INFORMATION BROCHURE

(Semester II, 2025-2026)

for admission to

Ph. D. and M. S. (R) Programmes

(For Indian Applicants)

INDIAN INSTITUTE OF TECHNOLOGY DELHI

HAUZ KHAS, NEW DELHI 110016

CONTENTS

MESSAGE TO THE APPLICANTS FROM THE DEAN, ACADEMICS

I am very happy to note that you are planning to pursue your postgraduate education, and in particular you are considering IIT Delhi as one of your choices. Your decision to pursue post-graduate education would definitely have a significant impact on your long-term career prospects. IIT Delhi with its 31 Ph.D., 43 M.Tech., 20 M.S.(R), 6 M.Sc., 3 M.B.A., 1 MPP, 1 M.A. and 1 M.Des. Programmes, offer you extensive choices of specializations. The strength of the Institute is its 720+ highly qualified faculty, due to which it is continuously ranked among the top technical institutions globally. You may wish to note that IIT Delhi has a larger number of students in post-graduate programmes than in undergraduate programmes. We urge you to consider us as your institution of choice to further your goals of getting a higher professional degree.

As you may be aware, IIT Delhi is recognized as an Institution of Eminence (IoE) by the Government of India. While this is a great recognition, it is also a great responsibility on all of us and indeed our prospective PG students, to take this Institution to even greater heights. We would like you to consider joining us in this journey.

In the last few years, we have constantly been working towards making our rules, regulations, and policies governing post-graduate education flexible and attractive to potential candidates. I am writing this letter to make you aware of some major policy changes in the last couple of years.

1. At IIT Delhi, most of the academic Departments/ Centres/ Schools offer M. Tech. and Ph.D. programmes, while some of them also offer an M.S.(R) programme. It is possible for a student to switch from one programme to another any time after one semester of joining. For example, a candidate joining an M. Tech. programme can apply for the switch to a Ph. D. programme in the same Department (or even in another eligible Department), after completing 12 credits of courses with a minimum CGPA of 8.0. All his/her earned credits, if relevant to the new programme, can be considered in the new programme as well. Similar flexibility exists for switching between other programmes.
2. In the last year, IIT Delhi has initiated sponsored research activities worth around Rs. 1580 crores which are expected to grow further this year. Candidates wanting to gain project experience along with post-graduate education can apply and join one of the sponsored projects simultaneously with admission to the post-graduate degree. Apart from gaining experience, various schemes may provide for higher assistantship amounts with your participation in the sponsored research projects. One significant policy change that has been adopted is that the recruitment for the project can also be carried out by the same Department/ Center/ School Research Committee (DRC/CRC/ScRC) that admits students to the postgraduate programmes.
3. IIT Delhi is striving towards ensuring that each of its Ph.D. students has an opportunity to present a paper and attend at least one international conference before they graduate. We offer a certain quantum of financial support to all full-time research scholars to present their research at international conferences.
4. We have also another scheme under which highly meritorious research scholars are awarded a further opportunity for presenting their work at another conference, provided they have demonstrated sustained excellence in their research.
5. We have a new scheme to support full-time Bachelors and Masters students to present their research at national/international conferences.
6. Our post-graduate programmes are highly flexible, which offer students a variety of courses and research topics to choose from.
7. Meritorious students with a bachelor's degree (such as B. Tech.) are advised to directly apply for the Ph. D. programmes if they wish to pursue doctoral research. Details about direct admission to Ph. D. for B. Tech qualified students are available in this brochure and also on our website. Of course, students who already hold a Master's degree are welcome to apply for Ph.D.
8. IIT Delhi is actively promoting post-graduate research in inter-disciplinary areas, and you are invited to avail this exciting opportunity. In addition to such research being pursued in our regular Academic Units, we also

have a School of Interdisciplinary Research (SIRe) wherein candidates with a diversity of backgrounds seek admission to pursue a Ph.D. degree involving faculty supervisors in different Academic Units and expertise, jointly supervising the student. Please look for more details on inter-disciplinary research on ourwebsite.

