Term Courses attended

Sl.No	Name of the Course & Category	Organizer	Days	From	To

29. Research Papers/Book

Sl.No	Title of Paper/Book	Name of Author(s)	Name of Journal/Conference	Year	Vol.	Pages

Declaration

a. I declare that all the information given by me in this application form is correct to the best of my knowledge and belief, and I understand that false or incomplete information would cause invalidation of the application.

b. I shall abide by the decision of the National QIP Coordination Committee (NQCC) in all matters pertaining to admissions. The decision of the Committee shall be final and binding on me.

c. I shall abide by the rules and regulations of the Institutions to which I will be offered admission, if selected.

d. For all legal actions, suits and proceedings, the jurisdiction of a court of law shall be deemed to lie exclusively at the place at which the Institution considering me for admission is situated or the place where the office of the Principal Coordinator QIP is located and at no other court of place.

e. I understand the contents of this form and, particularly, this declaration being made here.

Place: **Signature of the Applicant**

Date:

Certificate and Forwarding Note by the Principal/Head of the Institution

a) Our Institution as well as the academic department, to which the applicant Mr./Ms._____belongs, is approved by AICTE.

b) The applicant is a full-time regular / permanent faculty member of our Institution and is not on deputation to any other Institution.

c) The applicant has _____years and _____months of teaching experience as on **September 30, 2019 (Monday)** at the graduate level (Certificates enclosed)

c) The applicant will be relieved full-time for the programme on deputation and will be paid full salary and allowances during the tenure of his/her sponsorship, if selected for admission.

Office Seal: **Signature of Principal or Head of Institution**

(With full contact details Name, Designation, Contact No., E-mail & AICTE affiliation No.)

Date:

Note:

- Conditional Recommendation will not be accepted.
- This Forwarding Note should be signed only by the Principal or the Head of the Institution.
- Any alteration made in the text of this Forwarding Note leads to automatic rejection of the application.
- Please attach separate experience certificate.

For any further details please contact the zonal QIP Coordinators at address indicated below

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www.iitg.ac.in/cet/qip.html

QIP

QUALITY IMPROVEMENT PROGRAMME

Advance Admission to Ph.D. Programme for the Academic year 2020-2021 (Final Admission: 2021-2022)

(for the Full Time/Permanent Faculty of AICTE approved Degree Level Engineering Institutions)

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All India Council for Technical Education

(A Statutory Body of Government of India)

Admission coordinated by

Principal Coordinator QIP
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Guwahati-781039, Assam
www.iitg.ac.in/cet/qip.html

DATES TO REMEMBER	
Opening of online Application Portal	20 September, 2019 (Friday)
Closing of online Application Portal	18 October, 2019 (Friday) 17.00 hrs
Last date for receipt of duly forwarded Applications along with enclosures	31 October, 2019 (Thursday)

Both online and hardcopy of the application are required for processing.
Single version of the application will not be considered.

Cover photo credits: Prof. Chandan Mahanta, Dept. of Civil Engineering, IIT Guwahati

Dear Prospective QIP Scholar

Your interest in the Quality Improvement Programme (QIP) sponsored by All India Council for Technical Education (AICTE) is appreciated. The principle objective of this programme is to enhance and upgrade the expertise and capabilities of faculty members of the AICTE approved degree-level engineering institutions. The programme, launched by the Government of India in the year 1970, is now being implemented and monitored by the National QIP Coordination Committee (NQCC) funded through AICTE.

There are three main activities under QIP scheme for the faculty of degree-level engineering institutions:

- Providing opportunities to teachers of the degree-level engineering institutions to improve their qualifications by offering admissions to M.Tech. and Ph.D. programme.
- Organizing Short Term Courses at the QIP Centres for serving teachers in various emerging areas of technology and research.
- Curriculum Development Cell activities which helps to improve the classroom teaching and learning.

These activities are undertaken by nine major QIP centres at IITs and IISc. Admission to M. Tech. and Ph.D. programme is also offered (in selected areas) in institutions recognized as Minor QIP centres. A large number of teachers from engineering institutions from all over the country have pursued M.Tech. and Ph.D. programme under this scheme. These activities are aimed at improving the standard and quality of technical education through improvement in the qualification of the faculty members of the various engineering institutions.

In the past, a Curriculum Development Cell was also set up at major QIP Centres for improving the effectiveness of technical education in the country. Its activities included curriculum development and revision or preparation of monographs, textbooks, teachers' manuals, teaching aids and other resource materials, examination reforms, organizing inter institutional programs, seminars, workshops and panel discussions, development of educational technology, creation of methodologies for formal and informal trainings, technical education of the handicaps, etc. A number of short term courses have also been organized by major QIP centres for the benefit of the faculty members of Engineering Institutions across the country.

The following QIP websites will give you necessary information about the programme as well as about the requirements and procedure to apply for admission in M.Tech./Ph.D. programme: www.aicte-India.org, http://cce.iisc.ernet.in, www.qip.iitb.ac.in, http://cepqip.iitd.ac.in, www.iitg.ac.in/cet/qip.html, www.iitk.ac.in/qip, www.cep.iitkgp.ac.in/cep, www.iitm.ac.in/qip, www.iitr.ac.in/qip, www.iitbhu.ac.in/qip. The details of the disciplines and specializations available at various centres are listed on the website and are also available in the admission brochure to enable you to make appropriate choices. You can navigate through the links on the left hand side of the main web page for admission and can download the admission brochure.

Access to the online portal for submission of application opens on **September 20, 2019 (Friday)**. The last date for the online submission of the application is **October 18, 2019 (Friday)**. Please note that the last date for submission of the hard copy of the application is **October 31, 2019 (Thursday)**. Submission of online as well as hard copy of the application is mandatory. The hard copy should be sent to: **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati-781039, Assam.**

The procedure of admission under QIP involves the following steps:

- Scrutiny of all applications in the office of the Principal Coordinator QIP.
- Shortlisting of candidates by the QIP centres for interview and dispatch of call letters to the selected candidates.
- Recommendations by the QIP centres to the National QIP Coordination Committee.
- Final selection by the National QIP Coordination Committee, and
- Offer of Admission by the Institution where the final selection has been recommended by the NQCC.

The schedule of interview at various QIP Centres is given in the brochure, so that you can plan your travel for attending/appearing at the interview at places of your choice. For further information about the QIP, the application form or any associated item, you may contact the Principal Coordinator QIP or any of the Coordinators of the QIP Centres listed in the QIP websites and the brochure.

For further information about a particular institution or a particular department therein, you may directly write to the Head of concerned department or the QIP Coordinator of the institution.

The website www.iitg.ac.in/cet/qip.html will be updated periodically at each of the timelines. Please visit this website periodically to check for updates in the application and selection process.

Wish you all the best!

Prof. Hemant B Kaushik
Principal Coordinator QIP
Head, Centre for Educational Technology
IIT Guwahati, Guwahati-781039, Assam

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I. GENERAL INFORMATION

1. The major QIP Centres at IITs and IISc offers admission to Ph.D. degree programme in several disciplines. In addition, institutions recognized as the minor QIP Centres also offer admission to Ph.D. degree programme under QIP in some specific departments.

2. Prior to regular admission to the Ph.D. programme at a QIP Centre, a candidate is required to join a pre- Ph.D. contact programme (Advance Admission Scheme). The duration of the pre-Ph.D. programme is 60 (sixty) days and that of the regular Ph.D. Degree Programme is 3 (three) years.

3. Candidate should visit the website www.iitg.ac.in/cet/qip.html for submitting online application, updated information related to receipt of completed application, candidates called for interview, selected list of candidates and all other information pertaining to QIP admission.

4. Candidate should read the **brochure** thoroughly before **i)** filling the fields **in the online application** and **ii)** sending the final print-out of application (duly forwarded by the Head of Institution).

5. Candidates must first submit their application form online through www.iitg.ac.in/cet/qip.html (applications without online submission will not be considered). Candidate should make sure that proper Institute/ Discipline codes are entered and all relevant details are duly filled in the respective fields. Access to the link for online submission of application opens on **September 20**, **2019 (Friday)**. Last date for the online submission of application is **October 18, 2019 (Friday), 17:00 hrs**., and last date for receipt of duly forwarded application along with enclosures is **October 31, 2019 (Thursday).**

6. After filling the application online, candidates should send the **relevant number** of prints of the **online** completed form, duly forwarded by the Principal/ Head of the Institution, as instructed along with all enclosures and the Online Payment receipt for Rs.1000/- (Rs.500/- for SC/ST/PD/Female Candidate) to: **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati-781039, Assam**.

7. The candidate and the Principal/Head of the Institution forwarding the application should ensure that the application is to be sent to **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati-781039, Assam**, so as to reach **on or before October 31, 2019 (Thursday). Applications received after this date will not be considered.** Acknowledgement of the receipt of the application will be sent by email.

8. Information given by the candidate in the application for all of the options chosen must be uniform and correct. In case of any difference observed in the data relating to experience, marks, designation, addresses, age, etc., his/her candidature is liable to be cancelled at any stage even after the selection/ admission.

9. **Applications submitted without the full support and recommendation of the candidate by the appropriate authority (Head of the Institute) with seal, and/or without the required enclosures will automatically be rejected. Please note that no corrections/ additions/ deletions to the recommendation format is permitted. Changes to the format of the forwarding/ recommendation note will not be accepted.**

10. The application number allotted during the online registration should be quoted in all correspondences, and **such correspondences should be routed through the Principal/ Head of the candidate's parent institution.** If the application number changes due to some unavoidable circumstances, this change will be intimated through email to the candidate. The changed application number may be quoted in all cases.

11. Short-listed candidates will receive Interview Call/ Admission letter from the respective QIP Coordinator of the Institute, where they have applied to seek admission. The Principal Coordinator QIP will not send any Call letter to the candidate directly.

12. **Interview schedule is final and cannot be altered/ changed under any circumstances.** Candidates are required to appear for interview at the Institute(s), where he/ she would like to seek admission. Candidates may plan their travel accordingly.

13. Concessions, relaxation, and reservation for candidates belonging to SC/ST/OBC/Physically Disabled (PD)/Female candidate are as per rules. The reservation rules of GOI will be applied to overall admissions by the NQCC. The selection of a candidate is considered only after the recommendation of the major/ minor QIP center.

II. INSTITUTIONS OFFERING Ph.D. DEGREE PROGRAMME UNDER QIP AND THEIR CODES

Sl. No.	Name of the Institute/ University	Code
Institutions that are Major QIP Centres: The QIP Centres of the following institutions offer admission to Ph.D. degree programme in several disciplines (available in those institutions):		
1.	Indian Institute of Science, Bangalore – 560 012	**BG**
2.	Indian Institute of Technology Bombay, Mumbai – 400 076	**BM**
3.	Indian Institute of Technology Delhi, New Delhi – 110 016	**DL**
4.	Indian Institute of Technology Guwahati, Guwahati – 781 039	**GW**
5.	Indian Institute of Technology Kanpur, Kanpur – 208 016	**KN**
6.	Indian Institute of Technology Kharagpur, Kharagpur – 721 302	**KH**
7.	Indian Institute of Technology Madras, Chennai – 600 036	**MD**
8.	Indian Institute of Technology Roorkee, Roorkee – 247 667	**RR**
9.	Indian Institute of Technology (BHU),Varanasi – 221 005	**VN**
Other Institutions that are Minor QIP Centres: The following recognized institutions also offer admission to Ph.D. Degree Programme under QIP in some specific departments as given below:		
10.	Alagappa Chettiar Government College of Engineering and Technology Karaikudi, (Tamilnadu) - 630 003 (i) Civil Engineering (ii) Electrical and Electronics Engineering (iii) Mechanical Engineering.	**AC**
11.	Anna University, AC Technology Campus, Chennai (Tamilnadu) – 600 025 (i) Chemical Engineering (ii) Leather Technology (iii) Textile Technology (iv) Biotechnology.	**AU**
	Anna University, College of Engineering Campus, Guindy, Chennai (Tamilnadu) – 600 025 (i) Civil Engineering (ii) Electrical Engg. (iii) Information and Communication Engg. (iv) Mechanical Engineering.	
	School of Architechture and Planning, Guindy, Chennai (Tamilnadu) – 600 025 (i) Architechture Planning.	
	Anna University, Madras Institute of Technology, Chennai (Tamilnadu) – 600 044 (i) Aerospace Engineering (ii) Automobile Engineering (iii) Electronics Engineering (iv) Instrumentation Engineering (v) Production Technology.	
12.	Basaveshwar Engineering College, (Autonomous), Bagalkot (Karnataka) – 587 102 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics & Communication Engineering (v) Computer Science & Engineering.	**BA**
13.	B.M.S. College of Engineering, Bangalore (Karnataka) – 560 019 (i) Civil Engineering (ii) Electrical Engineering (iii) Mechanical Engineering (iv) Industrial Engineering & Management (v) Electronics & Communication Engineering.	**BS**
14.	Coimbatore Institute of Technology, Coimbatore (Tamilnadu) – 641 014 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical & Electronics Engg. (iv) Chemical Engineering.	**CC**
15.	College of Engineering Trivandrum, Thiruvananthapuram (Kerala) – 695 016 (i) Civil Engineering (ii) Mechanical Engg. (iii) Electrical Engg. (iv) Electronics & Communication Engineering.	**CT**
16.	College of Engineering, Pune (Maharashtra) – 411 005 (i) Civil Engineering (ii) Mechanical Engg. (iii) Production Engineering (iv) Electrical Engg. (v) Electronics & Telecommunication (vi) Computer Engg. (vii) Instrumentation & Control (viii) Metallurgy & Materials Science.	**CP**
17.	College of Technology & Engineering, MPUAT, Udaipur (Rajasthan) – 313 001 (i) Electrical Engineering (ii) Farm Machinery & Power Engineering (iii) Processing & Food Engineering (iv) Soil & Water Engineering (v) Renewable Energy Engineering.	**CA**
18.	Delhi Technological University, Delhi – 110 042 (i) Civil Engineering (ii) Mechanical Engg. (iii) Electrical Engineering (iv) Polymer Science & Chemical Technology.	**DD**
19.	Giani Zail Singh Campus College of Engineering & Technology, Bathinda (Punjab) – 151 001 (i) Computer Science & Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Civil Engineering. (v) Electronics & Communication Engineering (vi) Textile Engineering.	**GZ**
20.	Government College of Engineering, Amravati (Maharashtra) – 444 604 (i) Electrical Engineering (ii) Mechanical Engineering (iii) Civil Engineering.	**AM**
21.	Govt. College of Engineering, Aurangabad (Maharashtra) – 431 005 (i) Civil Engineering (ii) Electrical Engineering (iii) Electronics & Communication Engineering.	**GA**
22.	Govt. Engineering College, Govt. of Kerala, Thrissur (Kerala) – 680 009 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering.	**GK**

Sl. No.	Name of the Institute/ University	Code
23.	Govt. Engineering College, Salem (Tamil Nadu) – 680 009 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering.	**GC**
24.	Guru Nanak Dev Engineering College, Ludhiana (Punjab) – 141 006 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering.	**GN**
25.	Harcourt Butler Technological Institute, Kanpur (Uttar Pradesh) – 208 002 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electronics Engineering (iv) Chemical Engineering.	**HK**
26.	Indian Institute of Engineering Science and Technology, Shibpur (West Bengal) – 711 103 (i) Civil Engineering (ii) Electrical Engineering (iii) Mechanical Engineering (iv) Mining Engineering (v) Aerospace Engg. & Applied Mechanics (vi) Information Technology (vii) Metallurgy & Materials Engineering.	**BE**
27.	Indian Institute of Technology (Indian School of Mines), Dhanbad (Jharkhand) – 826 004 (i) Mining Engineering (ii) Mechanical Engineering (iii) Civil Engineering (iv) Electrical & Electronics Engineering (v) Electrical & Communication Engineering (vi) Computer Science & Engineering.	**IS**
28.	Indira Gandhi Institute of Technology, Sarang (Odisha) – 759 146 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering.	**IO**
29.	Jadavpur University, Kolkata (West Bengal) – 700 032 (i) Electrical Engg. (ii) Electronics & Telecommunication Engg. (iii) Mechanical Engg. (iv) Production Engineering.	**JU**
30.	Jamia Millia Islamia University, New Delhi – 110 025 (i) Electrical Engineering.	**JM**
31.	Kamla Nehru Institute of Technology, Sultanpur (Uttar Pradesh) – 228 118 (i) Electrical Engineering.	**KS**
32.	Madan Mohan Malaviya University of Technology Gorakhpur (Uttar Pradesh) – 273 001 (i) Civil Engineering (ii) Electrical Engg. (iii) Electronics & Communication Engg. (iv) Mechanical Engineering.	**MM**
33.	Madhav Institute of Technology & Science, Gwalior (Madhya Pradesh) – 470 005 (i) Civil Engg. (ii) Architecture. (iii) Electrical Engg. (iv) Computer Science & Engg. (v) Mechanical Engineering.	**MG**
34.	Malaviya National Institute of Technology, Jaipur (Rajasthan) – 302 017 (i) Chemical Engineering (ii) Civil Engineering (iii) Electrical Engg. (iv) Mechanical Engineering (v) Metallurgical & Materials (vi) Electronics & Communication Engineering (vii) Computer Engineering (viii) Centre for Energy and Environment Engineering (ix) Management Studies (x) Architecture and Planning (xi) National Centre for Disaster Mitigation and Management.	**MJ**
35.	Motilal Nehru National Institute of Technology, Allahabad (Uttar Pradesh) – 211 004 (i) Applied Mechanics (ii) Biotechnology (iii) Civil Engineering (iv) Computer Science & Engineering (v) Electrical Engineering (vi) Electronics and Communication Engg. (vii) Mechanical Engineering (viii) Chemical Engineering (ix) Chemistry (x) Humanities & Social Sciences (xi) Physics (xii) School of Management Studis (xiii) GIS Cell.	**MN**
36.	National Institute of Foundry and Forge Technology, Hatia, Ranchi (Jharkhand) – 834 003 (i) Manufacturing Engineering (ii) Materials & Metallurgical Engineering.	**NF**
37.	National Institute of Technology, Agartala (Tripura) – 799 055 (i) Mechanical Engineering (ii) Electronics & Communication Engg. (iii) Electrical Engineering (iv) Production Engineering (v) Civil Engineering.	**NA**
38.	National Institute of Technology, Calicut (Kerala) – 673 601 (i) Civil Engineering (ii) Electrical Engg. (iii) Electronics & Communication Engg. (iv) Mechanical Engineering.	**CL**
39.	National Institute of Technology, Durgapur (West Bengal) – 713 209 (i) Biotechnology (ii) Chemical Engg. (iii) Civil Engineering (iv) Computer Science & Engineering (v) Electronics & Communication Engg. (vi) Electrical Engg. (vii) Mechanical Engg. (viii) Metallurgical Materials Engineering.	**ND**
40.	National Institute of Technology, Hamirpur – 177 005 (Himachal Pradesh) (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics and Communication (v) Computer Science & Engineering (vi) Energy and Environmental Engineering.	**NH**
41.	National Institute of Technology, Raipur – 492 001 (Chhattisgarh) (i) Civil Engineering (Water Resources Development and Irrigation Engineering).	**NR**
42.	National Institute of Technology, Rourkela (Odisha) – 769 008 (i) Ceramic Engineering (ii) Chemical Engineering (iii) Electronics & Communication Engineering (iv) Electrical Engineering (v) Mechanical Engineering (vi) Metallurgical & Materials Engineering (vii) Mining Engineering.	**RK**
43.	National Institute of Technology, Silchar (Assam) – 788 010 (i) Civil Engineering (ii) Computer Science & Engineering (iii) Electrical Engineering (iv) Electronics & Communication Engineering (v) Mechanical Engineering.	**NS**
44.	National Institute of Technology (NIT)-Srinagar, (Jammu and Kashmir) – 190 006 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics and Communication.	**NJ**

Sl. No.	Name of the Institute/ University	Code
45	National Institute of Technology Karnataka, Surathkal (Karnataka) – 575 025 (i) Applied Mechanics & Hydraulics (ii) Chemical Engineering (iii) Civil Engineering (iv) Computer Engineering (v) Electrical & Electronics Engineering (vi) Electronics & Communication Engineering (vii) Humanities Social Science & Management (viii) Mechanical Engineering (ix) Metallurgical & Materials Engg. (x) Mining Engineering.	**SK**
46.	National Institute of Technology, Tiruchirappalli (Tamil Nadu) – 620 025 (i) Electrical & Electronics Engineering (ii) Metallurgical & Materials Engineering (iii) Production Engineering (iv) Chemical Engineering (v) Civil Engineering (vi) Computer Science & Engineering (vii) Instrumentation & Control (viii) Mechanical Engineering.	**TR**
47.	National Institute of Technology, Warangal (Telangana) – 506 004 (i) Chemical Engineering (ii) Civil Engineering (iii) Mechanical Engineering (iv) Mathematics & Humanities.	**WR**
48.	National Institute of Technical Teachers Training & Research (NITTTR), Kolkata (West Bengal) – 700 106 (i) Electrical Engineering (ii) Mechanical Engineering (iii) Civil Engineering (iv) Computer Science & Engineering.	**NK**
49.	Netaji Subhas Institute of Technology, New Delhi – 110 078 (i) Electronics & Communication Engineering (ii) Computer Engineering (iii) Instrumentation & Control Engineering (iv) Mechanical Engineering (v) Bio-technology.	**NN**
50.	PDPM Indian Institute of Information Technology Design & Manufacturing, Jabalpur (Madhya Pradesh) – 482 005 (i) Computer Science & Engineering (ii) Electronics & Communication Engineering (iii) Mechanical Engineering.	**PD**
51.	Pondicherry Engineering College, Puducherry – 605 014 (i) Electronics & Communication Engineering (ii) Computer Science & Engineering (iii) Electrical & Electronics Engineering (iv) Mechanical Engineering (v) Civil Engineering.	**PY**
52.	PSG College of Technology, Coimbatore (Tamil Nadu) – 641 004 (i) Mechanical Engineering (ii) Production Engineering (iii) Automobiles Engineering (iv) Electronics & Communication Engineering (v) Biotechnology (vi) Biomedical Engineering (vii) Instrumentation & Control System Engineering.	**PS**
53.	Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam (Kerala) – 686 501 (i) Electrical Engineering (ii) Mechanical Engineering (iii) Civil Engineering.	**RG**
54.	Samrat Ashok Technological Institute, Vidisha (Madhya Pradesh) – 464 001 (i) Civil Engineering (ii) Computer Science & Engineering (iii) Information Technology (iv) Electrical Engineering (v) Mechanical Engineering.	**SV**
55.	Sardar Patel College of Engineering, Mumbai (Maharashtra) – 400 058 (i) Civil Engineering.	**SM**
56.	S.V. National Institute of Technology, Surat (Gujarat) – 395 007 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics Engineering (v) Computer Engineering (vi) Chemical Engineering.	**SS**
57	Sant Longowal Institute of Engineering & Technology, (Deemed University) (Punjab) – 148 106 (i) Mechanical Engineering (ii) Food Engineering & Technology (iii) Electronics & Instrumentation Engineering (iv) Chemical Technology.	**SP**
58.	Shri Guru Gobind Singh Institute of Engineering & Technology, Nanded (Maharashtra) – 431 606 (i) Electronics & Communication Engineering (ii) Instrumentation & Control (iii) Production Engineering (iv) Civil Engineering (v) Mechanical Engineering.	**SG**
59..	Shri G. S. Institute of Technology & Science, Indore (Madhya Pradesh) – 452 003 (i) Civil Engineering (ii) Electrical Engineering (iii) Electronics & Communication Engineering (iv) Computer Science & Engineering (v) Mechanical Engineering (vi) Industrial & Production Engineering.	**GS**
60.	Tezpur University, Sonitpur Tezpur (Assam) – 784 028 (i) Computer Science & Engineering (ii) Electronics and communication Engineering (iii) Energy (iv) Food Engineering and Technology.	**TU**
61.	Thiagarajar College of Engineering, Madurai (Tamil Nadu) – 625 015 (i) Civil Engineering (ii) Electrical Engineering (iii) Mechanical Engineering (iv) Electronics & Communication Engineering (v) Computer Science & Engineering.	**TM**
62.	The National Institute of Engineering, Mysore (Karnataka) – 570 008 (i) Civil Engineering (ii) Electrical Engg. (iii) Industrial & Production Engg. (iv) Computer Science & Engineering.	**NM**
63.	TKM College of Engineering, Kollam (Kerala) – 691 005 (i) Civil Engineering (ii) Mechanical Engineering.	**TK**
64.	University Visveswaraya College of Engineering, Bengaluru (Karnataka) – 560 056 (i) Civil Engineering.	**UV**

Sl. No.	Name of the Institute/ University	Code
65.	University College of Engineering, Osmania University, Hyderabad, (Telangana) – 500 007 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics and Communication Engineering (v) Computer Science & Engineering.	**OU**
66.	University of Hyderabad, School of Computer and Information Sciences, Hyderabad (Telengana) – 500 046 (i) Computer and Information Science.	**UH**
67.	Veer Surendra Sai University of Technology, Burla (Orissa) – 768 018 (i) Civil Engineering (ii) Electrical Engineering (iii) Electronics & Communication Engineering (iv) Mechanical Engineering (v) Production Engineering.	**VB**
68.	Veermata Jijabai Technological Institute (VJTI), Mumbai (Maharashtra) – 400 019 (i) Civil Engineering (ii) Electrical Engineering (iii) Mechanical Engg. (iv) Electronics Engg. (v) Textile Technology.	**VM**
69.	Visvesvaraya National Institute of Technology, Nagpur (Maharashtra) – 440 011 (i) Electrical Engineering (ii) Metallurgical Engineering.	**VR**
70.	Walchand College of Engineering, Sangli (Maharashtra) – 416 415 (i) Civil Engineering (ii) Mechanical Engineering (iii) Electrical Engineering (iv) Electronics Engineering, (v) Computer Science & Engineering.	**WS**
71.	Indian Institute of Technology, Hyderabad (Telengana) – 502 285 (i) Bio-technology (ii) Computer Science & Engg. (iii) Civil Engineering (iv) Electrical & Electronics Engineering.	**HY**
72.	Indian Institute of Technology, Bhubneshwar (Orissa) – 751 013 (i) Earth Ocean & Climate (ii) Electrical Science (iii) Humanities, Social Science & Management (iv) Infrastructure (v) Mechanical Science (vi) Basic Science (vii) Mineral, Metallurgical and Materials.Engineering.	**BH**
73.	Indian Institute of Technology, Patna (Bihar) – 801 103 (i) Mechanical Engineering (ii) Chemical & Bio-Medical Engineering (iii) Civil & Environmental Engineering (iv) Computer Science & Engineering (v) Electrical Engineering.	**PA**
74.	Indian Institute of Technology, Indore (Madhya Pradesh) – 453 552 (i) Computer Science and Engineering (ii) Electrical Engineering (iii) Mechanical Engineering (iv) Civil Engineering (v) Bio-Sciences and Bio-Medical Engineering.	**IR**
75.	Indian Institute of Technology, Ropar (Punjab) – 140 001 (i) Mechanical Engineering (ii) Computer Science and Engineering (iii) Civil Engineering (iv) Chemical Engineering (v) Electrical Engineering.	**RO**
76.	Indian Institute of Technology, Mandi (Himachal Pradesh) – 175 005 (i) Computing Science & Engineering (ii) School of Engineering (iii) School of Basic Science.	**MA**
77.	Dr. B. R. Ambedkar National Institute of Technology, Jalandhar (Punjab) – 144 011 (i) Chemical Engineering (ii) Computing Science & Engineering (iii) Mechanical Engineering (iv) Electronics & Communication Engineering.	**JL**
78.	M. S. Ramaiah Institute of Technology, Bengaluru (Karnataka) – 560 054 (i) Mechanical Engineering (ii) Electrical & Electronics Engineering (iii) Civil Engineering.	**MB**
79.	Bannari Amman Institute of Technology, Erode (Tamil Nadu) – 638 401 (i) Biotechnology (ii) Computing Science & Engineering (iii) Electronics & Communication Engineering.	**ER**

III. CODES FOR DEPARTMENTS OFFERING ADMISSION TO Ph.D. DEGREE PROGRAMME AT VARIOUS INSTITUTIONS

Department/Centre	Code	Institution(s) Offering Ph.D. Degree Programme
Aerospace Engineering	AE	**BG, BM, KH, KN, MD, AU**
Aerospace Engineering and Applied Mechanics	AE	**BE**
Advance Technology Development Centre	AT	**KH**
Agriculture & Food Engineering	AG	**KH**
Hydro and Renewable Energy	HR	**RR***
Applied Mechanics	AM	**DL, MD, MN**
Applied Mechanics & Hydraulics	AM	**SK***
Applied Research In Electronics	AL	**DL**
Applied Science & Engineering	PP	**RR**
Architecture & Planning	AR	**RR, AU, MJ**
Architecture	AR	**MG**
Architecture & Regional Planning	AP	**KH**
Atmospheric & Oceanic Sciences	AS	**BG**
Atmospheric Sciences	AS	**DL**
Automobile Engineering	AU	**AU, PS**
Bio-chemical Engineering & Bio-technology	BC	**DL**
Bio-chemical Engineering	BC	**VN**
Bio-medical Engineering	BM	**DL, VN, PS**
Bio-technology	BT	**KH, MD, ND, NN, RR, AU, MN, PS, HY, ER**
Bio-sciences & Bio-Engineering	BT	**GW**
Bio-sciences & Bio-medical Engineering	BB	**IR**
Ceramic Engineering	CM	**RK, VN**
Centre of Excellence in Disaster Mitigation & Management	DM	**RR**
National Centre for Disaster	DM	**MJ**
Centre of Nanotechnology	NT	**RR**
Centre for Studies in Resources Engineering	SR	**BM**
Centre for Sustainable Technologies	ST	**BG**
Chemical Engineering	CH	**AU, BG, BM, CC, DL, GW,HK, KH, KN, MD,MJ, ND, RK, RR, SK,SS, WR, TR, VN, MN, RO, JL**
Chemical Engineering & Bio-medical Engineering	CB	**PA**
Chemistry	CY	**BM, DL, GW, KH, KN, MD,MN, RR, VN**
Civil Engineering	CE	**AM,AU, BA, BE, BG, BM*, BS, CC, CL, CP, CT, DD, DL*, GA, GC, GK, GN, GS, GW,GZ,HK,IO, KH, KN*, MD*, MG, MJ, MM,MN,NA,ND, NM,NS,PY,RG, RR*, SG*, SK*,SM,SS, SV, TK,TM, UV, VB,VM, WR, WS, VN,AC,NK,OU,NH,NJ, IS, HY*, IR, RO, MB**
Civil Engineering	CV	**TR**
Civil & Environmental Engineering	CE	**PA**
Computer Science & Automation	CS	**BG**
Computer Science & Engineering	CS	**BM, BA, DL, GS, GW,GZ, KH, KN, MD, MG, MN, ND, NM, NS, PD, PY, SV, TM, TR, WS, RR, VN, NK, TU, OU, NH, IS, HY, PA, IR, RO, MA, JL, ER**
Computer and Information Science	CS	**UH**
Computer Engineering	CS	**MJ, SK, NN, CP, SS**
Computational and Data Sciences	CD	**BG**
Cryogenic Engineering	CR	**KH**

Department/Centre	Code	Institution(s) Offering Ph.D. Degree Programme
Centre for Educational Technology	ET	**KH**
Centre for Oceans, Rivers, Atmosphere and Land Sciences	EV	**KH**
Design	DE	**GW**
Earth Sciences	ES	**BM, RR, BG**
Earthquake Engineering	EQ	**RR**
Electrical & Electronics Engineering	EE	**GW, TR, CC, SK, PY, AC*, MB**
Electrical Communication Engineering	EC	**BG**
Electrical Engineering	EE	**AM, AU, BG, BM*, BA, BS, CL, CP, CT, DL, DD, GA, GC, GK, GS, GN,GZ, JU*,IO, KH, KN*, KS, MD*, MG, MJ, MM, MN, NA, ND, NM, NS, NJ, RG, RK, RR, SS, SV, TM, VB, WS, VM, VR, BE, VN*, NK, CA, JM, OU, NH, IS, HY, PA, IR, RO**
Electronics & Communication Engineering	EC	**BA, BS, CL, CT, GS , MM, PD, RK*, SG*, SK, TM, VB, PY, NN, ND, TU, MJ, RR*, GZ, MN, NA, OU, NH, NS, NJ, PS, JL, ER**
Electronics & Electrical Communication Engineering	EC	**KH**
Electronics & Telecommunication Engineering	EC	**JU*, CP, GA**
Electronics Engineering	EC	**AU, VM, WS, HK, VN, SS, IS**
Electronic, Systems Engineering (Centre)	ED	**BG**
Electronics & Instrumentation Engineering	IE	**SP**
Energy (Centre)	EN	**GW,TU**
Energy Studies (Centre)	EN	**DL**
Energy Science & Engineering	EN	**BM, KH**
Engineering Design	ER	**MD**
Environment (Centre)	EV	**GW**
Environmental Science & Engineering	EV	**BM**
Energy & Environment Engineering	EN	**NH**
Energy & Environment Engineering	CE	**MJ**
Food Engineering & Technology	FE	**SP,TU**
Geology and Geophysics	GG	**KH**
G.S. Sanyal School of Telecommunication	GT	**KH**
Humanities & Social Sciences	HS	**BM, DL, GW, KH, KN, MD,MN, RR**
Humanities, Social Science & Management	HS	**SK**
Hydrology	HY	**RR**
Industrial Tribology, Machine Dynamics & Maintenance Engineering	TR	**DL**
Industrial & Management Engineering	IM	**KN**
Industrial Design Centre	ID	**BM**
Industrial Engineering & Operations Research	IO	**BM**
Industrial and Systems Engineering	IM	**KH**
Industrial & Production Engineering	IP	**GS, NM**
Industrial Engineering & Management	IE	**BS**
Information & Communication Engineering	IC	**AU**
Information Technology	IT	**SV, BE**
Instrumentation & Control	IC	**CP, NN, TR, SG***

Department/Centre	Code	Institution(s) Offering Ph.D. Degree Programme
Instrumentation & Control Systems Engineering	IC	**PS**
Design	ID	**DL**
Instrumentation Engineering	IN	**AU**
Instrumentation Centre	IC	**RR**
Instrumentation and Applied Physics	IN	**BG**
Infrastructure Design and Management	ID	**KH**
Medical Science and Technology	MB	**KH**
Leather Technology	LT	**AU**
Management Studies	MS	**MD**
Management Studies	MG	**BG, RR, DL, MJ**
Material Research Centre	MR	**BG**
Materials Science & Engineering	MT	**KN**
Materials Science	MS	**KH, KN**
Materials Science & Technology	MS	**VN**
Mathematics	MA	**BG, BM, DL, GW, KH, MD, RR**
Mathematical Sciences	MA	**VN**
Mathematics & Humanities	MH	**WR**
Mathematics/Statistics	MA	**KN**
Manufacturing Process & Automation	MP	**NN**
Mechanical & Industrial Engineering	ME	**RR***
Manufacturing Engineering	ME	**NF**
Mechanical Engineering	ME	**AM, AU, BA, BG, BM*, BS, CC, CL, CP, CT, DD, DL, GK, GC, GS, GN, GW,GZ, HK, IO, KH, KN, JU*, MD, MG, MJ, MM, MN,NA, ND, PD, PS, PY, RG, RK*, SG*, SK, SP, SS, SV,TK, TM, TR, VB, VM, WR, WS, BE, VN*, AC, NK, OU, NH, NJ, NS, IS, PA, IR, RO, JL, MB**
Metallurgical & Materials Engineering	MM	**MD, MJ, RK**
Metallurgical & Materials Engineering	MT	**KH, SK ,TR, NF, ND, RR**
Metallurgical Engineering & Materials Science	MM	**BM**
Metallurgical Engineering	MT	**VN,VR**
Materials Engineering	MT	**BG**
Materials Science & Engineering	MS	**DL**
Metallurgy & Materials Science	MT	**CP**
Metallurgy & Materials Engineering	MT	**BE**
Mining Engineering	MI	**IS, RK, SK ,VN, BE**
Mining Engineering	MN	**KH**
Nuclear Engineering and Technology	NE	**KN**
Ocean Engineering	OE	**MD***
Ocean Engineering & Naval Architecture	OE	**KH**
Pulp & Paper Engineering	PP	**RR**
Product Design	PD	**BG**
Physics	PH	**BG, BM*, DL, GW, KN, MD,MN, RR,KH, VN**
Photonic Science & Engineering	LS	**KN**
Polymer Science & Chemical Technology	PS	**DD**

Department/Centre	Code	Institution(s) Offering Ph.D. Degree Programme
Production Engineering	PE	**CP, JU*,NA, PS, SG*,TR, VB**
Production Technology	PT	**AU**
Polymer & Process Engineering	PP	**RR**
Reliability Engineering	RE	**KH**
Rubber Technology	RT	**KH**
Rural Development & Technology	RD	**DL**
Rural Development	RD	**KH**
School of Bio-sciences & Bio-engineering	BS	**BM***
School of Basic-sciences	BS	**BH, MA**
School of Engineering	SE	**MA**
School of Earth, Ocean, and Climate Sciences	CG	**BH**
School of Electrical Sciences	ES	**BH**
School of Infrastructure	IF	**BH**
School of Management	MG	**BM, KH**
School of Management & Studies	MG	**MN**
School of Mechanical Sciences	ME	**BH**
School of Metallurgical and Materials Sciences	MM	**BH**
School of Humanities Social Sciences and Management	HS	**BH**
School of Water Resources	WR	**KH**
Systems & Control Engineering	SC	**BM**
Textile Engineering	TX	**GZ**
Textile Technology	TX	**DL, VM, AU**
Centre for Transportation Systems (CTRANS)	TS	**RR**
Water Resources Development & Management	WR	**RR**
Water Resource Development & Irrigation Engineering	WI	**NR**
Farm Machinery & Power Engineering	FM	**CA**
Processing & Food Engineering	PF	**CA**
Soil & Water Engineering	SW	**CA**
Renewable Energy Engineering	RE	**CA**
GIS Cell	GI	**MN**
Chemical Technology	CT	**SP**

*Specialization have to be indicated while opting for a particular department. Codes for the Specializations are given along with the details corresponding to the particular institution **(Depts. & Field of Specialization).**

IV. ELIGIBILITY CRITERIA

1. **Only candidates (such as Assistant Professors, Associate Professors, Lecturers, Readers, Workshop Superintendent and Professors) with** a **minimum** of **three-years** teaching experience as full-time regular/permanent teachers of AICTE approved Degree level Engineering Institutions as on **September 30, 2019** are eligible to apply. Admissions to Ph.D. degree programme under QIP are open only to candidates with a basic degree in Engineering or Technology or Architecture or such other qualification.

2. The candidate should satisfy the minimum eligibility criteria prescribed by the individual Department (and/or the Institution) to which admission is sought.

3. Computer Programmers, Systems Programmers, Workshop Staffs, Guest Lecturers, Visiting Lecturers, Teaching Assistants, Ad-hoc/ Contract or Part-time Teachers, Research Engineers, Scientific Officers, Technical Assistants, and other such categories of staff **are not eligible.**

4. Teachers of the Major QIP Centres **are not eligible.**

5. Teachers of the Minor QIP Centres **are eligible to apply to Major QIP Centres.**

6. Teachers of the minor QIP Centres are permitted to apply for a field of specialization, available in another minor QIP centre, which is not available in their parent department, on the specific recommendations of the Department's and Institute's Head stating that a faculty in the particular specialization is required for their Institution. **Candidates who has completed M.Tech. under QIP programme can not apply before completion of the bond period at their parent Institute.**

V. ADVANCE ADMISSION SCHEME

As per the advance admission scheme for Ph.D. degree programme under QIP, a candidate will receive advance admission during 2020-2021 session to the Pre-Ph.D. programme and on successful completion of this programme, he/she will be offered admission to the regular Ph.D. programme during 2021-2022. During the one-year period of the Pre-Ph.D. programme, the candidate is required to make maximum of **four visits** to the institution (to which he/she is offered admission) for a total period of **sixty days**, to decide on the area of research, to identify guide, and to start preliminary work. During this period, the candidate is to be treated as on deputation by the sponsoring institution. TA/DA as per AICTE norms for the visits would be borne by the Institute where the admission is offered, subject to the receipt of the grants from the AICTE. The question of final offer for admission will be considered during May-July 2021, based on the performance of the candidate during the period of the advance admission.

VI. LIVING EXPENDITURE ALLOWANCE AND CONTINGENCY GRANT

The candidates admitted for the regular Ph.D. degree programme under QIP will receive a sum of Rs. 15,000/- per month as Living Expenditure allowance and a Contingency Grant of Rs.15, 000 per annum for three years.

VII. CONDITIONS FOR ADMISSION

1. Admission is possible only to the **Institutions** and the **Departments** listed in the Information Brochure.
2. The **final admission of the candidate will be subject to the clearance and approval by the Admission Wing (Section)** of the **concerned institution** as per its rules and regulations in force at the time of admission.
3. The candidate, if selected, should be relieved from the parent Institution to join the programme in time for the session to which he/she is admitted.
4. The candidate joining the Ph.D. degree programme under QIP on deputation would be entitled to receive his/her salary and allowances, which must be paid by the parent institution sponsoring him/her. Sponsoring institutions / directorates may kindly note that any other alternate form of deputation / study leave that does not provide for full salary and allowances for the full period of 3 years, is not permissible as per AICTE norms.
5. **Conditional recommendation by the Principal/Head of the Institution will not be accepted.**
6. The Principal/Head of the Institution of a candidate who is selected for admission should ensure that **the sponsorship certificate** is produced by the candidate at the time he/she joins the course.
7. If a QIP scholar discontinues Ph.D. programme, the scholar has **to refund the scholarship and contingency** received to the AICTE through the QIP Centre, and the parent institution may **seek refund of the salary and allowances paid to him for the period he/she attended the programme.**

VIII. INSTRUCTIONS FOR COMPLETING THE ONLINE APPLICATION

General Instructions

1. The website link for application is: www.iitg.ac.in/cet/qip.html Click on **"QIP Admission 2020-21"**.
2. The candidate should first register by clicking "New Registration". An email confirming the registration will be sent by assigning the Application Number and a Password. The application number and the password are required for subsequent operations. Hence the candidate should remember both of them or keep them at a safe place.
3. Candidate can start filling up the online application by logging in through "View/Edit Application".
4. On-line application can be completed in one or more sessions by revisiting the website using the assigned application number and password.
5. The candidate should enter all required information correctly in all fields of the **online** application.
6. After filling the fields, the candidate can save the information in between by using the SAVE button. The candidate can edit data in any field till the final submission and printout is taken. The **last date for the on-line submission of application is October 18, 2019 (Friday), 17:00 hrs.**

Personal Information

7. After completing the Name, Designation, Department and Address fields (using the pull-down menu) enter Date of Birth, Gender as 'Male' or 'Female'; the category by 'General', 'SC', 'ST', or 'OBC, put 'Yes' if you belong to Physically Disabled Category and "No' if you do not; Married as 'Yes' if you are married and 'No' if you are single.

Educational Qualifications and Academic Data

8. During the process of entering the application details, additional sub-links are provided in appropriate places. For example, while entering the overall performance of the candidate under 'Educational Qualifications', there will be a link through which the candidate can furnish the semester wise / year wise particulars.

9. For filling academic data and additional qualification, if the absolute marks are awarded, then fill, e.g. 650/800 where the total marks obtained is 650 out of total of 800. If the Grade Point Average (GPA) is awarded, fill, e.g. 6.7/10 where 6.7 is GPA obtained on a scale of 10. If the candidate has failed in any subject during any semester examination and cleared that subject in a later semester, the marks obtained in that subject should be added back to the semester in which it was supposed to have been cleared and then the total marks is to be calculated. **Candidate should take the marks of all the semesters for calculating the overall percentage or CGPA (irrespective of the methodology adopted by the university/college in awarding final class/division).**

10. During the entry of details like detailed semester wise / year wise information, detailed teaching experience etc., the candidate has to enter the details for which documents of proof are to be attached.

Institute and Department Preferences

11. A candidate can apply to a maximum of three institutions and a maximum of two departments in each of the chosen Institutes (i.e., maximum of total six options only).

12. Select the Institution by using the pull-down-menu as per the order of your preference. Then enter the programme code desired as per preferred choices with valid code.

13. Appropriate list of 'valid codes' can be viewed using links provided. The Programme code contains 6 characters; the first 2 alphabets identify the Institute, the next 2 alphabets identify the department within the Institute, and the last 2 digits identify the field of specialization. For example, a code 'KNAE01' represents a particular field of specialization in the Department of Aerospace Engineering at IIT Kanpur.

Preview of Application

14. Once the complete details about the candidate are entered and saved, the on-line application can be printed. To preview the completed application, the candidate can print a draft copy of the application. He should check the completeness and correctness of the information; if needed, corrections can also be made before the final submission.

Final Confirmations and Printouts

15. After finalizing the contents of the application, the candidate should invoke the FINAL version of the application. Click here for printing the FINAL version of the application. **Once the FINAL version option is chosen, the candidate will not be allowed to modify the contents of the application. The FINAL version should be printed only on A4 sheet with the print orientation as 'portrait'**, and margins **as 20 mm (left, right, top and bottom).** The **print report** contains multiple copies of the application. The first copy corresponds to the copy for **The Principal Coordinator QIP**, and one copy each for the preference code **related to the number of institutions and departments, a candidate proposes to apply to**. Please note that you are required to send all the copies to: **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam**.

16. The following table indicates the number of printouts to be taken and the number of sets of enclosures required as **related to the number of institutions and departments a candidate proposes to apply.**

No. of Institutions Chosen	Total No. of Departments (Streams or Specializations) Chosen	No. of applications to be printed and No. of sets of enclosures required
1	1	2
1	2	3
2	2	3
2	3	4
2	4	5
3	3	4
3	4	5
3	5	6
3	6	7

17. In each copy, the candidate should **affix his/her recent stamp-size photograph** in the space provided.

18. The candidate should thoroughly verify the contents of the printed documents and sign at the appropriate places.

19. In the "**Forwarding Note" of the Application Form, the space provided for the Name of the Candidate and Teaching experience must be duly filled in and signed by the Principal / Head of the Institution along with full contact details Name, Designation, Contact No., E-mail and AICTE affiliation No., etc., and Office Seal.**

20. Applications submitted without signatures of the candidate and the appropriate authorities with seal, and/or without the required enclosures will **automatically be deemed invalid.**

IX. APPLICATION FEE

Online Payment Receipt of Rs 1000/-for General/OBC Category and Rs. 500/-for SC/ST/PD/ Female Candidate should be attached with the form marked as, **Copy for Principal Coordinator** on top of the form. Candidate should write their application number, name, address and courses applied on back side of the receipt. Candidate should note that the fee paid by other means, i.e., by **DD**, **IPO, cheques, etc. are not acceptable. Application fees once pai**d **cannot be refunded.**

Procedure for Payment of Application Fee:

An online payment portal is created within the application process for payment of Application Fee. The candidates should first follow the registration steps as mentioned above. The fee will be required to be paid using the online portal just before printing the final version of the application.

X. CHECKLIST FOR EACH COPY OF THE APPLICATION FORM

- ***In Forwarding Note;*** **the candidate should check his/ her name, years and months of experience, signature, date, and and signed by the Principal / Head of the Institution along with contact details Name, Designation, Contact No., E-mail and AICTE affiliation No. and office seal.**
- ***Photographs;*** Affix recent stamp size photographs at space provided on all copies of Application Forms including **Copy for Principal Coordinator**.
- ***Signatures of the Applicant;*** The candidate should sign in all the print-outs at relevant places.
- Candidate should ensure that all information are properly filled in and required number of print-outs taken and all copies are to be send in a **single envelope to The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati–781039, Assam**.

Enclosures

1. **Application Fee:** Online Payment Receipt of Rs. 1000/- for General/OBC Category and Rs. 500/- for SC/ST/PD/ Female Candidate should be enclosed with the **copy of the Principal Coordinator QIP form** only.
2. Candidates belonging to SC/ST/OBC category, must attach an attested copy of the **caste certificate** issued by a **competent authority** as per the Government of India rules.
3. **Physically Disabled** candidates must attach a copy of the **certificate** issued by a **competent authority** as per Government of India rules.
4. **Checklist**: Enclose attested copies of all the relevant certificates (one set with each print-out of application)
    - *Certificates of the Qualifying Examination (Bachelor and Master) and other Degrees*
    - *Age proof Certificate*
    - *Mark Lists of all years/semesters of qualifying examination (mark sheets clearly showing total marks obtained out of maximum marks according to semester or year)*
    - *Teaching Experience*
    - *Industrial/Research Experience Certificates*

- *Certificates of Short Term Courses attended*
- *All Research Publications*
- *Any other Academic qualifications/Awards etc.*

XI. INSTRUCTIONS FOR DESPATCHING

1. For the convenience of the candidate, a check list is also provided under point No. IX. One can use this list and ensure the completeness of application. Once completed, the entire bunch (all copies in a single envelop) is to be dispatched ONLY to **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati– 781039, Assam** along with the copy of Online Payment receipt. The envelop containing all the copies and enclosures should preferably be sent by Speed Post or a Courier Service so as to reach **on or before October 31, 2019 (Thursday)**. **Applications received after this date will not be considered.** For any clarification contact us: Phone: 0361-2583007, 0361-2583008; Fax: 0361-2690762; Email: qip@iitg.ac.in

2. **Before mailing the completed forms, please ensure that each copy of application form and its enclosures is properly fastened with a tag separately at the left-hand top corner.**

3. In case, your applications are submitted by your sponsor, it is your responsibility to ensure that the application is forwarded to the above mentioned address so as to reach **on or before October 31, 2019 (Thursday)**. **Applications received after this date will not be considered.**

4. In case, the candidate has forgotten the password, the candidate should send an email (using the email ID mentioned in the online application) to **qip@iitg.ac.in** furnishing the following details: Application Number, Name of the Candidate, Date of Birth, and Address for correspondence, Gender and Category. After verification, the candidate will be informed the password through email only.

XII. LAST DATE

The last date for online submission of application is ***October 18, 2019 (Friday)*.** Print-outs of online filled-in application, including the Copy for Principal Coordinator QIP, with its enclosures, complete in all respect should reach **The Principal Coordinator QIP, Head, Centre for Educational Technology, IIT Guwahati, Guwahati-781039, Assam, on or before October 31, 2019 (Thursday)**. **Applications received after this date will not be considered.**

XIII. PROCEDURE FOR ADMISSIONS UNDER QIP

1. **Short-listing** of the candidates will be done first by the office of the Principal Coordinator QIP, then finally at the Department/Institute concerned. Interview letters will be sent to the short-listed candidates by the Department/institute concerned.

2. **Interviews** will be conducted in the Departments at the individual Institutions. **Schedule of interviews** is provided in the next page. Please note that **No TA/DA will be paid to candidates for** attending the Interviews.

3. **Selections** will be made by the National QIP Coordination Committee (NQCC) based on the recommendations of various institutions.

4. **Final Results** will be available at the web site: www.iitg.ac.in/cet/qip.html

5. **Admission** letters will be issued to the selected candidates by the respective QIP centres or Academic sections of the institutions offering admission.

XIV. SCHEDULE OF INTERVIEWS FOR ADMISSION TO Ph.D. DEGREE PROGRAMMES UNDER QIP

The following dates of interview at various QIP Centres, finalized by Principal Coordinator QIP/National QIP Coordination Committee (NQCC), are final and can not be altered under any circumstances.

Sl. No.	Institute	Interview Date	Day
1.	National Institute of Technical Teachers Training & Research, Kolkata (West Bengal)	06/01/2020	Monday
2.	Indian Institute of Engineering Science and Technology, Shibpur (West Bengal)	07/01/2020	Tuesday
3.	Jadavpur University, Kolkata (West Bengal)	08/01/2020	Wednesday
4.	IIT Kharagpur (West Bengal)	14/01/2020	Tuesday
5.	National Institute of Technology, Durgapur (West Bengal)	15/01/2020	Wednesday
6.	National Institute of Technology, Rourkela (Odisha)	16/01/2020	Thursday
7.	Veer Surendra Sai University of Technology, Burla (Odisha)	17/01/2020	Friday
8.	Indira Gandhi Institute of Technology, Sarang, (Odisha)	20/01/2020	Monday
9.	Indian Institute of Technology (Indian School of Mines), Dhanbad (Jharkhand)	21/01/2020	Tuesday
10.	National Institute of Foundry and Forge Technology, Ranchi (Jharkhand)	22/01/202	Wednesday
11.	Indian Institute of Technology, Bhubneshwar, (Odisha)	23/01/2020	Thursday
12.	National Institute of Technology, Silchar (Assam)	24/01/2020	Friday
13.	National Institute of Technology, Agartala (Tripura)	27/01/2020	Monday
14.	IIT Guwahati (Assam)	28/01/2020	Tuesday
15.	Tezpur University, Tezpur, (Assam)	29/01/2020	Wednesday
16.	Indian Institute of Technology, Ropar (Punjab)	30/01/2020	Thursday
17.	Giani Zail Singh College of Engineering & Technology, Bathinda (Punjab)	31/01/2020	Friday
18.	Netaji Subhas Institute of Technology, New Delhi	03/02/2020	Monday
19.	IIT Delhi (New Delhi)	04/02/2020	Tuesday
20.	Delhi Technological University, Delhi	05/02/2020	Wednesday
21.	Jamia Millia Islamia Central University, New Delhi	06/02/2020	Thursday
22.	Malaviya National Institute of Technology, Jaipur (Rajasthan)	07/02/2020	Friday
23.	College of Technology & Engineering, (MPUAT) Udaipur (Rajasthan)	10/02/2020	Monday
24.	IIT (BHU), Varanasi (Uttar Pradesh)	11/02/2020	Tuesday
25.	Madan Mohan Malaviya University of Technology, Gorakhpur (Uttar Pradesh)	12/02/2020	Wednesday
26.	Motilal Nehru National Institute of Technology, Allahabad (Uttar Pradesh)	13/02/2020	Thursday
27.	Indian Institute of Technology, Patna (Bihar)	14/02/2020	Friday
28.	Kamla Nehru Institute of Technology, Sultanpur (Uttar Pradesh)	17/02/2020	Monday
29.	IIT Kanpur (Uttar Pradesh)	18/02/2020	Tuesday
30.	Harcourt Butler Technological Institute, Kanpur (Uttar Pradesh)	19/02/2020	Wednesday
31.	Madhav Institute of Technology & Science, Gwalior (Madhya Pradesh)	20/02/2020	Thursday
32.	SGS Institute of Technology & Science, Indore (Madhya Pradesh)	21/02/2020	Friday
33.	Indian Institute of Technology, Indore (Madhya Pradesh)	24/02/2020	Monday
34.	IIT Roorkee (Uttarakhand)	25/02/2020	Monday
35.	National Institute Technology, Raipur (Chhattisgarh)	26/02/2020	Wednesday
36.	PDPM Indian Institute of Information Technology Design & Manufacturing, Jabalpur (MP)	27/02/2020	Thursday
37.	Samrat Ashok Technological Institute, Vidisha (Madhya Pradesh)	28/02/2020	Friday
38.	Visvesvaraya National Institute of Technology, Nagpur (Maharashtra)	02/03/2020	Monday
39.	IIT Bombay (Maharashtra)	03/03/2020	Tuesday
40.	S.V. National Institute of Technology, Surat (Gujarat)	04/03/2020	Wednesday
41.	Sardar Patel College of Engineering, Mumbai (Maharashtra)	05/03/2020	Thursday
42.	Veermata Jijabai Technological Institute (VJTI), Mumbai (Maharashtra)	06/03/2020	Friday
43.	College of Engineering, Pune (Maharashtra)	11/03/2020	Wednesday
44.	Walchand College of Engineering, Sangli (Maharashtra)	12/03/2020	Thursday
45.	Government College of Engineering, Amravati (Maharashtra)	13/03/2020	Friday
46.	Govt. College of Engineering, Aurangabad (Maharashtra)	16/03/2020	Monday

47.	Shri Guru Gobind Singh Institute of Engineering & Technology, Nanded (Maharashtra)	17/03/2020	Tuesday
48.	IISC, Bangalore (Karnataka)	18/03/2020	Wednesday
49.	UVCE, Bangalore (Karnataka)	19/03/2020	Thursday
50.	BMS College of Engineering, Bangalore (Karnataka)	20/03/2020	Friday
51.	M. S. Ramaiah Institute of Technology, Bengaluru (Karnataka)	23/03/2020	Monday
52.	The National Institute of Engineering, Mysore (Karnataka)	24/03/2020	Tuesday
53.	IIT Madras (Tamil Nadu)	25/03/2020	Wednesday
54.	Anna University, (Tamil Nadu)	26/03/2020	Thursday
55.	Pondicherry Engineering College, Puducherry (Tamil Nadu)	27/03/2020	Friday
56.	National Institute of Technology, Tiruchirapalli (Tamil Nadu)	30/03/2020	Monday
57.	Thiagarajar College of Engineering, Madurai (Tamil Nadu)	01/04/2020	Wednesday
58.	PSG College of Technology, Coimbatore (Tamil Nadu)	02/04/2020	Thursday
59.	Coimbatore Institute of Technology, Coimbatore (Tamil Nadu)	03/04/2020	Friday
60.	Bannari Amman Institute of Technology, Erode (Tamil Nadu)	07/04/2020	Tuesday
61.	Govt. Engineering College, Thrissur, (Kerala)	08/04/2020	Wednesday
62.	TKM College of Engineering, Kollam, (Kerala)	09/04/2020	Thursday
63.	College of Engineering Trivandrum, Thiruvananthapuram (Kerala)	13/04/2020	Monday
64.	Alagappa Chettiar Government College of Engg. and Technology, Karaikudi, (Tamil Nadu)	14/04/2020	Tuesday
65.	Govt. College of Engineering, Salem (Tamil Nadu)	15/04/2020	Wednesday
66.	Basveshwar Engineering College, Bagalkot (Karnataka)	17/04/2020	Friday
67.	National Institute of Technology, Calicut (Kerala)	20/04/2020	Monday
68.	National Institute of Technology Karnataka, Surathkal (Karnataka)	21/04/2020	Tuesday
69.	Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam (Kerala)	22/04/2020	Wednesday
70.	Unversity College of Engineering, Osmania University, Hyderabad (Telangana)	23/04/2020	Thursday
71.	University of Hyderabad, School of Computer and Information Sciences, Hydrabad (Telangana)	24/04/2020	Friday
72.	Indian Institute of Technology, Hyderabad (Telangana)	27/04/2020	Monday
73.	National Institute of Technology, Warangal (Karnataka)	28/04/2020	Tuesday
74.	Guru Nanak Dev Engineering College, Ludhiana (Punjab)	29/04/2020	Wednesday
75.	Sant Longowal Institute of Engg. & Tech. (Deemed University), Sangrur (Punjab)	30/04/2020	Thursday
76.	Dr. B. R. Ambedkar National Institute of Technology, Jalandhar (Punjab)	01/05/2020	Friday
77.	National Institute of Technology, Hamirpur (Himachal Pradesh)	04/05/2020	Monday
78.	Indian Institute of Technology, Mandi (Himachal Pradesh)	05/05/2020	Tuesday
79.	National Institute of Technology, Sri Nagar (J&K)	06/05/2020	Wednesday

XV. DEPARTMENTS & FIELDS OF SPECIALIZATION AT VARIOUS INSTITUTIONS

- The department offering admission to Ph.D. degree programme at various institutions and the fields of specialization in the department/centre are listed in the Tables.
- Specializations mentioned indicate only areas of interest and are not exhaustive. There may not be admissions open to all the areas indicated, and candidates, if found suitable, may be admitted to related areas also.

The details given are subject to variation and change from time to time and only those operating in the respective institutions at the time of actual admission are applicable. Candidates desirous of more information on the matter may write to the individual institution or visit their website.

1. Indian Institute of Science, Bangalore 560 012 – BG

In all cases, the minimum eligibility is second class or equivalent grade in the Bachelor's as well as in the Master's degree.

Code	Department	Fields of Specialization	Minimum Qualification
BGAE01	Aerospace Engineering	Theoretical and Experimental Fluid Mechanics, Applied Aerodynamics, Hypersonic and High Enthalpy Flows, Computational Fluid Dynamics, Flight Mechanics of Aircraft and Helicopters; Dynamics and Control of Aerospace Vehicles, Orbital Mechanics, Space Robotics, Guidance, Parallel/Distributed Processing and Neural Networks Applications, Optimization & Estimation Techniques in Aerospace Systems; Aerospace Propulsion, Basic and Applied Combustion, Experimental and Computational Studies on Reactive Flows, Combustion of Propellants, Composite Structures, Smart structures, Non-destructive Evaluation, Finite Element Methods, Fracture Mechanics, Structural Integrity and Reliability, Structural Dynamics and Aeroelasticity, Rotor Crafts Dynamics.	M.E. / M.Tech or equivalent degree in Aerospace, Mechanical, Electrical, Electronics, Chemical, Computer Science, Civil.
BGAS01	Centre for Atmospheric & Oceanic Sciences	Monsoon Dynamics, Tropical Convection, Satellite Meteorology, Dynamics of Oceans, Coupled Ocean-atmospheric Systems; Climate Modeling, Boundary Layer, Aerosols and Climate.	M.E./ M.Tech. or equivalent degree in Mechanical, Civil/ Aerospace/ Chemical Engineering, Atmospheric and Oceanic Sciences.
BGCH01	Chemical Engineering	Nanostructures and nanotechnology for sensors, flexible electronics and energy applications; Flow batteries and supercapacitors; Nanomaterials for gas separations, methane storage and carbon capture; Mechanics and dynamics of granular materials, suspensions, soft solids, living matter and structured fluids; Interfacial engineering for process modelling and process intensification; Reaction kinetics, catalysis, and bioengineering for environmental and energy sector. Thermodynamics and molecular simulations of interfaces and soft matter. Systems biology and single molecule methods for therapeutics and disease detection; Microfluidics for point of care diagnostics, cancer therapeutics; Treatment of Drinking water.	M.E./M.Tech or equivalent degree.
BGCE01	Civil Engineering	**Geotechnical Engineering**: Earthquake Geotechnical Engineering, Geo environmental Engineering, Physico-chemical Aspects and Constitutive Modeling of Soil Behavior, Foundations, Earth and Earth Retaining Structures, Ground Improvement Techniques, Geosynthetics, Mechanics of Granular Media, Numerical Modeling of soils and rocks, Risk and Reliability Assessment of Geohazards, Soil Dynamics, Rock Mechanics, Experimental Mechanics. **Water Resources and Environmental Engineering**.: Water Resources Systems, Climate Hydrology, Surface and Ground Water Hydrology, Vadose Zone Hydrology, Open Channel Flows, Urban Water Distribution Systems, River Mechanics, Environmental Hydraulics, Water Quality Modeling, Contaminant Transport in Surface and Ground Water Flows. **Structural Engineering**: Structural Mechanics, Finite Element Analysis, RC and Prestressed Concrete, Masonry Structures, Structural Dynamics, Non-Linear and Stochastic Dynamical Systems, Earthquake Engineering, Structural Safety, Fracture Mechanics of Concrete, Materials in Civil Engineering, Low Carbon Materials, Structural Health Monitoring, Contact Mechanics, Computational Plasticity. **Transportation Engineering**: Sustainable Transportation Planning, Modeling and Optimization of Transportation Systems, Travel Behaviour, Public Transport and Non-Motorized Transport Planning and Management, Intelligent Transport System (ITS), Traffic Management, Road Safety.	M.E./M.Tech or equivalent Degree in Civil.
BGCS01	Computer Science and Automation	**Theoretical Computer Science** - Algorithms; Complexity Theory; Combinatorial Optimization; Graph Theory; Information and Coding Theory; Cryptography; Cryptology; Security; Secure Distributed Computing; Computational Geometry; Computational Topology; Algorithmic Algebra; Computational Biology; Automata Theory; Formal Verification. **Computer Systems and Software** - Computer Architecture; Multi-Core Computing; Parallel and High Performance Computing; Operating Systems; Storage Systems; Computer Systems Security; Database Systems; Cloud Computing; Distributed Computing; Modeling and Simulation; Compiler Design; Program Analysis; Programming Languages; Software Engineering; Adhoc Mobile and Sensor Networks; Graphics and Visualization. **Intelligent Systems** - Data Mining; Data Analytics; Deep Learning; Information Retrieval; Machine Learning; Pattern Recognition; Reinforcement Learning; Convex Optimization; Stochastic Control and Optimization; Game Theory; Auctions and Mechanism Design; Electronic Markets; Social Network Analysis; Cognitive Systems; Natural Language Processing; Computational Neural Modeling, Computational Brain Imaging.	M.E./M.Tech or equivalent Degree in Computer Science and/or Engineering, or Electronics or Electrical Communication Engineering or Electrical Engineering or Information Technology or Information Sciences or allied disciplines.
BGEC01	Electrical Communication Engineering	**Communication and Networking; Information Theory**; Source Coding; MIMO Systems; Space-Time and LDPC Codes; Coding for Distributed Storage and Coded Modulation; Error-Control Coding; Information Theoretic Security; Wireless Mobile Communication; Multiple Access	B.E. / B. Tech or equivalent degree in Electrical/ Electronics Communication/ Telecommunication/

Code	Department	Fields of Specialization	Minimum Qualification
		Protocols; Cellular Mobile Radio; CDMA; Multiuser/MIMO Detection; Large-MIMO Systems; Cooperative Communications; MIMO-OFDM; Spatial Modulation; Communication Networks; Modeling; Analysis; Optimization and Control of the Internet; wireless access networks; wireless ad-hoc Networks; Wireless Sensor Networks and the Internet of Things. Research at the Interfaces of various Networks; Wireless; Social Transportation; Neuronal; etc. Network Management; Cognitive Radio Communication; WDM Optical Networks. Optical Communications. Nanoelectronics and VLSI; Nano-CMOS Technology; Non-Classical Transistor Design; Transistor Variability in Nanoelectronics; Adaptable Circuit Design; Integrated MEMS Sensors; Low Power Techniques in Hardware and Software. Communication Circuits and Architectures. Analog; Mixed-Signal & RF Circuits; Embedded Systems; Cyber Physical Systems. Applied Photonics; Photonic Integrated Circuits; Micro-Opto-Electro-Mechanical Systems (MOEMS); Photonic Bandgap Structures; Quantum Photonics. Biomedical Optics Biophotonics. Optics and Fluid Dynamics of Nanostructures; Plasmonics. Signal Processing; Spatial Signal Processing; Speech and Audio; Speech Recognition and Enhancement. Music Content Classification; Auditory Model and Hearing Aids. Compressive Sensing. Sparse Signal Recovery. Statistical Signal Processing; Signal Detection and Estimation; Space-Time (MIMO) Signal Processing Algorithms with applications to Wireless Communications; Acoustic Signal Separation using Microphone Arrays; Indoor Positioning and Navigation. Microwave Engineering; Passive and Active Circuits (RF and Microwave). Microwave Imaging Antennas; Fractal Designs in Electromagnetics; MEMS and Micromachining (RF MEMS); Teraherts devices for antennas; scattering and imaging. Composite Materials for Microwave Applications; Computational Electromagnetics.	Instrumentation/ Biomedical Engineering/ Computer Science/ Engineering/ Electrical Engineering or M Sc in Physics/ Mathematics/ Electronics/ Statistics/ Computer Science/ Photonics or Master's in Computer Applications or Graduates of 4-year Bachelor of Science programmes.
BGEE01	Electrical Engineering	**Power Systems and Power Electronics:** Power system dynamics, Development of stabilizing controls for power system, Smart Grids, Power System Protection, High performance computing applications in power systems, Power electronics applications in power system, Integration of renewables in weak power grid, Wind-Solar integration, Distributed Generation, Micro-grids, Power quality, Harmonic suppression, Reactive power control, Power Electronics and Drives, Electric Machines, Pulse width Modulation, Switch mode power supplies, High frequency isolated inverters, soft-switched converters, Digital control of power converters. **High Voltage Engineering**: EHV Power Transmission, Overvoltage Protection, Lightning Protection, Computational Electromagnetic, Gas Insulated Systems, Partial Discharges, Insulation Engineering, Condition Monitoring and Diagnostics for HV Power Apparatus, Nanodielectrics, Environmental applications of electrical discharges. **Systems Science and Signal Processing**: Pattern Recognition, Data Mining, Machine Learning, DSP Theory and Applications, Sparse Signal Processing & Compressive Sensing, Image and Video Analysis, Computer Vision, Medical Imaging and Analysis, Optimization, Speech Processing, Sensor Networks, Event-triggered control, Distributed Systems and Networked Control Systems.	M.E./ M. Tech or equivalent degree in Electrical, Electronics Communication, High Voltage Engineering, Instrumentation, Computer Science, Information Technology or Biomedical Mechanical Engg., Mechatronics, Aerospace Engineering or related disciplines.
BGED01	Electronic Systems Engineering	**Power Electronics & Drives**: Control of inverters, multi-level inverters for drives, renewable energy, power supplies **Signal and Information Processing**: Information theory, coding and signal processing for magnetic and optical nano- memories, mathematical biology and applications, quantum information processing and systems architecture. **Communication Networks**: Physical layer security, network science, data center networking, information centric networking, network economics, function computation on networks, optimization and learning over networks, optimal data transport in sensor, wireless and mesh networks, energy harvested networked embedded and cyber physical systems, Internet to Things, smart grids. **Micro and Nano Electronics**: Modeling of carrier transport in nano-scale electron devices at atomistic, device and circuit level, reliability study of state-of-the-art MOSFET, fabrication of 2D material based transistors, GaN and other power semiconductor devices. **Brain-inspired Computing**: Neuromorphic Engineering, ASIC/FPGA VLSI design, analog IC design, brain-inspired algorithms, machine learning, neuromorphic sensors and their applications and compressive sensing. **Microsystems and Biomedical Devices**: Microengineering for clinical research, Advanced fabrication of microengineering devices using glass, silicon, polymers and integrate with unusual classes of micro/nanomaterials. Integration of biology/medicine with microtechnology, nanotechnology, and additive manufacturing, Fabrication of flexible sensors, microsensors, microfluidic devices, and microelectromechanical systems with an emphasis on cancer diagnosis, therapeutics, e-nose, and biomedical device technologies.	M.E./ M.Tech or equivalent Degree with Electronics as one of the subjects of study.
BGIN01	Instrumentation	Nanoelectronic devices; Quantum Dots (QD); Quantum computation;	M.E./ M.Tech. in any discipline

Code	Department	Fields of Specialization	Minimum Qualification
	and Applied Physics	Graphene Electronics; Micro and nano systems; Layered 2D materials; Sensors and related Instrumentation; QD containing optical fibers; Nanoscale Imaging; Super-Resolution Microscopy and Imaging; Fluorescence Microscopy; Precision Motion Control; Microfluidics and Devices;Nano-metrology; Atomic Force Microscopy; Semiconductor Devices and Circuits; Electrical transport studies in low-dimensional materials; QD lasers; Quantum measurement and control; Bioinstrumentation; Materials Science; Electrical and Thermal Contact Resistance; Fibre-Bragg Grating Sensors; Phase Change Memories; Energy Systems; Image Processing; Microfluidics and Lab-on-a-Chip; Interferometry; Computational Imaging; Image Processing;Biomedical Instrumentation; Optofluidics and Point-of-Care Diagnostics; Optical metrology; Optical Microscopy.	OR M.Sc. or equivalent degree in Physics/ Applied Physics/ Engineering Physics/ Bio-physics/ Materials Science.
BGMG01	Management Studies	Bayesian Statistics, Energy and Environmental Policy and Management, Entrepreneurship, Finance, Human Resource Management, Industrial Economics, Innovation Management, Knowledge Management, Logistics and Supply Chain Management, Operations Management, Operations Research, Organizational Behaviour, Public Policy, R&D Management, Reliability Theory, Technology Management.	B.E./ B.Tech or equivalent degree in any discipline or Master's degree in Economics, commerce, Mathematics, Statistics, Psychology, social Work, Operation Research, Computer Science/ Application or MBA or equivalent degree.
BGMR01	Materials Research Centre	Preparation of Advanced Materials by Physical, Chemical and Nonequilibrium Routes. Feroelectric and Semiconducting Thin Films, Multilayers and Hard Coatings; Nanomaterial's and Composites, Self Assembly and Nanopatternings; Theoretical and Computational Materials Science. Ferroic materials, glasses and glass-ceramics, Electro and Nonlinear Optics. Magnetic materials, Biomaterials.	M.Sc. or equivalent degree in Materials Science, Chemistry or Physics or M.E./ M.Tech/ M.Sc. (Engineering or equivalent degree in materials Science/ Engineering, Ceramic Engineering and Technology.
BGME01	Mechanical Engineering	Experimental Stress Analysis and Fracture Mechanics, Tribology; Mechanisms, Robotics and CAD, Fluid Mechanics, Turbulence, Heat Transfer, Combustion, Laser Diagnostics applied to Thermo-fluid Sciences, Refrigeration and Air Conditioning, Dynamics, Micro Electro-Mechanical Systems (MEMS), NanoTribology, Structural Optimization and Design, Mechanical Properties of Materials, Bio- mechanics, acoustics and noise control, Computational Mechanics	M.E./M.Tech.in Mechanical/ Aerospace/ Civil/ Materials/ Chemical Engineering/ Bio-Technology.
BGMT01	Materials Engineering	Mechanical Behavior of Metals, Ceramics, Polymers Glasses and Thin Films. Biomaterials Engineering. Polymer Nano-composites. Organic Electronics. Sensors. Mineral Processing. Bio-hydrometallurgy. Extractive Metallurgy. Process Modeling. Physical Metallurgy. Phase Stability and Transformation. Diffusion. Solidification. Li-ion batteries. Electro-catalysts. Printed Electronics	M.E. / M.Tech. or equivalent degree in Metallurgical, Mineral, Chemical, Ceramics or Mechanical, Electrical, Electronics or Materials Science/ Engineering or Biotechnology, Polymers
BGPD01	Product Design	Computer Aided Engineering Tools for Product Design, Vehicle Crashworthiness and occupant Safety, Occupational Health and Safety, Product Safety, Computer Aided Ergonomics, Human Engineering, Digital Human Modelling, Biomechanics, Kinesiology, Biosensors, Computer Aided Design and Usability Studies, Haptics Integrated Design interfaces, knowledge Management, Product Life Cycle Management, Artificial Intelligence in Design, Design for Environment, Design Creativity Collaborative Design, Design Synthesis, Requirements Engineering, Design Methodology, Clinical and Rehabilitation Engineering, Human-Machine Interaction, Smart Manufacturing, Sustainability, Medical diagonistics/therapeutics, Eco-Design, Life Cycle Assessment, Sustainbility Analysis, Bio-composite, Additive Manufacturing, Sustainable Manufacturing, Computational Metrology, Human Computer Interaction, Multi Model Interaction, Automotive User Interface Assistive Technology, Bio-Medical Devices, Co- Design, Collobaration and Open Source Design.	M.E./M.Tech. or Equivalent degree in Design, any branch of Engineering, Architecture, Instrumentation and medicine or Master's degree in physics, Mathematics, Computer Sciences, Physiology Psychology or B.E. / B.Tech. or equivalent degree in Design, any branch of Engineering, Architecture Instrumentation.
BGMA01	Mathematics	Partial Differential Equations, Homogenization, Controllability, Nonlinear Dynamics and Chaos, Time Series Analysis with Applications to Neuroscience, Probability and Stochastic Processes, Stochastic Control, Stochastic Dynamic Games, Random Matrix Theory, Functional Analysis, Operator Theory, Algebraic Topology, Differential Topology, Commutative Algebra, Algebraic Geometry, Harmonic Analysis, Several Complex variables, Differential Geometry, Mathematical Finance, Low Dimensional Topology, Numerical Analysis, Number Theory, Combinatorics, Statistical Mechanics, Representation Theory, Combinatorial Topology	M.Sc. or equivalent degree in Mathematics, Statistics, Physics or any branch of Mathematical Sciences or BE / B.Tech. or equivalent degree (provided they have good aptitude for Mathematics).
BGST01	Centre for Sustainable Technologies	Water quality and sustainable supply; Water and sanitation; Renewable energy; solar, biomass combustion and gasification, biomethanation, bio-fuels, etc. Energy planning, demand side management, energy efficiency; Alternative building technologies and materials, energy efficient and environmentally sound technologies; Climate- responsive architecture/ building technology; Building Integrated Photovoltaics (BIPV) and Green Buildings; Building-comfort studies in tropical regions; Waste management; reuse and recycling; Natural Resources Management; Climate change mitigation; Smart /efficient Turbines for renewable energy applications, Waste to Energy.	M.Arch. or M.E./ M.Tech./ M.Sc. (Engg.)/ Architecture, in Mechanical, Civil, Chemical including Renewable Energy, Environmental Engineering, Energy Studies or MSc (Environmental Sciences)
BGPH01	Physics	**(A) Experimental studies in** I. **Condensed Matter Physics** II. **Atomic, Optical Physics, and Specific areas include**: Raman and other Spectroscopy, Fast Ionic Conductivity, Manipulation of Matter by Light, Laser Cooling and trapping of atoms, Ion trapping, Precision Laser	ME / M.Tech./ M.Sc. (Engineering or equivalent degree or M.Sc. or equivalent degree in Physics, Biophysics, Biotechnology, Mathematics, Chemistry or

Code	Department	Fields of Specialization	Minimum Qualification
		Spectroscopy, Magnetism, Spintronics, Magnetic thin films, Magneto-transport, quantum transport in low- dimensional and disordered materials, the metal-insulator transition, Magnetic Resonance Phenomena, Nano science and nanomaterial's, Superconductivity in bulk as well as thin films, Semiconductors, Ferro electricity, Crystal Growth Studies, Nonlinear Optical Materials, Phase Transition Studies, High Pressure and Low Temperature Studies, Study of Low Dimensional Materials, Amorphous Systems, Soft Condensed Matter: colloids, surfactants and biological materials, Polymer Physics, SurfaceX-ray scattering, surface phase transitions, Thermoelectrics. **(B)**Theoretical Studies on a variety of aspects of condensed matter physics, in particular; Strongly Correlated Systems, Quantum many-body theory and magnetism, exotic order and quantum criticality; Phase transitions, equilibrium statistical physics; Disordered and Amorphous Systems, the glass transition, neural networks, Spatiotemporal Chaos and Turbulence in fluids, plasmas and cardiac tissue; Soft condensed matter: colloids, surfactants, membranes, liquid crystals, vortex lattices; biological physics: the mechanics of living matter; Molecular modeling of soft and bio-materials.	Polymer Science or B.E./ B.Tech. or equivalent degree or B.Sc. or equivalent degree followed by AMIE, Grad, IETE, AMII ChE, AMIIM, AMAeSI.
BGCD01	Computational & Data Sciences	Bio-molecular Computation, Computational Electrodynamics, Computational Photonics, Computational Fluid Mechanics, Computational Mathematics/Scientific Computation, Finite Element Analysis, High Performance Computing (HPC), Medical Imaging, Numerical Linear Algebra, and Structural Biology & Bio-Computing. Computer Aided Design, Cloud Computing Systems, Distributed Systems, Data Sciences, Big Data Platforms, Computer Vision and Image/Video Analytics, Database Systems, Embedded System-On-Chip Architectures, High Performance Computing Systems, Machine Learning, Natural Language Processing, Deep Learning for Vision and Language, Parallel Computing.	M.E./ M.Tech./ M.Sc.(Engg.) or equivalent degree in any discipline
BGES01	Centre for Earth Sciences	Application of major & trace element .geochemistry, radiogenic, traditional & non-traditional stable isotope geochemistry to modern day & early Earth processes; paleoclimate reconstruction, Earthquake Geology and Seismic Hazard Assessment, Subduction Zone Tectonics and Active Deformation, Himalayan Seismicity-Tectonics and Evolution, Role of Fluids in Faulting Processes, Paleo seismology and Active Tectonics, Geochronology, Petrology.	B.E./B.Tech or equivalent degree in any discipline or M Sc. or equivalent degree in any branch of Science.

2. Indian Institute of Technology Bombay, Mumbai 400 076 – BM

In all cases, the minimum eligibility is a First class or equivalent (Min. 60%) Master's Degree in Engineering / Technology (55% for SC/ST) OR a First class or equivalent (Min. 60%) Master's degree in Science (55% for SC/ST) or a first class or equivalent (Min. 60%) in Bachelor's degree in Engineering / Technology (55% for SC/ST).

Code	Department	Fields of Specialization	Minimum Qualification
BMAE01	Aerospace Engineering	Aerodynamics Dynamics and Control Aerospace Propulsion Aerospace Structures	**(i)** M.Tech./ M.E. or equivalent degree in Aerospace Engineering OR in other branches of engineering relevant to the research areas in the department **(ii)** B.Tech./B.E. or equivalent degree in Aerospace Engineering OR in other branches of engineering relevant to the research areas in the department **OR** M.Sc. or equivalent degree in Mathematics OR Physics OR in other specializations relevant to the research areas in the department.
BMCE01	Civil Engineering (Code no. of specialization to be indicated in the datasheet)	Transportation Systems Engineering	M.Tech or Equivalent degree in Civil Engineering The minimum eligibility is a First class or equivalent (Min 60%) Master's Degree in Engineering/ Technology (55% for SC/ST).
BMCE02		Geotechnical Engineering	
BMCE03		Water Resources Engineering	
BMCE04		Structural Engineering	
BMCE05		Ocean Engineering	
BMCE06		Remote sensing	
BMCE07		Construction Technology & Management	
BMES01	Earth Sciences	Active Tectonics and Tectonics, Cooperative and Joint Inversion of Geophysical Data, Electromagnetism, Economic Geology, Earthquake Seismology, Engineering Geology, Geochronology and Thermochronology, Exploration Seismology, Geochemistry, Geomagnetism, Geomechanics, Geophysical Signal Processing, Geostatistics, GPS and Geodesy, Gravity and Magnetics, Ichnology, Igneous Petrology, Isotope Geology, Metamorphic Petrology, Micropalaeontology, Mineralogy, Numerical modeling in Geophysics, Ore Petrology and Ore Deposit Modeling, Organic Geochemistry, Petroleum Geology, Petrophysics, Remote Sensing and GIS, Sedimentology, Stratigraphy, Structural Geology, Volcanology.	1) M. Tech. /M.Phil. (2-year degree) or equivalent degree in Geology, Geophysics or in any other related Geosciences field. 2) M.Sc. or equivalent in Geology, Geophysics, or in any other related Geosciences field. 3) M.Sc. or equivalent degree in Physics, Chemistry, Mathematics, Oceanography, Life Sciences, Marine Sciences, Atmospheric Sciences or equivalent and having Geology/Physics/Mathematics /Chemistry at the Bachelors level as principal subjects.
BMCS01	Computer Science and Engineering	Computer Graphics, Computer Vision, Image Understanding and Retrieval, Database and Information Systems, Hypertext Mining and Information Retrieval, Data Dissemination Networks, Programmeming Languages and Compilers, Computer Networks, Performance Modeling and Distributed Systems, Algorithms, Combinatorics, Graph Theory, Artificial Intelligence, Natural Language Processing, Machine Learning, Software Engineering, Formal Specification, Design and Verification of Biologically Inspired Computing, Logic and Automata Theory, Real Time and Embedded Systems, Computer Security and Cryptopgraphy.	M.E / M.Tech. in CS&E with at least 60% marks or M.E /M.Tech. in any branch with 5 years teaching experience in CS&E.
BMCY01	Chemistry	Theoretical/ Computational Chemistry – Main Group - Transition Metal Chemistry. Organometallics – Electrochemistry/ Conducting Polymers – Ultrafast Spectroscopy – Organic Synthesis – Peptide Synthesis, Enzyme Mechanism = Homogeneous/ Heterogeneous Catalysis – Physical inorganic Chemistry – Protein Folding. Theoretical Organic Chemistry – Photochemistry, Photobiology – Statistical Mechanics – Chemical & Biosensors, Single Molecule Spectroscopy, Structural Biology, Bioorganic, Bioorganic and Biophysical chemistry. Biological Thermodynamics.	M.Sc. or equivalent degree in Chemistry/ Bio-chemistry/ Bio-technology. Candidates with Master degree in science must have valid GATE score to become eligible for the Teaching/ Research Assistantship provided by the Institute.
BMCH01	Chemical Engineering	**Process Systems Engineering:** 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. **Biotechnology & Bio-Systems Engineering:** Metabolic & Genetic Engineering, Bio-separations, Bio-informatics, Systems Biology, Drug Discovery, Enzymology, Bioprocess Development, Bio-fuels. **Materials Engineering:** Polymer materials, Polymer Reaction Engineering Polymer Processing, Polymer Physics, Polyurethane , Rubber, Polymer Rheology, Ceramics, Polymer Biomaterials, Drug Deliver, Food Engineering Microscopy Nano-composites, Statistical Thermodynamics, and Supercritical Fluids. **Catalysis & Reaction Engineering:** Catalysis, Multiphase Reaction, Bio-reaction Engineering and Reactor Modelling. Process intensification & reactive distillation, micro-reactors. **Transport, Colloids & Interface Science:** Granular flows. Power Mixing, Membrane Separations, Rheology of Complex Fluids, Colloids, Sol-gels, Emulsions & Foams, Paints and Coatings, Microstructural Engineering, Aerosols, Electro-hydrodynamics, Fluid Mechanics & Stability, Computational	Master's degree in Engg./ Technology or Bachelor's degree in Engg./ Tech. or Master's degree in Science disciplines consistent with the research areas of the departments.

Code	Department	Fields of Specialization	Minimum Qualification
		Fluid Dynamics, Heat & Mass transfer, Porous media, and Surfactants, micro-fluidics. **Energy and Environment:** Climate change, Coal Gasification, Energy Integration, Green Engineering, Renewable Resources, Waste Management, Pollution Control, Air Pollution Prediction & Control, sustainability studies. **Thermodynamics and Molecular Simulations:** Properly prediction through molecular simulation, fuel cell, catalytic properties, biological systems, polymers.	
BMEE01	Electrical Engineering	**Communication Engineering**: 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.	I. For General category students and/ or for students where no concession in academic performance is called for eligibility requires meeting ANY ONE of the following criteria as regards performance in the qualifying degree. **1.** a minimum of 60 percent marks in the final academic year of the programme. **2.** a minimum of 60 percent marks in aggregate or as specified by the university (any one of them) **3.** a first class as specified by the university. **4.** a minimum CPI of 6.0 on the scale of 10; with corresponding proportional requirements when scales are other **5.** than on 10 – for example, on a scale of 8, the minimum will be 4.8 For Students from the SC/ST category the corresponding criteria are: 1. a minimum of 55 percent marks in the final academic year of the programme 2. a minimum of 55 percent marks in aggregate or as specified by the university (any one of them) 3. a first class as specified by the University. 4. a minimum CPI of 5.5 on the scale of 10; with corresponding proportional requirements when the scales are other than on 10 – for example, one a scale of 8, the minimum will be 4.4 **II**. The qualifying degrees are as following B.E/B.Tech/M.E./ M.Tech. Biomedical Engineering, Computer Science, Computer Science and Engineering, Computer Engineering, Electrical Engineering, Electronics Engineering, Telecommunications Engineering, Instrumentation Engineering, Engineering Physics, Materials Science and Engineering. Master of Science (M.Sc) Mathematics, Physics, Electronics/Electronic Sciences **III.** The admission of a student as a Ph.D Candidate shall be confirmed only after he/she has successfully completed the prescribed coursework and the comprehensive qualifier examination. A student who is unsuccessful in the comprehensive qualifier even after the prescribed number of attempts shall have to
BMEE02		**Control & Computing**: Linear systems Theory, Optimal Control & Optimization, Modeling and Identification of Dynamical Systems, Control of Distributed Parameters Systems, Non-Linear Systems, Modern Filter & Network Theory, Behavioral Systems Theory, Computational Methods in Electrical Engineering Software and System Reliability Cryptography and Security, GPU-based Computing.	
BMEE03		**Power Electronics & Power Systems**: 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.	
BMEE05		Electronics Systems, Electronic Instrumentation, Signal Processing Applications, Speech and Audio Processing, Bio-medical Electronics, Embedded System Design.	
BMEE06		**Integrated Circuit & System:** • Digital System Design • Analog/Mixed-signal/RF Integrated Circuits and Systems • Sensing Device Design and Fabrication • Miniature Sensor Systems • Energy Harvesting and Power Management • Data Converters, Phase Locked Loops • High-Speed Serial Links/Interfaces	
BMEE07		**Solid State Devices** • 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	

Code	Department	Fields of Specialization	Minimum Qualification
			discontinue the Ph.D Programme.
BMMA01	Mathematics	**Algebra:** Commutative Algebra, Hilbert functions, Blowup algebras, Local cohomology, Hopf, Algebras, Coxter Groups. Homological algebra, Gorenstein rings. **Analysis:** Functional Analysis, Operator Theory, unbounded subnormals, Hilbert modules, Numerical Functional Analysis, Approximate Solutions of operator equations and eigen value problems, Spline Theory, Numerical Functional Analysis, Real Analysis, Mean periodic functions, Generalized integrals. Several Complex Variables. Harmonic Analysis on LIE Groups **Combinatorics:** Combinatorics, Posets, Generating functions, Polyhedral Combinatorics.,Extremal Combinatorics, Probabilistic methods, Design theory, Arithmetic and Boolean circuit complexity, Randomness and Lower bounds, Explicit constructions of pseudorandom combinatorial objects. **Geometry and Topology:** Algebraic Geometry and Combinatorics, Schubert varieties, Linear codes, Varieties over finite fields, Algebraic Topology, Operads, Differential Geometry, Harmonic Manifolds, Algebraic & Differential Topology, Topology of Matrix varieties. Stable homotopy theory, Algebraic -theory, Combinatorial Topology. **Number Theory:** Number Theory, Automorphic Forms, Representation theory of p-adic groups. Representations of Algebraic Groups, L-functions, Converse Theorems. **PDE and Numerical Analysis:** Numerical Analysis, Applied Mathematics, Finite Element Methods, Finite volume methods. Hyperbolic systems of quasilinear partial differential equations, Non-linear waves, Partial Differential Equations, Shock waves in hyperbolic systems of conservation laws, partial integro-differential equations, Visco-elastic fluid-flow problems, Control of PDEs **Statistics and Probability:** Statistical Data mining, Computational Biology, Biostatistics, Bioinformatics, Probabilistic optimization problems in Molecular Biology, Reliability Theory, Industrial Statistics, Construction of reliability test plans, Statistical Inference, Geostatistics, Modeling bivariate distributions, Stochastic Differential Game Theory, Risk-sensitive control theory, Stochastic control Mathematical Finance, Applied Probability, Poisson and compound Poisson approximations, Estimation after selection, Reliability test plan. Statistical signal processing, Time series analysis, Reliability analysis, High dimensional multivariate analysis, Non-Parametric curve estimation, Statistical machine learning. Large dimensional random matrices, Free probability, Extreme value theory and Statistics.	First Class Master degree in Maths/ Statistics/ Computer Science
BMME01 BMME02 BMME03	Mechanical Engineering	**Thermal and fluid Engineering**: Convective and Radiative Heat Transfer, Two-Phase Flow, Bio-heat transfer, Whole-field optical measurements, Heat transfer enhancement, Electronic cooling, Numerical Techniques, Combustion and Flames, Petrol and Diesel Engines, Gas Turbine, Nuclear Engineering, Reactor Neutronics Reactor Heat Transfer, Fluid Mechanics, Fluid Machinery, Turbulence, Compressible flows, Geo-physical flows, Micro Fluidics, Rarefied gas flow, Porous media, Fluid-structure interaction, Fuel Cells, Computational Fluid Dynamics, Refrigeration, AC Systems, Cryogenics, Heat Pumps, Cryogenic heat exchangers, cryocoolers, green transport refrigeration, Non-equilibrium thermodynamics, Bio-microdevices. **Design Engineering:** Stress Analysis using Analytical and Numerical Methods, Studies of Failure Due to Fatigue and Fracture, Fracture Mechanics, Application of Finite and Boundary Element Methods, System Modeling, Control and Automation, Kinematics, Machine Dynamics, Synthesis of Mechanisms, Robotics, Mechatronics, Tribology Design of Elements and Systems, Optimization, CAD, Interactive Graphics, Vibration, Noise and Acoustics, MEMS, Vehicles Dynamics, Smart Materials and Structures, NDT. **Manufacturing Engineering:** Machining, casting, Welding, Forming, Tool design, Modeling and Simulation of Manufacturing Processes and Systems, Manufacturing Automation and Control, CAD/CAM/CIM, Feature Based Modeling, Computer Aided Process Planning, Intelligent Product Design and Manufacturing, Application of AI in Manufacturing, Supply Chain Modeling, Manufacturing Analytics, Reliability Engineering, Maintenance Planning, Logistics, Micromachining, Microsystems Fabrication, Sensors and Actuators, Packaging, Deformation Science, Computational Mechanics, Integrated Computational Materials Engineering, Multiscale Modeling, Additive Manufacturing, Sustainable manufacturing, Powder Metallurgy, Electric Vehicles, Modeling and simulation of multi-scale phenomena in materials processing, Experimental studies of materials (nano and micro scale involving advanced microscopy).	First Class (or 60% minimum) and (55% for SC / ST) in the qualifying degree in the various branches of Engineering such as Mechanical Engg./ Production Engineering/ Industrial Engineering./ Aerospace Engineering/ Chemical Engineering., Metallurgical Engg, Civil (Structural) Engineering/ Automobile Engineering/ Applied Mechanics. Engineering/ Mechatronics Engg./ Instrumentation & Controls. Engg./ Laser Technology, Engineering, Materials Technology, Biomechanics. M.Tech from IITs with CPI >= 8.5 can be directly called for the interviews.
BMMM01	Metallurgical Engineering and Materials Science (MM)	**i. Metals:** Process analysis, instrumentation and control, Iron and Steel Making , deformation behavious and microstructure evalution during creep and superplasticity, mineral. Processing and extractive metallurgy, metal forming , mechanical behavior, welding, physical metallurgy, phase transformation, structure property relationship, thermomechanical processing and texture analysis. **ii. Ceramics:** Electronic ceramics, bioceramics, glasses and glasscermics-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. **iii. 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	The general eligibility criteria prescribed by IIT Bombay are bare minimum and mere possessions of same will not entitle the applications to be called for written test/interview, The Department may restrict the number of applicants to be called for written test/interview to a reasonable limit, on the basis of qualifications and experience higher than that of the minimum prescribed in The advertisement. The candidate must satisfy the eligibility criteria in

Code	Department	Fields of Specialization	Minimum Qualification
		nanocrystalline magnetic materials, magnetoresistor materials in addition, research into materials for sensors and batteries, superconductors, thermoelectric materials, organic semiconductors, solar cells, nanophotonics, synthesis and processing of ion conductors, materials for energy generation and storage materials for quatum computing and ultrahigh vaccum systems for thin film systems is going on in the Dept. **iv. Polymers and Composites:** Polymer blends, Polymercarbon nanotube composites, polymer thin films, polymer nanocomposites, thermodynamic, mechanorheological, mechanical properties of polymers, responsive, functional and conjugated polymers, metalmatrix composites, structure property relations. **v. Wear and Corrosion:** Fracture and failure, nondestructive evaluation, aqueous corrosion, metallurgy of corrosion, oil and gas corrosion, and protective coatings (paints, high temperature coating etc.) **vi. Modeling and Simulations:** Modeling of metallurgical processes, heat and mass transport, modeling 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 • Simultaneous Thermal Analysis System • R/S SST Plus with Coaxial Cylinder Rheometer • Atomic Absorption Unit AVANTAP • Carbon Sulphur Analyser • High Temp. Furnaces 1700 Deg.C. • UV Visible Spectrophotometer • Thin film processing units • MTS machines • Vibrating sample magnetometer • National facility on OIM and stress determination by XRD • Electrochemical Measurement Systems The State of the art Model PAR 338. • Potentiostat model Wenking PSG 581 • Automated 10 Ton/SCC systems. • Thermogravimetry analysers. • Computer Facilities. • 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 •DSTFIST High Performance Computing facility, along with CALPHAD and stand ard open Source scientific software. • DST FIST SNOM and FIB-SEM facilities.	either one of the following qualifying degree. i. M.Tech/ M.E or equivalent degree in Engineering /Technology. ii. B.Tech./B.E or equivalent degree in Engineering/Technology. iii. M.Sc. or equivalent degree in Chemistry, Materials Science, Physics and related science streams. Mathematics as a subject at the B.Sc. Level is mandatory. See http://www.iitb.ac.in/mems/en/phd-admissions for additional details.
BMPH01	Physics	Condensed Matter Physics (Experimental and Theoretical)	In all cases the minimum eligibility is a First Class or equivalent (Min. 60%) Master's Degree in Engineering/ Technology (55% for SC/ST) OR a First Class or equivalent (Minimum 60%) Master's degree in Science (55% for SC/ST) or a First Class or equivalent (Min.60%) in Bachelor's degree in Engineering/ Technology (55% for SC/ST).
BMPH03		Photonics and Spectroscopy (Experimental and Theoretical)	
BMPH04		High Energy Physics (Experimental and Theoretical)	
BMPH06		Statistical Physics/Bio Physics/Nonlinear dynamics Soft Condensed Matter Physics (Experimental and Theoretical) Astroonomy/Cosmology/Gravity (Experimental and Theoretical)	
BMHS01	Humanities and Social Science	**Economics:-** Applied Microeconomics, Open-economy Macroeconomics & International Finance, Applied Econometrics, Environmental Economics, Energy Economics, Empirical International Trade and Strategic Trade Theory and Policy, Evaluation of Economic Policies with Special Reference to India, Productivity Estimation: Measurement Issues, Comparisons and Determinants, Empirical Development Economics, Industrial Economics, Industry-Environment Linkages, Socio-Economic Impacts of Climate Change, Green Accounting, Natural Resource and Water Resource Economics, Climate Change: Impacts and Policy, Financial Economics, Monetary Economics, Corporate Investment: Theory and Econometric Applications, Health Economics, Corporate governance, Labour Economics, Applied Game Theory, Behavioural Economics, Experimental Economics, and Agricultural Economics. **English:-** Narratology; Intertextuality; Victorian Novel; Indian Writing in English; Films and Disnarration; Women's Studies; Autobiography Studies; "Crisis" in English Studies; African American Writing; Morpho-Syntax; Linguistic Theory; First Language Acquisition; Endangered Languages Documentation; The Partition of 1947; the 'Turbulent 40s' in Bengal; South Asian Fiction-in English;	i) Master's degree in Arts/Commerce or equivalent degree in allied subjects with a minimumof 55% marks (50% for SC/ST). **OR** ii) Master's Degree in Engineering/ Technology or equivalent degree, with First class or 60% marks (55% marks for SC/ST). **OR** iii) Bachelor's degree in Engineering/Technology with First class or 60% marks (55% marks for SC/ST).