9. IIT Delhi, as a part of its Institution of Eminence (IoE) initiatives, is moving rapidly to welcome meritorious candidates for pursuing Ph.D. from other countries. As part of this, International students wanting to pursue PhD degree at IIT Delhi (who are not availing a scholarship from any other source) are entitled to a merit-based fellowship under the International PhD Fellowship Programme (IPFP). More information on this scheme and other details for international students are available at: http://intladm.iitd.ac.in

10. IIT Delhi has also a scholarship scheme for international students wishing to pursue M.Tech. / M. Des. / MS(R), under the newly launched "International Masters Scholarship Programme (IMSP)". Under this scheme, international students wishing to pursue either M. Tech., M. Des., or MS(R) degrees in IIT Delhi, and secure an admission offer from the respective Department or Centre or School within IIT Delhi, are entitled to beconsidered for a limited number of merit-based scholarships. Those international students who have successfully cleared the Graduate Aptitude Test in Engineering (GATE examination: http://gate.iitd.ac.in/) are also entitled to a scholarship for pursuing their master's degree in IIT Delhi. More details of the IMSP scheme are available at:http://intladm.iitd.ac.in

11. IIT Delhi is an active participant in two flagship MHRD schemes: the Prime Minister's Research Fellowship (https://pmrf.in/) and the Scheme for students in ASEAN countries to pursue PhD in IITs (http://asean.iitd.ac.in/). The latter scheme entitles students from ASEAN countries (https://asean.org/asean/asean-member-states/) to pursue PhD with a full scholarship at any of the IITs, including IIT Delhi. Potential PhD candidates from the ASEAN member countries interested in pursuing their PhD degree in IIT Delhi are strongly encouraged to avail this facility.

12. Under the PMRF scheme (https://pmrf.in/), Indian students of high merit amongst those who have completed their bachelors degree, or pursuing their masters or PhD degrees in top Indianinstitutions may be considered for a merit-based premier scholarship. Potential candidates are encouraged to apply under this scheme and seek details at the website. There is also a "lateral entry" option into PMRF for students who join the PhD programmeand demonstrate academic excellence within the first few semesters of their residence in the PhD programme.

13. IIT Delhi is also an active participant in the Prime Minister's Fellowship for Doctoral Research, which is a joint venture between SERB and CII / FICCI for supporting industry- sponsored PhD projects. Research scholars who get engaged in industry-sponsored projects are advised to apply for this scheme.

14. At IIT Delhi, we are engaged in two Joint Ph.D. programmes, one with University of Queensland, Australia (www.uqidar.org), and other with National Yang Ming Chiao Tung University, Taiwan www.ncyu.edu.tw). While for the UQ-IITD programme, the admission is through a separate channel (details on the website www.uqidar.org), for NYCU the entrance is after the selection of students into the regular IITD Ph.D. programme.

15. At IIT Delhi, we are engaged in Joint Degree Programmes (PhD and M. Sc.) with the Sorbonne University, Paris, France from upcoming session.

I look forward to seeing you in the Orientation Programme as a student on one of your preferred postgraduate programmes.

With best wishes,

Prof. Dhanya C. T.
Dean, Academics

Important Dates

Submission of online application commences on	October 11, 2025 (12:00 noon)
Last date for submission of online application and application fee	October 30, 2025 (04:00 pm)
Range of dates for Test / Interview	December 09 - December 16, 2025
Date of Orientation and Registration for new students	January 01, 2026
Commencement of classes	January 02, 2026

INTRODUCTION

Indian Institute of Technology Delhi is one of the seven older established Institutes of Technology in India, the others being Kharagpur, Bombay, Madras, Kanpur, Guwahati, and Roorkee. Recently, Government has set up sixteen more Institutes of Technology. These Institutes have been created as centres of excellence for higher training, research and development in science, engineering, and technology. Established as a College of Engineering in 1961, the Institute in Delhi was declared an Institute of National Importance under the "Institutes of Technology (Amendment) Act, 1963" and renamed "Indian Institute of Technology Delhi". It was then accorded the status of a University with powers to decide its own academic policy, to conduct its own examinations, and to award its own degrees.