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		and in Translation; Postcolonial Theory and Literature; Feminist Theory and Women's Writing; Cultural Studies; Feminist Theory; Literary Theory; Film Studies; Regional Literatures; and Cultures in India; Environmental Sociology; Social and Environmental Movements; Environmental Politics with a focus on Social inequality and Natural Resource Conflicts especially in Rural India; Issues of Livelihood and Problems of Marginalized Class and Political Ecology; Adaptation Studies; Shakespeare and Renaissance Drama; European Literature; 19th Century Bengali Literature; Literature and Other Arts; Translation Studies; World Literature; Historical Musicology & Ethnomusicology, Theatre Historiography, Performance Philosophy, Colonial Theatre, Performance and Ethnography, Aesthetics, Critical Theory, Ecocriticism **Philosophy:-** Metaphysics, Philosophy of Science, Philosophical Logic, Philosophy of Language, Professional Ethics, Philosophy of Wittgenstein, Sartre, Kripke, Quine, Moore, Hare, Bhartrahari, Philosophy of Mind, Philosophy of Education and Environmental Ethics, Indian Philosophy and Comparative Philosophy, Buddhist Philosophy, Sankhya Philosophy and Vedanta Philosophy, Philosophy of Artificial Intelligence, Philosophy of Mind, Cognitive Science, Analytic Philosophy, Twentieth Century European Philosophy; Moral, Social and Political Philosophy, Social Epistemology, Moral theory, Alfred Korzybski- 'General Semantics' and related areas, Philosophy of Language, Wittgenstein, Culture and Value, Ethics/Moral Philosophy, Social and Political Philosophy, Classical American Pragmatism, Feminist Philosophy, Twentieth century Continental Philosophy 20th Century Continental Philosophy: Heidegger, Foucault, Husserl, Gadamer, Phenomenology and Hermeneutics, Epistemology: Implications of the Historicity of Knowledge for its Universal Validity Metaphysics: Implications of an Ontology of Events for Political Philosophy History of Western Philosophy **Psychology:-** Psychological Perspectives and Theory, Organizational Behaviour, Personality Studies, Qualified MBTI user, Organizational Culture and Values, Role of Psychology in Development - Health and Contraceptive Use, Developmental Neuropsychology, Education and Child Development, Eyewitness Testimony, Cognitive Ergonomics, EEG / Event Related Potential, Working Memory and Prospective Memory and Developmental Dyslexia, Organization behavior, HRM,Culture and Values in organizations, Personality studies, Positive organization behavior and well-being. **Sociology:-** Urban Studies, Development Studies, Rural/Agrarian Sociology, Law and Governance Legal Pluralism, Vulnerability and Adaptation to Climate Change, Gender and Development, Disaster Studies, Ethnicity and Multiculturalism, Urban Studies, Sociological Theory, Sociology of Development, Anthropology of corruption, constitutional law, sociology of higher education, sociology of religion and kinship, conversion, Christianity in India. Caste today, religious institutions, hierarchy/stratification, sociology in/of India, contemporary Karnataka, Sociology of Development and Environment, Natural Resource Conflicts, Issues of livelihoods and problems of marginalized class, resource rights, subaltern resistance and movements and Political Ecology, Sociology and political economy Of finance, Political economy of development, Indian political economy, Theories of money, Classical political economy, New and old Institutionalism and History of economic thought, Issues of gender and sexuality, medical anthropology, anthropology of the body and embodiment, post-colonial studies, post-modern feminist studies and Southern theories, Caste, Civility and Democracy, Civil Society Ethnography Studies, Inclusion and Exclusion. **Cell for Indian Science and Technology in Sanskrit: -** Indian Science and Technology, Indian Philosophy, Logic and Epistemology, Sanskrit language, Paninian Grammar, Philosophy of Language.	**OR** iv) Master's degree in Science or equivalent degree, with First class or 60% marks (55% marks for SC/ST).
BMBS01	Bioscience & Bioengineering	**BIOTECHNOLOGY (BT)** **Research Areas:** Engineering, enzyme inhibitor design, peptide synthesis; protein structure, function and engineering; yeast molecular biology, transcriptional regulation of gene expression; microtubule dynamics and cancer chemotherapy, immunology, signal transduction, Glycobiology; molecular and membrane biochemistry: proteomics and systems biology, bacterial cell division, protein aggregation and neurodegenerative diseases, computational biology of nucleosome dynamics, Chromatin assembly and statistical dynamics, cytoskeletal dynamics, chromosome segregation during mitosis and meiosis in yeast. Regulation of gene expression in the malaria parasite, bioinformatics of parasite genomes, Autoimmunity, Cancer Immunotherapy, Tissue Resident T Cells, Cancer Biomarker	**Minimum Eligibility for Admission:** 1. First Class or 60% marks (55% for SC/ST) in M. Sc or equivalent degree in subjects related to Life Sciences/ Physics/ Chemistry OR B.Tech Biotechnology with: a valid GATE score (eligible for Institute TAship/ RAship) OR a valid CSIR/ UGC/ DBT JRF (eligible for FA category) OR a valid ICMR JRF (not linked to ICMR project) (eligible for FA category) OR Two year of relevant post M.Sc research experience (eligible only for project positions) OR UGC/CSIR (Lectureship) eligible only for project position. 2. First Class or 60% marks (55% for SC/ST) in M.Tech or equivalent degree in Biotechnology

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BMBS02		**BIOMEDICAL ENGINEERING (BME)** **Research Areas:** Bioinstrumentation for diagnostics and therapeutics, Biomaterials, prostheses and medical devices, Physiological system modeling and analysis. Bioinstrumentation for early detection of carcinoma and tropical diseases, Biomedical transducers and sensors including biosensors and bioMEMS devices, Biostatics and mathematical modeling, Cardiac electrophysiology and muscle mechanics, Development and validation of novel biomaterials and implantable devices, Hemorheology and microcirculation, Neurophysiology, prosthetic devices including aids for the handicapped, Signal processing, Telemedicine and knowledge based systems, Autoimmunity, Cancer Immunotherapy, Tissue Resident T Cells, Cancer Biomarker.	**Minimum Eligibility for Admission:** First Class or 60% marks (55% for SC/ST) in : M.Tech/M.E. or B.Tech/B.E. in Biomedical, Chemical, Computer Science, Electrical, Electronics, Telecommunications, Instrumentation & Mechanical Engineering, and Engineering Physics OR M.Sc. or equivalent in Biochemistry, Biophysics, Biotechnology, ceramics, Chemistry, Electronics, Egronomics, Material Science, Mathematics, Molecular Biology, Physics and Physiology. OR First class/division in MBBS degree in occupational Physiotherapy, with AIMS (PG Entrance Test) / MCI entrance examination for MD/MS (for Medical graduate)/MBBS with MD/MS OR M.Pharm, B.Pharma with entrance examination GPAT
BMEV01	Environmental Science & Engineering	Environmental Monitoring, Industrial Air & Water Pollution Control, Solid and Hazardous Waste Management, Air & Water Quality Modeling, Environmental Systems Optimization, Environmental Microbiology & Biotechnology, Bioremediation, Indoor Air Quality, Aerosol Science and Technology, Environmental Impact Assessment and Global Issues, • Atmospheric physics and Chemistry, • Environmental Laws and Policy	Master of Technology/ Engineering Bachelor of Engineering degree in Agricultural, Chemical, Civil, Energy, Bio-technology, Environ-mental, Mechanical Metallurgical and Mining Engineering or a Master of Science degree in Atmospheric Science, Bio-chemistry, Bio-technology, Chemistry, Earth Sciences, Environ-mental Toxicology, Environmental Sciences, Meteorology, Micro-biology and Physics for M.Sc. graduates, Mathematics is mandatory at Higher Secondary/ Intermediate/ (10+2) level.
BMIO01	Industrial Engineering and Operations 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 supply chains, logistics, transport including railways, manufacturing systems, finance, services, 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. The specific problems of research interests include: production planning, scheduling and control systems; management of inventories in production, distribution and service systems; industrial scheduling, facilities planning, project management, quality management, materials management and productivity management; Data Analytics & Data Management Supply chain analysis, reverse logistics, closed-loop supply chains and RFID applications, product variety management. Operations Research applications in management of technology and resource allocation; Convex optimization; mixed-integer programmeming; Markov decision processes; optimal control in deterministic and stochastic systems; (differential) game theory; applications of game theory; modeling and simulation of supply chains, manufacturing and service systems; theory and applications of distributed and hybrid simulations, 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. Supervised learning & Unsupervised Learning; Online & reinforcement Learning. Development and applications of modern information systems for managing manufacturing, supply chain and service organizations. Deep Learning, Longitudinal data analysis, Kernel methods. The IEOR programme is unique in its contemporary flavor, with new courses in Financial Engineering, Supply Chain Management, Game Theory, Markov decision process, System Dynamics, Machine Learning. Services Management, Manufacturing systems to name a few. The programme is equally strong in	a) First class Master's degree in any branch of Engineering with adequate exposure to Industrial Engg. and Operations Research. b) First class M.Sc. in Mathematics, Statistics or Operations Research with excellent academic record. c) First Class Bachelor's degree in any branch of Engineering with an excellent academic record.

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		background building, with updated courses in Optimization Techniques, Stochastic Models, Simulation, and Knowledge-based systems.	
BMSC01	Systems and Control Engineering	• Geometric mechanics, differential geometry, nonlinear control, satellite and space-craft dynamics, robotics • Higher order sliding mode control and observation, adaptive sliding mode control for discrete-time system • Optimization-based control, control under communication constraints, stochastic control, switched and hybrid systems • Game theory, optimization, economics, information theory and combinatorics, systems biology • Global optimization, GPU supercomputing, fractional order differentiation and applications • Cooperative control, guidance of autonomous vechicles, resource allocation • Adaptive control, decentralized adaption, multi-agent systems, time-varying feedback • Embedded control systems, path planning of autonomous vehicles, vision based navigation, hardware/software co-design • Distributed parameter systems, output regulation, periodic systems, parameter identification in PDEs, hardware/software co-design • Control theory, nonlinear and geometric control, NMR spectroscopy, quantum control.	First class M.E. or M.Tech. in Aerospace/ Chemical/ Electrical/ Electronics/ Instru-mentation/ Mechanical/ Metallurgical Engg./ Systems & Control Engineering. Candidates interested in pursuing a Ph.D. should identify and communicate with atleast a couple of faculty members of the group with whom their research interests match. The names of these faculty members should preferably be mentioned in the application form. This is a pre-requisite for short-listing.
BMEN01	Energy Science and Engineering	**Energy Efficiency / Improvements in conventional Energy Systems:** Heat pumps, Energy integration, Process integration for resource optimization, Pinch Analysis - Development of techniques for optimization of Utility systems, Demand Side Management/ Load Management in the Power Sector, Variable Speed Drives, Power Generation and Systems Planning, Energy Management and Auditing, Efficient Motor Drive Systems, Electronics Ballasts, Static VAR compensators, Illumination control, Power Electronics in Energy Efficient Systems, Electric Vehicles, Boilers and Fluidised Bed Combustion, Exhaust Heat Recovery, Cogeneration, Building Energy Management, Efficient Air Conditioning Systems, Hydrogen Generation and Storage, Thermal energy Storage. **Renewables:** Biomass Gasifier Design, Development and Testing, Pyrolysis for liquid fuels and chemical, CNG Kit development, Testing of Solar Collector and systems, Passive Solar Architecture, Development of Carbon PV cell, Decentralised Power Systems -Grid Integration Issues, Hybrid Systems for Rural Electrification, Wind Energy, Low Cost Solar Drier, Fuel Cells, Thin film solar cells, Carbon nanotubes for hydrogen storage, Solar photovoltaic concentrator, Waste to Energy Electrochimical energy Storage. **Clean Coal Technologies:** Underground Coal Gasification, Chemical Looping, Clean Combustion, CO_2 sequestration **Nuclear:** Nuclear Safety, Nuclear Waste management, Thermal Hydraulics, Computer Simulation Models for Analysis of Transients in Pressurised Heavy Water Reactor. **Oil and Gas:** Wax deposition, Oil-water separation, Enhanced oil recovery, Gas hydrate formation, etc.	M.Tech. Degree in any of the following branches of Engineering: Aeronautical/ Aerospace, Chemical, Civil, Electrical, Mechanical, Metallurgical, Energy Studies. M.Sc. in Chemistry/ Physics/ Mathematics with a good academic record.
BMID01	IDC School of Design.	**Some of the specific areas include:** · Design theory · Design tools · Design management · Typography, script, calligraphy, lettering, type design · Interaction design · Visual language & Storytelling · Film-making and Cinema · Information design · Sustainability · Human Computer Interaction · Product semantics · Biomimetics · Cognitive & Physical ergonomics · Human Factors and Socio-technical systems · Systems thinking and design · Design for development · Game Design	1) Master's Degree in Engineering/Technology or equivalent degree, with First class or 60% marks (55% marks for SC/ST) as described later in A.5.4. 2) One of the following: (i) Bachelor's degree in Engineering/Technology with First class or 60% marks (55% marks for SC/ST/PwD) as described later in A.5.4. (ii) Master's degree in Science or equivalent degree, with First class or 60% marks (55% marks for SC/ST/PwD) as described later in A.5.4. (iii) Master's degree in Arts/Commerce or equivalent degree in allied subjects with a minimum of 55% marks (50% for SC/ST/PwD), only for admission to the Ph.D. programmes offered by the Industrial Design Centre and Department of Humanities & Social Sciences. **Candidates must also fulfill ONE of the following additional requirements:** **i.** Valid GATE/CEED Score. **ii.** Junior Research Fellowship (JRF) of CSIR/UGC/NBHM/DBT/ICAR/ICMR/ICPR or DST INSPIRE Fellowship.

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		· Design for X (children, elderly, people with special needs…)	**iii.** Candidates having UGCNET Lectureship (LS) are also eligible for Teaching Assistantship in addition to other academic qualifications in Humanities & Social Sciences Department. **iv.** Minimum of 2 years of professional experience (acquired after obtaining the qualifying degree and completed before the starting of the semester in which admission is sought). In addition to general eligibility criterion, the applicants must satisfy the eligibility criteria specified for the respective Departments/ Centres/ Schools/ Interdisciplinary Groups. Further, for financial support the eligibility criteria for specific category has to be satisfied.
BMMG01	School of Management	Accounting Corporate Competitiveness Economics Entrepreneurship Financial Management General Management Human Resource Management Information Systems Intellectual Property Rights International Business Management of Information Technology Marketing Management Operations Management Organization Behaviour Project Management Quality Management Statistics and Operations Research Strategy and Business Policy Technology Management	At least one of the following criteria must be met: **i.** B.E./ B.Tech or equivalent degree with 60% marks/ 6.5 CPI (55% marks/ 6.0 CPI for SC/ST) and at least two years of work experience and qualified in GATE/ UGC-NET (Lectureship) /UGC-JRF/ CSIR-NET (Lectureship)/ CSIR-JRF or having CAT/ GMAT/ GRE score within the last five years. **ii.** Master of Management/ ME/ M.Tech/ M.Pharma/ M.Phil/ 2 years MBA or 2 year PG Diploma in Management from any institute recognized by a Government body (AICTE/UGC/AIU) with 60% marks/6.5 CPI (55% marks/6.0 CPI for SC/ST). **iii.** M.Sc./M.Com./ MA/ LLM/MCA or equivalent degree with 60% marks/ 6.5 CPI (55% marks/ 6.0 CPI for SC/ST) at post graduation level and qualified in GATE/UGC-NET Lectureship (LS)/ UGC-JRF/CSIR-NET Lectureship (LS)/ CSIR-JRF or having CAT/GMAT/GRE score within the last five years. **iv.** CA with 60% marks/6.5 CPI (55% marks/6.0 CPI for SC/ST) in the preceding degree. If you are applying to Shailesh J. Mehta School of Management, you are required to submit a sample of your recently published writings on a relevant topic or a research proposal (1500 words) on a topic of your research interest in place of Statement of Purpose. The proposal should contain (a) problem identification, (b) brief review of literature and (c) proposed methodology.
BMSR01	Centre for Studies in Resources Engineering	**I) Application Area** a) Water Resources b) Terrain Evaluation, Land-use planning and monitoring c) Digital Agriculture d) Minerals Exploration e) Natural Hazard of Droughts, Desertification, Landslide, Avalanche, Earthquake, Tsunami etc. f) Marine Resources and Ecology g) Snow, Glaciers and Atmosphere h) Applications of Microwave Remote Sensing **II)Theoretical Areas** i) Digital Image Processing ii) Digital Photogrammetry and Cartography iii) Geospatial Technologies iv) SAR Inter ferometry and Polarimetry	Candidates M.Tech/ ME or B.Tech/ B.E. or M.Sc. First Class or 60% marks (55% for SC/ST) in any of the following branches: • Agricultural Engineering • Civil Engineering • Computer Science and Engineering • Electronics & Communication Engg. • Electrical Engineering • Geology & Geophysics • Information Technology • Mathematics

Code	Department	Fields of Specialization	Minimum Qualification
		v) Mineral Systems Studies vi) Global Positioning Systems vii) Climate Change Studies **1) The actual available Ph.D. topics for a particular round of admissions and the corresponding preferred engineering/science disciplines for each topic specified by the concerned faculty members will be posted on CSRE webpage http://www.csre.iitb.ac.in and applicants may visit the same to identify the matching topics at the time of submitting the application.** **2) The application should include the following in addition to what is already included in the standard application form:** a) Applicant's Statement of purpose stating at least one topic from list of topics offered. b) Applicant's Curriculum vitae covering • List of courses taught by the applicant during the last three years relevant to the research topic of his/her interest • List of M.E./M.Tech. projects supervised by the applicant during the last three years relevant to the topic of his/her interest • List of training programmes attended by the applicant in the last three years relevant to the topic of his/her interest • List of publications of the applicant in peer refereed journals / refereed conferences relevant to his/her topic of interest. • Any awards / recognition won by the applicant for work in areas relevant to his/her topic of research • Title of applicant's M.Tech./ME dissertation topic or B.Tech./BE/M.Sc. Final year project topic and abstract Applicants with M.Sc. must have studied Mathematics at least till 10+2 level; Mathematics during B.Sc. desirable.	• Mining Engineering • Physics • Environmental Engg. • Architecture and Town Planning • Geoinformatics Geomatics (GI

3. Indian Institute of Technology Delhi, New Delhi 110 016 – DL

In all cases, the minimum eligibility is Master's degree in Engineering/Technology or Master's degree in Science/Humanities with a minimum of 60% (6.00 CGPA) marks in aggregate (of all the year/ semesters of the qualifying examination) or equivalent grade point average (as determined by IIT Delhi). For SC/ST/PH category candidates, the minimum performance in the qualifying degree is relaxed from 60% to 55% (from 6.00 to 5.5 CGPA).

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DLAM01	Applied Mechanics	**(a) Design Engineering:** Design Engineering, Design Method and Engineering alternatives, Reliability Engineering, Computer Aided Design, Ergonomics, Reverse Engineering, Design and Analysis of Biomedical Devices, Complaint Mechanisms and Smart Instrumentation, Bio-inspired Engineering. **(b) Fluid Mechanics:** Bio-fluid mechanics, Computational Aerodynamics, CFD- Computational Fluid Dynamics (includes DNS-Direct Numerical Simulation, LES-Large Eddy Simulation, DES-Detached Eddy Simulation, RANS-Reynolds Averaged Navier 0-Stokesetc.), Internal Flows, Hydrodynamic stability theory, Low-dimensional models and chaos, Micro-air Vehicles. Optical flow diagnostics (PIV-Particle Image Velocimetry and Micro PIV), Pipeline Engineering, Pollution Dispersion, Supersonic and Hypersonic Flows, Turbulence, Turbulent boundary-layer stability and control, Two phase flows, Aerodynamics; Turbulent heat transfer compressible flows, Fluid-structure interaction. **(c) Solid Mechanics:** Large deformations, Impact mechanics, Elasticity, Piezothermoelasticity, Composite materials and structures plates and shells, Non-linear dynamics and chaos, Off-shore structures, Smart structures, Structural stability, Snow mechanics, Dynamic plasticity, Nano composites, Damage mechanics, Soft Materials, Structural health monitoring, Functionally graded structures, Multi-Scale modeling of nano-structures, Bio-mechanics/ cell mechanics, Cardiovascular biomechanics, Brain biomechanics, Computational surgery.	Master's degree in Mechanical, Civil, Chemical, Aeronautical, Naval Architecture, Applied Mechanics, Engineering Mechanics, Engineering Analysis & Design or Design Engineering.
DLAS01	Centre for Atmospheric Sciences	Numerical Modeling of the Atmosphere; General circulation; Tropical Meteorology and Indian Monsoon; Land-Surface Process Modeling; Land-Atmosphere Interaction; Ocean Modeling; Coastal Processes; Ocean State Simulations and Forecasting; Storm Surges and inundation; Climate Dynamics; Climate Variability and Changes; Climate Change Detection & Attribution; Global and Regional Climate Modeling; Climate Projections; Climate Change Impacts; Urban Climate; Chemical Transport Modelling and Air Quality Prediction, Air Pollution and Health; Aerosol-Climate Interactions; Heat Island Effect: Modelling and Measurements; Fog Prediction; Numerical Methods; Renewable Energy Meteorology; Resource Assessment.	M.Tech/M.Sc. /B.Tech. (with valid GATE Score) degree in Mechanical, Civil, Chemical & Computer Science & Engineering, Physics, Chemistry, Mathematics, Statistics, Oceanography, Environmental Science, Engineering Physics, Atmospheric Science, Meteorology and related fields. For B.Tech. or equivalent the minimum eligibility is 70% marksor7.5 CGPA.
DLAL01	Centre for Applied Research in Electronics	(a) Biosensors, Microelectronics and MEMS. (b) Microwave Circuits, Antennas, RF MEMS, MMICS, Device Modeling. (c) Signal processing and underwater acoustics, air acoustics, Speech and Audio Signal Processing, Communications, Multi-Sensor fusion.	Master's degree with the Preceding degree in appropriate area with first class throughout. Master's degree in Electrical, Electronics, or Communication Engineering or equivalent, with minimum marks: GEN: 75%, OBC: 70%, SC/ST/PH: 65%.
DLBM01	Centre for Biomedical Engineering	Biomaterials, Biomechanics, Medical Imaging, and Bioinstrumentation.	Master's degree in any branch of Engineering/ Science/ Pharmacy/ Mathematics/ M.B.B.S. with 60% MD/MS with first class and B.Tech. or equivalent having above 70% are also eligible to apply for Ph.D.

Code	Department	Fields of Specialization	Minimum Qualification
DLBC01	Biochemical Engineering & Biotechnology	**Bioprocess Engineering**: Engineering analysis of enzymatic, cellular, metabolic processing involving bioprocess kinetics, Modeling for development of reactor operation strategies & process optimization, Use of Innovative bioreactor designs, Process integration & scale-up for economic production of metabolites, Monitoring and control of process parameters, Animal cell technology, Plant cell/hairy root cultivation in bioreactors for strategic metabolite production, Metabolic flux analysis, Bioenergetics, Biotransformation. **Downstream Processing**: Novel product separation strategies based on sorption, Liquid-liquid extraction, Ultra-filtration, Affinity methods. **Molecular Biology and Recombinant DNA Technology**: Development of recombinant cultures for hyperproduction of metabolites and commercially important enzymes (β glycosidase, laccase, protease) Protein engineering, Heterologous protein production (including therapeutics in Escherichia coli, Pichia pastoris), Cancer molecular biology, micro RNA research and RNA technology, Bioinformatics and Genomics. **Bioremediation and Environmental Biotechnology**: Prospecting of microbes & their application in wastewater treatment and agriculture. **Parmaceutical Biotechnology and Industrial Biotechnology.** Bionanotechnology:Lab-on-a-chip devices, drug delivery and diagnostics devices.	M.Tech./ M.S. degree in Chemical/ Biochemical Engineering, Bio-technology, Food Technology, Environmental Bio-technology, Pharmaceutical Bio-technology, Industrial Bio-technology, Applied Microbiology.
DLEN01	Centre for Energy Studies	Electric Power Systems, Energy Planning, Fuel Technology, Fuel Cells, Biomass Utilization, Utilization of alternative fuels in IC engines, Solar Thermal Utilization Photovoltaic, Plasma Science & Technology, Energy Conservation, Energy and Environment Management.	Master's degree in Mechanical, Civil, Chemical, Electrical (Power Systems/ Power Electronics) Energy, Environment, Agriculture, Physics, Chemistry, Automobile Engineering, Computer Science & Engineering.
DLMG01	Management Studies	General Management, Economic Development, Indian Financial System, International Business, Competitiveness, Corporate Planning, Corporate Governance, Organization Management and Development, Organizational Behavior, Human Resources Management, Organizational Culture, Leadership and Business Ethics, Financial Management, Corporate Finance, Portfolio Management, Security Analysis, Corporate Governance & CSR, Management of Investment, International Finance, Production and Operations Management, Optimization Techniques, Facility Layout/ Location Problems, Manufacturing Systems, Project Management, Risk Management, Infrastructure Projects, Mergers and Acquisitions, Productivity and Efficiency Analysis, Marketing Management, Sales Management, Strategic Marketing Management, IPR Management, Information Systems & Technology, E- Business, E-Governance, Telecom Systems Management, International Telecom Management, Flexible Systems Management, Management of Change, Entrepreneurship Management & Development, Creativity and Innovation Management, R&D Management, Managerial Ethics, Environment Management, Management of Technology, Management of education and academic leadership, Logistics & Supply Chain Management, Social Media & Business Practices, Social Media Analytics, Cyber Security, Business analytics.	Master's degree in any branch of Engineering/ Technology or Master's degree in Science, Commerce, Economics, Social Science with MBA, or Graduate in any branch of Engineering/ Technology with MBA or equivalent with CGPA 6.75 on a 10 point scale or 60% in aggregate for general category.
DLMS01	Department of Materials Science & Engineering	Synthesis of polymers, Structure-property correlation in polymers, Rheology and processing of polymers, polymers, polymers matrix composites, tribology and mechanical behavior of polymers, membranes for various applications, antifouling and antibiofouling materials. Polymer blends and alloys, biodegradable polymers, nanocomposites, hydro/cryogels for bio medical applications, surface functionalization. Structure-property correlation in advanced materials, Metal matrix composites, 3D printing, nano-scale friction and wear, Auxetic materials, Materials characterization using advanced microscopy, phase transformation, tools, functionally graded materials, nanomaterials, Advanced ceramics, high entropy alloys, materials for extreme environments, thermal barrier coatings, Alloy processing and properties, refractory metals and compounds, First principle Density Functional Theory (DFT) based material design, Micromagnetic simulations, Semiconductor nanostructures and device applications, Magnetic nanowires and magnetic tunnel junctions for spintronic device applications; Organic electronics.	M.Tech. in Polymer Science and Engineering or Plastic & Rubber Technology or Chemical Engineering, Chemical Technology or Fiber Science & Technology or Materials Engineering, Metallurgical Engineering, Ceramic Engineering, Mechanical Engineering, or M.Sc. in Chemistry, Physics, or Materials Science.

Code	Department	Fields of Specialization	Minimum Qualification
DLRD01	Rural Development & Technology	Artisanal technologies and rural industries, Biogas Production and enrichment and animal power, Renewable energy technologies, Rural energy systems, Biomass and Environment, Microbial Biotechnology, Ecological Sanitation. Bioremediation, Waste Management, Biofertilizers and Biopesticides, Tissue culture, Mushroom technology, Algal Biofuels, Food Quality & Safety, Rapid Composting, Waste water treatment and Bioenergy generation, Dairy and Food Engineering, Rural Development Planning, Panchgavya scientific validation, phytochemistry, Governmentality studies, Social Exclusion, Public Policy, Indigenous communities, Bio-char & its valorization, LCA, Blockchain and nanotechnology in rural perspective, Isolation Encapsulation and value addition of food bioactives, Food printing, Postharvest Management of agro-produce.	Master's degree in any discipline of Engineering/ Technology or Science.
DLCH01	Chemical Engineering	All areas of Chemical Engineering	M.Tech. in engineering or M.Sc. in Science/B.Tech. with GATE Score
DLCY01	Chemistry	Physical Chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Bio-chemistry, Theoretical Chemistry, Materials Chemistry.	Master's degree in Chemistry with at least 60% marks or CGPA of 6.00 on a ten point scale.
DLCE01	Civil Engineering (code number of the specialization to be indicated in the data sheet)	Construction Engineering and Management	Master's degree in Civil Engineering or Architecture or equivalent or relevant Master's degree in Engineering.
DLCE02		Engineering Geology	Master's degree in Civil Engineering or in Applied Geology or relevant Master's degree in Engineering.
DLCE03		Environmental Engineering	Master's degree in Civil or in Environmental Engg. or Chemical Engineering or Biochemical & Biotechnology or relevant Master's degree in Engineering.
DLCE04		Offshore Structures	Master's degree in Civil Engineering or relevant Master's degree in Engineering.
DLCE05		Rock Engineering	Master's degree in Civil or Mining Engineering or in Applied Geology or relevant Master's degree in Engineering.
DLCE06		Geotechnical and Geoenvironmental Engineering	Master's degree in Civil Engineering or Materials Science & Engineering relevant Master's degree in Engineering.
DLCE07		Structural Engineering	
DLCE08		Remote sensing	Master's degree in Civil, Agricultural, or Mining Engineering or relevant Master's degree in Engineering.
DLCE09		Transportation Engineering	M.Tech. in Civil Engineering/ Transportation Engineering/ Transportation Planning, Masters in Planning (including City/ Urban/ Regional Planning).
DLCE10		Water Resources Engineering	Master's degree in Civil Engineering or relevant Master's degree in Engineering.
DLCS01	Computer Science and Engineering	Computer Architecture, Design Automation and VLSI, HW-SW Co-Design, Embedded Systems Design, Parallel Processing, Image Processing, Artificial Intelligence, Location Based Services, Computer Vision, Computer Graphics and Animation, Semantics of Programming Languages Machine Learning, Databases, Information Retrieval, Data Mining Social Network Analysis, Computer Networks, Wireless Networks, Systems and Network Security, Design and Analysis of Algorithms, Optimization, Computational Geometry, Computational and Systems Biology, Computational Logic, Operating Systems, IT for Development, Mobile Computation, Verification, Concurrency, Complier Design, Virtualization and Cloud Computing.	Master's degree in Computer Science, Electronics Engineering, Mathematics or Physics with formal background in Computer Science or MCA Excellent academic record i.e. $\geq$ 80% or 8.0 CGPA in qualifying degree

Code	Department	Fields of Specialization	Minimum Qualification
DLEE01	Electrical Engineering	Computer Architecture, Parallel Processing, Multimedia, Embedded/ Cyber Physical Systems Medical and Public Health Informatics, Computational Linguistics, Systems Biology, Cognitive Science, Computer and Communication Networks, Communications, Signal Processing, Image Processing, Computer Vision, Pattern Recognition, Machine Learning, Bio-metrics, Bio-informatics Optical Communications, Control Systems, Bio-molecular Circuits and Systems, Intelligent Control, Nonlinear Control, Robotics, Systems Theory, VLSI, Biological Neural Networks Analog and RF integrated circuits, Device, Physics and photonics, Electrical Machines and Drives, Power Electronics, Power Systems, Power Quality Generation, Distributed generation & Power generation from renewable sources.	Master's degree in an appropriate discipline with excellent academic record.
DLHS01	Humanities and Social Sciences	**Psychology** Positive Psychology, Social Psychology, Intergroup relations, Social identity, Group based emotions, Intergroup contact and social change, Stigma and wellbeing, Leadership, Cognition, Emotion, Judgement and Decision Making. **Sociology** Agrarian Studies, Anthropology of the State, Dalit and Tribal Studies, Development Studies, Environmental Sociology, Globalization, Migration, New Media Studies, Political Sociology/Anthropology, Sociology of Culture, Sociology of Food and Nutrition, Sociology of Movements, Sociology of Religion, Sociological Theory, Urban Sociology, Sociology of Gender. **Philosophy** Moral, Political, and Legal philosophy, Metaphysics of the Self, Philosophy of Mind, Philosophical Aesthetics, Philosophy of Mind and Cognition, Philosophy of Culture and History, Contemporary Thought and Intellectual History, Deep Ecology, Buddhism/and Politics, Exile and Travel, Religion and Politics, Peace Studies, Tibetan Literature and Politics, Ethnicities and Margins, Children and Literature. **Literature** Culture Studies, Gender Studies, Performance and Theatre Studies, Digital Humanities, Modernist and Postmodernist Literature, Indian English Theatre, Indian Writing in English, Contemporary Fiction, Postcolonial Literature, Philosophy of Literature **Linguistics** Phonology, Language Education, Language Variation, Formal Syntax and semantics, Language Acquisition, Cognitive Studies, Computational Linguistics, Psycholinguistics, Neurolinguistics. **Economics** Microeconomics theory, Game theory, Mechanism design, Decision theory, Structural changes and aggregate productivity, Endogenous growth, Public good provision and income inequality, Development Economics, Issues in India's economic development, Issues in India's Macroeconomy.	M.A. with 1st Class in the relevant subject for English it is 55%.
DLID01	Design (SeNSE)	Industrial Design, Product Design, Engineering Design, Design Creativity, Analogical Design, Universal and Inclusive Design for UX/UI, Human Computer Interaction, Computer Aided Design and Manufacturing, Design for Product Life-Cycle.	Master's Degree in Design/ Architecture/ Engineering.
DLTX01	Textile Technology	Textile Engineering: Design and analysis of yarn and fabric formation systems: ring spinning, rotor spinning, friction spinning, air jet spinning, weaving, knitting, braiding, nonwovens; Structural mechanics of textile materials; Apparels and garments; comfort, handle and other functional aspects of textiles; Design and development of technical textiles; agro-textiles, geo-textiles, home-textiles, textiles for filtration, medical textiles, automotive textiles, textiles for environmental protection, packaging textiles, protective textiles, sport textiles, textiles for building & construction; Fibrous composites; Textile machine design; Textile instrumentation; Modeling and simulation of textile processes and products; Management in textiles; project formulations, project appraisals, operations management, supply chain management, quality management. Fibre Science & Technology: Synthesis and characterization of advanced polymeric materials; Fibre formation processes; Modelling and simulation; Structure-property correlation; Functional and responsive polymers, smart & intelligent textiles; Modification of natural and synthetic fibres; Nanotechnology in Textiles; synthesis and applications of nanofibers and nanomaterials; Coated textiles; Polymer nanocomposites; Green composites; Medical textiles; Tissue engineering; Sustainability; Polymer recycling. Textile Chemical Technology: Textile chemical processing; preparatory processes, dyeing, printing and finishing; Surface functionalization; Micro and nano encapsulation; Conducting textiles; Natural dyes; Bio-active textiles; Textile ecology and environment.	M.Tech. or Equivalent in Textile Technology, Textile Engineering , Fiber Science and Technology, Textile Chemistry/ Computer Science & Engineering/ Electronics Engineering / Electrical Engineering/ Mechanical Engineering/ Chemical engineering/ Civil Engineering/ Biochemical Engineering/ Materials Science & Engineering/ Production Engineering/ Industrial Engineering / Biotechnology/ Apparel Engineering/ Fashion Technology/ Microbiology, Nanotechnology/ Polymer Science/ Rubber Technology. M. Sc. in Physics/ Chemistry.

Code	Department	Fields of Specialization	Minimum Qualification
DLMA01	Mathematics	Pure Mathematics, Applied Mathematics, Statistics, Operational Research, Theoretical Computer Science.	Master's Degree in Mathematics, Statistics, or Operational Research or Computer Science, MCA, B.Tech. in Computer Science. For B.Tech. degree the minimum eligibility is 70% marks or 7.0 CGPA in 10 point scale. For B.Sc. and M.Sc. degrees, the minimum eligibility is 60% or 6.0 CGPA in 10 point scale in both the degrees.
DLME01	Mechanical Engineering	Design, Production, Thermal Engineering	Master's Degree in Mechanical Engineering/ relevant Engineering discipline to be approved by the department.
		Industrial Engineering	Master's Degree in any Engineering discipline/ any relevant non- engineering discipline e.g. MBA, MCA etc., as approved by the department.
DLTR01	Industrial Tribology Machine Dynamics & Maintenance Engineering	**Tribology:** Tribology of Polymers & composites, nano-composites, ceramics and metals. Wear Mechanisms and modeling of metallic and non- metallic materials and surface engineering. Boundary and Hydrodynamic lubrication, E-HD lubrication, lubricant characterization and analysis, tribology of bearings and other machine elements. Pneumatics, conveying of bulk solids, operational problems like erosion and degradation. **Maintenance Engineering and Machine Dynamics:** Condition based maintenance, signature analysis, vibration, acoustic emission, temperature and wear debris monitoring techniques, maintenance planning and control, computer aided maintenance audit, reliability, availability and maintainability (RAM) engineering, vibration & noise analysis and control, risk analysis and safety, non-destructive testing, residual life estimation, failure analysis, performance and dynamic study of machine elements and equipment like pumps, compressors, turbines, design for maintenance, etc. turbines, etc., Design for maintenance etc.	Master's Degree in Engineering (Mechanical, Chemical, Industrial).
DLPH01	Physics	**Materials and Condensed Matter Physics:** Thin Films, Materials and Devices, Novel Functional Magnetic Materials, Nanomaterials, Lattice Dynamics, Semiconductors and Amorphous Materials, Electronics Ceramics, Quantum Functional Materials, Superconductivity, Nanomagnetism and Spintronics, Spin Dynamics, Charge Carrier Dynamics and Electronic Structure Studies of the Correlated Electron Systems, e.g., Fe-based high-Te superconductors, Complex oxides, Materials for Nuclear Energy. Spectroscopie Imaging Topological Insulator. **Optics and Photonics:** Holography, High Density Data storage, Liquid crystals, Nonlinear Phase Conjugation, Optical Information Processing, Optical Data Security, Singular Optics, Nonlinear Optics, Nonlinear guided Wave Optics, Solitons, Quantum Optics, Fiber Optics, Integrated Optics, Fiber Optics Sensors and Biosensors, Fiber optics Components, Nanophotonics, Laser Spectroscopy and Applications, Terahertz Spectroscopy and Applications, Ultrafast Dynamics, Laser Processing and Fabrication, Green and Biophotonics, Photonic Metamaterials, Bio-Medical Imaging, Inverse Problems in Imaging, Optoelectronics, Ultrafast Optics. **Plasma Physics:** Particle Acceleration, Nonlinear Waves and Instabilities in Plasma, Thermo Nuclear Fusion, Microwaves and Plasma Interaction, Solitons in Plasma, Space Plasmas, Terahertz (THz) Radiation Generation, Hall Thrusters, Interaction of Plasmas with Materials, Laser plasma interactions, Particle and Fluid Simulation in Plasma. **Theoretical Physics**: Mathematical, Statistical Mechanics, and Computational Physics, theoretical Studies in ultra-cold atoms, Cavity Opto-mechanics with ultra-cold atoms, Nuclear Physics, Particle Physics, Soft Condensed Matter and Biophysics, Ion-atom collision Physics, Ion-irradiation of biologically relevant molecules. **Computational Materials Science**: Designing Energy Materials, Thermal Transport, Electronic Structure, Band Engineering, Clusters and Catalysis, Pyroelectricity, Piezoelectricity, (Anti)ferroelectricity, (Anti)ferromagnetism, Multiferroics, Spin and Lattice Dynamics, Caloric Effects, Non-collinear Magnetism, Genetic Algorithm,Machine Learning, Force Field, Density Functional Theory, Kinetic Monte Carlo, Molecular Dynamics, etc. **Interdisciplinary:** Optical Spectroscopy under extreme conditions, High Pressure-High Temperature Physics, Energy Storage and alternative Energy Materials, CO2 sequestration, Mineral Physics.	M.Sc. in Physics/ B.Tech. in Engineering Physics/ M.Tech. in Applied Optics/ Solid State Materials/ Opto-electronics/ Photonics.

4. Indian Institute of Technology Guwahati, Guwahati 781 039 – GW

Relaxation of SC/ST/PD candidates: Eligibility criteria will be relaxed by 5% in percent marks or 0.5 point in CPI in all cases.

Code	Department	Fields of Specialization	Minimum Qualification
GWBT01	Bio-sciences & Bio-engineering	All areas of Bio-sciences and Bio-engineering.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5 or 60% marks or MSc Degree in Biotechnology/ Life Science/ Agricultural Sciences/ Related Disciplines with minimum CPI 7.5/10 or 70% marks.
GWCH01	Chemical Engineering	All areas of Chemical Engineering.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5 or 60% marks.
GWCY01	Chemistry	Inorganic Chemistry, Organic Chemistry Physical Chemistry & Theoretical Chemistry.	Masters degree in the relevant discipline with minimum of CPI 6.5/10 of 60% marks.
GWCE01	Civil Engineering	Construction Management, Construction Materials, Infrastructure Engineering and Management, Environmental engineering, Geotechnical Engineering, Structural Engineering, Transportation Systems Engineering, Water Resources Engineering and Management, Earth Science, Remote Sensing and Geology.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5 or 60% marks.
GWCS01	Computer Science & Engineering	Algorithms; Computational Geometry; Systems Biology (Bio-computing); Bio-inspired Robotics and related algorithms; Mobile Agent Based Systems; Machine Learning; Speech Processing; Image Processing, Information Retrieval and Web Mining; Formal Verification; Embedded Systems, CAD for VLSI; Multi-processor Computer Architecture; Computer Security; Networks; Operating Systems; Distributed Systems; and Human-Computer Interactions.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5 or 60% marks.
GWDE01	Design	Industrial Design, Product Design, Communication Design (Including art & visual Culture) Interaction and Usability engineering (Including HCL), Design Management , Ergonomics (Including Occupational health and safety), Environment Design, Animation.	M.Des/ M.Arch or M.Tech/ ME degree in relevant area with a minimum CPI 6.5/10 or 60% marks. Master's degree in Applied Arts/ Ergonomics/ Fine Arts/ Psychology/ Physiology with minimum CPI 6.5/10 or 55% may also be considered.
GWEE01	Electrical & Electronics Engineering	All areas of Electrical, Electronics and Communication Engineering	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5/10 or 60%marks.
GWEN01	Energy	Screening and Genetic improvement of Bio-fuel crops, Glycerol, bioconversion and synthesis of alcoholic biofuels, Biodiesel from microalgae, oilseeds, Bioelectronics for bio-fuel cell, Bigas, Combustion and detonation, Energy efficiency in electric machine, Wind energy, Waste heat recovery, Biohydrogen, bioethanol, biobutanol and microbial fuel cell, Thermal energy storage and hydrogen storage, solar driven cooling system, porous medium combustion and hydrogen energy, Solar cells.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5/10 or 60% marks, OR M.Sc. in Physics, Chemistry, Bio-technology, Environmental Science or in relevant field with minimum of CPI 6.5/10 of 60% marks.
GWEV01	Centre for Environment	Environmental Chemistry/Biotechnology/Economics/Engineering; Waste Water Treatment and Supply, CO2 Capture/storage; Atmospheric Chemistry; Air Quality monitoring; Environmental Hydraulics; Environmental Genomics; and Other emerging areas of environment with interdisciplinary application of science, technology, arts and humanities.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5/10 or 60% marks, OR, M.Sc. in Physics, Chemistry Bio-technology, Environmental Science or in relevant field with minimum CPI of 6.5/10 or 60% marks.
GWHS01	Humanities and Social Sciences	All areas of Humanities and Social Science	Masters Degree in the relevant discipline with a minimum of 55% marks or equivalent.
GWMA01	Mathematics	All areas of Mathematics, Statistics and Theoretical Computer Science	Masters degree in the relevant discipline with a first class or a minimum CPI 6.5/10 or 60% marks.

Code	Department	Fields of Specialization	Minimum Qualification
GWME01	Mechanical Engineering	Stress Analysis; Experimental and Computational Fracture Mechanics; Composite Materials and Structures; Smart Materials and Smart Structures; Materials Characterization; Dynamics and Controls; Electro-Mechanical Systems; Robotics; Nonlinear Vibration; Bio-Mechanics; Noise; Tribology; Condition Monitoring; Experimental Fluid Dynamics; Computational Fluid Dynamics (CFD); Bio-MEMS and Micro Fluidics, Heat Transfer; Low Speed and High Speed Acrodynamics; Multiphase Flow; Hydrogen Energy; Metal Hydride Based TGhermal Machines; Energy Storage and Fluidization; Bio-fuels; Metal Cutting; Micro Machining and Micro Fabrication; Unconventional Machining; Mechatronics; CAD/CAM/CAE; Materials Processing and Heat Treatment; Metal Forming; Welding; Bio-Nano Composites and Nanofluids.	M.Tech. degree or equivalent in an appropriate area with minimum CPI of 6.5 or 60% marks.
GWPH01	Physics	**Condensed Matter Physics** – biomaterials, cold atoms and quantum computation, computational materials physics, ferroelectric materials, organic semiconductors, semiconducting materials, smart magnetic materials, soft condensed matter physics, spintronics, statistical physics, strongly correlated systems, superconductivity topological insulators. Nanomaterials and nanotechnology. **Laser and Photonics** – Applied Optics, Fiber Optics, Laser Matter Interaction, Nonlinear Optics, Quantum Optics. **High Energy Physics –** Collider Phenomenology, beyond the standard model and cosmological connections, B-Physics, CP violation, Neutrino physics. **Astrophysics –** Astrophysical flows, ultra high energy cosmic rays.	Master's degree in the relevant discipline with a first class or a minimum CPI 6.5/10 or 60% marks.

5. Indian Institute of Technology Kanpur, Kanpur 208 016 – KN

The basic qualification for admission to the Ph.D programme is Master's degree in Engineering, Science, Humanities and Social Sciences respectively or allied area(s). However, the applicants with Bachelor's degree in Engineering may also be considered for admission based on their performance and attainments.

Code	Department	Fields of Specialization	Minimum Qualification
KNAE01	Aerospace Engineering	**Aerodynamics:** Experimental Aerodynamics, High Speed Jets, Acoustics, Unsteady Aerodynamics * Flapping Wing, Transition & Turbulence, Hypersonic Aerodynamics, Microfludics, CFD/High performance Computing, Flow Control, Wind Energy & Design, Fluid Structure Interactions. **Flight Mechanics and Control:** Design & Control, Missile Guidance & Control, Flight Testing, Instrumentation & Parameter Estimation, Unmanned & Autonomous Air Vehicle, Space Dynamics. **Propulsion**: Experimental & Computational Combustion, Emissions, Liquid Atomization, Turbomachinery, Intake Aerodynamics, Thrust Vectoring, Electric Propulsion. Fundamentals of Combustion, Applied Compressible Flows, Aircraft propulsion. **Structures, Structural Dynamics & Aeroelasticity:** Material Characterization, Composite Materials and Smart Structures, Structural Dynamics and Stochastic Modeling, Aeroelasticity, Helicopter Theory (Dynamics & Aerodynamics), Structural Design & Optimization, Damage Modeling, Design and Dynamics of Autonomous Micro and Mini Air Vehicles, Wind Turbines.	Master's degree in: (1) Engineering (Aeronautical, Aerospace, Mechanical, Civil, Chemical, Naval Architecture Electronics). OR (2) Science with a minimum of 3 years of relevant R&D experience in Aerospace Engineering
KNCH01	Chemical Engineering	Transport phenomena, Chemical Reaction Engineering, Applied Kinetics and Catalysis, Thermodynamics, Membrane Separation Processes, Process Systems Development, Computer Aided Design, Optimization and Control, Petroleum Engineering, Polymer Science & Engineering, Environmental Pollution & Control, Adsorption, Safety and Reliability, Dynamics of Nonlinear Systems, Colloids and Interface Engineering, CFD, Rheology, Non-Newtonian Fluid Mechanics, Nanotechnology, Numerical Methods for Engineers, Mathematical Methods in Chemical Engineering, Modeling and Simulation in Chemical Engg., Bioinformatics, Modeling and Simulation of Separation Processes. Molecular Simulation.	First class Master's degree in Chemical Engineering or equivalent.
KNCY01	Chemistry	**Inorganic:** Bio-inorganic chemistry, Coordination polymers, Organometallic chemistry, Inorganic materials. **Organic:** Supra molecular chemistry, Bio-organic chemistry, Medicinal Chemistry, Organic photochemistry, Organic synthesis and Reaction mechanisms, Organometallic chemistry. **Physical:** Bio-physical chemistry, Chemical kinetics, Magnetic resonance, Mass spectrometry, Physical photochemistry, Ultrafast spectroscopy. Functional materials.	High second class Master's degree in Chemistry or Physics; ***Note:*** *Candidates must* have *had Bachelor's degree with Chemistry and preferably Mathematics as one of the subjects.*
KNCS01	Computer Science & Engineering	**Algorithms:** Randomized, Graph Theoretic, Number Theoretic, Data Streaming algorithms, Algorithmic game theory. **Systems:** Computer Architecture, VLSI testing, Software Architecture, Internet Technologies, Distributed and Mobile Computing, Data bases, Programme Analysis, Compilers and optimization, Cyber Security, Cyber Physical Systems, Embedded Systems, Robotics, Database Technology. **Theory:** Complexity, Information Theoretic Complexity, Algebraic Computation, Computational arithmetic & Geometry, Quantum Computing, Computational Game Theory, Logic for CS, Cryptography. **Artificial Intelligence:** Machine Learning and Probabilistic Reasoning, NLP, Bioinformatics, Intelligent Tutoring, Game theory and Multi-agent Systems, Computer Vision, Graph database and data mining.	First class Master's degree in Engineering Must possesses adequate Computer Science background. (Note: Outstanding candidates)
KNCE02	Civil Engineering (Code no. of the specialization to be indicated in the data sheet)	Environmental Engineering.	M.Tech./M.E. in Civil/ Environmental/ Chemical / Mechanical/ Metallurgical Engg. Or related engineering branch. Candidates with M.Sc. degree must have mathematics as one of the subjects at the 10+2 level.

Code	Department	Fields of Specialization	Minimum Qualification
KNCE03		Geoinformatics	M.Tech./M.E. degree in Civil/ Mining/ Electrical/ Computer Science Engg./ Electronics Engineering./ Information Technology or M.Tech/ MSc. Degree in Earth Science streams/ Geography /Physics/ Mathematics/ Environmental Sciences. Candidates with MSc. degree must have mathematics as one of the subject at the B. Sc. level.
KNCE04		Geotechnical Engineering	M.Tech / M.E. degree in Civil Engineering.
KNCE05		Hydraulics & Water Resources Engineering	M.Tech / M.E. degree in Civil/ Aerospace/ Agricultural Engineering.
KNCE06		Structural Engineering	M. Tech /M. E. degree in Civil Engineering. Candidates with Master's degree in Architecture, Building Construction and allied subjects may also be considered.
KNCE07		Transportation Engineering	M. Tech / M.E. degree in Civil Engineering.
KNCE08		Infrastructure Engineering and Management	Masters degree in Civil Engineering.
KNIM01	Industrial and Management Engineering	Services Management, Management of Technology, Innovation and Entrepreneurship, Marketing Management, Manufacturing, Operations and Supply Chain, Quantitative Methods & Decision Making, Organizational Behavior, Human Resource Management, Business Economics, Infrastructure and Public Systems, Corporate Governance, Finance, Risk Management and Insurance, Financial Markets and Models, Enterprise Information and Knowledge Systems, Leadership, Ethics, Strategic Management, Business Policy, Energy Economics, Policy and Regulation etc. Intellectual Property Management, Sustainability, Project Management, Business Process Management, E- Governance, Information Systems, Change Management, Business Analysis. Operations Research; Operations Management and Big-Data.	The applicant must have a master's degree in management or relevant disciplines in engineering/ technology with marks/CPI not below the specified minimum. Applicants with a Bachelor's degree in engineering with a minimum of 75 percent marks/ 7.5 CPI, or master's degree in science/ arts/ commerce, satisfying each of the following criteria may also be considered. (a) a minimum of 65 percent marks/ 6.5 CPI in the master's degree, (b) first division in bachelor's degree, and (c) JRF/95 percentile or higher in GATE
KNPH01	Physics	Atomic and Molecular Physics, Astrophysics , Biological and Statistical Physics , Biological and Statistical Physics, Biophotonics, Computational Physics, Condensed Matter Physics, Cosmology, Dynamical Systems and Turbulence, Fiber optics, Ion Beams and Nuclear Physics Techniques, Laser Cooling and Trapping, Light-Matter Interaction, Nonlinear Optics, Particle Physics, Photonics of Micro and Nano Structured Materials, Plasma Physics and Laser Plasma Interaction, QCD and Lattice Gauge Theories, Quantum Phase Transition, Quantum Field Theory, String Theory and Quantum Gravity, AdS/CFT, Hydrodynamics, Quantum Optics, Quantum Computing and Information, with a substantial of Inter-Disciplinary activity.	First class Master's degree in Physics or first class Master's degree in a related subject or first class Bachelor's degree in a related branch of Engineering.
KNEE01	Electrical Engineering (Codes mentioned against specializations)	Power Engineering	Master's Degree in Electrical Electronics or Communication Engg. or equivalent.
KNEE02		Including Power Systems, Power Electronics & High Voltage Engg., Control & Automation	
KNEE03		Information Systems	
KNEE04		Including Communications, Telecom Networking and Signal Processing, RF & Microwaves	
KNEE05		Photonics	
KNEE06		Microelectronics and VLSI	

Code	Department	Fields of Specialization	Minimum Qualification
KNHS01	Humanities and Social Sciences	**Economics:** Industrial Organization and Policy, Environmental Economics, Environmental Impact Assessment, Development Economics & Policy, Microeconomics, Inter-Industry Economics, Project Evaluation/BCA, Regional Economics, Macroeconomic Theory & Policy, Monetary Economics, Managerial Economics, Transport Economics, Law and Economics, Heath Economics. Econometrics, Applied Econometrics, Game Theory, Political Economics, Mathematica Economics and Optimizational, International Economics. Agricultural Economics & Policy, Behavioral Economics, Financial Economics, International Finance & Commodity Derivatives & Risk Modelling. **English Literature:** American Literature, British Literature, Common wealth Literature, Ethnic Literatures, European Literature, Indian Writing in English, Literary Movements, Literary Theory, Teaching of Literature, Post Colonial Studies, Indian Literature, Translation Studies, Literature and the Environment, Posthumanism, Gender Studies. **Linguistics:** Linguistic Theory, Cognitive Linguistics, Computational Linguistics, Communication studies, Sociolinguistics, Applied Linguistics and English Language Teaching, First and Second Language acquisition, Linguistic typology, Field Linguistics, Historical Linguistics. **English Language Teaching**: Teaching methodology, Curriculum development, Language testing. **Fine Arts:** Art Appreciation, Art Education, Art-History, Indian Art, Painting, Film and Media Studies **Philosophy:** Twentieth Century Philosophy, Logic, Philosophy of Science Ethics, Philosophy of Language, Philosophy of Social Sciences, Indian Philosophy, Philosophy of Mind, Philosophy of Cognitive Sciences, Philosophical Aesthetics, Philosophy of Religion Ethics. **Psychology:** Social Cognition, Personality, Experimental Social Psychology, Organizational Behavior, Human Cognitive Processes, ConsumerPsychology,Cross-cultural Psychology, Health Psychology and Neuropsychology, Cultural Issues in Psychology, Disaster Mental Health, Perception & action, embodied cognition, Psycholinguistics, Attention, Bilingualism & Executive Control, Lateralization of Cognitive Functions. **Sociology:** Sociology of Religion, Urban Sociology, Social Demography, Environmental Sociology, Sociology of Development, Science, Technology and Society, Social Movements, Third Sector Non-government and Voluntary development Organization, Human Rights, Social Gerontology, Sociology of Education and Disability Studies. Mobility Studies, Border Studies, New Media Studies.	55% marks in Master's degree in the respective areawith consistently good academic record.
KNMA01	Mathematics/ Statistics	Coding Theory, Differential and Integral Equations, Partial Differential Equations, Functional analysis, Harmonic Analysis, Fourier Analysis, Operator Theory, Numerical Analysis, Commutative Algebra, Differential and Algebraic Topology, Differential Geometry, Algebraic Geometry, Combinatorics, Logic, Fluid Mechanics, Biomathematics, Parallel Computing, Mathematical Modeling, Order Statistics, Nonlinear Regression, Time Series, Reliability Theory, Variational Analysis, Statistical Inference, Statistical Signal Processing, Order Statistics, Econometrics.	High second class Master's degree in Mathematics or Statistics, with at least 55% marks or equivalent.
KNMS01	Materials Science (Interdisciplinary programme)	Electronic, Magnetic, Opto-electronic, Piezoelectric, Ferro-Electric Organic Semiconductor and Energy Storage/ Conversion Materials. Materials for Flexible Electronics and sensors. Ceramic Processing, Structural Ceramics and Composites. Nanoscale Materials and Processes, Thin Films, Electron Microscopy, Display materials. Materials for microwave application. Superionic/Fast-ion conductors, Solid electrolytes, High Density and Ni-Metal Hydride Batteries. Polymer processing and Rheology, High Performance Plastics, Polymer Blends-alloys & Composites. Optical Spectroscopy (Raman, IR, Photo luminescence), multiferroics.	M.E., M.Tech., M.Sc. (Engineering) Degree in Materials Scienceor any equivalent branch of engineering/ technology; or B.E., B.Tech., B.Sc. (Engineering) with a minimum of 75% marks or Cumulative Point Index (CPI) of 7.5/10 in any relevant branch of Engineering/ technology, or M.Sc. degree in an allied area with , Exceptional academic records.
KNNE01	Nuclear Engineering & Technology	Reactor Safety, Numerical Methods, Radiation Measurements and Nuclear Instrumentation, Reactor Analysis and Design, Non Invasive Imaging, NDT, Computed Tomography.	First class Master's degree in any branch of Engg., preferably with some knowledge in Nuclear Engineering or equivalent

Code	Department	Fields of Specialization	Minimum Qualification
KNME01	Mechanical Engineering	**Solid Mechanics:** Composite Materials, Fracture Mechanics, Multi scale simulation, Stress Waves, Non-Destructive Testing, Large Deformation Elasto-Plastic Analysis, Impact Contact Problems, Smart Structures-Materials and System, Micro electro- Mechanical Systems. Computer Aided Design, Kinematics and Dynamics of Machinery, Vibration, Friction and Wear, Lubrication, Rapid Prototyping, Rapid Tooling, Reverse Engineering, Compliant Mechanisms, granular media, crystal physics, noise & acoustics, Non Linear dynamics & Control. **Fluid Mechanics:** Flow control, Turbulence, Wake Dynamics, Experimental Techniques, Computational Fluid Dynamics, Computerized Tomography, Transport in Hierarchical Porous Media, Hydrodynamic Instability, Micro Fluidics, Wave Mechanics. **Thermal Sciences:** Computational Heat Transfer, Heat Pipes, drop-wise Condensation ,Gas Turbine Blade Cooling ,Heat Exchangers, Turbo machinery, Emission from IC Engines, Biofuels, Hydrogen Technology and Fuel Cells. Flames, Spray Combustion, Portable Energy Storage, Energy Storage Material, Micro Scale Heat Transfer. **Manufacturing Sciences:** Metal Cutting, Metal Forming, Machine Tools, Unconventional Machining, Computer Aided Manufacturing, Computer Integrated Manufacturing System, Net shape Manufacturing. Casting and Solidification, Nanotechnology, Bio mems. **Robotics and Automation:** Manipulator Kinematics and Dynamics, Motion and Path Planning, Collision Avoidance and Navigation, Sensor Based Intelligent Robotics, Industrial Robotics, Intelligent Control System, Human Machine Interface, Flexible Manipulators, Compliant Mechanisms.	First class or equivalent Master's Degree in Mechanical Engineering. **Note**: Candidates with first class Degree in Production Engg. are eligible for admission only to Manufacturing Science. ***Note:*** *In exceptional cases applicants with first class Master's degree in other branches of Engg. May also be considered.*
KNMT01	Materials Science and Engineering	Heat and Mass Transfer in Metallurgical System, Process Design and Development in Extractive Metallurgy, Optimization, Electro-deposition, Physical Metallurgy, Alloy Development Thermodynamics and Kinetics of Phase Transformations, Heat Treatment, Solidification, Mechanical Processing, Steel Making, Processing and Advanced Structural Steel, Processing-Structure-Property Relations, Nanostructural Materials, Microstructural Characterization and Stereology, Textures in materials, Environmental Degradation of Materials, Corrosion, Powder Metallurgy, Structural Ceramics and Composite, Tribology, Welding, Magnetic Materials, Electromagnetic Materials, Thin Film Technology, Opto-Electronic Materials and Devices, Ferroelectric Ceramics, Electronic Materials, Organic semiconductor, Display Materials and Technologies, Bio-materials. Multiferroic Materials & Thin films, Clean energy, Photovoltaic and energy materials & devices.	B.E./ B.Tech. degree and a M.E./ M.Tech degree in Metallurgical or Materials Engineering, Materials Science, Ceramic Engineering, Nano-science, Nano-technology, Mechanical, Electronics. Minimum 60% marks or a CPI of 6.0/10 in B.E./ B/ Tech. & Minimum 70% marks or a CPI of 7.0/10 in M.E./M.Tech. **OR** M.Sc. and M.E./M.Tech. Degree in Metallurgical or Materials Engineering, Materials Science, Ceramic Engineering, Nano-science, Nano-technology, Mechanical, Electronics. Minimum 60% marks or a CPI of 6.0/10 in B.Sc. and M. Sc.& Minimum 70% marks or a CPI of 7.0/10 in M.E./M.Tech.
KNLS01	Photonics Science & Engineering	Laser spectroscopy, Bio-medical applications of lasers, Femto second Pulse Shaping, Nonlinear Spectroscopy, Coherent Control, Multiphoton Imaging, Quantum Computing, Quantum Optics, Imaging in Complex Media & Biological Tissues, Interferometric Tomography, Laser & Rainbow Schliern, Imaging Growth of Protein Crystals, Quantum Cryptography, Nonlinear Fibre-Optics, Optical Fiber Communication, Electromagnetics and RF, Opto-Electronics, Semiconductor Device & Lasers, Mill metric & Microwave Circuits, Nonlinear Optics, Photonic Band Gap Structures, Laser Ranging, Laser imaging and cross-section, Flash and scanning laser applications, Digital Holography, Particle Image Velocimetry, Laser Schlieren, Experimental Stress Analysis, Smart Materials, Development and analysis of reconstruction algorithms for nonlinear tomography, Shape-based tomography, Numerical solutions to partial differential equations in electromagnetic, Subsurface imaging, Quantitative Phase Imaging, Optical Metrology, Applied Signal Processing, Fringe Analysis, Biophotonics, Fiber and integrated optics , Infrared and terahertz frequency sensors, Long-period gratings, Fiber optic Bragg gratings, Plasmonics and met materials.	Masters degree in any branch of Engg. or Masters degree in Science with some exposure to Optics or Photonics. Engineering degree holders with a Bachelor degree can also apply if they have the requisite CPI of 8.0 and have studied in a CFTI.

6. Indian Institute of Technology Kharagpur, 721 302 – KH

In all cases the minimum qualification for admission is a Master's degree in Engineering/Technology or its equivalent with minimum 60% marks or Master's degree in Sciences, Humanities or Social Sciences with minimum of 55 % marks (or equivalent grade point average).

Code	Department	Fields of Specialization
KHAE01	Aerospace Engineering	Fluid dynamics and Aerodynamics, Computational fluid dynamics, Experimental methods, Aircraft structures, Composite structures and Smart structures, Structural dynamics and aeroelasticity, Aircraft propulsion, Thermal sciences and Engineering, Combustion, Flight mechanics and control.
KHAG01	Agricultural and Food Engineering	**Farm Machinery and Power**: Farm Machinery Design, Farm Power, Tractor hydraulic systems, Soil Dynamics in Tillage and Traction, Ergonomics, Biofuels, Solar and Wind Energy, Agricultural Mechanisation, Precision farming, Electronics and Computer application in Agriculture. **Land and Water Resources Engineering:** Watershed Modeling and Management, Irrigation Systems Management; Groundwater Modelling; Rainwater Harvesting, Flood Modeling, Non-point Source Pollution, Climate Change, Green House Technology. **Food Process Engineering:** Dairy and Food Engineering, High Pressure Processing, non-thermal processing of foods, Mechanised Processing of Food, Physical and Thermal Processing of Food, Packing of Fruits and Vegetables, Cryogenic Processing of Foods, Health Foods, Functional Foods, Cereal Processing, Grain Processing, Dairy Products, Solar-Thermal Applications in Foods, Processing of Horticultural and Plantation Crops. **Agricultural Biotechnology**: Microbial and Enzyme Technology; Plant Tissue Culture, Algal Biotechnology, Biotechnology of Medicinal and Aromatic Plants. **Agronomy**: Climate Change Impact Assessment on Crop Yields, Organic Farming, Tea Cultivation and Processing. **Soil Science:** Water and Nutrient Management, Soil Physics. **Aquacultural Engineering:** Waste Utilization and Agro Environmental Technology, Aerators, Cage Aquaculture, Fish Processing Technology, Biofloc Technology.
KHAP01	Architecture and Regional Planning	Universal Design, Building Automation and Management Systems, Building Materials and Composites, Urban design, City Planning, Computer Applications in Architecture and Planning, Disaster Responsive design and planning, Green Architecture, Energy Efficient and Cost-effective Building Technology, GIS and Remote Sensing, Heritage studies and Conservation, Housing and Community Planning, Infrastructure Planning and Systems Management, Metropolitan Planning, Recreation and Tourism Planning, Regional Planning, Spatio-environmental Planning and Design, Transportation Planning and Traffic Engineering, Urban Development Management, Urban Open Space, Water Sensitive Planning.
KHBT01	Biotechnology	Bioinformatics, Tissue Engineering, Bioreactor /bioprocess development, Enzyme Technology, Plant biotechnology Down stream processing, Genetics, Environmental biotechnology, Cell/molecular biology, Biochemistry, r-DNA Technology, Structural Biology. ***Minimum Qualification*** Minimum 60% of marks (or equivalent Grade point average) is required in case of M.Sc./M.Tech degree.
KHET01	Center for Educational Technology	AI and Cognitive Science in Education and Assessment, Instructional Pedagogy Design, Learning Science and Educational Psychology, E-learning, Speech Technology, Language processing for e-learning.
KHCH01	Chemical Engineering	Transport Operations, Membranes and other Separation Processes, Reaction Engineering, Particulate Technology, Process Dynamics & Control, Fuel and Mineral Processing, Petroleum Refining & Petrochemicals, Industrial Pollution Control, Modeling & Simulation of Chemical Processes, Green Process Technology, Micro-Scale Heat Exchange & other processes, Advanced Materials Engineering using Plasma, Polymer Engineering etc.
KHCY01	Chemistry	DNA Interacting Molecules, Enzyme Inhibitors, Bio-mimetic, Bio-Inorganic Chemistry, Protein Chemistry, Synthetic Organic Chemistry, Surface Chemistry & Catalysis, Nano Crystalline Semi –conducting Magnetic Metal Chalcogenides and Magnetic Ferrites, Biologically Active Compounds: Stereo selective Synthesis, Isolation and Characterization of Bioactive Materials, Macromolecules, Colloids and Drug Delivery, Environmental Chemistry, Energy from Non-conventional Sources, Aromaticity in Metal Clusters, Nanoparticle Catalysis, Nano Technology, Solid State Chemistry, Supra- molecular Chemistry, Transition Metal Chemistry, Self-assembly and Metallahelicates in Coordination Chemistry, Organometallic Chemistry, Homogeneous Polymer Anchored Catalysis, Photochemistry & Photophysics in Organized Assemblies, Carbohydrates and Nucleosides Biological Dual Perspectives, Enantiomeric Separation Using Capillary Electrophoresis, Density Functional Theory: Quantum Chaos, Chemical Reaction Dynamics in Liquids and Biological Systems, Computer Simulations of Complex Systems with Applications in Biology and Materials Science, Electrocatalysis, Electrochemical Biosensors, Chemical Reactivity, Quantum toxicology.
KHCE01	Civil Engineering	Structural Engineering, Hydraulic and Water Resources Engineering, Geotechnical Engineering, Transportation Engineering, Environmental Engineering and management.
KHCS01	Computer Science and Engineering	Artificial Intelligence, Speech and Language Processing, Software Reliability, Data-base systems, VLSI System Design, Embedded Systems, Fault Tolerant Computing, Distributed Systems, Computer Networks, Image Processing and Computer Vision, Computational Geometry, Theoretical Computer Science, Bioinformatics, Assistive Technology, Formal Verification, Cryptography and Network Security.
KHCR01	Cryogenic Engineering	Production, Storage and Utilization of Industrial Gases, Air Separation, Mass Transfer and Separation Processes, Natural Gas Processing and Liquefaction. Hydrogen Energy, Low Temperature Adsorption of Gases, Gas Hydrates, Computer Aided Design of Cryogenic Process Plants, Closed Cycle Cryocoolers, Low Temperature Heat Exchangers, Expansion Machines, Heat Transfer, Cryogenic Rocket Propulsion, Magnetic Refrigeration Materials, Spintronics, Superconducting Magnets and Applications, Thermo Physical Properties of Nanoscale Materials, Magnetic Sensors, Vacuum Technology and Process Applications. Helium Liquefaction and Refrigeration, Oxygen Safety, Superconducting Magnetic Energy Storage, Cryogenic/Superconducting/Vacuum aspects for nuclear fusion and Power Applications.

Code	Department	Fields of Specialization	
KHEE01	Electrical Engineering	**Machine Drives and Power Electronics:** Control of drives, Switched mode and resonant mode power supplies, Power Converters, Medium voltage converter topology and drives, Digital control of SMPS, Energy Efficient drives, Electro-magnetic Levitation, Variable Speed Constant Frequency Generation Systems, Automated Electrical Vehicles, Non-linear Phenomena in Power Electronics, Bifurcation and Chaos in Hybrid Dynamical Systems. **Control System Engineering:** System identification and modeling, Fault detection, diagnosis and control, Learning control, Nonlinear control, Robust control, Intelligent control, System Theory, Large-scale systems, Reduced order modeling, Fuzzy control, Periodic controllers, Attitude and orbit control of launch vehicles and satellites, Embedded Systems Fractional-order systems and control, Control Allocation. **Power & Energy Systems:** Power Systems Analysis, Dynamics, Modeling and Control, Power System Stability, Protection, Real-time Simulation, High Voltage Engineering, Photovoltaic, Wind Energy, Energy modeling and Management, Insulation Engineering, Condition monitoring of power apparatus, Digital relaying, Power Quality, Electrical Power distribution systems, Power System deregulation, FACTS design including devices, Distributed generation, Microgrid. **Instrumentation and Signal Processing:** Instrumentation and signal Processing: Sensor development MEMS and Mixed signal VLSI design and validation, Magnetic sensing, Medical instrumentation and imaging, Embedded systems, Signal/Image processing, Machine learning.	
KHEC01	Electronics and Electrical Communication Engineering	Device modeling, Technology CAD, Silicon Heterostructures, Compound Semiconductor Electronics and Optical Devices, MEMS and Nanotechnology, Mixed signal design, Low Voltage Low Power Circuit Design, Low Power RF IC Design, Design of VLSI based Signal Processing Chips, SOC based Embedded System /VLSI for Biomedical Instrumentation, VLSI Testing, Fault Diagnosis, Design Automation of Analog VLSI Circuits, Circuits for High Speed Wired Link, On-chip Power management. Antennas, Planar and Waveguide Circuits, RFICs; RF MEMS; Metamaterials; RF- VLSI Interconnects; EMI, EMC, EMP, Radar Cross section, Microwave Imaging; Channel Modeling for Wireless Communication. Image and Video Coding, Computer Vision, Video Surveillance, Medical Image processing Multimedia, Database, Multimedia Network, Parallel and distributed Processing, Audio coding, Computer Architecture, Embedded Systems, Network-on-Chip. Computer Networks, Wireless Communications and Networking, Wireless Internet, Multiuser Receiver, Multiband OFDM, Channel Coding, Link Adaptation Techniques, MIMO Systems, Capacity Mobile Adhoc Networks, Wireless Sensor Networks, Optical Communications and Networking, WDM Transmission, Fiber Nonlinearities, Wavelength Routed Networks, Passive Optical Networks, Optical Burst Switching, Cognitive Radio, 4G Cellular, Fiber Optics, Fiber Optic Sensors, Fiber Optic amplifiers and Lasers, Plasmonics, Photonic Crystal Fibers and Waveguides. Architectural Optimization, Adaptive Filters, Wavelets and Multirate-DSP, DSP Application in Wireless Communication, Biomedical Signature Analysis, Voice Signature Analysis, Detection and Estimation, Modeling of Signals and Systems	
KHGG01	Geology and Geophysics	Igneous and Metamorphic Petrology, Ore Petrology, Geochemistry and Mineralogy, Isotope Geology, Precambrian Geology and Tectonics, Structural Geology, Microtectonics, Stratigraphy and Sedimentary Geology, Basin Analysis, Applied Micropaleontology, Paleoceanography and Paleoclimatology, Coastal and Quaternary Geology, Mineral Exploration and Resource Potential Mapping, Hydrogeology, Groundwater Contamination, Remote Sensing and GIS, Environmental Geochemistry of water, soil and air-their contamination by natural and anthropogenic factors, Landslide Hazards, Gravity, Magnetic and Electrical Fields Electrical Fields (including modeling and numerical analysis), Seismic and Electromagnetic wave Propagation (including modeling and numerical analysis), Nuclear Geology and Geophysics, Geophysical Exploration of minerals, ground water and hydrocarbons, Airborne Electromagnetics & Exploration of Deep Seated Uranium Ores, Earthquake Hazard Assessment and Seismic Microzonation, Geotomography, Pattern Recognition in Geophysics, Strong Motion Seismometry, Computational Geophysics.	
KHGT01	G. S. Sanyal School of Telecomm-unication	Digital Communication, Mobile Communications, Information Theory and Capacity Analysis. Error Control Coding, Digital Signal Processing, Optical Communications, Tele Communication Networks, Multimedia Communications, Detection and Estimation Theory, RF and Digital Design for Telecommunication, Cognitive Radio.	
KHHS01	Humanities and Social Sciences	English Language and literature, American Literature, Afro-American Literature, Comparative Literature, Post-colonial Literature, Indian Literature, Dalit Literature, Indian Aesthetics, Media Culture, Culture Studies, Communication Studies, Econometrics and Applied Economics, Financial Economics, Economic Planning and Policies, Managerial Economics, Organizational and Development Economics, Agricultural Economics, Manpower Planning. Human Resource Development and Management, Organizational and Social Psychology, Interpersonal Communications, Clinical Psychology and Neuropsychology. Philosophy of Mind, Logic, Applied Ethics. Rural and Urban Sociology, Sociology of Development and Sociology of Health.	
KHMS01	Materials Science	Polymer composites, Polymer Synthesis & Characterization, Semiconductor Materials Opto-electronic Materials, Wide Band Gap Semiconductors, Synthesis and Processing of Glass and Ceramics, Nano and magnetic materials.	***Minimum Qualification :*** B.Tech/B.E Degree in Chemical Engineering/ Technology, Ceramic and glass Technology, Materials Technology, Plastic and/or Rubber Technology, Polymer Science and Technology With 60% marks minimum. M.Sc. in Physics, Solid State Physics, Chemistry, Material Science, Polymer Chemistry, Electronic Science. With 60% marks minimum
KHMA01	Mathematics	Fluid Mechanics, Numerical Analysis, Statistics, Operation Research, Computer Science, Functional Analysis, Complex Analysis, Computational Fluid Dynamics, Algebra, Fuzzy Mathematics, Artificial Intelligence, Data Base Management Systems. Cryptography, Graph Theory, Applied linear algebra.	

Code	Department	Fields of Specialization	
KHME01	Mechanical Engineering	Fluid machanics.CFD, Hydrodynamic stability, Multiphase flow, Numerical heat transfer, Experimental heat transfer and fluid flow, Liquid fuel atomization, and Spray combustion, I.C Engines, Fluidised bed combustion, Refrigeration and air conditioning, Transcritical CO_2 and natural refrigerant based heat pumps, Thermal systems modeling and optimization, Solar energy, Optical diagnostics of thermo-fluid systems, Thermal hydraulics of nuclear plants, Microfluidics and Micro- scale transport processes. Casting, Welding and Metal forming, Maching and grinding, Machine tools, Cutting tools and coating, Tool condition monitoring, Plasma-spray ceramic coating, Electrophysical machining process, Precision manufacturing and laser processing, Computer aided design and manufacturing, Computer Aided Process Planning, Rapid Prototyping, Intelligent Machines and Systems, Numerical Modeling of Manufacturing Process. Systems, Modeling and design using Bond Graphs, Modeling and control of Microsystems, MEMS, Automotive Engineering, Noise Vibration Control, Signal Processing in Mechanical Systems. Finite Element Method and Boundary Element Method, Computational solid mechanics, Non-linear Mechanics, Fracture mechanics, Composite materials, Smart materials and Structures, Biomechanics, Industrial, bio- and nano- Tribology, Surface Engineering, Mechanical Systems Dynamics, Rotor Dynamics, Vehicle Dynamics ,Bifurcation and Chaos, Condition monitoring and Fault tolerant control, Mechanical handling systems and Industrial automation, Industrial fluid power and control.	
KHMT01	Metallurgical and Materials Engineering	Physical Metallurgy, Extractive Metallurgy and Mineral Processing, Steel Technology, Process Modeling, Corrosion Science and Technology, Mechanical Metallurgy, Structural Integrity, Casting and Solidification, Powder Metallurgy, Welding Metallurgy, Computational Material Science and Technology, Nanostructured Materials, Bulk Metallic Glasses, Biomaterials, Electronic and Magnetic Materials, Functionally graded Materials, Intermetallics, Composites. Tribology and Surface Engineering, Thin films and coatings.	
KHMN01	Mining Engineering	Experimental and computational geomechanics, Geostatistics, GIS and Remote Sensing: Subsurface and surface environment (heat, air, water and soil), waste (fly ash, mill testing) characterization and utilization. Occupational health and safety, Mining systems and management, Material- Rock Interaction, Mineral Economics and Mining Finance, Environmental Impact Assessment and Management, Waste Remediation, Mining Machinery & Bulk material Handling, clean coal technology; Coalbed methane and shale gas; Mineral processing. Explosive, Blasting and ground vibrations. **B.Tech/BE/** in Mining Engineering, Civil, Mechanical Engineering, Petroleum Engineering, Chemical Engineering, Mining Machinery and Mineral Processing, **M.Sc** in Physics, Applied Geology, Mathematics and Geo-Informatics, **M.Tech.**in Chemistry, Geo-Informatics and Geo-Physics.	
KHOE01	Ocean Engineering and Naval Architecture	Marine Hydrodynamics, Marine & Ocean Structures, Ocean Engineering Materials, Fluid – Structure Interaction, Marine Design, Marine Production and welding, Ocean Engineering, Coastal Engineering, Water Wave Mechanics, Physical and Dynamical Oceanography, Ocean Wave Modeling, CFD. Numerical Simulation and Analysis of Ocean Structure.	
KHPH01	Physics	Astrophysics & Cosmology, Condensed Matter Physics, Ferroelectrics & Dielectrics, Fiber Optics, Magnetism, Multiferroics, Nanoscience & Nanotechnology, Nonlinear Optics, Nonlinear Instability, Nuclear Physics, Quantum Mechanics & Field Theory, Radiation Measurements, Semiconductor Devices, Solid State Ionics, Thin Films, Renewable Energy Sources.	
KHRT01	Rubber Technology	Polymer blend & alloys, Composites, Polymer and Rubber Processing, Product Development, Polymerization, Development of Novel Polymers, Structure-Property Correlation, Waste Polymer Recycling, Thermoplastic Elastomer, Adhesion and Surface Treatment, Nanocomposites, Polymer Rheology, Smart Polymers. Rubber Composities and Compounding, Rubber Product Design & Development.	***Minimum Qualification:*** Master's degree in Science/ Engineering/ Technology or its equivalent with minimum 60% marks.
KHRD01	Rural Development	Transfer of technology; Socio-economic aspects of Rural Development, Planning and development models, Crop, water and land use planning; Information Technology in Rural Development, Tribal Development, Upgradation of technology.	***Minimum Qualification :*** Master's degree with at least 60% marks (or equivalent Grade point average) in Agricultural Engineering, Agricultural Science, Agricultural Economics, Agricultural Extension, Sociology, Economics, Rural Development, Rural Management, Rural Infrastructure, Biotechnology, Environmental Science, Remote Sensing and GIS, Human Resource Management.
KHIM01	Industrial and Systems Engineering	Operations Research, Operations Management, Logistics and Supply Chain Management, Healthcare Systems Management, Project Management, Manufacturing/Production Planning and Control, Performance/Productivity Analysis, Quality Design, Control and Improvement, New Product Development ,Process Transforma, Ions and Lean Six Sigma, Work Systems Design, Human Computer Interaction(HCI), Ergonomics and Human Factors Engineering, Safety Analytics, Operation Analytics, Quality Analytics, Industrial Analytics, Data Analytics and Big Data, Decision Support System, E-Business, Management Information System, Software Project Management, Service Science, System Dynamics and Simulation, Systems Engineering.	***Minimum Qualification :*** BTech degree in any branch of engineering and MTech in Industrial/ Production/ Mechanical/ Manufacturing/ Computer/ IT/ Reliability & Safety/ Other related fields or MBA with a minimum of 60% marks or equivalent in all examinations from 10th standard onwards.
KHRE01	Reliability Engineering	System Reliability assessment, Reliability and design, Reliability simulation, Machinery Fault Diagnosis, Maintenance Engineering & Management, Risk and Safety Assessment, Software reliability.	

Code	Department	Fields of Specialization	
KHID01	Ranbir and Chitra Gupta School of Infrastructure Design and Management	Project Engineering and Management; Financing Infrastructure Projects; Quantitative Methods for Decision Making; Simulation Laboratory; Environmental Impact Assessment; Infrastructure Regulatory Issues; Virtual Reality Lab.; Transportation: Urban Transportation Systems Analysis, Evaluation and Planning; Airport Planning; Bridges and Tunnels Engineering; Analysis and Design of Pavements, Traffic Engineering; Highway Construction Practice and Planning; Sea and Inland Port Infrastructure; Water Supply Systems; Waste Water Management; Solid Waste Management; Air Quality Management; Environment Sanitation; Hazardous Waste Management; Housing and Community Planning; Facility Programmeming & Specialized Building Design; Building Management Systems; Regional Infrastructure Development; Remote Sensing and GIS; Thermal, Hydel and Nuclear Power Generation; Power Infrastructure: Generation, Transmission and Distribution; Internal Combustion Engine; Power Transmission Systems; Non-conventional Energy Systems; High Voltage and Insulation Engineering; Power Infrastructure: Economics, Management, and Environment; Power System Planning and Reliability; Air-conditioning and Ventilation; Power Systems Transients and Protection.	
KHMG01	Vinod Gupta School of Management	Accounting, Finance, Business Economics, Strategy, Technology Management, Operations management, Organizational Behavior, Human Resource Management, Marketing, Business Communication. **Eligibility**: MBA with a Postgraduate Degree/ M.Tech/ A Post Graduate Degree.	
KHEN01	School of Energy Science & Engineering	**Fundamentals of Energy Sciences**: Thermodynamics, Thermochemical and Electrochemical Reactions, Transport phenomena including heat and mass transfer and electrochemical phenomena, Solid-state phenomena including photo, thermal and electrical aspects, Bio-processes, Nano-sciences, Deep ocean processes, Gas and Fluid Dynamics, Nuclear sciences. **Energy Resources and Recovery:** Traditional resources - Coal, Petroleum, Natural Gas; Others - Solar, Wind, Geothermal, Wave, Ocean-thermal, Biomass, Hydrogen, Gas from non-conventional sources - Gas Hydrates, Coal beds, Tar sands. **Energy Systems***:* Energy Conversion Systems for Oil, Gas, Coal, Solar, Wind, Biomass, Nuclear, Hydrogen, Ocean Waves, Waste. Power generation, distribution, transmission, access; Transportation Power Systems - IC Engine, Advanced Fuel Technology based combustion ignition, Electric, and Hybrid Systems. Embedded generation systems; Smart grids; Electrochemical systems; New age Fuel systems and process development; Hybrid and electrical systems; Battery & super-capacitors; Energy systems for marine, space and difficult terrains. **Other Aspects of Energy Science & Engineering**: Energy Materials; Energy Storage & Transportation; Energy Efficient Devices & Systems; Energy Efficient Design of equipment, buildings and appliances; Sustainable Energy; Conservation; Recycling and Management: Environment and Climate Change; Computational Aspects; Energy Economics; Energy byproduct (particularly carbon) recycling, capture, sequestration and storage; Rural and small scale energy research.	***Minimum Qualification:*** **(i)** M.Sc.- Chemistry/ Physics /Biotechnology **(ii)** M.Tech – Electrical Engineering/ Electronic Sciences/ Electrical Communication Engineering/ Mechanical Engineering/ Civil Engineering/ Chemical Engineering/Bio-technology
KHEV01	Centre for Oceans, Rivers, Atmosphere and Land Sciences	The centre is involved in frontier research in oceanographic and atmospheric observational and modelling. In oceanography, the areas of present research activities include numerical modelling of Bay of Bengal and Indian Ocean, wave modelling and ocean circulation. In atmospheric research, the present focus is on the observations and modeling studies of severe thunderstorms. Besides, the centre is also involved in mesoscale modelling of extreme weather events viz., tropical cyclone, heavy rainfall, and flash floods etc. The areas of specific interest in this direction are mesoscale data assimilation and micro-physical processes. The centre is also involved in observational modeling studies of urban boundary layer, regional climate modelling and impact assessment studies. Space based observations, retrievals; validation and assimilation of geophysical parameters of ocean, atmosphere and land are another area of research of the Centre. In view of India's active research in Antarctica, the Centre is also focusing on the remote sensing of sea-ice and southern ocean in relation to climate studies.	
KHAT01	Advanced Technology Development Centre	Current areas of research focus in laboratories directly under ATDC include VLSI Design and CAD, MEMS and BIO-MEMS, Nano-electronics and material sciences, MBE and MoCVD Technology, Bio-energy, Embedded Controls and Software, Plant Genetic Engineering, Communication Empowerment, High-speed and Heavy-Haul Technology for Railways, Reliability Analysis, Micro and nano-Fluidics, etc	
KHWR01	School of Water Resources	Integrated water resources planning and management; River basin planning and management (considering the aspects of flood, drought or contaminant); Water and wastewater treatment; Surface and groundwater quality control; Conjunctive use of surface water and groundwater; Urban, rural and industrial water supply and distribution systems; Remote sensing and GIS application in water resources; Modelling of fate and transport of contaminants; Water governance and policy issues; Environmental impact assessment; Surface water and groundwater interaction; Water resources system analysis; Irrigation and drainage system	***Minimum Qualification***: Specialization M.Tech/M.E. in Water Resources, Environmental, Irrigation & Drainage, Soil & Water Conservation, Chemical Engineering and Biotechnology.

Code	Department	Fields of Specialization	
KHMB01	School of Medical Science and Technology	Medical Imaging and Image Analysis; Rehabilitation Engineering; Biomedical Sensors and instrumentation; Healthcare Information Management System; Preventive and Promotive Healthcare System; Bio-markers and their application in Oncology; Tissue Engineering; Biomaterials; Nano-technology and MEMS in Medicine; Prosthesis; Orthosis and Implant Design; Reproductive Biology.	***Minimum qualification:*** Degree in any one of the areas **(a)** B.Tech. (Bachelor of Technology, M.Sc. (Master of Science), MBA (after BA/ B.Sc/ B.Com) MA (Master of Arts), B.Arch. (Bachelor of Architecture) B.Sc (Engg.), PG Diploma in Management of 2-year duration (after BA/ B.Sc/ B.Com), MBBS degree with compulsory one year internship completed **OR** A degree equivalent to any of the above. **(b)** M. Tech (Master of Technology), M. S., M. C. P. (Master of City planning) M. E., M. R. P. (Master of Regional Planning) M. Sc. (Engg.), M. Arch. (Master of Architecture) M. Phil., M.B.A. (after B. Tech./ M.Sc./ M.A./ M.Com.) 2 year M.B.M., 2 years of LLM programme after either at least 5 years of integrated LLB degree after 10+2 examination **OR** 3 years LLB degree after 10+2+3 examination **OR** A degree equivalent to any of the above.

7. Indian Institute of Technology Madras, Chennai 600 036 –MD

In all cases the eligibility requirement for consideration for admission to Ph.D is a First Class or Equivalent with a minimum of 60% marks or 6.5/10 CGPA for General and OBC candidates and minimum of 55% marks or CGPA of 6.0/10 for SC/ST candidates in the qualifying Masters degree in Engineering/Technology/Science as indicated under minimum qualifications in the table given below for different departments. Minimum marks or CGPA is to be based on all the years/semesters of the qualifying examination put together.

Code	Department	Fields of Specialization	Minimum Qualification
MDAE01	Aerospace Engineering	**Aerodynamics:** Helicopter Aerodynamics, Geo-Physical Fluid Dynamics, Subsonic, Transonic, Supersonic, Hypersonic, Shock and Blast Wave Dynamics (Theoretical and Experimental), Rarefied Gas flows (Theoretical and Experimental), Boundary Layers and Stability of Flows, Turbulent Flows, Shock Tubes and Related Problems, Development of Algorithms and Code for Numerical Methods in Gas Dynamics and Computational Fluid Dynamics, Vortex Dynamics, Supersonic Mixing and Combustion, Optical Flow Diagnostics, Linear and Nonlinear Acoustics. **Aircraft Structures:** Finite Element Methods, Numerical Methods, Composite Structures, Fatigue and Fracture Mechanics, Contact Mechanics, Vibration and Impact Mechanics, Constitutive Modelling. **Aerospace Propulsion:** Rocket Propulsion and Solid Propellant Combustion, Airbreathing Propulsion and Combustion, Cascade Flows, Multiphase Flow Simulation, Combustion Instability, Optical Flow/Combustion Diagnostics. **Dynamics & Control:** Non-Linear Dynamics in Aerospace Applications, Computational Methods in Nonlinear Dynamics, Nonlinear Control Theory and Applications, Flight Simulations and Controller Development, Design Development of Autonomous Flying Vehicles.	Master's degree or its equivalent in Aerospace/ Civil/ Applied Mechanics/ Mechanical/ Chemical or Master's degree in Mathematics/ Physics and aptitude for research. Science Post- graduates should have exceptional merit and research or industrial experience in the appropriate field. Candidates with Master's degree in other allied engineering specializations can also be considered provided they have either basic degree in Aerospace Engineering or atleast five years experience in Aerospace industry/ Research Organisation.
MDAM02	Applied Mechanics	**Biomedical Engineering :-** Cardiovascular System studies, image and Signal Processing, Speech Signal Processing, Ultrasound and Laser instrumentation in Medicine, Biomechanics, Rehabilitation Engineering, Evoked Response and Functional Electrical Stimulation, Physiological Modeling, Biomaterials, Biosensors, Medical Diagnostics. Cellular biomechanics, Neuromechanics. **Fluid Mechanics:-** Laser Diagnostics, Turbulent Convection, Computational Fluid Dynamics (CFD), Bluff body and Industrial Aerodynamics, Fluid Structure Interaction, Experimental Fluid Mechanics, Sprays and multiphase flows. **Solid Mechanics:-** Computational and Experimental studies in fatigue, fracture, smart materials, photo elasticity, plasticity, vibrations, control, composites, biomechanics, constitutive modeling and stochastic mechanics.	**Biomedical Engineering area:-** Master's degree in Applied Mechanics / Civil / ECE / Mechanical/ Electrical/ Biomedical Engineering/ Computer Science/ Instrumentation/ Metallurgical Engineering. **Fluid Mechanics area:-** Master's degree in Applied Mechanics / Civil / Mechanical / Aerospace / Chemical/ Biomedical Engineering/ Engineering Mechanics **Solid Mechanics area:-** Master's degree in Civil/ Aerospace/ Mechanical/ Naval Architecture, Production Engineering with an aptitude for research in Solid Mechanics.
MDCH01	Chemical Engineering	Transport and Reaction Engineering, Systems and Control, Biochemical Engineering, Environmental Engineering, Materials and processes	Master's degree in Chemical Engineering
MDCY01	Chemistry	Inorganic Chemistry, Organic Chemistry and Physical & Theoretical Chemistry	Master's degree in Chemistry.

Code	Department	Fields of Specialization	Minimum Qualification
MDBT01	Biotechnology	**Research Areas** The department focusses on a wide array of research topics, reflecting the diversity of modern biotechnology. The four thrust areas of Research (M.S. and Ph. D.), are listed here: **I. Biological Sciences** Molecular oncology • Cancer immunotherapy • Anti-cancer nutraceuticals • HIV pathogenesis • Stem cell biology • Biomarkers for cardiovascular disease • Gene regulation in hypertension • Molecular and cellular basis of cardiovascular complications • Structure - function relationship of ion channels • Ion channels associated with ischemic heart diseases and stroke • Nanoparticles • Nanobiotechnology of food packaging • Nucleolar GTPases and cell proliferation • Pattern formation in cellular slime moulds • Plant developmental genetics • Recombinant Enzymes • Biofuel cells • Biorefinery **II. Biological Engineering** Industrial metabolite production • Metabolic engineering • Biopolymers • Biocompatibility • Biodegradation of polymers • Tissue engineering • Caffeine degradation • Membrane biochemistry • Plant cell bioprocessing • Phytoremediation • Biofuels • Process chromatography • Reactive species in biological systems **III. Computational Biology** Protein structure, folding and function • Protein dynamics • Computational analysis of protein folding and stability • Binding specificity of protein complexes • Green chemistry • Structure-based drug design and discovery • Comparative genomics • Computational modeling of neurodegenerative disorders • Computational systems biology • Development and analysis of databases and tools • Computational biophysics • GPGPU computing for systems biology **IV. Chemical Biology** 'Green' biocatalytic methods for organic transformations • Delivery of siRNAs • Fragment-based drug design • Novel inhibitors against HDACs and HMT • Asymmetric catalysis.	Same as for our regular Ph.D programme.
MDCE01	Civil Engineering	Building Technology & Construction Management	Master's degree in Civil, Ocean or Industrial Engg., Industrial Management or MBA after obtaining a basic degree in Civil Engineering, or in Architecture, Housing, Town & Country planning after obtaining a basic degree in Civil Engg., or Architecture with first Class.
MDCE02		Environmental and Water Resources Engineering	M.Tech or M.S. or equivalent degree in Engineering Mechanics/ Aerospace Engineering/ Agricultural Engineering/ Civil Engineering/ Environmental Engineering or M. Tech or M.S. or equivalent degree in Chemical Engineering/ Biotechnology.
MDCE03		Geotechnical Engineering	Master's degree in Civil or Ocean Engineering or Engineering Mechanics, Mining Engineers. With two years experience.
MDCE04		Structural Engineering	Master's degree in Civil, Ocean, Aerospace, Naval Architecture, Mechanical, Computer Science or in Engineering Mechanics with basic degree in Civil Engineering or Infrastructural Civil Engineering.
MDCE05		Transportation Engineering	Master's degree in Civil/ Architecture/ Town and Country Planning/ Regional Planning/ City Planning/ Urban Engineering or 2 years full time Postgraduate Diploma in Town and Country Planning with specialization in Traffic and Transportation Planning of the School of Planning and Architecture, New Delhi/ MBA after obtaining a basic degree in Civil Engineering.

Code	Department	Fields of Specialization	Minimum Qualification
MDCS01	Computer Science & Engineering	**Intelligent Systems and Human Computer Interaction:** Artificial Intelligence, Computational Brain Research, Machine, Learning, Pattern Recognition, Visualization and Perception, Information Management, Computational Biology, Data Mining, Image Processing, Digital Speech Processing, Video Processing. **Systems Engineering:** Compiler Design, Computer Architecture, Computer Networks, Cyber-Physical Systems, Distributed Systems, Hardware and NetworkSecurity, High Performance Computing and Parallelization, Object Oriented Systems, Parallel, Distributed and Cloud Computing, Programming Languages, VLSI Design. **Theoretical Computer Science:** Algorithms, Computational Complexity Theory, Cryptography.	M.Tech/ M.E./ M.S. in Computer Science & Engineering or Information Technology.
MDEE01	Electrical Engineering	Communications, Networks, Signal processing, Speech & Image Processing Information Theory.	Electronics & Communication Engineering.
MDEE02		Power Systems & Power Electronics.	Electronics & Communication Engineering, Electrical & Electronics Engineering, Instrumentation Engineering.
MDEE03		Micro Electronics & VLSI Design.	Electronics & Communication Engineering.
MDEE04		Control and Instrumentation.	Electrical and Electronics Engineering, Electronics and Communication Engineering, Control and Instrumentation Engineering.
MDEE05		Microelectronics.	B.E./ B.Tech. /M.Sc., in Electrical & Communication Engineering/ Instrumentation Engineering / Electrical & Electronics Engineering / Physics who qualify with GATE subject EE/EC/IN/PH.
MDEE06		Integrated Circuits and Systems.	Electronics & Communication Engineering, Electrical & Electronics Engineering, Instrumentation Engineering.
MDER01	Engineering Design	**Automotive Engineering**: Vehicle Dynamics, Tyre Mechanics, Mathematical Modelling of Dynamic Systems, Control, Fault, Diagnosis, Automotive Systems, Intelligent Transportation Systems. **Biomedical Design**: Medical Imaging, Biomechanical Modeling, Soft Tissue Mechanics, Bio-fluid Mechanics, Prosthetic and Scaffold Design, Biomedical Devices and Control Microwave Applications, Tissue Ablation and Hyperthermia Physics, Radiometry, Ergonomics, Rehabilitation Engineering, Bio-MEMS/NEMS, Biomedical Micro/Nano devices. **Materials and Design:** Geometric and Solid Modeling, Computational Geometry, Shape Search, Shape Optimization, Image Based Reconstruction, Solid Free Form Fabrication, Design Theory, Reliability, Fatigue and Fracture, Finite Element Analysis, Digital Image Correlation, Material Characterization, Structural Health Monitoring, Design with Smart Materials, Sustainable Manufacturing. **Robotics and Mechatronics**: Parallel Manipulators, Underwater Robots, Path Planning, System Dynamics and Control, Opto-mechatronics, Sensing.	Master's degree in Aerospace, Automobile, Biomedical, Civil, Computer Science, Electrical, Electronics, Engineering Physics, Instrumentation, Mechanical, Metallurgical, Material Science, Naval Architecture, Production / Manufacturing Engineering, or Master's degree in Design (Engineering) (M.Des.) or M.Tech. (Industrial Mathematics).