Recently, IIT Delhi has been accorded the status of "Institute of Eminence" by Government of India, one out of only three public institutions to have been granted this honour.

The Institute offers undergraduate and postgraduate programmes through its Departments, Centres, and Schools. The Institute admits about 1200 students for the undergraduate (B. Tech. and Dual Degree) programmes and about 2200 students for the postgraduate (/M. A./M.Sc. / M.P.P. / M.Tech. / M.S.(Research) / M.Des. /M.B.A. / Ph.D.) programmes every year.

Intellectual alertness, creativity and talent for innovation go into the making of an engineering leader today and continue to be essential for professional competence tomorrow. The candidates selected for admission live in pleasant surroundings of intellectually stimulating campus, use the most modern equipment and laboratory facilities available, and go through the specialized courses designed to meet the challenges of the future. The teaching methods rely on direct personal contact between the teachers and the students. Living in such an environment with people having similar goals and aspirations is an exciting experience during one's academic life and is of considerable value in one's professional career.

Location: IIT Delhi is situated at Hauz Khas in South Delhi, bounded by the Sri Aurobindo Marg on the East, the Jawaharlal Nehru University complex on the West, the National Council of Educational Research & Training on the South, and the outer Ring Road to the North. The Institute campus is about 19 km away from the Delhi Main Railway Station, 14 km from the New Delhi Railway Station, 21 km from the Maharana Pratap Inter-State Bus Terminus (Kashmere Gate), 22 km from Indira Gandhi International Airport Terminal 3, and about 10 km from the domestic terminal (Terminal 1) of the Delhi Airport. The campus is well connected through Delhi Metro with two stations opening at its gates – Main Gate and Hostel Gate.

Campus: IIT Delhi is a residential Institution and provides residential facilities to as many students and staff as possible, subject to availability. The Institute campus area extends to 320 acres with many interesting topographical features, imaginatively laid out with picturesque landscape, numerous buildings, and wide roads. The campus presents a spectacle of harmony in architecture and natural beauty.

The main academic building houses various teaching, research, and library facilities. Though each Department/ Centre/ School is a separate entity, all the Departments/Centres/Schools together constitute an integrated complex. Most of classes at IIT Delhi take place in the Lecture Hall Complex (LHC). At the LHC and also in the blocks, lecture theaters with modern amenities and equipment for projection have been located adjacent to two or more Departments for common use. The campus also includes amenities such as staff clubs, hospital, shopping centres, banks, ATMs, post office, community centre, stadium and playing fields.

The Students Activities Centre (SAC) provides facilities for students' extracurricular and physical development. The SAC has a swimming pool and a gymnasium hall which has amenities such as squash courts, hobbies workshop, seminar rooms, music rooms and other multipurpose rooms for reading and indoor games. The amphitheater constructed in modern style is an added amenity at the centre.

CREDIT SYSTEM

Education at the Institute is organized around the credit system of study. The prominent features of the credit system are a process of continuous evaluation of a student's performance, and flexibility to allow a student to progress at an optimum pace suited to his/her ability or convenience, subject to fulfilling the minimum requirement for continuation.

Each course has a certain number of credits which describe its weight. A student's performance in a course is assessed by a grade awarded to him/her at the end of the semester for that specific course, based on comprehensive evaluations during the entire duration of the course. The student's overall progress through the programme is measured by the number of credits that he/she has completed satisfactorily. A minimum Grade Point Average (average score based on grades obtained, weighted by the corresponding credits of each course), is required to be maintained for satisfactory progress.

The minimum academic requirements for the various degrees, including minimum and maximum credits to be registered in a particular semester, are indicated in the Courses of Study for the year 2024-2025, which will be made available on the Institute Website.

Every course is coordinated by a member of the teaching staff of the Department/ Centre/ School which offers the course in a given semester. This Faculty member is called the Course Coordinator. He/she has full responsibility for conducting the course, coordinating the work of the other members of the faculty involved in that course, and for holding tests and assignments and awarding grades. For any difficulty, a student is expected to approach the Course Coordinator for advice and clarification.