Code	Department	Fields of Specialization	Minimum Qualification
MDHS01	Humanities & Social Science	• **Economics:** Development Economics, Energy and Environmental Economics; Applied Econometrics; Industrial Economics; Microfinance; International Trade; Economics of Innovation and Technological Change; Health Care Economics and Public Policy; Financial Economics and Banking; Economics of Education/Labour Markets; Urban Water Management. • **Education and Technology Studies:** Theories of Learning; Information and Communication Technologies (ICTs) in Higher Education; Engineering Education; Engineering Ethics; Assessment and Evaluation in Higher Education; Quality Assurance. • **History:** Modern Indian History, History of Science, Technology and Medicine (since 1700s). • **Linguistics:** Language in Education; Sociolinguistics; Applied Linguistics; syntax/Morphology. • **Literature and Media Studies:** American Literature; English Literature; Eco-criticism; (American/British); Disabilty Studies; Film and Media Studies; Popular Culture; Life writing. • **Philosophy:** Phenomenology; Hermeneutics; Philosophies of Heidegger and Wittgenstein; Indian Philosophy; Philosophy of Mind; Consciousness; Analytical Philosophy; Philosophy of Language; Political Philosophy; Ethics; Professional Ethics (Engineering and Higher Education); Bioethics. • **Politics & International Relations / Political Science:** International Relations Theory; International Political Economy; Taiwan Studies; Chinese Studies; Democracy Theory and Practice. • **Sociology/ Anthropology:** Sociology of Religion; Islam; Sociology of Work and Gender; Anthropology of body; Anthropology of Technology; Gender Studies; Disability studies; Sociology of Science.	Master's degree in relevant discipline.
MDMS01	Management Studies	Consumer Behaviour, Positive Organizational Behaviour: Workplace Emotions, Ancient Indian Wisdom in Management, Creativity & Innovation, Cross-Cultural Research, Cognition in organizations, Corporate Sustainability: Responsible Business. Comparative Management Systems, Global leadership: Mindset, Potential, Practices, Work and Wellness Training & Development, Workplace teams; Career Management, Experiential Marketing, Advertising; Data Science and Analytics. Technology transfer, Innovation and Entrepreneurship, Experimentation and reinforcement learning, Competitiveness and business excellence, Public Systems; Supply chain and Logistics: Green concerns, healthcare and food sectors. Game Theoretic Models, Scheduling in manufacturing and service operations, Integrated Production, Logistics and Inventory Optimization in Supply Chain Management, Behavioural Decision Theory; Corporate Finance: Financial decision making, Venture capital and private equity, Small and medium enterprises , Infrastructure finance, Public sector finance; Real Options, Developmental Finance, Financial Markets – Capital market, Bond market, commodity market, derivatives, market microstructure, Behavioural Finance, Financial Modelling & Forecasting, Banking and risk management; E-commerce.	Post graduate degree in Sciences/ Social Sciences/ Humanities/ Commerce/ Engineering/ Technology/ Management. Above 65% (Aggregate) for Engineering, Science, Management Degree - UG (General /OBC) Above 60% (Aggregate) for Arts and Social Science Degree – UG (General/OBC) Above 55% for AMIE and other associateship - UG Above 60%(Aggregate) for Engineering, Science, Arts and Social Sciences Degree- If PG is required (General/OBC) 10% relaxation for SC/ ST/ PH candidates, 5% for OBC as per GOI rules.

Code	Department	Fields of Specialization	Minimum Qualification
MDMA01	Mathematics	Detailed information about the specialization of each faculty member is available in the Department web site.Mat.iitm.ac.in **Algebra:** Commutative Algebra, Algebraic Combinatorics, Geometry and Topology of Toric Varieties, Group Theory, , Fuzzy Algebra, Linear Algebra, Algebraic Geometry, Applications of Algebra **Analysis:** Functional Analysis, Numerical Analysis, Complex Analysis, Functional Spaces, Special Functions, Operator Equations, Inverse and III-posed Problems, Harmonic Analysis, Wavelets, Mathematical Programmeming, Game Theory, Conformal Geometry, Fixed Point Theory and Applications, Fuzzy Set Theory and Analysis, Functional Equations, Summability Theory, Spectral Approximation, Non-smooth Analysis, Optimization Theory, Sampling Theory, Approximation Theory, Control Theory,. **Applied Mathematics: Numerical PDE,** Convective Heat and Mass Transfer, Computational Fluid Dynamics, Ship Hydrodynamics, Mathematical Problems related Naval Architecture and Ocean Engineering, Mathematical Modeling, Non - linear Differential Equations. Fluid Mechanics, Bio-Fluid Mechanics, Integral and Differential Equations, Water Waves. **Applied Probability and Stochastic Process:** Applied Probability and Stochastic Processes, Operations Research, Stochastic Models, Mathematical Ecology. **Theoretical Computer Science and Discrete Mathematics:** Theoretical Computer Science, Graph Theory, Combinatorics, DNA Computing, Theory of Codes, Combinatorial Optimization, Discrete Mathematics, Formal Language, Automata Theory, Modular Computing, Approximation Algorithms.	Master's Degree in Mathematics/ Statistics/ Physics/ Computer Science or M.Tech (Industrial Mathematics & Scientific Computing).
MDMM01	Metallurgical and Materials Engineering	Metal casting, Metal forming, Metal joining, Materials Technology, Physical and Structural Metallurgy, Mechanical Metallurgy, Chemical Metallurgy, Thermodynamics of Metallurgical Systems, Powder Metallurgy, Ceramics and Composites, Corrosion, Surface Engineering, Biomaterials, Simulation and Modeling of Materials Processing, Nanostructured Materials, Magnetic Materials, Amorphous Alloys, Nonequilibrium Processing, Hydrogen Storage Materials, Smart Materials, Fuel Cells, Metallic Foams, Chemical Sensors, Carbon Nanotubes, Special Steels, Superalloys, Intermetallics, Materials for Optoelectronic Applications, Shape Memory Alloys, Fatigue and Fracture Mechanics, High Temperature Behaviour of Materials and Creep.	Master's degree in appropriate branch of Engineering/ Technology. Engineering graduates (B.Tech/BE or equivalent) and Science postgraduates (M.Sc. or equivalent) to be considered should have exceptional merit and research or industrial experience in the appropriate field.

Code	Department	Fields of Specialization	Minimum Qualification
MDME01	Mechanical Engineering	**i) Design Engineering**: Machine Elements ~ design development, analysis and performance improvements, New materials and design, composites, nano composites, bio materials, porous materials, radiation damage, surface engineering, design process, contact mechanics, tribology, tyre mechanics, biomechanics, fatigue and failure analysis, computational and experimental fracture mechanics, fatigue crack closure – environment interaction studies, alternate small specimen test methods, small crack propagation under biaxial multiaxialloading, multi crack interaction studies, fatigue damage in composites, failure mechanics of biomaterials. Non linear finite element analysis, Vibration, finite element including coupled problems, Non destructive evaluation, structural health monitoring, Materials Characterization, Measurements of Material Properties and Behavior, machinery signal processing, Condition monitoring of structures machines, machinery diagnosis, and combustion flame noise, Acoustics and Noise Control, Prosthetics and human body movement, Design optimization, constitutive modeling, MEMS, Rotor Dynamics. **(ii) Manufacturing Engineering**: Manufacturing Processes, Technologies, CAD/CAM, Manufacturing Planning and Control, Metrology and Computer Aided Inspection, Quality Control, Materials behaviour in Manufacturing, Surface Treatment, Machining Process, Condition Monitoring, Flexible Manufacturing Systems, Computer Integrated Manufacturing, Non Traditional Machining; Precision Gearing, Micro manufacturing, Friction Stir Wedding Manufacturing Methods in Precision Engineering, Surface Technology, Active Noise Control systems, Active Suspensions, Microprocessor Based System Design, Electrohydraulic Servo and Proportional Controls, Pneumatic Systems, Robot-Kinematics, Dynamics, Design and Controls, Multibody Dynamics, System Simulation, Microhydraulics, Mechatronics, Microactuators, MEMS **(iii) Thermal Engineering**: Micro-miniature and small cryogenic refrigerators, Simulation and optimization of air separation cycles, Heat Transfer in Nano-fluids, Heat Transfer in Multi-Phase Flows, Flow Structure Interaction in High Speed Turbo machinery Seals, Heat Transfer Experiments in Phase Change Material Based Composite Heat Sinks, Two Phase Flow Convection Experiments and Numerical Methods in Porous Media, Solid State Hydrogen Storage, Sorption heating and cooling systems, Desiccant/evaporative cooling and air-conditioning, Conjugate heat transfer in low and high speed flows, Retrieval of geophysical parameters in the atmosphere in the microwave and infra red regions, Turbine rotor stator interaction, Performance improvement of centrifugal compressor by tip modification, subsonic cascade studies, Contrarotating turbines/compressors, Mixed folw compressors, Turbine blade cooling, Secondary loss reduction, Cavitation in hydraulic machines, Micro-scale Flows, Microfluidics, Free Surface flows, Acoustics of Supersonic Jets, Active and Passive Control of High speed flows, Combustion noise, Emissions, Combustion, Propulsion, CFD high speed reacting flows, I.C Engine Combustion and Emissions, alternative fuels, CFD applications in I.C Engines and Gas turbine combustion chambers, fluid flow, heat transfer and combustion related to I.C Engines, advanced I.C Engine technologies such as homogeneous charge, compression ignition, gasoline direct injection, engine management (Simulation of engine processes and modeling – Combustion diagnostics in engines Heat Transfer in Fuel Cells, Fluidized Bed Combustion, Solar Power Systems, Optimization of Solar Ics Systems. Nano fluidics.	Master's degree in Mechanical Engineering, Aerospace Engineering, Automobile Engineering, Automotive Engine Tech.,Bio-Medical Engineering, Chemical Engineering, Computer Science, Electrical Engineering, Electronics, Energy Engineering, Industrial Engineering, Instrumentation, Maintenance Management, Metallurgical Engineering, Production/ Manufacturing Engineering, Agricultural Engineering and in related areas depending on the research topics.

Code	Department	Fields of Specialization	Minimum Qualification
MDOE01	Ocean Engineering	**Ocean engineering :** Wave-structure interaction, Soil-structure interaction, Hydrodynamics of fixed, floating and compliant offshore structures, Port and harbor structures, Coastal structures, coastal processes and shore protection, Subsea pipelines, risers and cables, Remote sensing and ocean optics, Ocean renewable energy - wind, wave, current and OTEC, Offshore structural engineering,- Ocean and underwater acoustics, and Ocean environment. **Marine vehicles** : Motion and stabilization, Maneuvering and controllability, Resistance, powering and propulsion systems - Design and surface development, Shipbuilding materials, structure and vibrations, under water vehicles, hydrodynamics and control, under water acoustics – under water towed systems and marine CFD.	Master's degree with good academic record and exceptional merit in Aerospace Engineering, Civil Engineering, Marine Engineering, Mechanical Engineering, Marine Structures, Naval Architecture, Ocean Engineering Or any other appropriate engineering discipline Or M.Sc. in Physics, Mathematics, Statistics or Oceanography.
MDOE02		**Petroleum engineering:** Reservoir engineering; Reservoir Simulation; Analysis of seismic data and interpretation, Artificial lift methods, Drilling engineering and drilling fluids, Enhanced oil recovery, Flow assurance technologies, Formation evaluation from well logging methods, Gas hydrate studies, Hazards identification and risk management, Petroleum geology and geophysical studies, Flow through shale gas reservoirs, CBM reservoirs, fractured carbonate reservoirs and CO_2 sequestration.	Master's degree with good academic record and exceptional merit in Chemical Engineering, Civil Engineering, Marine Engineering, Mechanical Engineering, Marine Structures, Naval Architecture, Ocean Engineering, Petroleum Engineering Or any other appropriate engineering discipline OR M.Sc. in Physics, Mathematics, Statistics, Oceanography, Geology and Geophysics.
MDPH01	Physics	Applied Optics, Quantum Optics, Photonics and nonlinear optics, Atomic and Molecular Physics, Complex fluids, Soft Condensed Matter and Biological Physics, Low temperature physics and superconductivity, Magnetism and Magnetic materials, Semiconductor Physics, Photovoltaics, Dielectric materials & Microwave Physics, Spintronix Multifunctional materials. Thin film phenomena, Metal-oxide Thin films, Nanostructured thin film and heterostructures, Low Dimensional Materials, Carbon Nanotubes and Graphene, Hydrogen Storage Materials, Dynamical systems, Statistical Physics and Field Theory, Electronic structure of Solids and Computational Material Science, Nonlinear Dynamics, Quantum Chaos, Quantum Information, Particle Physics and Experimental High Energy Physics, Gravity and Cosmology, Theoretical High Energy Physics.	M.Sc/ M.Sc (Tech) in Physics, Applied Physics, Materials Science/ M.Tech (Solid State Technology) / M.Tech. (Materials Science) M.Tech (fuctional Materials and Nano Technology)or equivalent.

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Minimum Educational Qualification:

(a) Masters degree or equivalent in respective discipline with a minimum Cumulative Grade Point Average (CGPA) of **6.00** on a 10 point scale or equivalent as determined by the Institute wherever letter grades are awarded; or 60% marks in aggregate (of all the years/semesters) where marks are awarded, for the GENERAL (UR) category.

(b) The admission eligibility requirements may be relaxed to 5.5 on a 10 point scale or equivalent, or to 55% marks to the SC/ST/PD candidates with Master's degree.

(c) Candidate supported by a sponsoring organization, the applicant having THREE years' experience out of which at least ONE year experience with the sponsoring agency at the time of submission of application for Ph.D. programme. This category refers to persons who are released from governmental or educational institutions on study leave for a period of not less than three years for pursuing Ph.D. programme.

(d) Candidate should submit sponsorship certificate and copy of appointment letter with a proof of regular / permanent teacher.

Code	Department	Fields of Specialization	Minimum Qualification
RRHR01	Hydro and Renewable Energy	Small Hydro Energy and other Renewable Energy Development.	(i) B.Tech / M.Tech or its equivalent in Civil/ Electrical/ Mechanical Industrial/ Chemical/ Environmental / Agricultural/ Computer/ Electronics Engineering. (ii) M.Sc. in disciplines consistent with research areas of the centre.
RRHR02		Environmental management of Rivers and Lakes	
RRAR01	Architecture and Planning	Architecture, Urban and rural planning, Built Environment including urban design and landscape design, Building science and architecture, Energy and architecture planning, Architectural Climatology, Ecology in relation to architecture and planning, Art in relation to architecture	(iii) Bachelors Degree in Architecture or Planning followed by Masters Degree in any specialization. (iv) Bachelors Degree in Civil Engineering followed by Masters Degree in any specialization of Planning
RRCH01	Chemical Engineering	**Transport Processes:** Transport phenomena, Fluid dynamics, Fluidization Engg., Packed beds, Slurry transport, Boilingand condensation, Mixing phenomena, Gas-liquid-solidmass transfer. Adsorption, Catalysis and Reaction Engg., Process Intensification, Membrane separation process, Flow of emulsions, Heat integrated Distillation. **Computer Aided Process Plant Design:** Modeling and simulation of Chemical processes. Analysis and optimization of chemical process systems, Heat exchanger networks. Distillation columns. Catalytic reactors and Monolithic converters, Design of chemical equipment, Applied numerical methods, Dynamics and control of chemical processes and equipment, PC-based instrumentation and control, Process Integration, CFD. **Industrial Pollution Abatement:** Environment pollution control strategies, Modeling and simulation of pollution control systems. Modeling of dispersion of air and water pollutants. Treatment methodologies for air pollution and wastewater systems, Hazardous waste management. Risk analysis & hazard management. **Energy Engineering:** Design of energy efficient equipment and Energy conservation in chemical process industries, Bioenergy and Biomass energy systems. **Biochemical Engineering and Down Stream Processing:** Biochemical Engg., Design, Simulation and control of bioreactors, Biogasification. Bioseparation.	(i) B.Tech./M.Tech. or its equivalent degree in Chemical Engineering. (ii) B.Tech./ M.Tech. or its equivalent degree in any branch of Engineering / Chemical Technology and interdisciplinary areas. (iii) M.Sc. in disciplines consistent with the research areas of the department.
RRCY01	Chemistry	Analytical; Inorganic; Organic; Physical: Asymmetric synthesis; Bioanalytical chemistry; Bioinorganic chemistry; Biophysical chemistry; Chemical biology; Chemical kinetics; Coordination chemistry; Development of low cost carbon alternatives for waste water management; Electroanalytical chemistry; Electrochemical sensors and chemical sensors; Electrochemistry; Electronic structure calculations and molecular dynamics simulations; Enantiomeric resolution of pharmaceutically important compounds; Enantioselective catalysis; Environmental chemistry; Epoxidation of olefinic compounds; Evolution and origin of life; Extraction chromatography; Extraction, separation and recovery of metal ions; Heterogeneous catalysis; Inorganic biochemistry; Kinetics and nanomaterials; Liquid chromatography; Macrocycles; Main group chemistry; Metal speciation in environment; Metal-based drugs; Materials modification; Nanomaterials for biomedical and environmental applications; Neutron activation analysis; Organic electrochemistry; Organic materials for OLED and photovoltaic applications; Organic reaction mechanism; Organic synthesis of biological interest molecules and new methodology in organic synthesis; Organometallics (Ru, Si and Sn); Photochemistry;	(i) M.Sc. or its equivalent degree in Chemistry/ Physics. (i) M.Sc. in Bio-technology or M.Sc. in Biochemistry.

		Protein sequencing; Size and shape effects of nanomaterials on their physico-chemical properties; Supramolecular chemistry; Synthesis of heterocyclic compounds; Synthetic polymers/membranes/membrane electrodes; Syntheses of porphyrinoids for material applications; Solid state and materials chemistry; Statistical mechanics of polymers; Rational drug design; Multi component synthesis; Microwave assisted organic synthesis; Theoretical chemistry.	
RRCE01	Civil Engineering	Environment Engineering - Environmental Pollution, Optimization of distribution network, water and wastewater quality assessment and treatment alternatives, Industrial wastewater treatment, air pollution modeling, abatement and control device, EIA & control water quality modeling, interdisciplinary problems.	(i) B.Tech/ M.Tech. or its equivalent degree in Civil Engineering. Candidate having an M.Tech. Degree but not having a Bachelor's degree in Engineering must have studied Mathematics at the Bachelors level. (ii) B.Tech./M.Tech. degree in any branch of Engineering may be considered for research areas consistent with the academic background and experience. (iii) M.Sc. Degree in any branch of Science or MCA (with mathematics at the Bachelors level for both M.Sc. and MCA) may also be considered for research areas in Geomatics Engineering.
RRCE02		Geotechnical Engineering – Behavior of shallow and deep foundations under static and dynamic loading, Problems of rock mechanics and Underground Space Technology, Static and Dynamic Soil Structure Interaction, Expansive soil, Reinforced earth, Ground Improvement Engineering.	
RRCE03		Hydraulics Engineering - Sediment transport & Alluvial stream dynamics. Open channel flows, Wind tunnel studies on Turbulence, Boundary layer and Drag, Ground water hydrology, Ground water flow and transport modeling, Water resources, Surface hydrology, Computational Hydraulics, Irrigation Engineering, Environmental Hydraulics.	
RRCE04		Geomatics Engineering - Surveying: Plane, Geodetic and GPS, Photogrammetry-close range, analytical and digital, Geodesy-Geometrical, Physical, Mathematical and Satellite, Remote Sensing-Optical and microwave, Hyperspectral, SAR interferometry, Digital image processing, AI soft computing Fuzzy theory, GIS, Web GIS Applications.	
RRCE05		Structural Engineering - Performance Based Design of Concrete/Metal Structures, Risk and Reliability Analysis, Nonlinear Computational Mechanics, Nano-mechanics, Soft Computing and Structural Optimization, Strength and Deformation Characteristics of Reinforced Concrete/Masonry/Structural Steel, High Rise Building Systems, Behavior of Bridge Systems, Laminated Composites and Sandwiched Structures, Thin Walled Structures, Smart Structures, Steel Concrete Composites, Concrete Mechanics, Concrete Durability, Special Concretes, Sustainable Concrete, Recycled aggregate concrete Damage Assessment and Structural Health Monitoring, Retrofit and Rehabilitation of Structures, Structures Subject to Extreme Loads (Wind, Earthquake, Impact, Blast and Fire)	
RRCE06		TransportationEngineering - Highway material characterization for pavements, Reinforced flexible pavements, modified binders, composite pavements, pavement management systems, low cost pavements, mixed traffic flow modeling and simulation, highway capacity, Environmental impact assessment, mass transportation systems analysis, Rural Urban and Regional Transport Planning, Road Traffic Safety, Intelligent Transport System, GIS applications.	
RRES01	Earth Sciences	Geology: EngineeringGeology; Environmental Geology; Geochemistryand Petrology; Geotechnical Investigation; Ore Geology; Petroleum Geology; Remote Sensing and GIS; Sedimentology; Stratigraphy and Paleontology; Structural Geology; Waste Disposal. Geophysics: Engineering Geophysics; Exploration Geophysics; Geodynamics; Seismology; Solid Earth Geophysics; Mathematical modelingand Inversion; Geoelectromagnetism.	(i) M.Sc / M.Sc. Tech / M.Tech. degree in Geology / Geophysics / Applied Geology / Applied Geophysics / Geological Technology / Geophysical Technology / Geosciences / Applied Geosciences / Petroleum Geology / Petroleum Geophysics.
RREQ01	Earthquake Engineering	Structural Dynamics: Dynamic analysis and design of structures like buildings, dams, bridges and nuclear power plants, Finite & element methods, Static and dynamic nonlinear analysis, Constitutive modeling, Computer aided analysis, Soil-Structure and fluid- structure interaction, Seismic base isolation, Seismic risk analysis, Random vibration theory and probabilistic design methods, Shake table and pseudo dynamic testing of structure and structural components, System identification, Structural response control / Performance Based Design, Seismic Vulnerability and Risk analysis. Soil Dynamics: Analytical and experimental studies on dynamic soil properties, Seismic analysis and design of foundations, Wave propagation and ground response analysis, Liquefaction studies using laboratory and field tests, numerical modeling. Nonlinear constitutive models of soils, Finite element dynamic analysis of embankment dams, Dynamic soil-structure interaction analysis, Pile and well foundations for dynamic loads, Machine foundations, Model	(i) B.Tech. / M.Tech. or its equivalent degree in Civil Engineering/ Earthquake Engineering / any branch of Engineering. (ii) M.Sc./ M.Tech. in Geophysics/ Physics/ Mathematics/ Geology for research areas in Engineering Seismology and Seismotectonics.

		studies using geotechnical centrifuge for static and dynamic loads, Dynamic earth pressure and retaining walls, Soil improvement techniques, Reinforced earth and geotextiles for seismic loads, Field exploration using SPT, Wave propagation, Block vibration, Cross bore hole and SASW tests. Engineering Seismology and Seismotectonics: Microearthquakeinvestigations, Estimation of earthquakesource parameters, Seismotectonic modeling, Attenuation characteristics, Strong motion seismology, Broadband seismology, Finite-difference method and study of local site effects, Numerical and empirical ground motion prediction, Estimation of response spectra and design spectra, Probabilistic and deterministic seismic hazard assessment, Vulnerability and Risk Assessment, Seismic microzonation, Remote sensing/GIS/SAR based studies, Pattern Recognition, Earthquake Early Warning Systems.	
RREE01	Electrical Engineering	Power electronics, Electrical drives and their control, Electrical machines analysis and computer-aided design, Power Quality, Embedded Systems, Condition Monitoring of Rotating Electrical Machines, Power Systems Stability, State Estimation, Security, Reliability, Optimization, Expert Systems, Application of neural networks andArtificial Intelligence Techniques, Distribution System Automation, Relaying, Distribution system reforms and bench marking HV engineering, Automatic Generation Control, Restructured Power Systems, Measurement techniques, Smart and intelligent transducer, process instrumentation & control, Power system instrumentation, Applications of digital signal processing, AI & ANN Techniques in Instrumentation, Biomedical Instrumentation, Analysis and modeling of bioelectrical signals and systems, Medical Signals & Image Processing, Operations research, Reliability engg., Optimal scheduling, System modeling, Simulation and analysis, Model reduction techniques, Micro processor and microcomputer based systems for measurement, Monitoring, operation and control, Robotics, Control and optimization.	(i) B.Tech./M.Tech. or its equivalent degree in Electrical Engineering. (ii) B.Tech./M.Tech. or its equivalent degree in a branch of Engineering consistent with the research areas as mentioned by the Department from time to time. (iii) M.Sc. in a discipline consistent with the research areas as mentioned by the Department from time to time.
RREC01	Electronics and Communication Engineering	Communication Systems	(i) M.E. / M.Tech. in Microelectronics/ VLSI / Microwaves / Communication Systems/ Control Systems/ Instrumentation/ Circuits & Systems or its equivalent. (ii) B.E./ B.Tech. in Electronics & Communication/ Electrical Engg. or its equivalent. (iii) M.Sc. in Physics / Instrumentation / Electronic. (iv) B.Tech. + M.Tech. in Computer Science
RREC02		RF & Microwave Engineering	
RREC03		Microelectronics and VLSI	
RRCS01	Computer Science and Engineering	Computer Science and Engineering	(i) M.Tech./M.E. in Computer Science and Engineering/ Information Technology/ Software Engineering or its equivalent. (ii) M.Tech. /M.E. in Electrical Engineering/ Electronics and Communications Engineering or its equivalent. (iii) B.Tech./B.E. in Computer Science and Engineering / Information Technology or its equivalent.
RRDM01	Centre of Excellence in Disaster Mitigation & Management	Natural/Manmade Hazards and Impact Assessment Hazard Monitoring, Prediction & Microzonation Data Processing Techniques & Models	M.Tech. (Civil, Mechanical & Industrial, Chemical, Computer Science), M.Arch. & M. Planning or its equivalent. OR M. Tech in Geological Technology, Geophysical Technology, Biotechnology or its equivalent. OR M.B.A. or M.C.A. in Computer Science or M.Sc. in Physics, Geophysics, Geology, Mathematics, Environmental Sciences (with Maths in B.Sc.), M.Tech. Bio-technology or its equivalent.
RRHS01	Humanities and Social Science	English, Economics, Psychology and Sociology	(i) M.A. or its equivalent degree. (ii) Master's degree in Science / Graduate Degree in Engineering / Technology with 60% marks (or its equivalent grade) may be considered for research areas consistent with the academic background and special interest.

RRHY01	Hydrology	Analysis of hydrological extremes, Stochastic hydrology, Reservoir operation, System analysis of water resources, Conjunctive use, Hydraulic and hydrologic routing, Hydrogeology Contaminant transport through open channels and porous media, Surface and ground water pollution assessment, Water quality modeling Remediation of aquatic systems, Water and Wastewater Treatment.	(i) Master's degree in Civil Engg./ Water Resources Development/ Hydrology. (ii) Master's degree in Agricultural Engineering/ Environmental Engg./ Instrumentation / Water use Management. (iii) M.Sc./M.Tech. in Geology/ Geophysics / Soil Science/ Forestry or natural Resources/ Chemistry/ Meteorology/ Atmospheric Physics/ Mathematics/ Nuclear Physics & Environmental Sciences. (iv) M.Sc. Hydrology with Mathematics at bachelors level.
RRMG01	Management Studies	International Marketing, Service Marketing, Marketing Management, Strategic Management, Health Care Management, Managing Non Profit Organizations, Supply Chain Management, Human Resources Management, Organizational Behavior,Knowledge Management, Financial Accountingand Management, Quality Management, Fuzzy Mathematics, Nonlinear Dynamics and Chaos, Mathematics Finance, Statistical Field Theory, Quantum Information Theory and Quantum Computing, Optimization, General Management including Indian Philosophy Vedic Values, Rural Management & Marketing, Education BusinessManagement, Management Teaching Management, Family Owned Businesses, Bottom of the Pyramid Markets & Business Opportunity Development.	(i) B.E./B.Tech. or its equivalent, M.E./ M.Tech. or its equivalent qualifications. (ii) M.Sc./M.A./M.Com. (iii) Master of Management/ M.B.A. or its equivalent.
RRMA01	Mathematics	Elasticity and Vibration, Fracture Mechanics, Fluid Mechanics, Computational Fluid Dynamics, Bio-Mathematics, Numerical Analysis, Operations Research, reliability Theory, Control Computer Applications, Image Processing, Computer Graphics, Summability Theory, Approximation Theory, Statistics, Computerized Tomography, Abstract Algebra, Applied Algebra, Cryptography, Complex Analysis, Mathematical Modeling, Robotics & Control, Symbolic Computation, Theory of Differential Equations, Special Functions.	(i) M.A./M.Sc./M.Tech. in Mathematics / Applied Mathematics / Industrial Mathematics/ Statistics/ Operation Research / Applied Operation Research / Mathematics and Computing. (ii) M. Stat or its equivalent.
RRME01	Mechanical and Industrial Engineering	Machine Design Engineering: Machine Design: Computational Mechanics, Computer Aided Design, Experimental Stress Analysis, Fracture Mechanics, Noise Control and Vibrations, Robotics and Control, Solid Mechanics, Tribology, Rotor Bearing Dynamics, Vehicle Dynamics. Machine Diagnostics, Machine Dynamics, Instrumentation & Control, Machanics of Composites, Bio-Mechanics, MEMS/NEMS, Composite and Smart Structures.	(i) B.Tech. / M.Tech. degree or its equivalent degree in Mechanical / Industrial / Production Engineering. (ii) B.Tech. / M.Tech.degree in Aerospace / Chemical / Civil / Electrical / Metallurgical Engineering may be considered for research areas consistent with the academic background and special interests
RRME02		Production and Industrial Engineering Systems: Computer Aided Process Planning, Computer Aided Manufacturing, Manufacturing Systems, Metal Casting, Machine Tools and Metal Cutting, Product Design & Development, Unconventional Machining Processes, Advanced Manufacturing, Supply Chain Management, Quality and Reliability Engineering, Processing of Composites, Surface Engineering, ARC Stability Analysis, Design of Weld Joints, Welding Metallurgy, Fracture Mechanics of Weld Joints, Weld Surfacing, Thermal Spraying.	
RRME03		Thermal Engineering: Experimental Fluid Mechanics, Micro & Nano Fluidics, Bio Fluidics, Fuel Cell, Combustion and IC Engines, Computational Fluid Dynamics, Energy Systems, Heat Transfer, Thermal Contact Couductance, Refrigeration and Air-Conditioning, Solar Energy, Turbo-Machines, Design of Thermal System, Two-Phase Flow and Heat Transfer Fire Dynamics Erosion Wear.	
RRMT01	Metallurgical and Materials Engineering	Development of Ferrous and Non ferrous Materials, Solidification and P/M Processing of Materials, Mechanical Processing of Materials, Direct reduction process, Aqueous and hot Corrosion, Nano materials and Composites. Tribology of materials, Advanced Welding Technologies and joining of dissimilar materials, Adhesive joining, Fatigue and fracture of materials, Electro Ceramics and Structural Ceramics, Energy Storage Materials, Surface modification and Coatings, Structure property correlation, Polymer technologies etc.	Candidates with Bachelors or Masters Degree B.E./ B.Tech./ M.E./ M.Tech./ equivalent) in Metallurgical Engineering, Metallurgical and Materials Engineering, Materials Science and Engineering, Ceramic Engineering, Polymer Engineering.
RRNT01	Centre of Nanotechnology	Synthesis of Nanowires/Nanocolloids/Quantum Dots, Nanocomposites & their coatings, Nanobiotechnology, Nanosurface Engineering, Modelling & Simulation, Thin Films & Nanostructures, Photochemistry & Photophysics of Nanomaterials	(i) B.E./B.Tech or M.E./ M.Tech. in Metallurgy / Chemical / Polymer / Mechanical / Biotechnology / Physics / Chemistry / Electronics / Electrical./Civil or its equivalent. (ii) M.Sc. / M.S. (Science / Engineering) (iii) B. Pharm /M. Pharm.

Code	Department	Fields of Specialization	Minimum Qualification
RRPH01	Physics	Atmospheric Physics, Atomic and Molecular, Physics, Fibre Optics and Photonics, Laser Physics, Condensed Matter Physics, Nuclear Physics, Thin Film Devices ,High Energy and Particle Physics.	(i) M.Sc. in Physics/ Applied Physics. (ii) M.Sc. in Chemistry / Mathematics / Biophysics/ Geophysics/ Computer Science, Provided Physics was a subject at B.Sc. level. (iii) B.Tech. or its equivalent in Electrical / Electronics / Chemical / Metallurgical / Engineering Physics. Candidates at Category (ii) and (iii) may be considered for research area consistent with the academic background and special interests.
RRWR01	Water Resources Development & Management	Water Resources Planning, Design, Development and Management (Hydropower, Water Supply, Flood, Control, Irrigation), Surface and Ground Water Hydrology, Environmental Impact Assessment, Water Quality Modeling, Hydraulic and Hydrologic Design Modeling,RiverEngineering, System Analysis, Interbasin Transfer, Basin Planning and Development, Irrigation Water Management, Agricultural Crop Planning, Natural Resources Management using Remote Sensing and GIS.	(i) Water Resources Dvelopment B.E. / B.Tech. / M.E. / M.Tech or its equivalent degree in Civil, Electrical, Mechanical and Agricultural Engineering. (ii) Irrigation Water Management Master's Degree in Agricultural Sciences / Social Sciences / Chemical Engineering / Biological Sciences / Environmental Sciences / Engineering / Natural Sciences with at least one paper of Mathematics at the graduate level.
RRBT01	Biotechnology	Molecular Biophysics, Genetics, Microbiology & Microbial biotechnology, Molecular biology, & Proteomics, Endocrinology, Environmental biotechnology, Plant biotechnology, Biochemical Engineering, Biochemistry protein crystallography & Bioinformatics, Virology	(i) Master's degree in any disciplines of Science. (ii) Bachelor's/ Master's degree in medical sciences, Engineering, Pharmacy, Veterinary and related disciplines. (iii) MD/MS in Ayurveda.
RRPP01	Pulp & Paper Engineering (Saharanpur Campus)	Pulp Processing, Non-wood fiber pulping, Secondary fiber pulping, Recycling, Paper Making, Paper Properties, Printing, Energy Management, Chemical Recovery, Environmental Science & Engineering, Industrial Chemistry, Pollution free bleaching, Modelling of Process Systems, Wood Chemistry, Electronics, Instrumentation and communication, Biotechnology, Nanotechnology	(i) M.Sc. /M.S. (Science/Engineering) (ii) BE/B.Tech/B.Pharm/M.E./M.Tech./ M.Pharm. in any branch of engineering or its equivalent
RRPP02	Polymer and Process Engineering (Saharanpur Campus)	Polymer Engineering, Biopolymers, Nanopolymer, Functional Polymers, processing Engineering, Tissue Engineering, Financial Management, Modelling & Simulation Performance Coatings, Process Optimization organic Metallic and Hybrid Polymer.	(i) M.Sc. /M.S./MBA (Science/ Engineering/ Management) (ii) BE / B.Tech / B.Pharm / M.E. / M.Tech. / M. Pharm in any branch of engineering or its equivalent
RRPP03	Applied Science and Engineering (Saharanpur Campus)	Degradation of materials, Microbial Corrosion, Coating, Nanomaterials, Nanoscience, Energy Storage devices, Li-battery, Super Capacitor and Fuel Cell, Fuel Cells, Theoretical Physics, Superconductivity, Nanomagnets, Materials Chemistry, Applied Mathematics, Industrial Mathematics, Optimization, Cloud Computing, English, Humanities.	(i) M.Sc./ M.S./M.A. (Science/ Engineering / Humanities) (ii) BE/B.Tech/M.E./M.Tech. in any branch of engineering or its equivalent
RRTS01	Centre for Transportation Systems (CTRANS)	Urban Transportation Policy and Research, Environmental Analysis of Transportation Systems, GPS and GIS Applications in Transportation Systems, Optimization of Public Transport Operations, Economic Appraisal of Transport Systems, Multiplier Effect, Project Management, and Inter modal Transportation	M.Tech/ M.Arch/M.Planning/ M.Des./ MBA or its equivalent degree in Civil Engineering / Mechanical Engineering / Industrial Engineering / Production Engineering / Computer Science & Engineering / Chemical Engineering / Infrastructure Systems/ Biotechnology/ Architecture/ Planning/ Urban Engineering/ Business Administration.
RRIC01	Institute Instrumentation Centre	Centre houses modern facilities for advanced materials processing and characterization. The facilities include well-established Nanoscience Lab., which consists of state of the art nanomaterials synthesis facilities (Physical vapour deposition (PVD) Technique for Nano-materials synthesis.).	M.Sc./M.Tech. in Physics, Applied Physics, Material Science, Chemistry, Electronics & Nanotechnology.

9. Indian Institute of Technology, Banaras Hindu University, Varanasi 221 005 – VN

Minimum eligibility for Ph.D. Programme in Met. Engineering. Is Master's degree in Metallurgical or an equivalent branch of Engineering with 55% marks (or equivalent grade point average) or in Chemistry, or Physics with 60% marks for Ph.D. in Mining Engineering with 55% marks (or equivalent grade point average) or M.Sc. in Geology with 60% marks.

a) Ph.D. in Engineering

Applicants with master's degree in engineering in the discipline concerned or in an allied discipline/area must have a minimum of 60% marks or 6.0 CPI (on a 10.0 point scale) at the master's degree level.

b) Ph.D. in Pharmacy

Applicants with master's degree in Pharmacy in the discipline concerned or in an allied discipline/area must have a minimum of 60% marks or 6.0 CPI (on a 10.0 point scale) at the master's degree level.

c) Ph.D in Interdisciplinary Programmes

i) Ph.D. in Systems Engineering Applicants with a bachelor's and master's degree in any branch of Engineering must have a minimum of 60% marks or 6.0 CPI (on a 10.0 point scale) at the master's degree level.

ii) Ph.D. in Industrial Management.

Applicants with bachelor's degree in any branch of engineering and master's degree in any branch of engineering/ management must have a minimum of 60% or 6.0 CPI (on a 10.0 point scale) at the master's degree level.

iii) Ph.D. in Bio-chemical Engineering/Bio-medical Engineering/Materials Science and Technology

Applicants with master's degree in the discipline concerned or in an allied discipline must have a minimum of 60% or 6.0 CPI (on a 10.0 point scale) at the master's degree level.

Code	Department	Fields of Specialization	Minimum Qualification
VNMT01	Metallurgical Engineering	Deformation and Fracture, Phase Stability, Phase Transformations, Rapid Solidification Processing Including Metallic Glasses Nano-materials Metallurgical Thermodynamics and Kinetics, Corrosion and Environmental Stability, Metal Casting Technology and Tribological Studies, Non-Ferrous Extractive Metallurgy, Ferrous Extractive Metallurgy, Process Simulation Studies, Agglomeration of Ore Fines and Utilization of Metallurgical Wastes. Extractive Metallurgy, Alloy Technology, Metals and Materials Processing.	Master Degree in Metallurgical Engineering.
VNMI01	Mining Engineering	Rock Mechanics & Ground Control, Mine Environment, Mine Planning & Design, Mining Machinery, Numerical Modeling of Mining Structures.	Master Degree in Mining Engineering.
VNCH01	Chemical Engineering	Energy, Environment, Transfer Processes.	Master Degree in Chemical Engineering, Chemistry, Bio Chemistry, Environmental Sciences, Bio Technology and Industrial Chemistry.
VNCE01	Civil Engineering	Structural Engineering, Environmental Engineering, Geotechnical Engineering, Hydraulics & Water Resource Engineering, Transportation Engineering, Geoinformatics Engineering, Engineering Geology.	Master Degree in Civil Engineering, Applied Mechanics, Chemical Engineering and Technology, Environmental Engg., Aerospace Engineering, Earth quake Engineering, Naval Architecture, Mechanical Engineering, Computer Science and Engineering Or M. Sc. In Environmental Science, Geophysics and Geology, Geoinformatics, Geomatics, Remote Sensing and GIS.
VNEE01	Electrical Engineering	Electrical Machines and Drives, Power Systems, Control Systems and Power Electronics.	Master Degree in Electrical Engineering.
VNEE02		Systems Engineering (Inter disciplinary).	Master Degree in Electrical/ Electronics/ Computer Engineering.
VNME01	Mechanical Engineering	Machine Design, Thermal & Fluids, Production Engineering.	Master Degree in Mechanical Engineering.
VNME02		Industrial Management.	Master Degree in any branch of Engineering.
VNEC01	Electronics Engineering	Microwave Engineering, Digital Techniques & Instrumentation, Microelectronics, & Communication Systems Engineering.	Master Degree in Electronics or Electrical Engineering.
VNCS01	Computer Science and Engineering	Artificial Intelligence, Image Processing, Machine Learning, Biometrics, Data Mining, Software Engineering, Parallel Computing.	Master Degree in Computer Science and Engineering.
VNMA01	Mathematical Sciences	Bio-mechanics, Digital Image Processing, Elasticity, Fluid Dynamics, Free boundary problems, Functional Analysis, Fuzzy Mathematics, Mathematical Modelling, Operations Research, Pseudo differential operators, Theory of Rings and Modules, Wavelets and distributions.	Master Degree in Mathematics.

Code	Department	Fields of Specialization	Minimum Qualification
VNBM01	Biomedical Engineering.	Artificial Intelligence, Bioinstrumentation, Biomaterials, Biomedical Signal and Image Processing, Biomechanics, Composites, Mathematical Modelling of Biological Systems, Neuro Physiology, Stress and Patho-Physiology, Tissue Engineering and Biomicrofludics, Molecular Biology and Nanotechnology.	Master Degree in Bio Engineering/ Electrical Engineering/ Electronics Engineering/ Instrumentation Engineering/ Mechanical Engineering/ Computer Engineering/ Material Science and Technology/ Chemical Engineering/ Biotechnology or M.Sc. In Physics/ Chemistry/ Polymer Sciences/ Biochemistry.
VNBC01	Biochemical Engineering	To be announced at the time of Interview.	Masters degree in Biochemistry/ Bio-Technology/ Biochemical Engineering/ Pharmacy/ Microbiology/ Environmental Science or in Chemistry with specialization in Biochemistry or Physical Chemistry.
VNMS01	Material Science & Technology	Material Science & Technology related current areas.	Master's Degree in Chemical Sciences, Material Science and Physical Sciences, Ceramic/ Chemical Engineering/ Electrical/ Civil/ Electronics/ Polymer/ Plastic Technology/ Materials Technology/ Nanotechnology/ Metallurgical Engineering/ Dentistry/ Orthopedics / ENT/ Rasshastra.
VNPH01	Physics	Solar Physics, Space & Planetary Physics, Astrophysics, Condensed Matter Physics (Theory & Experiment), Biophysics, Fiber optics, Photonics, Remote Sensing, Materials Science, Quantum information, Renewable Energy.	M.Sc./ M.Tech. in Applied Physics, Engineering Physics, Bio-Physics, Electronics Engg., Materials Science, Ceramic Engg., Metallurgical Engg., Electrical Engg., Bio-Informatics, Geomatics and Geoinformatics, Computer Science, Computer Engg., Mechanical Engg., Mathematics, Chemistry, Remote Sensing, Astrophysics, Space Physics, Applied Optics, Atmospheric Physics, Fibre Optics & Photonics.
VNCY01	Chemistry	Synthetic Chemistry, Environmental Chemistry, Surface Chemistry, Computational Chemistry.	M.Sc/M.Tech. in Chemistry/ Industrial Chemistry/ Applied Chemistry/ Biochemistry/ Biotechnology/Medicinal Chemistry/Materials Science & Technology/Environmental Science and Nano Technology with chemistry as a subject at Bachelor Level.
VNCM01	Ceramic Engineering	Bio-Ceramics, Ceramic/Metal/Polymer matrix composites, Electro Ceramics, Glass and Glass Ceramics, Refractories, Advanced Ceramics, Nano Technology, Cement & Concrete Technology, Energy Materials.	Bachelors / Master's degree in any branch of Engineering. Master's degree in Chemistry/ Applied Chemistry/ Physics/ Applied Physics/ Geology or Geophysics (with Mathematics as a subject at Bachelor's Degree level). Master's degree in Modern Medicine / Indian Medicine (for the areas related to Bioceramics) B.Tech./M.Tech in Ceramic Engineering/with some background of ceramics.

10. Alagappa Chettiar Government College of Engineering and Technology Karaikudi, Tamilnadu - 630 003 – AC

Code	Department	Fields of Specialization	Minimum Qualification
ACCE01	Civil Engineering	Structural Engineering, Transportation Engineering, Environmental Engineering, Biological Treatment of waste water, Air-Pollution monitoring and control, Physical-Chemical Treatment of waste water.	M.Tech/ ME in Civil Engineering.
ACEE01	Electrical and Electronics Engineering	Power Electronics & Drives, Power Systems, Renewable Energy, Fractional Order Systems, Communication, Image Processing, Computer Networks, Optimization Techniques.	M.E/ M.Tech in Electrical & Electronics Engineering, Electronics & Instrumentation.
ACEE02		Optical Communication, Non linear optics, Visible light communication.	M.Tech/ M.E. in Electronics & Communication Engineering.
ACME01	Mechanical Engineering	Material Science, Composites, Robotics, Advanced Machining, CAD, Surface Engineering, Machining Optimization, Solar Power Engineering, Green Engineering, Corrosion Engineering, Laser –welding.	M.Tech in Mechanical/ Automobile/ Industrial & Production Engineering.

11. Anna University, Chennai 600 025 – AU

A minimum of 55% of marks/CGPA of 5.5 on a 10 point scale in Master's degree in Engineering/Technology. In case of SC/ST candidates, 50% marks or CGPA of 5.0 on a 10 point scale in the respective Master's degree. Candidates will be selected based on written test.

Code	Depatment	Fields of Specialization
Alagappa College of Technology Campus (A. C. Tech. Campus), Anna University, Guindy, Chennai- 25		
AUCH01	Chemical Engineering	Petroleum Refining and Petrochemicals, Ceramic Technology, Chemical Engineering, Polymer Science and Engineering.
AULT01	Leather Technology	Leather technology, Footwear Science & Engineering.
AUTX01	Textile Technology	Textile Technology, Apparel Technology.
AUBT01	Bio-Technology	Biotechnology, Computational Biology, Nano Science and Technology, Food Technology, Bio-Pharmaceutical Technology.
College of Engineering, Guindy, Chennai- 25		
AUCE01	Civil Engineering	Environmental Engineering, Structural Engineering, Hydrology and Water Resources Engineering, Construction Engineering and Management, Irrigation Water Management, Urban Engineering, Remote Sensing, Soil Mechanics and Foundation Engineering, Integrated Water Resources Management, Transportation Engineering, Environmental Management, Environmental Science, Remote Sensing and Geomatics.
AUEE01	Electrical Engineering	Power Systems Engineering, Control and Instrumentation, Power Electronics and Drives, High Voltage Engineering, Electronics Engineering, Instrumentation Engineering, Power Engineering and Management, Embedded System Technologies.
AUIC01	Information & Communication Engineering	Optical Communication, Medical Electronics, Applied Electronics, Communication Systems, Laser and Electro Optical Engineering, Computer Science & Engineering, Software Engineering, Bio Medical Engineering, System Engineering and Operation Research, Computer Science Engineering(Specialization in Big Data and Analytics), Multimedia Technology, Information Technology, Master of Computer Application.
AUME01	Mechanical Engineering	Internal Combustion Engineering, Refrigeration and Air-conditioning, Energy Engineering, Engineering Design, CAD/CAM, Product Design and Development, Mechatronics, Automobile Engineering, CAD, Solar Energy, Manufacturing Systems Management, Printing and Packing Technology, Computer Integrated Manufacturing, Industrial Engineering, Quality Engineering and Management.
School of Architecture and Planning, Guindy, Chennai - 25		
AUAR01	Architecture and Planning	Architecture, Digital, Landscape, Plan.
Madras Institute of Technology Campus, Chennai - 44		
AUAE01	Aerospace Engineering	Aircraft Structures, Aerodynamics, Propulsion.
AUAU01	Automobile Engineering	Alternate fuels, IC combustion, Simulation of Engine, Vehicle Dynamics, Automotive Chassis.
AUEC01	Electronics Engineering	Networking, Communication, VLSI, Embedded, Electronics, Avionics, Signal and Image Processing.
AUIN01	Instrumentation Engineering	Process Modeling and Control, Fault diagnosis, VLSI, Biomedical Instrumentation, Transducers and Measurement.
AUPT01	Production Technology	Manufacturing Processes, Metrology, Mechatronics, Metallurgy Manufacturing Management, Robotics, Automation, Production.

12. Basaveshwar Engineering College, Bagalkot 587 103 – BA

Code	Department	Fields of Specialization	Minimum Qualification
BACE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Environmental Engineering, Hydraulics and Water Resources Engineering	M.E./ M.Tech. in Civil Engineering.
BAME01	Mechanical Engineering	Material Science & Metallurgy, Deign and Dynamics, Thermal Engineering & Tribology.	M.Tech in Mechanical/ Automobile/ Industrial & Production Engineering.
BAEE01	Electrical Engineering	Power Systems, Renewable Energy Systems, Smart Grid/ Micro Grids, Energy Conservation, Energy Audit, Demand Side Management, Power Electronics & Drives, Signal Processing.	M.E/ M.Tech in Electrical & Electronics Engg. Electronics & Communication Engineering Electronics and Instru-mentation.
BAEC01	Electronics & Communication Engineering	Speech Processing, MEMS, Computer Communication & Networking.	M.E./ M.Tech in E&E/ E&C/ Telecommunications/ Instrumentation & Technology.
BACS01	Computer Science & Engineering	Image Processing, Wireless Networks Pattern recognition.	M.Tech/ M.E CSE, CN, CE, & ECE.

13. BMS College of Engineering, Bangaluru 560 019 – BS

Code	Department	Fields of Specialization	Minimum Qualification
BSCE01	Civil Engineering	Structural masonry, New generation concrete, Alternative building materials and technology, Remote sensing and GIS, Water resource management, Pavement material and evaluation, Environmental Engineering, Fracture behavior of concrete, Soil stabilization, Ground improvement techniques	M. Tech.
BSEE01	Electrical Engineering	Power engineering, power distribution, Power electronics and drives. Material research on semiconductor devices, H.V Engineering & Liquid Insulation Diagnostics., Smart Sensors & Nanotechnology, Power Electronics & Renewable Energy and solar cells.	M. Tech.
BSME01	Mechanical Engineering	Structural dynamics, Tribology, Solid mechanics, Composite materials, Structural health monitoring, Smart materials and structures, Optimization, Nontraditional machining, Design engineering, Powder Metallurgy, Contact Mechanics, Fretting Mechanics, Fatigue of Materials & FEM, Conventional / Unconventional Machining, Advanced Materials Heat Transfer, Heat Pipes, Fluid Mechanics, Maintenance Engineering, Robotics, Materials and Mathematical Modelling.	M. Tech.
BSIE01	Industrial Engineering & Management	ERP and Ergonomics, Quality and reliability, Maintenance engineering, Production process, Facility planning.	M. Tech.
BSEC01	Electronic & Communication Engineering	Nonlinear control strategies, Embedded system Design, signal processing, Power electronics, Image Processing and pattern classification. Low power electronics, Wireless Communication, Wireless Sensor Networks, Synthesis and characterization of semiconductor alloys for various applications, Automotive Electronics.	M. Tech.

14. Coimbatore Institute of Technology, Coimbatore 641 014 – CC (Addendum)

Code	Department	Fields of Specialization	Minimum Qualification
CCCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Water Resources Engineering, Environmental Engineering, Remote Sensing & GIS, Construction Management.	M.E./M.Tech. degree in relevant fields of Engineering
CCME01	Mechanical Engineering	Welding Technology, Advanced Manufacturing Technology, Heat Power Engineering, Nano materials, Energy Engineering, Computational Fluid Dynamics.	
CCEE01	Electrical & Electronics Engineering	Power Systems, Power Electronics & Drives, Control Systems, Embedded Systems, Analog and Digital Electronics.	
CCCH01	Chemical Engineering	Chemical Engineering, Process Control, Nano Technology, Membrane Technology, Environmental Engineering, Bio Technology.	

15. College of Engineering Trivandrum, Engineering College P.O., Thiruvananthapuram 695 016 – CT

Code	Department	Fields of Specialization	Minimum Qualification
CTCE01	Civil Engineering	Geotechnical Engineering, Geoenvironmental engineering, Geosynthetics, Soil structure interaction, Soil dynamics and Ground Improvement. Structural Engineering, Composites, Steel Concrete Composites, Special Concrete, Engineered Cementacious Concrete, Functionally Graded Materials, Seismic Studies and Metal structures, Hydraulics Engineering, Costal Zone Management, Flood Management and Water Management, Climate and Flow, Modelling, Experimental Hydraulics and Harbour Engineering ,Transportation Engineering, Urban Transportation Planning, Traffic and Pavement Engineering, Sustainable, Transportation Environmental Engineering, Waste Management, Landfill Liners, Air and Water Quality, Environmental Microbiology,, Environmental Biotechnology and Environmental Biochemistry.	M.Tech./ M.E. degree in relevant field of Engineering with a minimum CGPA of 6.5 for general candidates and 5.5 for SC/ST. The institute is affiliated to Dr APJ Abdul Kalam Technological University. Visit the university's web site (www.ktu.edu.in) for detailed information on qualification criteria.
CTME01	Mechanical Engineering	Fluid Mechanics, Microfluidics, Heat Transfer, Thermodynamics and Combustion, Computational Fluid Dynamics, Supersonic Flows, Thermal Engineering, Refrigeration and Air conditioning, Energy Management, Alternate Energy Sources and Fuels, Machine Dynamics, Condition Monitoring, Vibration, Fluid Structure Interaction, Smart/Intelligent Structures, Vibration, Machine Design, Non-linear FEM, System Modeling and Simulation, System Dynamics, Optimization Techniques, Operations Management, Supply Chain Management, Financial Engineering, Ergonomics, Data Analytics, Tribology, Wear and Lubrication. Advanced Manufacturing & Automation.	
CTEE01	Electrical Engineering	Power Systems, Electrical Machines, Control Systems, Guidance & Navigational Control, Power Electronics & Drives. E-mobility, Robotics & Automation, Smart Grid, Micro-grid, Renewable Energy Systems.	
CTEC01	Electronics & Communication Engineering	Radio Frequency Engineering, Speech and Music Signal Processing, Image and Video Processing, Computer Vision, Computational haptics, Computer Graphics, Optical Communication, Computer Communication, Wireless Communication, Sensor networks, VLSI Circuits, Embedded Systems, MEMS, Instrumentation Engineering, Power Electronics and Drives, Pattern Recognition, Machine Learning, Deep Learning, IoT, Network Security.	

16. College of Engineering, Pune 411 005 – CP*

Code	Department	FieldsofSpecialization	Minimum Qualification
CPCE01	CivilEngineering	Construction Management, Geotechnical Engineering, Soil Liquefaction, Pavement Engineering, Ground Improvement, Laboratory and Field, Practices in Foundation Engineering, Soil, Structure Interaction; Structural Engineering, Water Resources Engineering, Town and Country Planning.	Master's degree in Civil Construction Management, Geotechnical Engineering, Structural Engineering, Water Resources Engineering, Town and Country Planning.
CPME01	MechanicalEngineering	Heat Transfer, Fluid Mechanics, I C Engines, Solar Energy, Automobile Technology, Refrigeration, air conditioning, energy management.Vibration and Acoustics, Tribology, Industrial Engineering, Micro Machining.	Master degree in Mechanical/ Automobile/ Industrial/ Production Engineering & allied specializations.

Code	Department	FieldsofSpecialization	Minimum Qualification
CPPE01	Production Engineering	Non-Traditional Machining, Machining, Machine Tools and Metal Cutting, Micro Machining, Casting, Welding and Forming Processes, Tool Design, Rapid Prototyping and Tooling, Modeling and Simulation of Manufacturing Processes, Manufacturing Automation and Control, Ergonomics, Intelligent Manufacturing, Cellular Manufacturing,additive manufacturing, Dimensional Tolerance Technology, CAD/CAM, Finite Element Analysis, Features Based Modeling, Computer Aided Process Planning, Intelligent Product Design and Manufacturing CIMS, Product Lifecycle Management, Quality Engineering, Planning, Scheduling, Queuing, Management of Operations, Advanced Manufacturing, Materials Processing and Heat Treatment, Metal Forming, Structural Ceramics Composite Materials, Metal Matrix Composites, Tribology of Advanced materials, Surface Engineering, Magnetic Materials, Electromagnetic Materials and Processing, Ferroelectric Ceramics, Electronics Materials, System Reliability Assessment, Maintenance Management, Machine Diagnostic and Condition Monitoring, Reliability and Design, Reliability Simulation, Machinery Fault Diagnosis, Terotechnology, Maintenance Engineering & Management, Risk and Safety Assessment, Software Reliability, Enterprise Resource Planning (ERP).	Master degree in Production/ Mechanical/ Auto mobile/ Industrial Engineering and allied specializations.
CPEE01	ElectricalEngineering	• Electrical Machines:- Permanent Magnet Machines, Linear Machines and Special Purpose Machines. • Power Electronics:- Topologies, Applications to Drives and Power System (FACTS/HVDC), Power Quality and Super Capacitors, renewable interconnection, Electric vehicles • Control System:- Sliding Mode Control, Robust Control and Modeling of Large System. • Power System:- Computation, Economics, Numerical Protection, WAMs, PMUs Technology, SMART Grid, Micro-Grid and Transients. Demand side managements, distribution	Master's degree in Electrical Engineering.
CPEC01	Electronic & Telecommunication Engineering	Image Processing and Pattern Recognition, Machine Vision Systems, Next Generation Networks, VLSI Architecture, Development for Signal Processing and Communication Applications, Information Security, Using Water Marking, Image Analysis for Medical/Document/ Agro Based Products/ Microstructure/ Metallographic/ Satellite Images, Speech and Audio Processing, Synthesis and Coding.	Master's degree in Electronics/ Electronics & Telecommunication Engineering.
CPCS01	Computer Engineering	Computer Networks, Information Security, Formal Methods and Verification, Bioinformatics, Machine Learning, Distributed Computing, Biometric Watermarking, Parallel Computing, Data Mining, Cloud Computing, IT enabled Business Transformations and Software Engineering.	Master's degree in Computer Engineering/ Information Technology/ Computer Science & Engineering/ any other Specialization of Computer Science & Engineering or Information Technology.
CPIN01	Instrumentation and Control	Process Control, Biomedical Instrumentation, Control System Power Converters, Agricultural Instrumentation, Sensors/ Transducers, Clinical Diagnosis/ Predictions.	Master's degree in Instrumentation/ Electrical/ Biomedical/ Electronics/ Computer/ Chemical Engg.
CPMT01	Metallurgy & Materials Science	Physical Metallurgy, Process Metallurgy, Casting, Welding, Metal Working, Corrosion and Surface Modification, Heat Treatment, Cryogenic Treatment, Power Metallurgy, Ceramics, Polymers, Composite Materials; MMC, Nano Composites, Polymer Based Composites, Iron and Steel Making. Laser Materials Processing, Laser Assisted 3D Printing, joining, deformation and machining' in the Metallurgy part.	Master's degree in Metallurgy, Materials Science, Mechanical Production Engineering.

*The College of Engineering Pune is affiliated to Pune University. As per the university rules, the candidate seeking admission to Ph.D course has to qualify in the entrance examination of Paper-1 and Paper-II of the University of Pune and then he/she will be eligible for selection through interview for Ph.D admission.However the candidate is exempted from qualifying entrance examination in Paper-I and Paper-II of Pune University if the candidate fulfills the following criteria: **(a)**Candidates having a GATE score, **(b)**Candidates who are having minimum five years of approved teaching experience

17. College of Technology & Engineering, Maharana Pratap University of Agriculture and Technology, Udaipur - 313 001, Rajasthan – CA

Code	Department	Fields of Specialization	Minimum Qualification
CAEE01	Electrical Engineering	Efficient power converters & drives Deregulation of Power system **& reliability of power equipments** Solar & Wind Power converters	M.E./M.Tech. (Electrical Engg).
CAFM01	Farm Machinery & Power Engineering	Farm Machinery & Power Ergonomics Tillage & Traction	ME/ M.Tech (Ag. Engg.) in FMP
CAPF01	Processing & Food Engineering	Drying & Dehydration of Horticultural Produce Value addition of Agricultural Produce Spice Processing	M.E./M.Tech. (Ag. Engg.) in PFE
CASW01	Soil & Water Engineering	Soil Water Engineering & Watershed Management Irrigation Water Management Command Area Studies	ME/ M.Tech. (Ag. Engg.) in SWC/ IWM; ME/ M.Tech.in Water Resources Engg./ Irrigation Engg. Note: At least one degree i.e. B.Tech./ B.E. or M.Tech./ M.E. must be in Ag. Engg. Discipline.
CARE01	Renewable Energy Engineering	Solar Energy Bio-energy Solid Waste Management	ME/ M.Tech. (Ag. Engg.) in Renewable Energy

18. Delhi Technological University, Delhi – DD

Code	Department	Fields of Specialization	Minimum Qualification
DDCE01	Civil Engineering	Structural Engineering, Concrete Technology, Cementitious Materials, Prestressed Concrete, Tall Structures and Rehabilitation of Structures, Geotechnical Engineering, Rock Mechanics, Soil Mechanics, Geo Environment Engineering, Water Resources Engineering, Hyper Spectral, Microwave and LIDAR Remote Sensing, Pavement Engineering.	Master degree in engineering/ Technology/ Sciences in respective discipline or equivalent with a minimum 60% marks in aggregate (of all the years/Semesters) or equivalent cumulative Grade point Average (CGPA) as determined by the Delhi Technological University and at least 60% marks in aggregate (of all the years/Semester) or equivalent CGPA at Bachelor's degree level shall be eligible to apply for admission to a Ph.D. programme of the University provided he should not have attained an age of 50 yrs. The relaxation in age limit may be done by Academic Council on case to case basis. In exceptional cases applicant with Bachelors degree in Engineering & Technology having minimum 75% marks in aggregate (of all semesters) or Equivalent CGPA and having proven research capability may also be considered eligible.
DDME01	Mechanical Engineering	Turbo Machinery, Fluid Mechanics, CFD, Power Plant Engineering, I.C. Engines, Industrial Engineering & Supply Chain Mgmt, Solar Energy, Bio Fuels, Power Plant, Robotics, CAD/ANN, GA & Welding Production Engineering, Machine Design, System Dynamics, Structural Vibration, Modeling & Simulation, Turbo Machine Refrigeration and Airconditioning, Computational Fluid Dynamics, Production Engineering, Solar Energy, CAM/Automation, Industrial Engineering & Refrigeration, Advanced Manufacturing Process, Human Factor Engineering, Automobile Engineering, Machine Design, Industrial Management Quality Engineering.	Master degree in engineering/ Technology/Sciences in respective discipline or equivalent with a minimum 60% marks in aggregate (of all the years/Semesters) or equivalent cumulative Grade point Average (CGPA) as determined by the Delhi Technological University and at least 60% marks in aggregate (of all the years/Semester) or equivalent CGPA at Bachelor's degree level shall be eligible to apply for admission to a Ph.D. programme of the University provided he should not have attained an age of 50 yrs. The relaxation in age limit may be done by Academic Council on case to case basis. In exceptional cases applicant with Bachelors degree in Engineering & Technology having minimum 75% marks in aggregate (of all semesters) or Equivalent CGPA and having proven research

Code	Department	Fields of Specialization	Minimum Qualification
			capability may also be considered eligible.
DDEE01	Electrical Engineering	Power system Optimization, AI Techniques, Modeling & Analysis of Electrical Machines, Power Electronics & Drives Intelligent control of non linear systems, FACTS, SSR, voltage stability, power Quality Improvement, Grid Integration, Micro Grid, smart Grid, BPL Analog Signal processing (Linear & Non Linear), Power system & control, system Engineering, Power system Analysis, Intelligent control Power electronics, renewable energy, HVDC, Power Quality, power system restructuring, AI in Electricity market forecasting, Wind Energy forecasting Embedded System, Information security, design of power supply, Electric traction systems, Analog Signal Processing Energy Conversion and microgrid.	Master degree in Engineering/ Technology/ Sciences in respective discipline or equivalent with a minimum 60% marks in aggregate (of all the years/Semesters) or equivalent cumulative Grade point Average (CGPA) as determined by the Delhi Technological University and at least 60% marks in aggregate (of all the years/Semester) or equivalent CGPA at Bachelor's degree level shall be eligible to apply for admission to a Ph.D. programme of the University provided he should not have attained an age of 50 yrs. The relaxation in age limit may be done by Academic Council on case to case basis. In exceptional cases applicant with Bachelors degree in Engineering & Technology having minimum 75% marks in aggregate (of all semesters) or Equivalent CGPA and having proven research capability may also be considered eligible.
DDPS01	Polymer Science & Chemical Technology	Chemistry including synthetic organic chemistry, Bio inorganic chemistry, Bio organic chemistry, cheminformatics; Medicinal Chemistry; including gene delivery applications, Bio Materials, Drug Delivery systems; Polymer Science including fiber Technology, Conducting Polymers/composites / hydrogels: Chemical Engineering including Reaction engineering, Mulitphase reactor systems and design, Pollution abatement technology and gene; Advance materials development, Separation Processes, Transport Phenomena, Pharmacetuicals Sciences, Food Science**.**	Master degree in Engineering/ Technology/ Sciences in respective discipline or equivalent with a minimum 60% marks in aggregate (of all the years/Semesters) or equivalent cumulative Grade point Average (CGPA) as determined by the Delhi Technological University and at least 60% marks in aggregate (of all the years/Semester) or equivalent CGPA at Bachelor's degree level shall be eligible to apply for admission to a Ph.D. programme of the University provided he should not have attained an age of 50 yrs. The relaxation in age limit may be done by Academic Council on case to case basis. In exceptional cases applicant with Bachelors degree in Engineering & Technology having minimum 75% marks in aggregate (of all semesters) or Equivalent CGPA and having proven research capability may also be considered eligible.

19. Giani Zail Singh Campus College of Engineering & Technology, Bathinda (Punjab) - 151 001 – GZ

Code	Department	Fields of Specialization	Minimum Qualification
GZME01	Mechanical Engineering	Investment Casting welding, Supply Chain Management, Rapid Prototyping FDM, Additive Manufacturing, CNC Machining, Supply Chain Design and Optimization, Heat Transfer and Fluid Flow.	M.Tech./ M.E. in Mechanical Engineering/ Production Engineering/ Industrial Engineering/ Production and Industrial Engineering.
GZEC01	Electronics & Communication Engineering	Soft Computing, Real time systems, Multiprocessor scheduling, Communication system, Wireless Communication, Antennas and Soft Cam-piling, Electric Power Dispatch Studies, Frequency linked pricing in deregulated power sector.	M. Tech/ M.E. Electronics/ Electronics & Communication Engineering
GZCE01	Civil Engineering	Transportation Engineering, Structural Engineering, Environmental & Structural Engineering.	M.Tech./ M.E. Structural Engineering, Transportation Engg., Environmental Engineering or in relevant discipline
GZTX01	Textile Engineering	Textile Technology, Yarn Production Technology, Technical Textile, Textile Engineering, Clothing Comfort, Fiber and Yarn Manufacturing, Textile mechanics textile comfort, Textile product design, Experimental design and statistical analysis.	M.Tech./ M.E. in the relevant discipline.
GZCS01	Computer Science & Engineering	Natural language processing, Digital image processing, Networks, Software Engineering, Software System, Computer network, Mobile Adhoc Networks, ANT Colony, Optimization routing, Integrated and differentiated services Congestion.	M.Tech./ M.E. in the relevant discipline.
GZEE01	Electrical Engineering	Control System, Measurement and Instrumentation, Power System.	M.Tech./ M.E. in the relevant discipline.

20. Government College of Engineering, Amravati (Maharashtra) - 444 604 – AM

Code	Department	Fields of Specialization	Minimum Qualification
AMEE01	Electrical Engineering	Power System Operation and Control, Power System Protection and Stability, Deregulation, Electrical Network, Congestion Management, FACTs and Power re-routing, Application of Optimization and AI Techniques to Power System, Power Electronics, Distributed Generation.	M.E./M.Tech or equivalent degree in relevant branch **And** As per the affiliating University norms. i.e Sant Gadge Baba Amravati University.
AMME01	Mechanical Engineering	Thermal Engineering, Production Engineering.	M.E./ M.Tech or equivalent degree in relevant branch **And** As per the affiliating University norms. i.e Sant Gadge Baba Amravati University.
AMCE01	Civil Engineering	**Geotechnical Engineering:** Foundations, Earth and Earth Retaining Structures, Ground Improvement Techniques, Geoenvironment Engineering, Earthquake Geotechnical Engineering.	M.E./ M.Tech. or equivalent degree in relevant branch **And** As per the affiliating University norms. i.e Sant Gadge Baba Amravati University.
		Water resources and Environment Engineering: Open Channel Flows, Urban Water Distribution Systems, Environmental Hydraulics, Water Quality Modeling, Hydraulics, Water Quality Modeling, Hydraulic Structures.	
		Structure Engineering: Structure Mechanics, FEM Techniques, RC and Prestressed concrete, Masonry Structures, Structure Dynamics, Non-Linear and Stochastic Dynamical Systems, Earthquake Engineering, Structural safety, Fracture Mechanics of Concrete, Materials in Civil Engineering, Structural Health Monitoring.	

21. Govt. College of Engineering, Aurangabad 431 005 – GA (Addendum)

Code	Department	Fields of Specialization	Minimum Qualification
GACE01	Civil Engineering	Water Resources Engineering, Environmental Engineering, Transportation Engineering, Structural Engineering, Earthquake Engineering, Advanced Concrete Technology and Structural Analysis, Fracture Mechanics, FEA of structures, Ferrocement Structures, Concrete Technology Design of RCC/ Steel Structures, GIS and Remote sensing applications in Water Resource Engineering, Climate change studies.	As per the norms of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Maharashtra). ***1.www.bamu.ac.in 2.http://bamua.digitaluniversity.ac***
GAEE01	Electrical Engineering	Applications of Power Electronics, Electrical Drive, Renewable Energy Systems, Special Machines, Electrical Power System.	
GAEC01	Electronics & Telecommunication Engineering	Signal and Image Processing, Communication Engineering, Pattern Recognition, ANN.	As per the norms of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Maharashtra). ***1.www.bamu.ac.in 2.http://bamua.digitaluniversity.ac***

22. Govt. Engineering College, Thrissur 680 009– GK

Code	Department	Fields of Specialization	Minimum Qualification
GKCE01	Civil Engineering	Hydraulics & Water resources Engineering, Environmental Engineering.	Masters in Technology/ Engineering Degree in the relevant field.
GKME01	Mechanical Engineering	Fracture Mechanics, Structural Mechanics, Computational Mechanics, Finite Element Analysis, Stress Analysis, Manufacturing Technology, Computational Fluid Dynamics, I C Engines, Energy- Exergy analysis, solar energy, Fuel Cells, Tribology & Tribology.	
GKEE01	Electrical Engineering	Power Electronics & Drives, Power Quality, Power Systems, Energy Management, High Voltage, Image Processing in Biomedical Applications/Control Systems, Soft Computing & Applications.	

23. Govt. College of Engineering, Salem – 636 011 – GC

Code	Department	Fields of Specialization	Minimum Qualification
GCCE01	Civil Engineering	Structural Engineering Environmental Engineering.	M.E./M.Tech. First Class or M.S.(by research) in the relevant branch of Engineering.
GCME01	Mechanical Engineering	Mobile Robotics, Nano Coating/Nano Fluids, Composite Material Characterization, Alternate Refrigerants, Engine Research with Biofuels, Micro Machining, Design/Thermal Engineering.	ME/M.Tech. First Class or M.S.(by research) in the relevant branch of Engineering.
GCEE01	Electrical Engineering	Electrical and Electronics Engineering including power systems Engineering, High Voltage Engineering, Power Electronics and Drives, Embedded control Systems, Control and Instrumentation, Embedded System Technologies.	ME/M.Tech. First Class or M.S.(by research) in the relevant branch of Engineering.

24. Guru Nanak Dev Engineering College, Ludhiana – 141 006 - GN

Code	Department	Fields of Specialization
GNCE01	Civil Engineering	1. Structure Engineering 2. Geo-Technical Engineering 3. Transportation Engineering 4. .Computer Aided Design.
GNME01	Mechanical Engineering	1. Thermal Engineering 2. Industrial Engineering 3. Production Engineering.
GNEE01	Electrical Engineering	1. Power Systems Operation and Control 2. Restructuring of Power System 3. Reliability and Maintenance Engineering

25. Harcourt Butler Technological Institute, Kanpur (Uttar Pradesh) - 208 002 – HK

Code	Department	Fields of Specialization	Minimum Qualification
HKCE01	Civil Engineering	Structural Engineering, Water Resources Engineering, Environmental Engineering, Transportation Engineering.	Master's degree in Civil Engineering with First division or equivalent.
HKME01	Mechanical Engineering	Thermal Engineering, Manufacturing Technology, Design Engineering.	Master's degree in Mechanical Engineering with First division or equivalent.
HKEC01	Electronics Engineering	Optical Network, Optical Communication	M.Tech. Electronics Engineering with First division or equivalent.
		Digital Signal Processing, Digital Signal Processors, Computer Arithmetic, VLSI Design	M.Tech. Electronics Engineering/ Electronics & Communication/ Electronics & Instrumentation/ Electrical & Electronics with First division or equivalent.
		Wireless Communication	M.Tech. Electronics Engineering/ Electronics & Communication/ Electronics & Instrumentation/ electrical & Electronics with First division or equivalent.
HKCH01	Chemical Engineering	Catalysis & Kinetics	M.Tech. Chemical Engineering with First Division or equivalent.
		Emulsion Polymerization	
		Petroleum	
		Environmental Engineering	

26. Indian Institute of Engineering Science and Technology, Shibpur- (*Formerly Bengal Engineering and Science University, Shibpur*) - BE

Code	Department	Fields of Specialization	Minimum Qualification
BECE01	Civil Engineering	Structural Engineering. & Concrete Technology, Soil Mechanics & Foundation Engineering, Water resource Engineering, Environment Engineering, Highway and Traffic Engineering etc.	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEEE01	Electrical Engineering	Power Systems, Electrical Machines, Control Systems, Power Electronics & Drives	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEME01	Mechanical Engineering	Machine Design, Heat Power Engineering, Production Engineering.	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEMI01	Mining Engineering	GSI/GPS/Remote Sensing, Occupational Health & Safety, Coal bed methane & Carbon sequestration, Mine Environment, Mineral Dressing.	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEAE01	Aerospace Engineering & Applied Mechanics	Bio-Mechanics, Soil Structure, Robotics, Fluid Mechanics/ Hydraulics, Computational Mechanic, Earthquake Engineering and Structural Dynamics.	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEIT01	Information Technology	Systems Architecture Design and Test, Theory and Applications of Cellular Automata, Digital Image Watermarking and Signal Processing, Digital Geometry and Mobile Communication, Sensor Network.	Post Graduate Degree in the relevant field in Engineering or equivalent.
BEMT01	Metallurgy and Materials Engineering	Nano Materials, High Strength Steel, Phase Transformation, Diffusion Bonding, Neural Network, Tribology.	Post Graduate Degree in the relevant field in Engineering or equivalent.

27. Indian Institute of Technology (Indian School of Mines), Dhanbad 826 004 – IS

The eligibility for Ph.D Programmes is 1st class or equivalent in post-graduate degree.

Code	Department	Fields of Specialization	Minimum Qualification
ISMI01	Mining Engineering	Coal Mining, Metalliferrous Mining, Mine Planning & Design, Mine Systems Engineering, Rock Mechanics, Rock Excavation Engineering, Mine Environment, Open Cast Mining, Mine Surveying, Mine and Mineral Economics, Mine Management, Surface Environment, Marine Mining, Mine Safety Engineering.	Master's Degree in Mining Engineering.
ISME01	Mechanical Engineering	Mechanical Engineering.	M.E./ M.Tech degree with specialization in Mechanical/ Production/ Manufacturing/ Industrial Production/ CAD-CAM/ Machine Design/ Mechatronics/ Thermal/ Heat Power/ Energy/ Power Plant/ Automobile/ Maintenance Engineering & Tribology **with** B.E./ B.Tech or equivalent degree in Mechanical/ Production/ Manufacturing/ Aerospace/ Energy Engineering.
ISCE01	Civil Engineering	Civil Engineering.	M.Tech/ M.E. in Civil Engineering **with** B.Tech/ B.E. in Civil Engineering/ Env. Engineering having specialization in their M.Tech/ M.E. as Structural/ Geotechnical/ Water Resources/ Environmental/ Transportation Engineering/ Remote Sensing & GIS/ Env. Science & Engineering.
ISEE01	Electrical & Electronics Engineering	Electrical & Electronics Engineering.	M.Tech or equivalent in Electrical Engineering/ Control System Engineering/ Power System Engineering/ Electrical Machines/ Power Electronics and Drives/ High Voltage Engineering/ Instrumentation Engineering/ Power Apparatus & Devices / Electronics **with** B.Tech or equivalent in Electrical/ Electrical & Electronics Engineering.
ISEC01	Electronics & Communication Engineering	Electronics & Communication Engineering.	M.Tech/ M.E./ MS in Electronics/ Electronics & Communication/ Electronics & Tele-communication/ Electronics & Instrumentation/ Instrumentation/ Electronics & Electrical Engineering or related field **with** B.Tech/ B.E. or equivalent degree in Electronics/ Electronics & Communication/ Electronics & Tele-communication/ Electronics & Instrumentation/ Instrumentation/ Electronics & Electrical Engineering.
ISCS01	Computer Science & Engineering	Computer Science & Engineering.	M.Tech or equivalent in Computer Science & Engineering/ Information Technology/ Computer Application/ Software Engineering/ Electronics Engineering/ Electronics and Communication Engineering/ Electrical Engineering **with** B.Tech. or equivalent in Computer Science & Engineering/ Information Technology/ Electronics Engineering/ Electronics and Communication Engineering/ Electrical Engineering.

28. Indira Gandhi Institute of Technology, Sarang, (Odisha) - 759 146 - IO

Code	Department	Fields of Specialization	Minimum Qualification
IOCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Transportation Engineering.	First Division or 60% marks in B. Tech in Civil Engineering & M. Tech. in relevant field.
IOME01	Mechanical Engineering	Machine Design, Production Engineering, Thermal Engineering.	First Division or 60% marks in B. Tech in Mechanical Engg. & M.Tech. in relevant field.
IOEE01	Electrical Engineering	M/c Drives & Power Electronics, Power Systems Engineering, Signal & Image Processing.	First Division or 60% marks in B. Tech in Electrical Engg OR in Electrical & Electronics Engineering (EEE) & M. Tech. in relevant field.

29. Jadavpur University, Kolkata 700 032 – JU

Eligibility for candidates of SC/ST/PD to Ph.D degree programme (Engineering. /Tech./Arch./Pharm.) of Jadavpur University is at least "Pass Class" marks in Master's Degree in Engineering./Tech./Pharm./Arch. or equivalent.

Code	Department	Fields of Specialization	Minimum Qualification
JUEE01	Electrical Engineering	**Control Systems:** Control and guidance, Knowledge-base systems, Artificial Intelligence, Software Engineering, Stochastic Processes, Distributed Computer Control Theory, Motion Control and Power Conditioning.	Master's degree in Electrical Engineering.
JUEE02		**Electrical Machines:** System Optimization, Optimal Design of Electrical Machines, Synchronous Machines Stability, Electrical Drives, Wind Energy.	
JUEE03	Electrical Engineering	**Electrical Measurements:** Digital and Microprocessor-based Instrumentation, Biomedical Instrumentation, Digital Signal Processing, Process Instrumentation, Fiber Optic Instrumentation.	Master's degree in Electrical Engineering.
JUEE04		**High Voltage Engineering:** High Voltage Laboratory Techniques, Field Analysis and Computation, Discharge Phenomena in Gas, Liquid and Solid and Solid Media, Dielectric Engineering, Surge Analysis.	
JUEE05		**Power Systems:** Computer-Aided Power System Analysis Microprocessor Applications, Power Electronics, Power Systems Protection, Power System Control.	
JUEC01	Electronics & Telecommunication Engineering	**Communication Engineering:** Digital Communication, Data Compression, Image Processing, Fiber Optic Communication, Analog and Digital Mixed Signal Circuits and Systems.	Master's degree in Electrical Engineering & Telecommunication Engineering
JUEC02		**Computer Engineering:** Programme Semantics, Compiler, Operating System, Computer Architecture, Artificial Intelligence, Pattern Recognition, Neural Networks.	
JUEC03		**Control Engineering:** Digital Control, Robotics, Adaptive and Optimal Control, Fuzzy Control.	
JUEC04		**Electronic Devices:** Photovoltaic Energy Conversion, Power Semiconductor Devices, Semiconductor Device Modeling, Electrical Conduction and Related Phenomena in Semiconductors and Superconductors, Microelectronics Technology, Nano Crystalline Materials and Devices, EDA, Sensors, MENS, VLSI Circuit Design and Implementation.	
JUEC05		**Microwave Engineering:** Microwave and Millimeter Wave Antenna Theory and Technique, MicrostripComponents, Antennas and Arrays, Electromagnetic Interference and Compatibility, Electrostatic Charging and Discharging.	
JUME01	Mechanical Engineering	Applied Mechanics.	Master's degree In Mechanical Engineering with at least 60% marks (and also in the preceding degree)
JUME02		Heat Power Engineering.	
JUME03		Fluid and Hydraulic Engineering (incl. Water Resources).	
JUME04		Production Engineering.	
JUME05		Machine Design (including Bioengineering).	

Code	Department	Fields of Specialization	Minimum Qualification
JUPE01	Production Engineering	**Production Technology:** Machine tools and Metal cutting, Non-tradition machining, Advanced material machining, CAD/CAM, Robotics, Tribology, Computer integrated manufacturing, Flexible automation, Precision engineering, Micro machining, Ergonomics, Designing for production, Manufacturing systems simulation.	Master's degree in any branch of Engineering/ Technology.
JUPE02		**Production Management:** Operations Management, Quantitative Management, Terotechnology, Reliability, Behavioral science, Enterprise resource planning (ERP), Supply chain management (SCM), Quality Engineering, Waste management.	

30. Jamia Millia Islamia University, New Delhi -110 025 – JM

Code	Department	Fields of Specialization	Minimum Qualification
JMEE01	Electrical Engineering	• Power Systems, • Machines, Drives and Power Electronics, • Control and Instrumentation, • Electronics Communication and Computer Technology.	Minimum 55% in M. Tech. in allied specialization of Electrical Engineering after B. Tech./ B.E. **or** Minimum 55% in M. Tech. in allied specialization of Electrical Engineering after M. Sc.

31. Kamla Nehru Institute of Technology, Sultanpur (Uttar Pradesh) - 228 118 - KS

Candidate should have M Tech Degree in the appropriate branch of study (as given in the last column) with first class or minimum 60% marks (CGPA 6.5/10). For SC/ST/PD candidates 50% minimum marks or CGPA of 5.5/10.

Code	Department	Fields of Specialization	Minimum Qualification
KSEE01	Electrical Engineering	Power Systems, Power Electronics and Drives, Control Systems, Distributed Generations, Power Quality, AI applications in Power Systems and Control Systems, Transmission System and FACTS.	M.Tech. degree in Electrical Engineering (Power Systems/ Power Electronics/ Electric Drives/ Control and Instrumentation).

32. Madan Mohan Malaviya University of Technology Gorakhpur - 273 010 (Uttar Pradesh) MM

The minimum requirement is 60% or equivalent CPI (for SC/ST 55% or equivalent CPI) at qualifying degree.

Code	Department	Fields of Specialization
MMCE01	Civil Engineering	**Geotechnical and Geo-Environmental Engineering** Ground Characterization. Ground Improvement. Solid Waste Management. Innovative Foundations. Physical Modeling. **Hydraulics and Water Resources Engineering** Fluvial Hydraulics. Local Scour. Scour and Scour Counter Measures. Hydraulics Structures. River Training & Protection Works. **Environmental Engineering** Air Pollution. Noise Pollution. Effluent Treatment Process and Modeling. Water Characterization Water and Waste water treatment. Environmental impact Assessment and Management. **Remote Sensing and Engineering Survey** GIS and Its Application. GPS and Its Application. Remote Sensing/Geospatial Engg. **Structures** Concrete Structures. Steel Structures. **Transportation Engineering** Highway Engg. Airport Engineering.
MMEE01	Electrical Engineering	Bio-instrumentation/Bio-Medical Signal Processing, Power Electronics, Electrical Machines and Drives, Power System Analysis, Restructuring and FACTS Devices, Advance Control, Process Control and Instrumentation.
MMME01	Mechanical Engineering	**Production & Industrial Engineering** Metal Cutting, Advanced Manufacturing Technology, CAD/CAM.CIM, Automation, Robotics, Quality Management, Inventory Management, Supply Chain Management Operations Research, Modeling and Simulation, System Dynamics, Material Science. **Design Engineering** Design Engineering: Stress-strain Analysis, Mathematical Modeling, CAD, and Optimization. Mechanical Vibration.
MMEC01	Electronics & Communication Engineering	**Communication and Signal Processing** Wireless Communication. Data Communication. Microwave Engg. Optical Communication. Signal Processing & Coding Theory. **Integrated Electronics & Circuits** VLSI Design. Analog & Digital Circuits Design. Microelectronics. Device Modeling. **Electronic System and Instrumentation** Embedded System Design. Electronic Instrumentation. Microprocessor based Applications. Artificial Neural Network and Fuzzy logic.

33. Madhav Institute of Technology & Science, Gwalior – 474 005 – MG

Code	Department	Fields of Specialization	Minimum Qualification
MGCE01	Civil Engineering	Water Resources Engineering; Construction Technology & Management; Structural Engineering; Environmental Hydraulics.	M.E./ M.Tech. or Equivalent degree in Civil Engineering with at least 60% marks or equivalent grade (55% marks or equivalent grade for SC/ST candidates).
MGEE01	Electrical Engineering	Power systems; Biomedical Signal Processing; Application of AI & Soft Computing Techniques for Electrical Engineering; Condition Based monitoring of Electrical Machines, Control Engg., Renewable Energy; Nature inspired optimization, Economic Load Dispatch, Optimal Power Flow, Reactive Power Dispatch, Distributed Generation FACTS Controllers.	M.E./M.Tech in Electrical Engineering, Electronics & Instrumentation, Electronics Engg, Electrical & Electronics and Biomedical Engg. with at least 60% marks or equivalent grade (55% marks or equivalent grade for SC/ST candidates)
MGCS01	Computer Science & Engineering	Data Mining & Warehousing; Image Processing & Retrieval Techniques; Networking	M.E./M.Tech in Computer Science & Engineering or Information Technology or any other Specialization of Computer Science & Engineering and Information Technology with at least 60% marks or equivalent grade (55% marks or equivalent grade for SC/ST candidates)
MGME01	Mechanical Engineering	Vibration & Noise Control; Design Engineering; Maintenance Engineering Tribology; Condition Monitoring; Industrial Engineering; Supply Chain Management; Production Engineering; Material Handling; Non-Conventional Energy System; Solar Energy, Heat Transfer; PV Technology; Green House Technologies; Thermal Engineering, FEA, Fracture Mechanics, Composite Material FGM.	M.E./M.Tech. in the relevant discipline with at least 60% marks or equivalent grade (55% marks or equivalent grade for SC/ST candidates).
MGAR01	Architecture	Environmental Planning; Urban Design; Urban Planning; Urban Development, Energy Systems; Construction Management/ Project, Architecture, Interior Environment, Landscape Architecture and Conservation Energy & Sustainability, Facility Management.	M.Arch., M.Planning, M.E. or M.Tech. (Civil), with B.Arch/ Planning (Master in any Architecture, Planning & Construction Technology related subject) with at least 60% marks or equivalent grade (55% marks or equivalent grade for SC/ST candidates).

34. Malaviya National Institute of Technology, Jaipur - 302 017 - MJ

The minimum eligibility criteria for admission to Ph.D. is that at PG level the candidate should have secured a minimum CGPA of 6.5 on the 10 point scale (60% marks, only where CGPA is not awarded) with a relaxation for SC/ST implying minimum of 6.0 on the 10 point scale (55% marks, only where CGPA is not awarded) in qualifying degree.

Code	Department	Fields of Specialization	Minimum Qualification
MJCE01	Civil Engineering	All specialization relevant to Civil Engineering field.	M.E./ M.Tech. degree in relevant engineering discipline.
MJCH01	Chemical Engineering	Environmental Engg., Advanced Process Control, Colloid And Interface Science, Advanced Separation Processes, Wastewater Treatment, Heat Transfer, Polymer, Modelling And Simulation, Chemical Reaction Engineering, Oil/ Fat Processing, Bioprocess Engineering, Membrane Separation, Biofuels, Novel Separation Techniques, Industrial Pollution Abatement, Biotechnology, Fluid Particle Mechanics, Adsorption, Thermodynamics, Colloid And Interface Science, Composite Materials, Soft Matter, Thin films, Finite Element Method, Artificial Intelligence And Applications To Intelligent Control, Optimizations & Systems Applications, Solid Waste Management, Petroleum Refinery Engineering, Transport Phenomena, Computational method for linear/non-linear problems, Polymer Process Modeling, Piping Engineering, Numerical Modelling, Computational Fluid Dynamics (CFD),Process Intensification, Advanced Oxidation Technique, Cavitation, Sonochemistry.	B.Tech./ M.Tech. or equivalent degree in Chemical Engineering, B.Tech./ M.Tech. or equivalent degree in any branch of Engineering/Chemical Technology and interdisciplinary areas.

Code	Department	Fields of Specialization	Minimum Qualification
MJEE01	Electrical Engineering	Power Electronics and Drives, Application of power electronic converters for Wind and PV system, Design and applications of switched mode power supplies, Energy management scheme for hybrid autonomous microgrid, Power quality improvement in power converters, Voltage stability, FACTS devices, and power system operation and control, AI Applications To Power System, Electricity Markets, Power Systems Restructuring, Smart Grid , Power System Planning, Risk Management in Power System, Renewable Energy, Computational Intelligence in Power System, Demand response, Distribution system assets optimization, Integration of Microgrids and distributed generations, Optimal PMUs placement, Real-time optimal operation of distribution networks, Control of Discrete-time systems, Design of Observers for linear systems, Issues relating Deregulated & Restructured Power Systems, Real Time Visualization of Power Systems using WAMS, Application of AI techniques for Power System Operation and Control, Distributed Generation Placement and Integration Issues. Machine Learning, Robotics, Data Analytics.	M.E./ M.Tech. or equivalent degree in respective and relevant Engineering disciplines.
MJME01	Mechanical Engineering	Industrial Engineering, Design Engineering, Production Engineering and Thermal Engineering.	The applicant must have Master's degree in any discipline of Mechanical Engineering (Industrial Engg., Design Engg., Production Engg. and Thermal Engg.) with CGPA not below 6.5 on a ten point scale or 60% marks (Where CGPA is not awarded).
MJMT01	Metallurgical & Materials Engineering	Metallurgical & Materials Engineering.	B.E./ B.Tech degree in Metallurgical/ Materials/ Mechanical/ Chemical/ Ceramic Engineering/ Nanotechnology (Engineering materials) with M.E./ M.Tech degree in Metallurgical/ Materials/ Ceramic Engineering/ Nanotechnology (Engineering materials).Nanotechnology (Engg. Materials) students should have Physics, Chemistry, and Mathematics at 12th and B.Sc. level.
MJEC01	Electronic & Communication Engineering	Communications, VLSI, MEMS, Embedded System, Microwave Engineering, Optical Communication System.	B.Tech. and M.Tech. Electrical/ Electronics/ Computer/ Communication/ Telecommunication/ Instrumentation/ Control/ Microelectronics or equivalent discipline consistent with research areas of department.
MJCS01	Computer Engineering	Language and Compilers, computer Architecture, Deep Learning, Embedded System, Computer Communication, Real Time Systems, Parallel and Distributed Processing, Software Engineering, Software Testing, Intelligent Systems, Security and Forensics, Big Data, Cloud Computing, IoT (Internet of Things), Ad hoc Networks, Video Processing, Video Surveillance, Underwater Image and Video Processing, Image Processing, Biometrics, Machine Vision, Computing, NOC, Wireless Networks, Database, Natural Language Processing, Information Retrieval, Data Mining, Information Security, Multicore Architecture, Malware Analysis, Embedded Systems and latest thrust areas in computer and communication.	B.Tech. and M.Tech in computer Science and Engineering/ Computer Engineering/ Computer Science/ Information Technology/ Communication and Computer Engineering/ Information and Communication Technology/ Electronics/ Communication/ Telecommunication/ Control/ Microelectronics or equivalent discipline consistent with research areas of department.
MJCE01	Centre for Energy and Environment Engineering	Water/ Waste water/ industrial waste water treatment, energy efficiency in building, solar PV, solar thermal, wind energy, bioenergy, smart grid, environmental impact assessment, energy management, smart city planning, smart buildings, energy storage, energy policy.	B.E./ B.Tech./ B.Arch. and M.E./ M.Tech./ M.Arch./ M.Plan. in relevant disciplines.

Code	Department	Fields of Specialization	Minimum Qualification
MJMS01	Management Studies	Corporate Finance, Behavioral Finance, Technology Adoption, Behavior in Digital Environments, Sustainable Consumption.	The applicant must have the MBA with preferable Engineering background/ M.Tech./ M.Plan. with CGPA not below 6.5 on a ten point scale or 60% marks (where CGPA is not awarded).
MJAR01	Architecture and Planning	All specialization relevant to Architecture and Planning.	1. Masters degree or equivalent in Architecture/Planning/other relevant discipline. 2. B.Arch./B.Plan.
MJDM01	National Centre for Disaster Mitigation and Management	Earthquake Engineering and/ or Structural Engineering.	UG degree in Civil Engineering. PG degree specialization in Earthquake Engineering and/or Structural Engineering.

35. Motilal Nehru National Institute of Technology, Allahabad 211 004 – MN

The minimum requirement is 60% or equivalent CPI (for SC/ST 55% or equivalent CPI) at qualifying degree.

Code	Department	Fields of Specialization	Minimum Qualification
MNAM01	Applied Mechanics	Solid Mechanics, Computational Mechanics, Composite and Smart Structures, Stability and Dynamics of Structures, Advanced Materials, Stealth Materials, Materials Science and Engineering, Fatigue and Fracture, Mechanical Behaviour of Materials, Vehicle Crashworthiness, Low Energy Impact, Ballistic Impact and Blast Loading, Robotics and Mechanisms, Fluid Mechanics and Machines, Multiphase Flow, Computational Fluid Dynamics, Biomechanics, MEMS, Sound and Acoustics, etc. Solid Mechanics, Computational Mechanics, Composite and Smart Structures, Stability and Dynamics of Structures, Advanced Materials, Stealth Materials, Materials Science and Engineering, Fatigue and Fracture, Mechanical Behaviour of Materials, Vehicle Crashworthiness, Low Energy Impact, Ballistic Impact and Blast Loading, Robotics and Mechanisms, Fluid Mechanics and Machines, Multiphase Flow, Computational Fluid Dynamics, Biomechanics, MEMS, Sound and Acoustics, etc.	M.Tech or Equivalent degree Mechanical Engineering, Civil Engineering, Metallurgical Engineering, Production Engineering, Ceramics, Materials Enfineering, Textile Engineering, Ocean Engineering, Naval Architecture, Marine Structure, Materials Science, Applied Mechanics, Fluid Engineering, Aeronautical Engineering, Chemical Engineering, Marine Engineering, Biomedical Engineering, M.Sc of equivalent degree in Physics/ Mathematics with 60% marks (55% or Equivalent for SC/ST candidates).
MNBT01	Biotechnology	Molecular Biology, Microbiology, Environmental Biotechnology, Agricultural Biotechnology, Immunology and Bioprocess development.	M.Tech (biotechnology), Bioinformatics and Biochemical Engineering, or M.Se. in Biotechnology or M.Se. in Applied Biological Science Such as Microbiology, Biochemistry, Genetics, Molecular Biology, Pharmacy and Biophysics.
MNCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Environmental Engineering, Transportation Engineering, GIS, Environmental Geotechnical, Remote Sensing, Water Resource Engineering, Construction Management.	M.Tech or Equivalent degree in Aeronautical Engineering, Architectural Engineering, Civil Chemical Engineering, M.Sc. Environmental Science or Equivalent. With 60% marks (55% or Equivalent for SC/ST candidates).
MNCS01	Computer Science & Engineering	Data Base, Software Engineering, Mobile Computing, Parallel Computing, Computer Architecture, Computer Algorithmic, Data Mining, Knowledge Based System, Real Time System, Distributed Computing.	M.Tech or Equivalent degree in Computer Science & Engineering, Software Engineering, Information Technology, Electrical Engineering, Electronics Engineering and Communication Engineering. With 60% marks (55% or Equivalent for SC/ST candidates).
MNEE01	Electrical Engineering	Control Systems and Mathematical Modeling, Nonlinear Systems, Model Reduction, Fuzzy Logic, Neural Networks, Al in Power Systems, Wireless Sensor Networks, Transmission Systems & FACTs, Power Electronics, Distribution Systems and Custom Power Devise, Distributed Generation & Control, Power Quality Modem, Electric Drives, Instrumentation Systems, Bio-medical Instrumentation, Virtual Instrumentation, Power Systems Protection.	M.Tech or Equivalent degree in Electrical Engineering, Electronics and Communication Engineering and Electronics Electrical Engineering, Electronics Engineering and Communication Engineering. With 60% marks (55% or Equivalent for SC/ST candidates).

Code	Department	Fields of Specialization	Minimum Qualification
MNEC01	Electronics & Communication Engineering	Data Communication and Networking, Optical Communication, Digital Signal Processing, Image Processing, Mobile and ATM Networks, Analog and Digital Circuits.	M.Tech or Equivalent degree in Electrical Engineering, Electronics and Communication Engineering and Electronics Electrical Engineering, Electronics Engineering and Communication Engineering With 60% marks (55% or Equivalent for SC/ST candidates).
MNME01	Mechanical Engineering	Thermal Sciences (Heat Transfer, Energy Conversion, Refrigeration and Air-conditioning), Turbo machines, CAD/ CAM/ FMS, Fatigue and Fracture Mechanics, Unconventional Manufacturing Processes, Metal Cutting. Metal Forming, Noise and Vib rations, Industrial Engineering Rapid Prototyping and Reverse Engineering, Knowledge Management.	M.Tech or Equivalent degree in Mechanical, Aeronautical, Automobile, Chemical, Production, Metallurgical Engineering, Industrial Engineering. With 60% marks (55% or Equivalent for SC/ST candidates).
MNCH01	Chemical Engineering	Separation Process, Heat Transfer, Mass Transfer, Chemical Reaction Engineering, Modeling and Simulation, CFD, Energy Conversion.	M.Tech or Equivalent degree in Chemical Engineering, Petroleum Studies, Environment, Biotechnology. With 60% marks (55% or Equivalent for SC/ST candidates).
MNCY01	Chemistry	Organic – Metallic Material Chemistry, Polymer Chemistry, Environmental Chemistry, Nano Technology, Nano Chemistry, Bio-Inorganic, Photo-Chemistry, Drug Delivery, Co-ordination Chemistry.	M.Sc. in Chemistry/ Applied Chemistry With 60% marks (55% or Equivalent for SC/ST candidates) For interdisciplinary Field of Research Master degree in any Discipline of Science with 60% marks B.Tech 75% marks (70% or Equivalent for SC/ST candidates).
MNHS01	Humanities and Social Science	Commonwealth Literature, Psychology, Organizational Behavior, Social Psychology, Entrepreneurship, British /literature, American Literature, English Language Speaking and Human Recourses Management, Rural Economics, Allied Social Science, Accounting and Financial Management.	M.A in English or Psychology/ MBA/MSW With 60% aggregate marks or Equivalent CPI (55% or Equivalent for SC/ST Candidates).
MNPH01	Physics	Condensed Matter Physical/ Solid State Physics, Solid State Gas Sensors, Carrier Transport in Thin Films, Interface States Studies in Semiconductor Device, Characterization of Material, Nonlinear Dynamics, Spectroscopy of Nano- Materials and CNTs, Quantum Chemistry & Bio- Physics, Magnetic Material, Solar Photovoltaic's.	M.Sc. in Physics/ M.Tech in appropriate branch of Engineering or With 60% aggregate marks or Equivalent CPI (55% or Equivalent CPI for SC/ST Candidates).
MNMG01	School of Management Studies	Marketing, Human Resource, Finance, Systems Management, Strategic Management, Operations Management, Operations Management, International Business.	Master Degree in Management/ Technology/ Engineering/ Economics/ Commerce/ Science/ Computer Applications/ Social Science with minimum of 60% marks or equivalent (55% or Equivalent for SC/ST candidates) or Bachelor degree in Engineering with a minimum of 75% marks or equivalent CPI (70% or equivalent for SC/ST candidates).
MNGI01	GIS Cell	Geoinformatics (Core and Application)	M.Tech or equivalent in GIS & Remote Sensing/ Civil Engineering/ Computer Science & Engineering/ Information Technology/ Agricultural Engineering/ Mining Engineering or M.Sc. degree in GIS & Remote Sensing/ Applied Geology/ Geophysical/ Geography/ Environmental Science/ Computer Science or degree in Master of Computer Application. With 60% marks (55% or Equivalent for SC/ST candidates).