ADMISSION PROCEDURES AND REQUIREMENTS

I. Ph.D. Programmes

The award of the Ph.D. degree is in recognition of independent research, application of scientific knowledge to the solution of technical and scientific problems and high achievements. Creative and productive inquiry is the basic concept underlying research work. The details of research programmes in various Departments/ Centres/ Schools are given in **Annexure I**.

Admission to the Ph.D. Programmes: Admission to the Ph.D. programmes is normally made on the basis of an interview of eligible candidates conducted by the Department/Centre/School concerned, through its Department Research Committee (DRC) / Centre Research Committee (CRC)/ School Research Committee (ScRC). DRC/CRC/ScRC may decide to conduct a written test aswell, or multiple interviews, or other ways of testing, in order to screen the candidates. Applications are invited from candidates by advertising the programmes in Employment News/web portals in March for the first semester and in October for the second semester, everyyear.

Admission Schedule: Normally, Ph.D. programmes are advertised in the month of March and October each year, and test/interviews are carried out in the months of May and December. Further, admission to the Ph.D. programme is possible at any time of the year with the applicationbeing processed and candidates interviewed by the respective DRC/CRC/ScRC. Ph.D. scholars canjoin the Institute at any time of the year, though the course registration will be possible only at the beginning of the subsequent semester. Such candidates must also fulfill the required academic qualification / experience at the time of the interview. They must join the Institute within 4 weeksafter the issue of admission offer unless specifically permitted otherwise. Admission is subject to the vacancy being available in the relevant specializations.

Duration of the Programmes: Minimum period of registration required for students with M.Tech.or equivalent qualifications is 2 years whereas those with B. Tech. or equivalent qualifications is 3 years. All candidates are allowed a maximum of 7 years for submission of their thesis.

Course Work and other Academic Requirements: Breadth and depth of training pre-doctoral courses are offered by each Department/ Centre/ School. Normally, candidates having a B. Tech./ M.Sc./ M.A., or equivalent degree are required to complete a minimum of 12 or 20* credits (depending on the programme)

with a minimum required DGPA of 7.50 and CGPA of 7.00. M. Tech. or equivalent degree holders are required to complete a minimum of 6* credits with a minimum required DGPA of 7.50 and CGPA of 7.00. **Please note that the requirement of IIT Delhi's Joint Ph.D. programme may be different and available in the respective website (www.uqidar.org and www.ncyu.edu.tw). Also requirements for admission to Ph.D. for international students are mentioned in the website: http://intladm.iitd.ac.in**

I(a) Minimum Qualifications for admission to Full-time Ph.D. Programmes:

Table 1 defines the minimum qualifications required for admission to full-time Ph. D. programmesat IIT Delhi. Please note:

1. **These are Institute minimum requirements and any Department/Centre/School operating through their DRC/CRC/ScRC can specify higher short-listing criteria than what is specified here.**
2. This table includes most of the degrees, but each DRC/CRC/ScRC is free to specify the qualifications and disciplines acceptable for admission to their programmes.
3. Candidates in the final semester/year of their programmes and who expect to complete all their qualifying degree requirements before the schedule date of registration are also eligible to apply for admissions. For short-listing purposes, their performance until the preceding semester (preceding year if their programmes are year based) would be considered but their admission would be provisional, subject to their meeting the minimum eligibility criteria after their final qualifying examination results are announced. In any case, all admissions are provisional at first and it is confirmed only after all certificates and previous records are duly checked and verified, a process which may take a few weeks into the starting semester.