Where the eligibility qualification is Master's degree in Science or Commerce or Economics or English or any Subject of Humanities or Life Science or Management qualifying NET is must for getting Institute fellowship as per Letter ***F.No. 25-2/2010-TS.II, dated 30.09.2010*** and subsequent modification which may be issued by MHRD from time-to-time.

Important Note:

- Only deserving candidates with B.Tech/MCA or equivalent degree with 75% aggregate marks or equivalent (70% or equivalent for SC/ST candidates), may be considered for admission to Ph.D. programmes as mentioned above.
- Number of seats in each department will depend upon the availability of Supervisor in the department.
- Preference will be given to SC/ST candidates otherwise found eligible.

36. National Institute of Foundry and Forge Technology, Hatia, Ranchi – 834 003 - NF

Code	Department	Fields of Specialization	Minimum Qualification
NFME01	Manufacturing Engineering	Machining Science, Metal Forming, Mechanical behaviour of metals, Computational Metrology, CAD/CAM, Reliability and safety Engg, Mechanical Design, Welding Technology, Industrial Engg, Quality Control, Additive Manufacturing, Mechanical system design.	M.Tech./ M.E./ M.Sc Engineering in Manufacturing Engineering, Manufacturing Science, Production Engineering, Industrial Engineering, Mechanical Engineering, Mechanical Design, Welding Technology, CAD/CAM.
NFMT01	Metallurgical and Materials Engineering	Physical Metallurgy, Extractive Metallurgy, Composite materials, Nano Materials, Welding Metallurgy, Mechanical Metallurgy, Surface Engineering, Corrosion Engineering, Powder Metallurgy, Solidification.	M.E./ M.Tech or its Equivalent from recognized institute/ university in Metallurgy & Materials Engineering, Mechanical, Production, Manufacturing Engineering and allied disciplines with a least 6.5 CGPA (or 60% marks) in aggregate.

37. National Institute of Technology, Agartala (Tripura) – 799 046 - NA

Code	Department	Fields of Specialization	Minimum Qualification
NAME01	Mechanical Engineering	Thermal Science & Engineering Manufacturing Science & Engineering Machine Design Automotive Engineering.	Master's Degree in Engineering/ Technology or equivalent in an appropriate area with a minimum CGPA of 6.5 out of 10 or equivalent (60% of marks) **Or** Bachelor's degree in Engineering/ Technology with an excellent academic record and with CGPA of at least 9.0 out of 10 (85% of Marks). Candidates must have valid GATE score.
NAEC01	Electronic & Communication Engineering	VLSI Communication Engineering.	Master's Degree in Engineering/ Technology or equivalent in an appropriate area with a minimum CGPA of 6.5 out of 10 or equivalent (60% of marks) **Or** Bachelor's degree in Engineering/ Technology with an excellent academic record and with CGPA of at least 9.0 out of 10 (85% of Marks). Candidates must have valid GATE score.
NAEE01	Electrical Engineering	Power System Engineering Power Electronics & Drives Instrumentation Integrated Energy System Non Linear Optics.	Master's Degree in Engineering/ Technology or equivalent in an appropriate area with a minimum CGPA of 6.5 out of 10 or equivalent (60% of marks) **Or** Bachelor's degree in Engineering/ Technology with an excellent academic record and with CGPA of at least 9.0 out of 10 (85% of Marks). Candidates must have valid GATE score.
NAPE01	Production Engineering	Welding Foundry and Metal Casting, Application of Soft Computing Technique Metal Forming and Foundry Composite Material I C Engine Alternative Fuel Multi –criteria Decision Making Adv. Fluidics Case Based Reasoning	Master's Degree in Engineering/ Technology or equivalent in an appropriate area with a minimum CGPA of 6.5 out of 10 or equivalent (60% of marks). **Or** Bachelor's degree in Engineering / Technology with an excellent academic record and with CGPA of at least 9.0 out of 10 (85% of Marks). Candidates must have valid GATE score.
NACE01	Civil Engineering	Structural Engineering Transportation Engineering Geotechnical Engineering Environmental Engineering Water Resource Engineering	Master's Degree in Engineering/ Technology or equivalent in an appropriate area with a minimum CGPA of 6.5 out of 10 or equivalent (60% of marks). **Or** Bachelor's degree in Engineering / Technology with an excellent academic record and with CGPA of at least 9.0 out of 10 (85% of Marks). Candidates must have valid GATE score.

38. National Institute of Technology Calicut, Calicut 673 601 – CL

M.Tech. Degree in Engineering/Technology in the appropriate branch of study with first class or minimum 60% marks (CGPA 6.5/10) in aggregate of all semesters [For SC/ST candidates, the minimum mark is 55% (CGPA 6.0/10)].
Candidates shall be required to have passed the **four-year regular full time** B.E./B.Tech. Degree in an appropriate branch with minimum 60% marks (CGPA 6.5/10) in aggregate in the qualifying examination. [For SC/ST candidates 55% marks (CGPA 6.0/10)].
Candidates under lateral entry should have passed the three year diploma in engineering with minimum 60% marks [For SC/ST candidates 55% marks (CGPA 6.0/10)].

Code	Department	Fields of Specialization	Minimum Qualification
CLCE01	Civil Engineering	Structural Engineering;	Structural Engineering.
		Offshore Structures.	Offshore Structures/ Structural Engineering/ Ocean Engineering/ Coastal Engineering.
		Traffic & Transportation Planning.	Transportation Engineering/ Highway Engineering/ Traffic & Transportation Planning/Urban Engineering.
		Geotechnical Engineering.	Geotechnical Engineering/ Environmental Geotechnology.
		Water Resources Engineering.	Water Resources Engineering/ Environmental Geotechnology.
		Environmental Engineering.	Environmental Engineering/ Environmental Geotechnology.
		Building Sciences.	Building Technology/ Construction Engineering/ Construction and Management/Structural Engineering.
		Town Planning.	Town Planning /Urban Design/Architecture.
CLEE01	Electrical Engineering	Instrumentation and Control Systems.	Electrical Engineering/ Power Systems/ Energy Systems/ Energetic/ Industrial Power/ Industrial Power & Automation/ Power Electronics/ Power Electronics& Drives/ Control Systems/ Instrumentation and Control Systems/ Instrumentation Engineering/ Applied Electronics and Instrumentation/ Biomedical Engineering/ Computer Controlled Industrial Power/ Avionics Engineering/ Guidance and Navigation Control/ High Voltage Engineering/ Control and Automation.
		Power and Energy Systems.	
		Power Electronics & Machines.	
		Industrial Power & Automation.	
		Biomedical Instrumentation and Signal Processing.	
		High Voltage Engineering.	
CLEC01	Electronics and Communication Engineering	Speech/Audio/Image/Video Processing Signal Theory Compressed Sensing/Sparse Signal Processing Multi-rate Signal Processing and Filter banks Biomedical Signal Processing Machine Learning Wireless Communications and Networks OFDM/MIMO and Massive MIMO 5G Wireless Communications Cryptography and Secure Communication VLSI architectures for Signal Processing Power Management IC Design Analog & Mixed-signal IC design Semiconductor Device modeling Micro fabrication Technology Micro/Nano Electro Mechanical System (MEMS/NEMS)	Electrical and Electronics/ Electronics/ Electronics Design & Technology/ Communication/ Microelectronics & VLSI Design/ Electronics & Communication/ Telecommunication/ Signal Processing/ Applied Electronics/ Computer Science
CLME01	Mechanical Engineering	Industrial Engineering and Management.	Industrial Engineering Streams.
		Thermal Sciences.	Thermal Engineering Streams.

39. National Institute of Technology, Durgapur (West Bengal) - 713 209 - ND

Code	Department	Fields of Specialization	Minimum Qualification
NDBT01	Biotechnology	Microbial biotechnology, food bio-technology, environmental bio-technology, nano-biotechnology, Bioprocess engineering, Bio-fuels, Heavy metal removal, fermentation.	M. Tech./ M.E / M. Pharm /M Sc in relevant discipline with at least 6.5 CGPA or 60 percent marks in aggregate in the M.E./ M. Tech. level or B. Tech/ B.E. / B Pharm in relevant discipline with at least 7.5 CGPA or 70 percent from a recognized technical institute or university/ government open university.
NDCH01	Chemical Engineering	Environment, Energy, Membrane Technology, Biochemical Reaction Engg, Multi-phase Flow, Transport Phenomena.	M.Tech./ M.E.in relevant discipline with at least 6.5 CGPA or 60 percent marks in aggregate in the M.E./ M.Tech. Level in relevant discipline or B.Tech/ B.E. in relevant discipline with at least 7.5 CGPA or 70 percent from a recognized technical institute or university/ government open university.
NDCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Water Resources Engineering, Environmental Engineering, Remote Sensing & GIS, Transportation Engineering.	
NDCS01	Computer Science & Engineering	Big data analysis, integrity and migration in Chip Multiprocessors.	
NDEC01	Electronic & Communication Engineering	Antenna/ Digital Signal processing/ MEMS/ Nanoscale Semiconductor Devices/ Power Line Communication/ Resistive Memory Devices/ RF and Microwave Engineering/ Semiconductor Process Technology/ Underwater Acoustic Communication/ VLSI/ Wireless Communication/ Wireless relays and space-time coding.	
NDEE01	Electrical Engineering	Power Systems, Power Electronics & Machine Drives, Control Systems, High Voltage Engineering, Instrumentation & Control.	
NDME01	Mechanical Engineering	Tribology, Fluid Mechanics, CFD, Micro Fluidics, Simulation and Modelling of pipe line network.	
NDMT01	Metallurgical & Materials Engineering	Process Metallurgy/ Ferrous Processing/ Physical Metallurgy/ Heat Treatment and Phase Transformation/ Mechanical Metallurgy/ Aqueous and High Temperature Corrosion/ Powder Metallurgy/Composites and Ceramics/ Materials Characterization/ Simulation and Modelling in Materials.	M.Tech/ M.E.in relevant discipline with at least 6.5 CGPA or 60 percent marks in aggregate in the M.E./ M.Tech. Level in relevant discipline or B.Tech/ B.E. in relevant discipline with at least 7.5 CGPA or 70 percent from a recognized technical institute or university/ government open university.

40. National Institute of Technology, Hamirpur (Himachal Pradesh) – 177 005 - NH

Code	Department	Fields of Specialization	Minimum Qualification
NHCE01	Civil Engineering	Structural Engineering Hydraulics Geotech & foundation Environmental Engineering Transportation Remote Sensing.	Master Degree in Engineering /Technology/ in appropriate discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.
NHCS01	Computer Science Engineering	Mobile Computing Distributed Systems Computer Networks Soft computing Artificial Intelligence.	Master Degree in Engineering /Technology/ in appropriate discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.
NHME01	Mechanical Engineering	Design Thermal Production Industrial.	Master Degree in Engineering /Technology in appropriate discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.

Code	Department	Fields of Specialization	Minimum Qualification
NHEE01	Electrical Engineering	Power Systems Signal Processing and Control Power Electronics Condition monitoring of power transformers & protection of power apparatus.	Master Degree in Engineering /Technology in appropriate discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.
NHEC01	Electronics and Communication Engineering	VLSI Design Communications systems and networks MEMS Design Microwave and RF design.	Master Degree in Engineering /Technology in appropriate discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.
NHEN01	Energy & Environment Engineering	Energy Technology, Environmental Engineering.	Master Degree in Engineering /Technology in Energy, Mechanical, Electrical, Electronics & Comm., Civil, Environment, Chemical discipline with CGPI of 6.5 on a 10-point scale (or equivalent) or 60% marks in case of Open/OBC candidates in qualifying degree. Whereas in case of SC/ST candidates a CGPI of 6.0 on a 10-point scale (or equivalent) or 55% marks in qualifying degree will be applicable.

41. National Institute of Technology, Raipur, Chhattisgarh-492 010 - NR

Code	Department	Fields of Specialization	Minimum Qualification
NRWI01	Civil Engineering	Water Resources Development and Irrigation Engineering.	A Master's degree in Engineering / Technology, with minimum 60% marks or 6.5/10 CGPA/ CPI at Master's degree. However, a relaxation of 5% marks from 60% to 55% and from 6.5/10 CPI (CGPA) to 6.0/10 CPI (CGPA) may be allowed for those candidates belonging to SC, ST, OBC (Non Creamy Layer), Differently abled and those who had obtained their master's degree prior to 19.09.1991.

42. National Institute of Technology Rourkela, Rourkela- 769 008 – RK

Minimum eligibility is Masters degree in Engineering Technology with at least 60% marks in aggregate.

Code	Department	Fields of Specialization	Minimum Qualification
RKCM01	Ceramic Engineering	Ceramic Engineering	B.E./ B.Tech./ M.Sc. in relevant discipline with minimum 65% marks in aggregate or 7.0CGPA. OrM.E./M.Tech. in relevant discipline with at least 60 percent marks in aggregate (or 6.5 CGPA) at both B.Tech./(or M.Sc.) and M.Tech. Levels.
RKCH01	Chemical Engineering	Chemical Engineering	
RKEC01	Electronics & Communication Engineering	Telematics & Signal Processing	
RKEC02		VLSI Design & Embedded System	
RKEE01	Electrical Engineering	Power Control & Drives	
RKME01	Mechanical Engineering	Experimental Stress Analysis	M.E./ M.Tech in Mechanical Engineering With at least 60% marks in aggregate.
RKME02		Vibration	
RKME03		Plastic Deformations of Metals	
RKME04		Heat Transfer	
RKME05		Cryogenics	
RKME06		Finite Element Techniques	
RKME07		Computer Aided Design	
RKME08		Computer-aided Manufacturing	
RKME09		Automation & Robotics	
RKMM01	Metallurgical & Materials Engineering	Metallurgy & Materials Engineering.	M.E./M.Tech. in Material Engineering/ Science or Met. Engineering or Mechanical Engineering. or Chemical Engineering or Ceramic Engineering With 60% marks in aggregate.

Code	Department	Fields of Specialization	Minimum Qualification
RKMI01	Mining Engineering	Mining Engineering.	B.E./ B.Tech / M.Sc. in relevant discipline with minimum 65% marks in aggregate or 7.0CGPA. Or M.E./ M.Tech. in relevant discipline with at least 60 percent marks in aggregate (or 6.5 CGPA) at both B.Tech./(or M.Sc.) and M.Tech. Levels.

43. National Institute of Technology, Silchar (Assam) – 788 010 - NS

Code	Department	Fields of Specialization	Minimum Qualification
NSCE01	Civil Engineering	Structural Engineering Water Resource Engineering Earthquake Engineering Geotechnical Engineering Environmental Engineering Transportation Engineering.	(i) M.E./M.Tech. or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). (ii) B.E./B.Tech. with an excellent academic record and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduate from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST candidates, there is a relaxation of 0.5 CPI or 5% of marks.
NSCS01	Computer Science & Engineering	Image Processing Speech Processing NLP Soft Computing Techniques and Applications Machine Intelligence.	(i) M.E./M.Tech or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). (ii) B.E./B.Tech with an excellent academic record and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduate from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST candidates, there is a relaxation of 0.5 CPI or 5% of marks.
NSEE01	Electrical Engineering	Renewable Energy Generation & Control (Wind and Solar Photo-voltaic) Power Electronics Distributed Generation and Control Electrical Machine Drives Power Quality Power System Reliability Smart Grid Power System Planning, Congestion management, Networking Pricing CNT and Carbon Nanowire Interconnects Application of Signal and Image Processing Grid Power and Bus Management Renewable Energy and its Applications Application of Microprocessor/Microcontroller Application of Soft-Computing in Engineering Applications Control Systems Fault detection and diagnosis of dynamical systems Industrial Automation Power System Economics Automatic Generation Control Image Processing Power System Protection.	**(i)** M.E./M.Tech or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). **(ii)** B.E./B.Tech with an excellent academic record and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduate from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST candidates, there is a relaxation of 0.5 CPI or 5% of marks.
NSEC01	Electronic & Communication Engineering	Microelectronics & VLSI Design Semiconductor Device, Modelling and Simulations MEMS-CMOS Co-design related to Spectrum Sensing in Wireless Technology Digital System Design Signal Processing Communication Engineering Power Electronics Ad-hoc & Sensor Networks.	**(i)** M.E./M.Tech or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). **(ii)** B.E./B.Tech with an excellent academic record and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduate from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST candidates, there is a relaxation of 0.5 CPI or 5% of marks.

Code	Department	Fields of Specialization	Minimum Qualification
NSME01	Mechanical Engineering	Thermodynamics, Heat Transfer, Computational Heat Transfer, Computational Fluid Dynamics, Combustion Refrigeration & Air Conditioning, Alternate Fuels, Solar Energy, Wind Turbines, Hydraulic Turbines, Spray Combustion, Conventional Energy, Tribology, Fracture Mechanics, Stress Analysis, Vibration, Micro-machining Advanced Manufacturing Processes Engineering Materials Virtual Manufacturing, Composites.	**(i)** M.E./M.Tech or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). **(ii)** B.E./B.Tech with an excellent academic record and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduate from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST candidates, there is a relaxation of 0.5 CPI or 5% of marks.

44. National Institute of Technology (NIT)-Srinagar-190 006, Jammu and Kashmir- NJ

Code	Department	Fields of Specialization	Minimum Qualification
NJCE01	Civil Engineering	**Structural Engineering:** Structural Engineering, Earthquake Engineering, Finite Element Analysis, Concrete Technology, Tall Buildings, Civil Engineering. Matls, Reinforced Concrete. **Water Resources Engineering:** Hydraulic Structures and Water Resource Engineering, Hydrology and Water Resource Engineering, Sediment Transport, Environment and Water Resources Engineering, Hydrology and Hydraulic Structures, Fluvial Hydraulics. **Transportation Engineering:** Pavement Engineering, Traffic Engineering & Transportation Planning. **Geotechnical Engineering:** Geotechnical Engineering, Soil Dynamics, Ground Improvement Techniques. **Geology** Engineering Geosciences and Rock Engineering.	**M.E./ M.Tech** in relevant field of Engineering with a minimum CGPA of 6.5 or not less than 60% for General Category and for SC/ST/OBC minimum CGPA of 6.0 or not less than 55% marks at Master's level or any other equivalent qualification recognized by the Institute. **OR** **B.E./ B.Tech with valid GATE score above the prescribed cut off level/ NET Qualification.** The candidates shall have a minimum CGPA of 8.0 or not less than 75% for General Category/OBC and for SC/ST minimum CGPA of 7.5 or not less than 70% at BE/B Tech level. **FOR GEOLOGY** **Master's degree in Applied Geology/Earth Sciences or an allied area, satisfying each of the following criteria:** a) A minimum of 65 percent marks/6.5 CPI in the master's degree. b) First division in bachelor's degree and c) With a valid Gate score or UGC/ CSIR NET/ NBHM or equivalent qualification in the relevant area tenable for the year of registration.
NJEE01	Electrical Engineering	Power System Dynamics & Control, Stand Alone Power System, Application of Energy Storage Devices to Power Systems, Power Systems Operation & Optimization, Flexible AC Transmission System. Energy System Planning & Auditing, Wind Energy Conversion Systems, Power Electronics ,Power Quality, Electric Drives, Power System Control, Control Theory, Model Order Reduction, Finite Element Modelling of Distributed Parameter System.	**M.E./M.Tech** in relevant field of Engineering with a minimum CGPA of 6.5 or not less than 60% for General Category and for SC/ST/OBC minimum CGPA of 6.0 Or not less than 55% marks at Master's level or any other equivalent qualification recognized by the Institute. **OR** **B.E./B.Tech with valid GATE score above the prescribed cut off level/NET Qualification.** The candidates shall have a minimum CGPA of 8.0 or not less than 75% for General Category/OBC and for SC/ST minimum CGPA of 7.5 or not less than 70% at BE/B Tech level

NJEC01	Electronics & Communication Engineering	Image Processing, Wireless Networks, Biometrics, Analog and Digital Communication, Optical Fiber Communication, Opto Electronic Devices, Microwave and Radar Engineering, Analog and Digital VLSI Design, Device modelling and Simulation, Novel MOS Devices for ULSI application. Molecular Nanosciences and Electronics. Computer Networks, Data and Computer Networks, Security, Sensor Networks, Data Communication, Embedded System, Radio frequency IC Design, and MOS Insulators, Digital Communication, Photovoltiacs. Insulators. Semiconductor opto –electronic devices, Optical Fiber Communication Systems, Communication System (RF domain).	**M.E./M.Tech** in relevant field of Engineering with a minimum CGPA of 6.5 or not less than 60% for General Category and for SC/ST/OBC minimum CGPA of 6.0 Or not less than 55% marks at Master's level or any other equivalent qualification recognized by the Institute. **OR** **B.E./B.Tech with valid GATE score above the prescribed cut off level/NET Qualification.** The candidates shall have a minimum CGPA of 8.0 or not less than 75% for General Category/OBC and for SC/ST minimum CGPA of 7.5 or not less than 70% at BE/B Tech level.
NJME01	Mechanical Engineering	Computational Mechanics, FEM,Thermo elasticity and Second Sound, Fracture Mechanics and Material Fatigue, Tribology and Maintenance Management, Tribology of Advanced Ceramics & Nano Ceramics, Life Cycle Engineering, Aircraft wing vibration, Smart Structures, Internal Combustion Engines, Combustion of Alternative Fuels, Emission control, MEMS, Ultrasonic Transducers, Dynamics and Control. Experimental Fluid Mechanics, Heat Transfer, Augmentation, Design of Thermal Systems.	**M.E./M.Tech** in relevant field of Engineering with a minimum CGPA of 6.5 or not less than 60% for General Category and for SC/ST/OBC minimum CGPA of 6.0 Or not less than 55% marks at Master's level or any other equivalent qualification recognized by the Institute. **OR** **BE/B.Tech with valid GATE score above the prescribed cut off level/NET Qualification.** The candidates shall have a minimum CGPA of 8.0 or not less than 75% for General Category/OBC and for SC/ST minimum CGPA of 7.5 or not less than 70% at BE/B. Tech level.

45. National Institute of Technology Karnataka, Surathkal 575 025 – SK

Admission to Ph.D programme shall be open to Indian Nationals who passes the qualifying degree in relevant field with a Cumulative Grade Point Average (CGPA) of at least 6.0 in the 0-10 scale grading system, or not less than 60% marks in the aggregate (taking into account the marks scored in all the subjects of all public/university examinations conducted during the entire prescribed period for the qualifying degree). However, this prescribed minimum shall be a CGPA of 5.5 or 55% marks in the aggregate for SC/ST/PwD candidates. The prescribed qualifying examination is as follows:

i. For Ph.D in Engineering/Technology – Master's degree in relevant field

ii. For Ph.D in Science – Master's degree in relevant field

iii. For Ph.D in Humanities, Social Science & Management – Master degree in relevant field, CA along with undergraduate degree.

If the evaluation system in qualifying degree is in both CGPA and Marks, CGPA value will be considered. Also Conversion from Grade point system to Percentage system will not be considered.

Code	Department	Fields of Specialization	Minimum Qualification
SKAM01	Applied Mechanics and Hydraulics	Marine structures/ Coastal Engineering/ Ocean Engineering.	Master's degree in Civil/ Marine/ Structures/ Ocean/ Offshore/ Coastal Geotechnical/ Soil Mechanics/ Structural/ Hydraulics/ Environmental/Applied Mechanics/ Remote Sensing/ GIS/ Geo-informatics.
SKAM02		Hydraulics Engineering/ Water Resources Engineering.	Master's degree in Civil/ Hydraulic/ Water Resources/ Aerospace/ Agricultural/ Ocean/ Environmental/ Coastal Engineering/ Remote Sensing/ GIS.
SKAM03		Remote Sensing & GIS.	Master's degree in Civil/ Hydraulics/ Water Resources/ Aerospace/ Agricultural/ Ocean/ Environmental/ Coastal Engineering/ Remote Sensing/ GIS.
SKAM04		Water Resources Engineering & Management, Marine Structures & Coastal Engineering, RS & GIS Applications.	
SKCE01	Civil Engineering	Structural Engineering	M.E./ M.Tech/ M.Sc.(Engineering) in Structural Engineering or related areas.
SKCE02		Geotechnical Engineering.	M.E./ M.Tech./ M.Sc. (Engg.) in Geotechnical Engineering (Soil Mechanics and foundation Engineering) or any other related fields.
SKCE03		Transportation Engineering, Environmental Engineering, Construction Technology & Management.	M.E./ M.Tech./ M.Sc. (Engineering) in the relevant Civil Engineering disciplines or related areas.

Code	Department	Fields of Specialization	Minimum Qualification
SKCH01	Chemical Engineering	Process Development, Particulate System, Biotechnology, Environmental Engineering, Transfer Operations, Industrial Biotechnology, Energy, Electrochemical Applications, Process Modeling & Simulation.	Master's in Chemical Engineering/ Biotechnology/ Micro-biology/ Biochemistry or related fields.
SKCS01	Computer Engineering	Computer Science & Engineering, Software Engineering, Communication Network, Distributed Computing, Work Flow Software, Grid Computing, Autonomic Computing, Data Mining, Data Warehouse, Security of Information, Bio-informatics, Bio-informatics, High performance computing, Computer vision, Cloud Computing, Image Processing, Speed processing, Mobile computing.	M.E./ M.Tech/ M.Sc. (Engineering) in Computer/ IT/ E&C/ Software Engineering/ Networks, with B.E./ B.Tech./ B.Sc.(Engineering) in Computer/ E&C/IT/E&E.
SKEC01	Electronics and Communication Engineering	Communication/ VLSI Design/ Signal Processing.	Master's Degree in Engineering/ Technology in the field of specialization.
SKEE01	Electrical and Electronics Engineering	Energy Systems, Power Electronics & Drives, High Voltage Engineering, Power Systems, Control Systems, Instrumentation Engineering, Adaptive and distributed signal processing for sensing and Image applications; Control system; Electrical Machines and Machine Diagnosis; High voltage Engineering and field computations; Power Electronics & Drives; Renewable Energy technologies; Smart grid technologies.	Master's Degree in Electrical Engineering or relevant field.
SKHS01	Humanities, Social Sciences & Management	Management, Economics, English (Comparative literature) and related disciplines.	Master's in relevant field.
SKME01	Mechanical Engineering	Alternative Fuels, Heat Transfer, Advanced Manufacturing, Mechatronics, IC Engine, & Combustion, Heat Transfer, Refrigeration and Air Conditioning, Fluid Dynamics, Fracture Mechanics and Fatigue, Fluid Dynamics, Machine Dynamics and Vibration, Advance Materials, MEMS, Robotics and Control, Stress Analysis, FEM, Renewable Energy, Tribology, Product Design, Structural Acoustics, Polymer Nano-Composites, Precision Management.	M.E./ M.Tech/ M.Sc. (Engineering) in the relevant field.
SKMI01	Mining Engineering	Rock Mechanics and Ground Control, Drilling and Blasting, Mine Planning, Environmental Management.	Master's degree in Mining Engineering or other related fields such as Geo-technical Engineering, Remote Sensing/GIS, Geoinformatics, Applied Geology and Geophysics or related areas.
SKMT01	Metallurgical and Materials Engineering	Mechanical processes, Chemical processes and materials, Physical Metallurgy, Extractive Metallurgy, Foundry, Welding, Metal Forming, Corrosion, Powder Metallurgy and Transport Phenomena, Surface Engineering, Nano-Composites, Nano-fibers.	M.E./ M.Tech./ M.Sc. (Engineering.) in the relevant field .

46. National Institute of Technology, Tiruchirappalli- 620 015 - TR

Minimum Qualifications: Master's Degree in Engineering/ Technology in appropriate branch with first class or minimum 60% marks (CGPA 6.5) or equivalent in UG or PG. for SC/ST candidates a mere pass in UG and PG is sufficient.

Code	Department	Fields of Specialization	Minimum Qualification
TREE01	Electrical and Electronics Engineering	Power Systems, Electrical Machines and Power Electronics, VLSI, Control Systems and Computer Science.	Master's degree in Engineering/ Technology in appropriate branch with first class or minimum 60% marks (CGPA 6.5) or equivalent in UG or PG. For SC/ST candidates, a mere pass in UG and PG is sufficient.
TRMT01	Metallurgical & Materials Engineering	Processing of Newer Materials, Metal Forming, Powder Metallurgy, Corrosion Engineering, Welding Engineering, Process Modeling, and Fracture Mechanics, Surface Engineering, Geo Materials, Nano Materials, Process Metallurgy, Quality management.	Master's degree in Engineering/ Technology in appropriate branch with first class or minimum 60% marks (CGPA 6.5) or equivalent in UG or PG. For SC/ST candidates, a mere pass in UG and PG is sufficient. Regular Admission to Ph.D. We consider M.Sc. M.Tech also.
TRPE01	Production Engineering	**Manufacturing**: Mechatronics/ Robotics, Micromachining, Surface Engineering, Tribology, Intelligent Manufacturing, Composite Materials Processing, Advanced Welding, Non-traditional Machining, Rapid Manufacturing. **Industrial Engineering**: Simulation, Supply Chain Management, Lean manufacturing, Quality Engineering, Project Management, Industrial Engineering Management, Data Analysis & Management, Optimization Techniques, Resource Management.	Master's degree in Engineering/ Technology in appropriate branch with first class or minimum 60% marks (CGPA 6.5) or equivalent in UG or PG. For SC/ST candidates, a mere pass in UG and PG is sufficient.
TRCH01	Chemical Engineering	Transfer Operation, Process Control. Bio-Chemical Engineering/ Bio-Technology, Reaction Engineering, Particle Technology, Energy and Environmental Engineering, Thermodynamics, Computer Aided Design, Process Systems Engineering, Energy Engineering, Electrochemical Engineering, Polymer Engineering. Environmental Engineering	
TRCV01	Civil Engineering	Transportation Engineering & Management, Structural Engineering, Environmental Engineering, Geotechnical Engineering, GIS.	
TRCS01	Computer Science & Engineering	Computer Networks, Mobile Communication, Image Processing, Data Mining, Grid and Cloud Computing, Digital Forensics, Network Security, Wireless Networks.	
TRIC01	Instrumentation & Control	Mathematical Control Theory, Algorithms, Computational Complexity, Networked Control Systems, Mobile Robotics-UGVs and UAVs Estimation Theory, Kalman Filtering, Particle Filters, PIDS and Fractional Order Controllers, MEMS, Smart Material and Structures, Instrumentation Systems Control, Systems Design, Intelligent Control, Process Control, System Identification and Multirate Feedback Control, Biomedical Systems.	
TRME01	Mechanical Engineering	Thermal Science, Industrial Safety Design, Machine Design.	

47. National Institute of Technology Warangal, Warangal 506 004 - WR

Minimum qualification: First class Master's degree in the appropriate branch with a minimum of 60% marks in aggregate. In case of SC/ST/PD Candidates, the Minimum aggregate marks is 55%.

Code	Department	Fields of Specialization	Minimum Qualification
WRCH01	Chemical Engineering	Biomass Gasification, Fuel Cells, Plate Heat Exchangers, Membrane processes, Bioreactors, Flow batteries, Reactive Distillation, Chemical process scheduling, Microfluidics, Multiphase flows, Interfacial Science, Chemical reactor analysis and design, Wastewater Treatment, Sustainable and energy efficient technologies, Micro Reactors, Process control, Process Intensification, Non linear analysis, Nano materials, Computational Fluid Dynamics, Fluidized Bet Operations, modeling & simulation, heat transfer, Biochemical Engineering.	Master's degree in Chemical Engineering or its equivalent.
WRCE01	Civil Engineering	Structural Dynamics & Earthquake Engineering.	First class with not less than 60% in B.Tech. or B.E. (or) not less than 6.5 CGPA on a 10 point scale in any branch of Engineering & Technology And First Class with not less than 60% in M.Tech. or M.E. (or) not less than 6.5 CGPA on a 10 point scale in relevant specialization And Candidates who have obtained admission into M.Tech./M.S. Programmes through GATE score (or) who already possesses a valid GATE score. Note: For SC/ST candidates Cumulative Grade Point Average (CGPA) of at least 6.0 on a 10 point scale grading system, or not less than 55% marks in aggregate.
		Construction Technology & Management.	
		Environmental Engineering.	
		RS & GIS.	
		Civil Engineering Materials.	
		Hydrology & Water Resources Engineering.	
		Transportation Engineering.	
		Geotechnical Engineering.	
WRME01	Mechanical Engineering	Thermal Engineering/ Manufacturing Engineering/ Design Engineering.	Master's degree in Mechanical Engineering in the concerned specialization.
WRMH01	Mathematics & Humanities	Fluid Mechanics/ Numerical Analysis/ Operations Research/ Analysis/ Coding theory.	M.Sc. in Applied Mathematics/ Mathematics.

48. National Institute of Technical Teachers' Training & Research (NITTTR), Kolkata-700106 – NK

Code	Department	Fields of Specialization	Minimum Qualification
NKEE01	Electrical Engineering	Power Electronics and Drives, VLSI & Embedded System, Control Systems and Industrial Automation, Optical Commutation, Renewable Energy sources, Electrical Machines and Power System.	B.E./ B.Tech and M.E./ M.Tech in Electrical Engineering/ Electronics and Communication/ Instrumentation/ Mechatronics/ Robotics and relevant areas.
NKME01	Mechanical Engineering	Manufacturing Technology, Thermal Engineering, CAD/CAM, Fluid Mechanics, Materials and Composites, Welding Technology, Design, Computational Fluid Dynamics (CFD), Alternative fuels/energy resources.	B.E./ B.Tech and M.E./ M.Tech in Mechanical Engineering/ Manufacturing/ Production/ Thermal/ Automobile/ Design/Fluid Mechanics or equivalent with first class.
NKCS01	Computer science Engineering	Software Engineering/ Cloud Computing/ Computational Geometry/ Operations Research/ Computational Intelligence/ Computational Biology/ Image processing.	B.Tech and M.Tech in Computer Science & Engineering, Information technology, Multimedia and software systems or equivalent, consistent with research area of the Department. Candidate must have 1st class or 1st division or equivalent CGPA all through.
NKCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Highway & Transportation Engineering, Environmental Engineering.	B.E./ B.Tech in Civil Engineering/ Construction Technology or equivalent with M.E./ M.Tech in Civil Engineering.

49. Netaji Subhas University of Technology, New Delhi - 110 078 – NN

Code	Department	Fields of Specialization	Minimum Qualification
NNCS01	Computer Engineering	Soft computing, machine learning, expert system, recommender system, natural language processing, sentiment and emotion analysis, pattern recognition, computer vision. Cloud computing, mobile computing, broadcasting, wireless sensor networks, semantic web, social network analysis, watermarking, network security, Internet of things, topic modeling, Databases, data mining, data warehousing, big data analytics, Bio-informatics. Computational pedagogy, e-learning, instructional software, modeling and simulation, data visualization, human-computer interaction. Software testing, software quality, software metrics.	Master Degree in Engineering/Technology in the relevant discipline (as per the AICTE Gazette notification dated April 28, 2017) or equivalent with a minimum 60% of marks or equivalent Cumulative Grade Point Average (CGPA) and Bachelor's Degree with a 60% of marks or equivalent CGPA. A relaxation of 5% marks, from 60% to 55%, may be allowed for those belonging to SC/ST/OBC (NCL)/ differently – abled and other categories or candidates in accordance with the policies of the Govt. of NCT of Delhi or as per the decision of the University Grants Commission from time to time. For details, the candidate may refer Ph.D. ordinance of Netaji Subhas University of Technology.
NNEC01	Electronics and Communication Engineering	Analog signal processing, VLSI, Wireless Communication, Optical Communication, Signal and image processing, Computer Networks.	
NNIC01	Instrumentation & Control Engineering	Control System, Process Control, Robotics, Renewable Energy, Power Electronics, Hybrid Energy System, Sensors and Transducers, Bio-medical Instrumentation, Biometrics & Bioinformatics, Image and Signal Processing, Industrial Drives, Artificial Intelligence, Intelligent Control, Intelligent instrumentation.	
NNME01	Mechanical Engineering	Thermal Engineering, Fluid Mechanics and Machinery, Design, CAD/CAM, Product Design, Unconventional Machining Methods: EDM/ECM/USM etc., Super Abrasive Grinding Technology, Artificial Intelligence, Robotics, Supply Chain Management, Operations Management, Inventory Management, Total Quality Management.	
NNBT01	Biotechnology	Industrial Enzymes, Bio-energy, Bio-remediation & Novel Antimicrobial agents/ anticancer agents, Computational and Structural Biology with emphasis on molecular modeling and drug design.	

50. PDPM Indian Institute of Information Technology Design & Manufacturing, Jabalpur (M.P.) - 482 005 - PD

Code	Department	Fields of Specialization	Minimum Qualification
PDCS01	Computer Science & Engineering	Software Engineering, Visual Cryptography, Big Data Analysis, I/O Efficient Algorithms, Soft Computing, Networking, Parallel Algorithms, Image Reconstruction, Biometrics, Image Retrieval, Security, Cloud Computing, Robotics and Automation, Computer Aided Design.	M.Tech./ M.E. in Computer Science & Engineering or Information Technology or a similar discipline with minimum of 65 percent marks OR a CPA/CGPA of 6.5 (on the Scale of 10.00
PDEC01	Electronic & Communication Engineering	Electronics & VLSI Design: Nano-electronics, Low Power System Design, Device Simulation and Modeling, SRAM Design; Control, Instrumentation and Power System: Identification and Control of Processes, Mobile Robot, Power Electronics, Power System Protection; Microwave and Communication Engineering, Electromagnetics, Antenna Design Fabrication and Testing, MMIC, Nanophotonics and Plasmonics, Wireless Communication, Fiber optic Comm system; Signal Processing: Multirate Signol Processing, Biomedical Signal Processing, Filter Bank Designing and Application.	M.Tech./M.E. in Electronics/ Electronics & Communication Engineering/ Electrical Engineering or a similar discipline with minimum of 65 percent marks OR a CPA/CGPA of 6.5 (on the Scale of 10.00).
PDME01	Mechanical Engineering	Mechanical Design, Vibrations, Fault Diagnosis and Condition Monitoring of Machines, Non-liner Dynamics, Smart Materials and Structures, Flapping Wing MAV, Mechatronics and Robotics, Composite Materials. Advanced Machining, Hybrid Machining, Dieless Forming, Additive Manufacturing, CNC Machining, Geometry, Microfuidics, Thermal & Fluid engineering, Heat Transfer, Product Design, Geometric Modelling, Computational Support to Design, Knowledge-based Engineering Design, Supply Chain Management, Operations Management.	M.Tech./ M.E. in Mechanical Engineering/ Production Engineering/ Industrial Engineering/ Production and Industrial Engineering or a similar discipline with minimum of 65 percent marks OR a CPA/CGPA of 6.5 (on the Scale of 10.00)

51. Pondicherry Engineering College, Puducherry - 605 014 - PY

Code	Department	Area of Research	Minimum Qualification
PYEC01	Electronic & Communication Engineering	Wireless Communications and Wireless Security, Signal Processing and Image Processing for Communication, Bio-medical Signal Processing, Wireless Networks, Optical Networks, Cryptography and VLSI System Design.	B.E./B.Tech. degree in Electronics and Communication Engineering and M.E/ M.Tech. degree in Electronics/ Communication Systems/ Electronics and Communication Engineering /any related specializations with an overall minimum aggregate of 55% of marks or equivalent in the qualifying examination M.E./ M.Tech.
PYCS01	Computer Science & Engineering	Computer Networks, Software Engineering, Software Architecture, Software Metrics and Testing, Cloud Computing, Service Oriented Architecture and Computing, Database Systems, Data Mining and Warehousing, Language Technology and Ontology, Internet Technology, Distributed Systems, Digital Image Processing , Data Compression, Multimedia Technology, Artificial Intelligence and Fuzzy Logic, Information Security.	B.E./B.Tech. degree in CSE/IT/ECE/EEE/E&I and M.E/ M.Tech degree in Computer Science and Engineering or Information Technology with a minimum of 55% marks.
PYEE01	Electrical & Electronics Engineering	Power systems, power electronics, machines and electro magnetics, signal processing and control, artificial intelligence and digital control /estimation and renewable energy systems.	B.E./B.Tech. degree in Electrical and Electronics Engineering/Electronics and Instrumentaion and M.E/ M.Tech. degree in Electrical and Electronics Engineering/ other related specializations with a minimum of 55% of marks.

Code	Department	Area of Research	Minimum Qualification
PYME01	Mechanical Engineering	Production Engineering, Thermal Sciences and Engineering, CFD, design and simulation of thermal systems, Renewable energy sources, Materials and Manufacturing, Modeling & Simulation studies in Mechanical Engineering, Internal Combustion Engines, Alternative Fuels, Heat Transfer and Corrosion Engineering Design, FEA, Tribology, Production Engineering, Production/ Operations Management, Computational Mechanics, Modeling & Simulation in Manufacturing & Thermal Systems, Internal Combustion Engines, Refrigeration & Air Conditioning & Renewable Energy Sources, Production Engineering, Nano materials, Nano Coating, Corrosion, Surface Engineering, Renewable Energy Systems.	(a) B.E./ B.Tech. Degree in Mechanical Engg. and M.E./ M.Tech. Degree in Mechanical Engg. / other related specialization listed here, with a minimum of 55 % of marks. Energy Engineering/Technology I.C. Engines Thermal Engineering Refrigeration & A.C Engineering Engineering Design CAD CAD/CAM Product Design and Manufacturing Manufacturing Engineering Production Engineering Foundry Engineering Welding Technology Logistics and SCM (b) M.E./M.Tech Degree in other branch of Engineering With a minimum of 55% of marks with specialization in: Chemical Engineering Ocean Engineering Nano Science and Technology Industrial Engineering/ Management Environmental Engineering Structural Engineering Industrial Metallurgy Automobile Engineering Aerospace Engineering Materials Science and Engineering
PYCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Industrial Waste Management & Environmental Engineering, Soil Mechanics & Foundation Engineering, Hydraulics & Water Resources Engineering.	a) B.E./B.Tech. degree and M.E/ M.Tech. degree in Civil Engineering with a minimum of 55% of marks or equivalent with specialization in: i) Structural Engineering ii) Geotechnical Engineering iii) Hydraulic & water Resource Engg. (iv) Ocean Engineering v) Environmental Engineering / Environmental Technology / Advanced Construction Technology, vi) Geo informatics (b) B.E/B.Tech degree and M.E/ M.Tech Degree with a minimum of 55% or equivalent with specialization in: Energy Technology / Environmental Engineering / Environmental Management. Bio - Technology / Chemical Engineering / Industrial Biotechnology

52. PSG College of Technology, Coimbatore 641 004 - PS

Code	Department	Fields of Specialization	Minimum Qualification
PSME01	Mechanical Engineering	Machine Design, Finite Element Analysis, CAD/CAM, Automobile Engineering, Composite materials, Rapid Prototyping, Heat Power Engineering, Fluid Power Control & Automation, Energy Engineering, Simulation, Operations Management, Metal Forming, Casting Welding, Injection Molding, Precision Engineering Tolerance Engineering, Computer Aided Engineering, Smart Systems, Vibration & Noise Engineering, Product Life Cycle Management, Reliability Engineering, Machine Tool Design Safety Engineering, Innovation & Creativity, Value Engineering, Concurrent Engineering, Pneumatics, Manufacturing, Instrumentation, DFMA, TPM, Tribology, Ergonomics & Industrial Design, Refrigeration & Air Conditioning, Nano Technology.	A Master's degree in Mechanical Engineering/ Production Engineering.

Code	Department	Fields of Specialization	Minimum Qualification
PSPE01	Production Engineering	CAD/ CAM, Laser Material Processing, Fluid Power Control and Automation, Industrial Engineering, Value Engineering, Systems Engineering, Total Quality Management, Agile Manufacturing, Innovative Management, Metal Forming, Concurrent Engineering, Manufacturing Systems Analysis, Virtual Manufacturing, Lean Manufacturing, Precision Manufacturing, Product Data Management, Product Life Cycle Management, Product Development, Metal Casting Injection Molding, Tool Design (Jigs & Fixtures), Welding. Management, Metal Forming, Concurrent Engineering, Manufacturing, Systems Analysis, Virtual Manufacturing, Lean Manufacturing, Precision Manufacturing, Product Data Management, Product Life Cycle Management, Product Development, Product Reliability, Metal Casting, Injection Moulding, Tool Design (Jigs & Fixtures), Welding.	A Master's degree in Mechanical Engineering/ Production Engineering.
PSAU01	Automobile Engineering	Engine Manufacturing System, Alternate fuels/ Fuel Cells, Automotive materials, Solar Power Vehicles, Electric and Hybrid Vehicles, Automotive Acoustics, Product Life Cycle Management, IC Engines.	A Master's degree in Automobile Engineering/ Mechanical Engg./ Production Engineering.
PSEC01	Electronics and Communication Engineering	RF and Microwave antennas, RF MEMS, Wireless Communication, Image Processing, Signal Processing, Speech signal Processing, VLSI Design, Networking, Wireless Sensor Networks Communication, Nano Technology and related domain, Embedded Systems, Wireless Security.	A Master's degree in any of the following specializations: Communication Systems, Wireless Communication, Applied Electronics, Electrical Machines, Power Electronics & Drives, Embedded and Real Time systems, Computer Science and Engiineering, Nanotechnology
PSBT01	Bio-technology	Human Genetics, Neuroscience, Cancer and Computation biology, Plant Molecular Biology and Biotechnology, Bio Process and Molecular Biology, Clinical Biotechnology & Microbiology, Environmental biotechnology, Plant Biotechnology, Biofuels and Biomass Energy.	A Master's Degree (M.Tech or M.Sc) in the relevant field
PSBM01	Bio-medical Engineering	Medical Image Processing & Analysis includes quantitative analysis and visualization of medical images. BioSignal Processing & Analysis includes HRV (Heart rate Variability) analysis, EEG analysis etc. Medical Instrumentation applications include Equipments used in the medical tests for diagnosis, screening, and monitoring of diseases. Body Sensor Networks application includes monitoring, diagnostic, or therapeutic levels and implantable biomedical systems. 3D modeling & printing includes customized implants and orthopedic replacement parts. Biomechanics explores biological problems in Cardiovascular and Respiration, Artificial Organs Includes blood purification, cardiovascular intervention, biomaterials, artificial metabolic organs and more. Bio sensors include immunosensors, enzyme-based biosensors, and organism. Computational Methods in Biomedical Engineering - robust design solutions for artificial joints, stents, minimally invasive surgery, and assistive technology. Medical Data Processing- details decision support systems using heuristic, algorithmic and/ or statistical methods.	A Master's Degree (M.E., M.Tech or M.Sc) in relevant field

Code	Department	Fields of Specialization	Minimum Qualification
PSIC01	Instrumentation and Control Systems Engineering	Control Systems, Image Processing.	A Master's degree (M.E./ M.Tech) in the following specializations: Control & Instrumentation Engg/ Process Control & Instrumentation Engg/ Control Systems Engineering/ Applied Electronics/ Communication Engineering.

53. Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam (Kerala) - 686 501 - RG

Code	Department	Fields of Specialization	Minimum Qualification
RGEE01	Electrical Engineering	Power and Renewable Energy System, Industrial Drives, Control Engineering.	As per norms of APJ. Abdul Kalam Technological University, Trivandrum.
RGME01	Mechanical Engineering		
RGCE01	Civil Engineering	Transportation Engg, Structural Engineering Geotechnical Engg., Water Resource Engineering.	

54. Samrat Ashok Technological Institute, Vidisha 464 001– SV

Code	Department	FieldsofSpecialization	MinimumQualification
SVCE01	CivilEngineering	Building Technology & Materials, Retro fixing of Buildings, Sub Surface Technology, Transportation Engineering, Environmental Engineering, Structures and Fluid Mechanics, Soil Mechanics.	BE/BTech and Master's degree (ME/M.Tech.) in Civil Engineering with first division.
SVCS01	Computer Science and Engineering	Machine Learning, Artificial Intelligence, , Image Processing, , Computer Network Security.	BE/BTech and Master's (M.E./M.Tech.) in Computer Science & Engineering with first division .
SVIT01	Information Technology	Machine Learning, Artificial Intelligence, , Image Processing, , Computer Network Security.	BE/BTech and Master's degree (ME/ M. Tech.) in Computer Science & Engineering or Information Technology.
SVEE01	Electrical Engineering	Power Electronics, Drives.	BE/BTech and Master's degree (ME/M.Tech.) in Electrical Engineering with first division.
SVME01	MechanicalEngineering	Ergonomics, TQM, SQC, Mechatronics, Production and Operation Management, Refrigeration & Air conditioning, Quality, Productivity, Six Sigma, SQC.	BE/BTech and Master's degree (ME/M.Tech.) in Mechanical Engineering with first division.

55. Sardar Patel College of Engineering, Mumbai (Maharashtra) - 400 058 - SM

Code	Department	Fields of Specialization	Minimum Qualification
SMCE01	Civil Engineering	Construction Management.	M.E/M. Tech. in Construction Management, Transportation Engineering, Geotechnical Engineering, Hydraulic and Offshore Engineering, Environmental Engineering.
		Transportation Engineering.	
		Hydraulics and Fluid Mechanics.	
		Environmental Engineering.	
		Structural Engineering.	Structural Engineering, Geotechnical Engineering.

56. S.V. National Institute of Technology, Surat - 395 007 -SS

Code	Department	FieldsofSpecialization	MinimumQualification
SSCE01	Civil Engineering	Environmental Engineering, Water Resources Engineering, Urban Planning, Transportation Engineering and Planning, Structural Engineering, Soil Mechanics & Foundation Engineering ,**Construction Technology and Management**.	Masters degree in relevant area of Engineering. Admission as per the norms available on the institute's website: www.svnit.ac.in
SSME01	Mechanical Engineering	Design and Dynamics, Thermal and Fluid Engineering, Manufacturing and Industrial Engineering.	Masters degree in Engineering with specialization in Thermal and Fluid Engineering/Manufacturing and Industrial Engineering/Design and Dynamics/Robotics/ Mechatronics/ Energy Systems Engg./ Automobile Engg./ Aeronautical Engg./ Cryogenics/ CAD/CAM/CIM/Production/ Tribology/Turbo Machines. Admission as per the norms available on the institute's website: www.svnit.ac.in
SSEE01	Electrical Engineering	Power Electronics & Electric Drives, Electrical Machines Modeling, Multi-phase Machines, High Voltage Engineering, Electric Vehicle Technology, Electrical Power Systems, Signal Processing System Theory, Control Theory, Control and Information Engineering, Instrumentation, Renewable Energy Systems.	Masters degree in relevant area of engineering Admission as per the norms available on the institute's website: www.svnit.ac.in
SSEC01	Electronics Engineering	**Communication and Networking:**Communication Systems, Communication Networks and Internet, Computational Electromagnetics, Microwaves, RF and Antennas, Multimedia Systems, Optical Communication and Photonics, Wireless Communication, Information Theory and Coding. **Microelectronics**: Devices & IC Technology, Reliability of Electronics Devices and Circuits, Device Simulation and Modeling, VLSI and System Hardware Design, CAD Tools, MEMS Design and Technology (including Bio-MEMS), Flash Memory Devices, Organic Semiconductor Devices, CMOS Devices, Spintronic Devices, Material Growth and Characterization. **Electronics Systems:** Electronic Instrumentation, Signal Processing Applications, Biomedical Electronics, Embedded System Design. **Signal Processing:** Speech Processing, Image Processing and Computer Vision, Bio Medical Signal Processing.	M.E./M.Tech. or equivalent degree in Electronics, Electronics and Communication, Telecommunication, Bio-medical Engg. (M.E./M.Tech. in Electrical Engg. from IIT). Admission as per the norms available on the institute's website: www.svnit.ac.in
SSCS01	Computer Engineering	Information Security and PrivacySoftware Requirements Specification using Ontologies. Computer Vision/Image Processing Machine Learning/Soft Computing Wireless Network Automata/Compiler.	Masters degree in Computer Engineering or allied fields. Admission as per the norms available on the institute's website: www.svnit.ac.in
SSCH01	Chemical Engineering	Catalysis in refining & petrochemicals processes, Catalysis in biomass conversion, Biofuels, Nanofuels, Wastewater treatments, Membrane separations, Metal recovery methods, Multiphase flow, Syntheses and applications of metal/metal oxide nanoparticles, Crystallization processes, Energy and environment management, CFD in Chemical Engg., Polymer nanotechnology and polymer nanocomposites, Fuel cells, Microbial fuel cells, Distillation, Nanofluidics, Powder technology, Extraction, Thin film Solar cells, Electrocoagulation, Green Chemistry, Nanomilling, Supercritical Fluid Extractions. Biosensor, Energy storage device.	Masters degree in Chemical Engineering or allied fields. Admission as per the norms available on the institute's website: www.svnit.ac.in

57. Sant Longowal Institute of Engineering & Technology (Deemed University), Longowal (Punjab) - 148 106 - SP

Code	Department	Fields of Specialization	Minimum Qualification
SPME01	Mechanical Engineering	Industrial & Production Engineering (Quality & Reliability Engineering; Supply Chain Management, TPM, TQM), Thermal Engineering, Non-Conventional Machining, Hybrid Machining Process, Welding Engineering, Agri-Waste Management, Simulation Vibration, Precision Metrology, Metal Machining/ Cutting, Product Design Management, Automobile Engineering, Composite & Advanced Materials.	M.Tech.
SPFE01	Food Engineering & Technology	Food Engineering, Food Processing & Preservation, Food Process Engineering, Food Processing Technology, Food Technology, Agricultural & Food Engineering, Food Science and Technology, Food Science or relevant field.	M.Sc./ M.Tech.
SPIE01	Electronics & Instrumentation Engineering	Biomedical Engineering Control Engineering Electrical Engineering Electrical Engineering (Power) Electrical Power Engineering Electronics Engineering Instrumentation & Control Engineering Instrumentation Engineering Instrumentation Technology Power Electronics Biomedical Instrumentation Control & Instrumentation Control System Engineering Instrument Technology Instrumentation & Process Control Medical Electronics Engineering Medical Instrumentation Medical Electronics	M.E. / M.Tech or equivalent
SPCT01	Chemical Technology	Biomass and Bioenergy Conventional and Non-conventional Energy Sources Environmental Engineering Industrial Pollution Control Hydrogen Energy Biorefineries (Energy and Biomaterials) Biomaterials Controlled Drug Delivery Waste Water Treatment using polymeric Materials Energy Conservation Polymer Engineering Modelling Simulation and Optimization Polymer Composites	1.(a) Candidate should have B.E./ B.Tech. or equivalent in Chemical Engineering/ Chemical Technology/ Chemical Engineering (Plastic & Polymer)/ Chemical & Polymer Engineering, Chemical & Alcohol Technology/ Chemical & Bio-Engineering or equivalent (b) The candidate must have secured at least 55% marks (50% for reserved categories) – aggregate in B.E. / B.Tech. 2. Candidate must have M.E./ M.Tech. in Chemical & allied fields with 60% marks (55% for reserved categories).

58. Shri Guru Govind Singh Institute of Engineering & Technology, Nanded - 431 606 – SG

Code	Department	Fields of Specialization	Minimum Qualification
SGEC01	Electronics & Communication Engineering	VLSI and Embedded Systems.	M.E./ M.Tech degree in relevant discipline with minimum 55% marks or equivalent CGPA.
SGEC02		Signal Processing: Speech, Biomedical Signals.	
SGEC03		Image and Video Processing.	
SGEC04		Pattern Recognition.	
SGIC01	Instrumentation & Control	**Measurement and Instrumentation:** Industrial Instrumentation, Process Instrumentation and Control, Recent trends and Applications in Measurement and Instrumentation, Intelligent Instrumentation, Biomedical Instrumentation and Applications, Biomedical Signal Processing and Applications Advanced Sensors & MEMS Devices.	M.E./ M.Tech or Equivalent degree in Instrumentation, Instrumentation & Control, Electrical Engineering, Electronics, Electronics & Telecommunication, Electronics & Instrumentation, Electrical & Electronics Engineering, Biomedical Instrumentation with minimum 55% marks or equivalent CGPA.
SGIC02		**Control System:** Linear System Theory, Nonlinear Systems, Process Identification and Control, Robust and optimal control, sliding Mode control and Applications, Adaptive Control Computer Controlled Systems including Process Control, Large Scale System Modeling and Control, Nuclear	

Code	Department	Fields of Specialization	Minimum Qualification
		Reactor Control, Neural and Fuzzy based Control, Intelligent Control, and Evolutionary Approaches for Control System.	
SGIC03	Instrumentation & Control	**Digital Signal and Image Processing:** Signal Processing, Speech Processing, Speaker Identification and Recognition, Image Processing and Computer Vision, Biometrics and Applications, Wavelets and Applications in Real Time Processing of Signals.	M.E./ M.Tech or Equivalent degree in Instrumentation, Instrumentation & Control, Electrical Engineering, Electronics, Electronics & Telecommunication, Electronics & Instrumentation, Electrical & Electronics Engineering, Biomedical Instrumentation with minimum 55% marks or equivalent CGPA.
SGPE01	Production Engineering	Micro-Manufacturing	M.E./ M.Tech. degree in Production, Mechanical or equivalent with minimum 55% marks or equivalent CGPA.
SGPE02		Advanced Manufacturing Technologies	
SGPE03		Modeling and Analysis of Manufacturing Processes: Machining, Casting, Welding and Metal Forming.	
SGPE04		CAE for Composites	
SGPE05		Robust Design and Simulation Analysis for Products and Processes	
SGPE06		Production/ Operations Management and PLM	
SGPE07		Tool Condition Monitoring	
SGCE01	Civil Engineering	Hydraulics and / Water Resources Engineering	Master's degree in Hydraulics and/ or Water Resources/ Environmental Engineering or equivalent degree with minimum 55% marks or equivalent CGPA.
SGCE02		Environmental Engineering	
SGCE03		Geotechnical Engineering	
SGCE04		Structural Engineering	
SGME01	Mechanical Engineering	Micro Manufacturing	M.E./ M.Tech. degree in Mechanical/ Production Engineering or equivalent with minimum 55% marks or equivalent CGPA.
SGME02		Advanced Manufacturing Technologies	
SGME03		Tribological Characterization	
SGME04		Quality and Reliability	
SGME05		Production and Operation Management	
SGME06		Manufacturing Process Modeling and Analysis: Machining, Casting, Welding and Metal Forming	
SGME07		Thermo-Structural Analysis, Design and Analysis of Composites	

59. Shri G.S. Institute of Technology & Science, Indore - 452 003 – GS

Code	Department	Fields of Specialization	Minimum Qualification
GSCE01	Civil Engineering	Structural Engineering, Transportation Engineering, Environmental Engineering, Water Resource Engineering, Geotechnical Engineering, Remote Sensing.	M.E./M.Tech degree in relevant discipline with minimum 55% marks or equivalent CGPA.
GSEE01	Electrical Engineering	Power Electronics, Electrical Drives, High Voltage Engineering, Power Systems, Energy Conservation, Control Systems, Industrial Electronics.	
GSEC01	Electronics & Communication Engineering	Wireless Communication, RF and Microwave, Digital Signal Processing, Microelectronics Design, Cryptography.	
GSCS01	Computer Science & Engineering	-	
GSME01	Mechanical Engineering	Thermal Engineering, Design Engineering, Flued Engineering, Conventional and Un-conventional Energy, Tribology & Maintenance Engineering.	M.E./ M.Tech degree in relevant discipline with minimum 55% marks or equivalent CGPA.
GSIP01	Industrial & Production Engineering	Production / Operations Management, Supply Chain Management, Quality Management, Advanced Manufacturing Technology.	

60. Tezpur University, Tezpur Assam -784 028 - TU

Code	Department	Fields of Specialization	Minimum Qualification
TUCS01	Computer Science & Engineering	Mobile and Wireless Networks, Network Security, Bioinformatics, Computational Biology, Computational Linguistics, Natural Language Processing, Speech Processing, Data Mining, Machine Learning, Pattern Recognition, Image Processing, Algorithms, Computational Geometry, Remote Sensing, Image Analysis, Analysis of Social Networks, Cognitive Radio Networks, Software Defined Networking, Trust and Reputation Model in Web, Knowledge Representation and Reasoning, Blockchain	M. Tech. in Computer Science & Engineering/ I.T./Electronics MCA M.Sc. in Computer Science/I.T.
TUEC01	Electronics & Communication Engineering	Sensor Design, Machine Vision, Optical Networks and its Components, Wireless Communication, Bio-electronics, Biosensors, Neuro-bio-engineering, Microwave Antennas, Semiconductor, Bio-electronic Devices, Vehicular Electronics, Neuro-engineering, Computer Vision, Compressive Sensing MRI, Signal and Image Processing,	M.E./M.Tech./M.Sc.(Engg.)/M.S. in Electronics/Communication/ Electronics Design/ Electrical/Instrumentation/ Control/Microwave/ Biomedical/ Bioelectronics/ Biotechnology/ Computer Science/ Information Technology, M.Sc. in Electronics/ Physics/ Applied Mathematics, MCA with Physics, Chemistry and Mathematics in Bachelor degree, MBBS with MD/ MS degree.
TUEN01	Energy	Biofuels, Biomass Energy, Energy and Environment, Energy Management and Mathematical Modeling, Farm Mechanization, Fuel Cell, Hydrogen Technology and Redox Flow Battery, Solar Energy, Photovoltaic, Energy Systems	M.E./M.Tech/ M.Sc. degree in Energy Technology/ Energy Management/Energy related Engineering and Technology/Physics/ Chemistry/ Agriculture Allied subjects.
TUFE01	Food Engineering and Technology	Rice Science and Technology, Product Development, Food Quality, Food Biochemistry, Fermented Foods, Food Process Modeling, Product Technology Development, Transport Processes in Food, Process and Food Engineering, Fruits and Vegetable Processing and Machineries, Drying and Dehydration, Unit Operations, Isolation and Establishment of Probiotic Organism, Probiotic Food Formulation and Development.	M.Tech./M.E./M.Sc in Food Technology/Food Processing Technology/ Food Science and Technology/Food and Nutrition/ Microbiology/ Food Microbiology/ Bio-chemistry/Chemistry/ Bio-technology/Food Engineering/Applied Microbiology/ Dairy Engineering/ Food Bio-technology Engineering.

61. Thiagarajar College of Engineering, Madurai -625 015 – TM

Code	Department	Fields of Specialization	Minimum Qualification
TMCE01	Civil Engineering	Structural Engineering, Environmental Engineering, Hydrology and Water Resources Management, Geotechnical Engineering, Transportation Engineering, Pollution control, Construction materials, Repair & Rehabilitation.	As per the affiliating University norms. • M.E./ M.Tech. /M.S. (By Research) in the relevant branch of Engineering & Technology and • A minimum of 55% marks or CGPA of 5.5 on a ten point scale in the qualifying exam (50% marks or CGPA of 5.0 on a ten point scale for SC/ST candidates).
TMEE01	Electrical Engineering	Power Systems, Soft computing, Renewable Energy Resources, Energy Conservation and Management, Power Electronics and Drives, Electrical Machines, Optimisation Techniques, Smart Grid, Distributed Generation Systems, Special Machines, Control Systems, FACTS devices and controllers, AI and Expert Systems Applications.	
TMME01	Mechanical Engineering	Thermal Engineering, Computational Fluid Dynamics, Design Engineering, Composite Materials, Automation, CAD/CAM, CIM, Machine Vision, Mechatronics, Rapid Prototyping, Quality Engineering, Reliability Engineering, Industrial Engineering, Manufacturing Management, Logistics and Supply Chain Management, Lean/Agile Manufacturing, Robotics, Micro channel cooling.	As per the affiliating University norms. • M.E./ M.Tech. /M.S. (By Research) in the relevant branch of Engineering & Technology and A minimum of 55% marks or CGPA of 5.5 on a ten point scale in the qualifying exam (50% marks or CGPA of 5.0 on a ten point scale for

Code	Department	Fields of Specialization	Minimum Qualification
TMEC01	Electronics & Communication Engineering	Wireless Communication, Digital Signal Processing, RF Circuits and Systems, Antennas., RFMEMS, Image Processing, Remote Sensing and GIS, VLSI Design, Embedded Systems, Sensors and Instrumentation, Wireless Networks, Medical Electronics, Optical Communication	SC/ST candidates).
TMCS01	Computer Science & Engineering	Network Security, Data Mining, Artificial Intelligence, Multicore Architecture, Parallel Processing, Computer Networks, Knowledge Engineering, Machine Learning, Software Testing, Software Quality and Reliability, Grid Computing, Internet Technology, Compliers, Multimedia, Computer Vision, Biometrics, Multimedia and Graphics, Computer Algorithms.	

62. The National Institute of Engineering, Mysore- 570 008 – NM

Code	Department	FieldsofSpecialization	MinimumQualification
NMCE01	CivilEngineering	Structural Engineering, Geotechnical Engineering, Water Resources & Environmental Engineering, Transportation Engineering, Remote sensing and GIS.	M.E/M.Tech in Civil Engineering with at least 60% marks or equivalent grade.
NMEE01	ElectricalEngineering	Power system distribution, Voltage stability, Power system dynamics, FACTS, Distributed generation, SMARTGRID, Artificial Intelligence applications.	B.E./B.Tech in Electrical Engineering with 60% marks (aggregate of all years/ semesters), M.E./M.Tech in Electrical Engineering with at least 70% aggregate marks or equivalent grade.
NMIP01	Industrial& Production Engineering	Operations Management, Technology enabled education, Metal cutting, Industrial engineering and management, Manufacturing, Mechanical and wear characterization of advanced composites.	M.E./M.Tech in Mechanical/ Production/ Management and related branch with at least 60% marks or equivalent grade.
NMCS01	Computer Science &Engineering	Data mining, Cloud computing, Network security, Big data analysis and related fields.	B.E./B.Tech in Computer science & Engineering/Information science & Engg with 60% marks (aggregate of all years/ semesters), M.E./M.Tech in Computer Science & Engineering/ Information Science & Engineering with a minimum of 75% marks or equivalent grade from UGC recognized universities.M.E./M.Tech in Computer Science & Engineering/ Information Science & Engineering with a minimum of 75% marks or equivalent grade from UGC recognized universities.

63. TKM College of Engineering, Kollam (Kerala) - 691 005 - TK

Code	Department	Fields of Specialization	MinimumQualification
TKCE01	CivilEngineering	Structural Engineering, Structural dynamics and Earth Quake Engineering, Water Resources Engineering, Hydraulics, Concrete, Supplementary Cementing Materials, Building Technology, Construction Management, Lean Construction, Sustainable Development Environmental Engineering, Environmental Geotechnology, Water and Wastewater Treatment, Advanced Oxidation Processes, Environmental Science, Engineering Geology.	Master’s degree in Civil Engineering with First division or equivalent.

TKME01	Mechanical Engineering	Thermal management of electronic systems, cryogenic heat transfer, heat and mass transfer in multiphase and single phase systems, food preservation, cryocoolers for space applications, Computational Fluid Dynamics (CFD), Finite Element Methods, Cryogenic Engineering, Bio-medical Engineering, Energy and Exergy based Thermodynamic Analysis, Refrigeration and Air-conditioning LNG Technologies, Cryogenics based Carbon Dioxide Capture, computational combustion, fracture mechanics, micro structural studies, biomechanics, rapid prototyping, Solar cooling systems, Energy conservation in thermal systems, Composite parabolic collectors, Green buildings, Composites, Optimisation Techniques, Materials Technology, New Product Development, Manufacturing, Smart Fluid related processes, Thermoacoustics, Thermal Turbo Machinery, Design for human, Digraph techniques for engineering and social causes, Development of sensors for cryogenic application, nanomaterials and nanofluids, super conductivity.	Master's degree in Mechanical Engineering with First division or equivalent.

64. University Visveswaraya College of Engineering, Bangaluru- 560 056 - UV

Code	Department	Fields of Specialization	Minimum Qualification
UVCE01	Civil Engineering	Structural Engineering, Geotechnical Engineering, Environmental Engineering, Construction Technology; Highway Engineering, Water Resources Engineering, Pre-stressed Concrete.	A master degree in Civil Engineering or any of the branches of Civil Engineering or equivalent fields with minimum 60% marks.

65. University College of Engineering, Osmania University, Hyderabad-500 007 - OU

Code	Department	Fields of Specialization	Minimum Qualification
OUCE01	Civil Engineering	Construction Engineering and Management Geotechnical Engineering, Infrastructure Engineering, Structural Engineering, Water and Environmental Engineering, Transportation Engineering.	First Class M.E./ M.Tech in Civil Engineering.
OUCS01	Computer Science and Engineering	Cloud Computing, Data Mining, Distributed Computing, Image Processing, Information Retrieval Systems, Mobile Computing, Parallel Processing Applications, Parallel Algorithms, Text Mining.	First Class M.E./ M.Tech in Computer Science and Engineering.
OUME01	Mechanical Engineering	Advanced Manufacturing, Additive Manufacturing (RPT) Advanced Energy Systems, Bulk Material Handling, CAD/CAM Design, Computational Fluid Dynamics, Composite Materials, Experimental Techniques in Turbomachines, Finite Element Methods, Industrial Engineering, Materials Forming, Production Engineering, Robotics, Severe Plastic Deformation, Thermal Engineering, Turbo Machinery.	First Class M.E./ M.Tech in Mechanical Engineering.
OUEE01	Electrical Engineering	Application of Power Electronics to Renewable Energy Sources, Control of Electric Drives, Control and Automation, Distribution Automation, Electrical Machines, Hybrid Electrical Vehicles, Reactive Power Optimization, Soft Computing applications to Design and Control of Microgrid. **Power Systems:** Multilevel Inverter and its Applications, Power System Control and Optimization, Smart grid based Power Systems and Power Quality Problems, Power System Security, AI Applications to Power Systems, Power System Operation and Control, Power System Reliability.	First Class M.E./ M.Tech in Electrical Engineering.

Code	Department	Fields of Specialization	Minimum Qualification
OUEC01	Electronics and Communication Engineering	Image Processing, GNSS, Signal Processing, Speech Analysis, VLSI.	First Class M.E./ M.Tech in Electronics and Communication Engineering.

66. University of Hyderabad, School of Computer and Information Sciences, Hyderabad -500 046, - UH

Code	Department	Fields of Specialization	Minimum Qualification
UHCS01	Computer and Information Science	Image Processing, Computer Vision, Neural Networks, Grid & Cloud Computing, Distributed Computing, Software Engineering, Natural Language Engineering, Computer Networks, Mobile Computing, Cryptography, Combinatorial optimization, Computational modeling of Biological & Social Networks, Bio Informatics, Systems Security, Speech Processing, Data Mining, Neural Networks, Rough sets, Pervasive Computing, Pattern recognition, Machine Learning, Knowledge representation & reasoning, Network Forensics, Simulation & Modeling.	First Class Master's Degree in Engineering/ Technology or equivalent in Computer Science.

67. Veer Surendra Sai University of Technology, Burla – 768 018 VB

Code	Department	Fields of Specialization	Minimum Qualification
VBCE01	CivilEngineering	Geotechnical Engineering, Structural Engineering, Water Resources Engineering, Environmental Engineering, Transportation Engineering.	M.E./M.Tech with minimum of 6.75 CGPA in 10 point scale (or 60% or more in aggregate) in Master's level and minimum of 6.75 CGPA (or 60% mark in aggregate) at the Bachelor's level.
VBEE01	ElectricalEngineering	Power System Engineering, Power Electronics & Drives, Control System Engineering, Renewable Energy Resources.	
VBEC01	Electronics & CommunicationEngineering	Signal Processing, Image Processing, Electromagnetics & Microstrip Antenna, Computational Intelligence, VLSI, Wireless Communication.	
VBME01	MechanicalEngineering	Machine Design & Analysis, Production Engineering, Thermal Engineering, Surface Engineering, CFD Analysis, Vibration Analysis, Tribology.	
VBPE01	ProductionEngineering	Robotics, Non-Traditional Machining, Manufacturing Systems, Advance Casting, Advance Welding, FMS, CIM, CAD/CAM, RP Operation Management.	

68. Veermata Jijabai Technological Institute (VJTI), Mumbai (Maharashtra) – 400 019 - VM

Code	Department	Fields of Specialization	Minimum Qualification
VMEE01	Electrical Engineering	High Voltage, Partial Discharge, control system, Power System Stability, Smart Grid, Dynamic & Control, Renewable Energy.	M.E./M.Tech.(Electrical Engineering) or allied areas consistent with field of specialization.
VMCE01	Civil Engineering	Civil Engineering, Structural Engineering, Environmental Engineering, Construction Management, Construction Engineering, Earthquake Engineering, Transportation Engineering, Geospatial Technology, Remote Sensing, Geotechnical Engineering, Foundation Engineering, Geotechnical earthquake engineering, Water resource management, Civil Technology, Construction Engineering & Management, Construction Technology, Construction Technology & Management, Environmental Management, Environmental Science &Engineering, Environmental Science & Technology, Water & Environmental Technology, Civil and Water Management Engineering, Building Construction & Technology, Infrastructure Engineering.	M.E./M.Tech. in Civil Engineering or allied areas consistent with field of specialization.

Code	Department	Fields of Specialization	Minimum Qualification
VMME01	Mechanical Engineering	Design, Vibration, Tribology, FEA, Mechatronics, CAD/CAM, Robotics, Solar Energy, Energy Management, Thermodynamics, Microfluidics, Thermal and Fluid Engg., Computational Fluid Dynamics, Refrigeration and Air conditioning, Material science, Manufacturing Engg., Nanotechnology, Composites etc.	M.E./M.Tech.(Mechanical Engineering) or allied areas consistent with field of specialization.
VMEC01	Electronics Engineering	Biomedical Signal Processing, Computer Architecture, Virtual Instrumentation, Smart Grid, Dynamics & Control, Computer Communication, Wireless Communication, Sensor Networks.	M.E./ M.Tech (Electronics Engineering/ Electronics & Telecommunication Engineering) or allied areas consistent with field of specialization.
VMTX01	Textile Technology	Textile Technology, Textile Engineering, Fibre Science & Technology, Textile Chemistry, Fibres & Textile Processing Technology, Manmade Fibre Technology, Jute and Fibre Technology, Technical Textiles.	M.E./M.Tech in relevant branch.

69. Visvesvaraya National Institute of Technology, Nagpur 440 011 – VR

Code	Department	Fields of Specialization	Minimum Qualification
VREE01	Electrical Engineering	Power System Stability/ Operation /Protection, Power Electronics, HVDC/ FACTS, Electric Drives/ Renewable Energy Systems, Control System.	First Class Master' degree in Electrical Engineering, Power Systems/ Power Electronics/ Electric Drives/ Control and Instrumentation/ Control System/ Inumentation.
VRMT01	Metallurgical Engineering	1. Alloy Development 2. Corrosion & High temperature oxidation 3. Development of: a) Ceramic & glasses b) Polymeric materials c) Composites 4. Fatigue and fracture behaviour of materials 5. High temperature deformation. 6. Wear behaviour of engineering materials 7. Welding metallurgy.	M.Tech./ M.E. (Metallurgical Engg. OR Materials Science & Engineering OR Mechanical Engineering OR Polymer Engineering).

70. Walchand College of Engineering, Sangli – 416 415 WS

Code	Department	Fields of Specialization	Minimum Qualification
WSCS01	Computer Science & Engineering	Artificial Intelligence, Pattern Recognition, Machine Learning, Databases, Data Mining, Networking, Image Processing, Network Security, High Performance Computing, Cloud Computing, Computer Vision, GIS, Big Data, **IoT, Soft Computing.**	As per Shivaji University Kolhapur Norms (http://www.unishivaji.ac.in/)
WSEC01	Electronics Engineering	Digital Signal Processing, Electronic Communication Engineering, VLSI Design, Image Processing, Electronic System Design, Control Systems, Mobile Communication, Sensor Networks, Image Processing, Microwave Energy, Biomedical Electronics, Machine Vision.	

Code	Department	Fields of Specialization	Minimum Qualification
WSCE01	Civil Engineering	**Civil Environmental Engineering:** Water and Wastewater Treatment, Modeling of Environmental Systems, Solid Waste Management, Air Pollution, Constructed Wetlands. **Civil Building Technology:** Structural masonry and materials, Construction project management, Energy Efficiency in Building, Passive design in building performance. **Civil Structural Engineering:** Earthquake Engineering, Finite Element Analysis, Structural dynamics, Concrete technology, Structural Engineering, Design optimization, Composite material, Smart material, Structural Health Monitoring, Rehabilitation and retrofitting of structures, Nano-machines and Nano-material, Pre-stressed concrete.	As per Shivaji University Kolhapur Norms (http://www.unishivaji.ac.in/)
WSME01	Mechanical Engineering	Heat Power Thermal Engineering, Cryogenics, Production Engineering Mechatronics, Micromachining, Manufacturing, Design Engineering, Condition Monitoring, Industrial Engineering, Vibration and Acoustics, Non-conventional machining.	
WSEE01	Electrical Engineering	Power System Analysis, Operation, Control and Protection, Power Quality Issues, Power Electronics and Drives, High Voltage Engineering, Renewable Energy Sources, Control Systems, Adaptive and Optimal Control Systems, Non Liner and Digital Control Systems, Micro-grid, and Distributed generation.	

71. Indian Institute of Technology, Hyderabad, Telengana 502285 - HY

Code	Department	Fields of Specialization	Minimum Qualification
HYCE01	Civil Enineering	Environmental Engineering	First class Master's degree in Biotechnology/ Chemical Engineering/ Environmental Engineering/ Environmental Science from a recognized university.
HYCE02		Geotechnical Engineering	First class Bachelor's degree in Civil Engineering from a recognized university AND • First class Master's degree in Geotechnical (or, al-lied) Engineering from a recognized university.
HYCE03		Structural Engineering	First class Bachelor's degree in Civil/ Aerospace/ Mechanical Engg. from a recognized University AND • First class Master's degree in Structural (or, allied) Engineering from a recognized university.
HYCE04		Water Resources Engineering	• First class Master's degree in Agricultural Engineering/ Earth Sciences/ Geophysics/ Hydrology/ Meteorology/ Remote Sensing and GIS/ Water Resources Engineering from a recognized university.
HYCE05		Transportation Engineering	First class Bachelor's degree in Civil Engineering from a recognized university AND • First class Master's degree in Transportation (or, allied) Engineering from a recognized university.
HYBT01	Biotechnology	Biochemistry, Microbiology, Cell biology, Computational Biology, Structural Biology, Biophysics, Genetics, Neurobiology.	M.Tech or M.Sc. degree in any allied area of Life Sciences.

HYCS01	Computer Science & Engineering	Theoretical computer science, networks, machine learning, data science, computer architecture, parallel and distributing computing, and other emerging areas in computer science and engineering.	Candidates with a B.Tech./ B.E./ B.S./ M.Sc./ MCA degree in any discipline and having a M.Tech/ M.E./ M.S. degree in CSE/ IT/ ECE/ EE.
HYEE01	Electrical Engineering	Communication Systems including RF and Photonics, Image, Speech and Signal Processing, Artificial Intelligence and Machine Learning**, Bioinformatics, Computer vision**, Wireless Communication, **Analog, Mixed Signal VLSI Design, RFIC Design, PMIC Design,** Power Systems, Machines**, Renewable Energy Interface, Smartgrid, Microgrid, Machine Control, Power Converter Control, Control Engineering, Systems Theory**, Microelectronics, Nano Devices, MEMS and Sensors, Organic Electronics, Power Electronics, Biomedical Devices.	Master's degree in Electrical or Electronics and Communication Engineering, Instrumentation Engineering, Nanotechnology or Master's degree in Physics followed by a Master's degree in Engineering in an area of relevance to the area of research.

72. Indian Institute of Technology, Bhubneshwar, Orissa 751 013 –BH

Code	Department	Fields of Specialization	Minimum Qualification
BHBS01	School of Basic Sciences	Basic Science Chemistry Mathematics Physics	• Minimum 60% marks or 6.5 CGPA (in a 10-point scale) in the Master's or equivalent degree in appropriate discipline with consistently good academic record. • Minimum 55% marks or 6.0 CGPA (in a 10-point scale) in the Bachelor of Science or equivalent degree in appropriate discipline with consistently good academic record. • Minimum 60% marks or 6.5 CGPA (in a 10-point scale) is required in all other examinations. A single relaxation up to 10% marks either at Xth or XIIth level examination or equivalent is permitted.
BHHS01	School of Humanities Social Science and Management	Economics English Psychology	• Minimum 55% marks or 6.0 CGPA (in a 10-point scale) in the Master's degree in appropriate discipline. • Minimum 60% marks or 6.5 CGPA (in a 10-point scale) is required in all other examinations. A single relaxation up to 10% marks either at Xth or XIIth level examination or equivalent is permitted. • The candidate must be UGC-NET (JRF and LS) qualified.
BHCG01	School of Earth, Ocean and Climate Sciences	Climate Sciences Geosciences	**Climate Sciences** Minimum 60% marks or 6.5 CGPA (in a 10-point scale) in the Master's or equivalent degree in Physics/ Chemistry/ Mathematics/ Oceanography/ Meteorology/ Marine Science/ Earth Science/ Mechanical/ Civil/ Electrical/ ECE/ Geoinformatics/ Remote Sensing/ Computer Science. Minimum 55% marks or 6.0 CGPA (in a 10-point scale) in the Bachelor of Science or equivalent degree in appropriate discipline with Mathematics as a compulsory subject. Minimum 60% marks or 6.5 CGPA (in a 10-point scale) is required in all other examinations. A single relaxation up to 10% marks either at Xth or XIIth level examination or equivalent is permitted. **Geosciences** • Minimum 60% marks or 6.5 CGPA (in a 10-point scale) in the Master's or equivalent degree in Geology/Geophysics/Earth Science. • Minimum 55% marks or 6.0 CGPA (in a 10-point scale) in the Bachelor of Science or equivalent degree in appropriate discipline with consistently good academic record. • Minimum 60% marks or 6.5 CGPA (in a 10-point scale) is required in all other examinations. A single relaxation up to 10% marks either at Xth or XIIth level examination or equivalent is permitted.
BHES01	School of Electrical Sciences	Computer Science & Engineering Electrical Engineering Electronics & Communication Engineering	• Minimum 60% marks or 6.5 CGPA (in a 10-point scale) in M.Tech/ M.E. or equivalent degree in appropriate discipline. OR B.Tech/

Code	Department	Fields of Specialization	Minimum Qualification
BHIF01	School of Infrastructure	Civil Engineering	B.E. or equivalent degree in appropriate discipline with minimum 70% marks or 7.5 CGPA (in a 10-point scale) OR Minimum 60% marks or 6.5 CGPA (in a 10-point scale) in Master of Science or equivalent degree in appropriate discipline with consistently good academic record. • Minimum 60% marks or 6.5 CGPA (in 10 point scale) is required in all other examinations. A single relaxation up to 10% marks either at Xth or XIIth level examination or equivalent is permitted.
BHME01	School of Mechanical Sciences	Mechanical Engineering	
BHMM01	School of Metallurgical and Materials Sciences	Metallurgical and Materials Engineering	

73. Indian Institute of Technology, Patna, Bihar 801 103 – PA

Code	Department	Fields of Specialization	Minimum Qualification
PAME01	Mechanical Engineering	Mechanical Engineering	As per IIT Patna Bihar norms (https://www.iitp.ac.in/)
PACB01	Chemical & BioMedical Engineering	Chemical & BioMedical Engineering	
PACE01	Civil & Environmental Engineering	Civil & Environmental Engineering	
PACS01	Computer Science & Engineering	Computer Science & Engineering	
PAEE01	Electrical Engineering	Electrical Engineering	

74. Indian Institute of Technology, Indore, Madhya Pradesh 453 552- IR

Code	Department	Fields of Specialization	Minimum Qualification
IRCS01	Computer Science and Engineering	Computer Science and Engineering	1. Minimum first class* Master degree in the relevant discipline of the Engineering/ Technology, **OR** 2. Minimum first class* Bachelor degree in the relevant Engineering/ Technology discipline from a reputed Institute with a valid GATE score, **OR** 3. BTech degree from an Indian Institute of Technology (IIT) with a minimum CPI of 8.0 **OR** 4. Minimum first Class* Master degree in the relevant discipline of Science with valid GATE qualification **OR** UGC/CSIR-JRF qualification **OR** equivalent fellowship.
IREE01	Electrical Engineering	Electrical Engineering	
IRME01	Mechanical Engineering	Mechanical Engineering	
IRCE01	Civil Engineering	Civil Engineering	
IRBB01	Bio-Sciences and Bio-Medical Engineering	Bio-Sciences and Bio-Medical Engineering	

75. Indian Institute of Technology, Ropar, Punjab 140 001- RO

Code	Department	Fields of Specialization	Minimum Qualification
ROME01	Mechanical Engineering	Mechanical Engineering	As per IIT Ropar, Punjab norms (www.iitrpr.ac.in/)
ROCS01	Computer Science and Engineering	Computer Science and Engineering	
ROCE01	Civil Engineering	Civil Engineering	
ROCH01	Chemical Engineering	Chemical Engineering	
ROEE01	Electrical Engineering	Electrical Engineering	

76. Indian Institute of Technology, Mandi, Himachal Pradesh 175 005- MA

Code	Department	Fields of Specialization	Minimum Qualification
MABS01	School of Basic Science	Basic Science.	Master's degree in Sciences with a good academic record/ Master's degree in Engineering/Technology with a good academic record/ B. Tech degree of IIT with a minimum of CGPA of 8.0 on a 10.0 point scale or with a valid

Code	Department	Fields of Specialization	Minimum Qualification
			GATE Score or B. Tech / B.E degree of any recognized University in India with a minimum CGPA of 8.0 on a 10.0 point scale or equivalent with valid GATE score.
MACS01	School of Computing & Electrical Engineering	Computing & Electrical Engineering.	**(a)** Candidates with a Master's degree in Engineering/ Technology with a good academic record or a Master's degree by Research in Engineering/ Technology disciplines, with a good academic record.**or** **(b)** Candidates with Master's degree in Sciences with a good academic record and of exceptional merit are eligible for the relevant Engineering discipline and with a valid GATE score or UGC/ CSIRNET/ NBHM or equivalent qualification in the relevant area tenable for the year of registration. In the case of candidates with more than 5 years of relevant experience after the Master's degree, the requirement of a test score may be waived by the Selection Committee.**or** **(c)** Candidates who have qualified for the award of Bachelor's degree in Engineering/Technology with exceptionally good academic record in an eligible discipline will be considered for direct admission to Ph.D. Programme as a regular full time scholar subject to the following conditions: (i) B.Tech degree from one of the IITs, with a minimum CGPA of 8.0 on a 10.0 point scale. (ii) Bachelor's degree in Engineering/ Technology from any other University, should be among the top 5% or 20 rank holders, declared by the University and having a valid GATE score. (iii) Bachelor's degree holder in Engineering/ Technology, serving for two years or more in a reputed R & D organization and having a proven research record.
MASE01	School of Engineering	Engineering.	

77. Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab 144 011- JL

Code	Department	Fields of Specialization	Minimum Qualification
JLCH01	Chemical Engineering	Chemical Engineering	Master’s Degree in Engineering /Technology in the relevant area of research along with Bachelor’s Degree in appropriate branch of Engineering/Technology with a first class or minimum 60% marks (or CGPA of 6.5 on 10 point scale) in the qualifying examination.
JLCS01	Computing Science &Engineering	Computing Science & Engineering	
JLME01	Mechanical Engineering	Mechanical Engineering	
JLEC01	Electronics & Communication Engineering	Electronics & Communication Engineering	

78. M. S. Ramaiah Institute of Technology, Bengaluru, Karnataka 560 054 - MB

Code	Department	Fields of Specialization	Minimum Qualification
MBCE01	Civil Engineering	**General Civil Engineering:** •Application of Bio mimicry in civil Engineering, •Environmentally responsible infrastructure development, •Sustainable /green building technologies, materials and climate specific building design. Embodied Energy & life cycle assessment. **Geotechnical Engineering:** •Earthquake Geotechnical Engineering •Geo environmental Engineering, Geosynthetics •Experimental Mechanics. **Water Resources Engineering**: •Open Channel Flows and Pipe networks •Surface and Ground Water Hydrology •Reservoir planning and regulation, Hydrologic simulation applications, •Urban hydrology & drainage systems •Utilization of Remote sensing & GIS techniques. **Environmental Engineering**: •Solid waste treatment, recycling and management •Environmental Impact Assessment, •Air pollution monitoring, modeling and control •Waste Water treatment and recycling. **Structural Engineering:** •Structural Mechanics and Finite Element Analysis •RC and Pre-stressed Concrete, Masonry Structures •Structural Safety and Structural Health Monitoring •Retrofitting of RC Structures and Artificial Intelligence & Machine Learning Techniques. **Transportation Engineering**: •Modeling and Optimization of Transportation Systems •Travel Behavior, Public Transport and Non-Motorized •Transport Planning and Management, Accident and Black Spot Studies •Highway Engineering.	M.E./ M.Tech in Transportation Engineering/ Highway Engineering/ Structural/ Concrete Technology/ Construction Management/ Geo-technical Engineering/ Water Resources/ Environmental Engineering/ Remote sensing & GIS/ Public Health Engineering or equivalent Degree.
MBME01	Mechanical Engineering	**Manufacturing Engineering:** •Metal Matrix composites, Natural Fibre composites, Polymer composites •Tool Design, Rapid Prototyping and Tooling, Modeling and Simulation, CAD/CAM, CNC •Product Design and Manufacturing, Lifecycle Management, Inventory and Supply Chains Management, Management of Operations, Maintenance Management. •**Thermal and Fluid Engineering:** Convective and Radiative Heat Transfer •Design of Thermal Equipment and Systems, Numerical Techniques •Modeling and Analysis, combustion and Flames, Fuel injection, Petrol and Diesel Engines, CFD. **Design Engineering:** •Stress Analysis, Fatigue and Fracture, Fracture Mechanics •FEM, Tribology Design of Elements and Systems •Optimization, CAD •Vibrations •Smart Materials and Structures, NDT.	M.E./ M.Tech Degree in Mechanical Engineering/ Production Engineering/ Industrial Engineering/ Metallurgical Engineering/Automobile Engineering/ Applied Mechanics Engineering/ Engineering Materials Technology.

Code	Department	Fields of Specialization	Minimum Qualification
MBEE01	Electrical & Electronics Engineering	**Power Systems** HVDC Transmission Systems •Distributed Generation •Smart Grid •Artificial Intelligence Applications to Power Systems **Power Electronics & Drives** •Power Quality •Switched Mode Power Supplies •Power Electronics for Renewable Energy •Induction Motor Drive System **High Voltage Engineering** •Insulation Engineering •Condition Monitoring and Diagnostics for HV Power Apparatus •EHV Power Transmission •Lightning Protection •Computational Electromagnetics •Composites for High Voltage applications **Robotics & Automation** •Sensing •Controls •Signal/ Image Processing •Machine Learning •Medical Robotics **Micro & Nano Systems** •Bio Electronics •MEMS	M.E./ M.Tech in Power Systems/ Power Electronics/ Power & Energy Systems/ Electrical Energy Systems/ Electrical Machines/ Computer Applications in Industrial Drives/ Control Systems/ Control and Instrumentation/ VILSI & Embedded Systems/ or equivalent degree.

79. Bannari Amman Institute of Technology, Erode, Tamil Nadu 638 401 - ER

Code	Department	Fields of Specialization	Minimum Qualification
ERBT01	Bio-Technology	**Life Sciences:-** Molecular Biology and Genetic Engineering, Plant Biotechnology, Animal Biotechnology, Molecular Diagnostics, Herbal Medicine, Pharmacology, Bio fertilizers, Microbial Fuel Cell, Pharmaceutical Microbiology. **Technology and Engineering:-** Biopharmaceutical Technology, Pharmaceutical Biotechnology, Bioprocess Engineering, Microbial Biotechnology, Tissue Engineering, Regenerative Medicine, Biomaterials, Chemical Reactor Design, Environmental Biotechnology, Nanobiotechnology.	As per the affiliating University norms. • M.Sc./ M.Phil/ M.E./ M.Tech. or equivalent Degree in Biotechnology or Environmental engineering or Biomedical Engineering or MPharm or allied disciplines in the relevant branch of Engineering and Technology. • A minimum of 55% of marks/CGPA of 5.5 on a 10 point scale in Master's degree in Engineering/Technology. In case of SC/ST candidates, 50% marks or CGPA of 5.0 on a 10 point scale in the respective Master's degree.
ERCS01	Computer Science & Engineering	**Intelligent Systems :-** Artificial Intelligence, Pattern Recognition, Machine Learning, Computer Algorithms & Optimization Techniques, Soft Computing, Data Mining & Information Retrieval, Big Data Analysis, Bioinformatics, Social Network Analysis, Cognitive Systems, Deep Learning, Image Processing, Computer Vision and Graphics **Computer Systems and Software:-** Computer Communication, Wireless Sensor Networks, Internet of Things, Mobile Computing, AdHoc Networks, Human-Computer Interactions, Cyber Physical Systems, Embedded System, Computer Security, Cloud and Distributed Computing.	As per the affiliating University norms. • M.E./M.Tech. or equivalent Degree in Computer Science and Engineering or Electrical Communication Engineering or Electrical Engineering or Information Technology or Information Sciences or allied disciplines in the relevant branch of Engineering and Technology • A minimum of 55% of marks/CGPA of 5.5 on a 10 point scale in Master's degree in Engineering/Technology. In case of SC/ST candidates, 50% marks or CGPA of 5.0 on a 10 point scale in the respective Master's degree.

Code	Department	Fields of Specialization	Minimum Qualification
EREC01	Electronics & Communication Engineering	**Electronics System Design:-** VLSI system Design, Embedded System Design, Medical Electronics, Robotics, Device modelling, Semiconductor Memories, Nano Electronics, Display Devices. **Communication Systems:-** Wireless Communication Systems, Communication Signal Processing, Wireless Networks, Smart Antenna Design, RF System Design, Computer Communication, Wireless Sensor Networks, Internet of Things, Mobile Computing, AdHoc Networks, Human-Machine Interactions. **Intelligent Systems :-** Artificial Intelligence, Pattern Recognition, Machine Learning, Computer Algorithms & Optimization Techniques, Soft Computing, Software Defined Radio, Cognitive Radio, Deep Learning, Image Processing, Computer Vision and Graphics.	As per the affiliating University norms. • M.E./M.Tech. or equivalent Degree in Electronics and Communication Engineering, Computer Science and Engineering or Electrical and Electronics Engineering or Electrical Engineering or Information Technology or Information Sciences or allied disciplines in the relevant branch of Engineering and Technology • A minimum of 55% of marks/CGPA of 5.5 on a 10 point scale in Master's degree in Engineering/Technology. In case of SC/ST candidates, 50% marks or CGPA of 5.0 on a 10 point scale in the respective Master's

QUALITY IMPROVEMENT PROGRAMME

Application for Advance Admission to Ph.D. Degree Programme 2020-2021
Copy to Principal Coordinator QIP

Specimen Application and NOT to be used for filling application

Affix Stamp Size Photo

1. Application Number:

2. Name:

3. Designation:

4. Department:

5. College Address:

6. Contact Address:

7. Phone (Office): **8. Mobile :**

9. Phone (Residence): **10. Email :**

11. Date of Birth: **12. Gender:**

13. Category: **14. Married:** **Yes/No**

15. Physically Disabled: **Yes/No**

16. UG Degree:

Year**:** University**:**

Class/Division**:** Overall Percentage/CGPA**:**

17. PG Degree:

Year**:** University**:**

Class/Division**:** Overall Percentage/CGPA**:**

18. Teaching Experience as on September 30, 2019 (Monday):

19. Industrial / Research Experience as on September 30, 2019 (Monday):

20. Number of QIP/ISTE/AICTE/IMPACT Courses Attended

a) 4 to 7 days Duration: b) Two weeks Duration: c) More than 2 weeks:

21. Number of Research Papers:
a) In Refereed journals: b) In Conference Proceedings:

22. Institutions and Departments to which Admissions are sought

	Name of the Institute	Choice of Specialization	
		First Choice	Second Choice
Preference 1			
Preference 2			
Preference 3			

23. Academic Data (Examination Passed B.E/B.Tech/B.Arch/B.Sc(Engg)/Equivalent)

Semester/Year	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

24. Academic Data (Examination Passed M.E./M.Tech. or Equivalent)

Semester/Year	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

25. Any other Qualification

Degree	University	Year	Specialization	Class	Marks Obtained	Percentage	GPA

26. Teaching Experience at Degree Level as on September 30, 2019 (Monday)

Sl.No	Name and Address of Employer & Institution	From (Date)	To (Date)	Years-Months	Designation

27. Industrial/Research Experience as on September 30, 2019 (Monday)

Sl.No	Name of the Organization	From (Date)	To (Date)	Years-Months	Designation

28. Short Term Courses attended

Sl.No	Name of the Course & Category	Organizer	Days	From	To

29. Research Papers/Book

Sl.No	Title of Paper/Book	Name of Author(s)	Name of Journal/Conference	Year	Vol.	Pages

Declaration

a. I declare that all the informations given by me in this application form are correct to the best of my knowledge and belief, and I understand that false or incomplete information would cause invalidation of the application.

b. I shall abide by the decision of the National QIP Coordination Committee in all matters pertaining to admissions. The decision of the Committee shall be final and binding on me.

c. I shall abide by the rules and regulations of the Institutions to which I will be offered admission, if selected.

d. For all legal actions, suits and proceedings, the jurisdiction of a court of law shall be deemed to lie exclusively at the place at which the Institution considering me for admission is situated or the place where the office of the Principal Coordinator QIP is located and at no other court of place.

e. I understand the contents of this form and, particularly, this declaration being made here.

Place: **Signature of the Applicant**
Date:

Certificate and Forwarding Note by the Principal/ Head of the Institution

a) Our Institution as well as the academic department, to which the applicant Mr./Ms. _____ _____ belongs, is approved by AICTE.

b) The applicant is a full-time regular/ permanent faculty member of our Institution and is not on deputation to any other Institution.

c) The applicant has _____ years and _____ months of teaching experience as on **September 30, 2019 (Monday)** at the graduate level (Certificates enclosed).

d) The applicant will be relieved full-time for the programme on deputation and will be paid full salary and allowances during the tenure of his/her sponsorship, if selected for admission.

Office Seal: **Signature of Principal or Head of Institution**
(with full contact details Name, Designation, Contact No., E-mail & AICTE affiliation No.).

_____
_____
_____
_____
_____

Date:

Important Note:

- Conditional Recommendation will not be accepted.
- This Forwarding Note should be signed only by the Principal or the Head of the Institution.
- Any alteration made in the text of this Forwarding Note leads to automatic rejection of the application.
- Please attach separate experience certificate.
- Please attach a copy of the receipt of online payment.

For any further details please contact the zonal QIP Coordinators at address indicated below

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