Table 1: Minimum Qualification for Admission to Full-time Ph.D. Programmes

Sr. No.	Qualifying Degree	Minimum Performance in the Qualifying Degree for General/OBC (Non-Creamy Layer)/EWS Category Students	Qualification Through National Level Examination Requirements
1.	M.Tech./M.E./M.D./ M.Des. or equivalent	60% marks or 6.00 CGPA on a 10-point scale	Nil
2.	M.Sc./MBA/M.A./ M.B.B.S. or equivalent	60% marks or 6.00 CGPA on a 10-point scale	Qualified GATE/JEST/CSIR/ UGC NET/ICAR/ICMR/ DST-INSPIRE fellowship
3.	B.E./B.Tech./ four-year B.S. (in person) or equivalent	70% marks or 7.00 CGPA on a 10-point scale	Qualified GATE/JEST/CSIR/ UGC NET/CEED/ICAR/DST INSPIRE Fellowship

Exemptions, Relaxations and Clarifications:

1. For **SC/ST/PwD category candidates**, the minimum performance in the qualifying degree(Sr. No. 1 & 2 in Table 1) is relaxed from 60% to 55% (CGPA relaxed from 6.00 to 5.50).
2. For **SC/ST/PwD category candidates**, the minimum performance in the qualifying degree (Sr. No. 3 in Table 1) is relaxed from 70% to 65% (CGPA relaxed from 7.00 to 6.50).

3. Qualifying degree performance is computed by **aggregating performance over all the semesters/years** of the qualifying degree, as per the credit or weightage system approved in the institution / board where the degree has been completed.

4. Requirement of qualification in GATE / National Exam is waived for the following categories of applicants:

   i. Currently registered students in Centrally Funded Technical Institutes (CFTIs) pursuing B. Tech./B.E./ four-year B.S. (in person)/Integrated M. Tech/ Integrated M. Sc. Programmes (or any other programme of minimum four year duration, admission to which is on the basis of JEE), who are in final semester/year and have CGPA of 8.00 orabove (on a 10 point scale). Such students must obtain a CGPA of 8.00 or above at the time of graduation, and before they formally register for the Ph.D. programme (80% aggregate marks, if marks are the primary mode of evaluation);

   ii. Graduates of CFTIs (in the programmes marked under (i)) with a final graduation CGPA of more than 8.00 (80% aggregate marks, if marks are the primary mode of evaluation);

   iii. M.A or M.Sc. graduates from IITs with CGPA 8.00 or above.

5. For purposes of shortlisting, the **primary method of evaluation** (i.e., CGPA/CPI, or aggregate percentage, whichever is appropriate) followed by the institution where candidate has obtained his/her qualifying degree will be used by IIT Delhi for determining whether the candidate meets the final shortlisting requirements.

6. For assistantship purposes only (and not for qualification), candidates with **M.B.B.S. qualification** will be considered equivalent to M. Tech., for admission to Ph.D. programme in Centre for Biomedical Engineering;

7. Candidates holding an MBA degree are eligible to apply to the Ph.D. programme in the Department of Management Studies.

I(b) Minimum Qualifications for Admission to Part-time and Sponsored (full-time) Ph.D. Programmes:

The following eligibility conditions apply for Part-time and full-time sponsored programmes:

1. Only employees of Public Sector Undertakings or Government Departments or Research and Development Organizations or Private Industries (approved by Faculty Boards) are eligible for admission to these programmes.

2. The minimum full-time experience required *after* obtaining the qualifying degree and as on date of registration, is given below in Table 2:

Table 2: Minimum Qualification and Experience Required for Admission to Part-time Ph.D./ M.S.(R) Programmes

For Admission to Part-time Programme	Qualifying Degree	Work Experience (Post Qualification)
Ph.D.	M.E./M.Tech./M.S.(R)/M.D./M.Des. or equivalent	Nil
Ph.D.	B.E./B.Tech. / four-year B.S. (in person) /M.Sc./M.A./M.B.A. /MBBS/ or equivalent, from CFTIs/Central Universities	1 Year
Ph.D.	B.E./B.Tech./ four-year B.S. (in person) /M.Sc./M.A./M.B.A./MBBS or equivalent, and working in IIT Delhi*(Project or Regular)	1 Year

Ph.D.	B.E./B.Tech./ four-year B.S. (in person) /M.Sc./M.A./MBA/MBBS or equivalent, from institutions other thanCFTIs/Central Universities	2 Years
M.S.(R)	B.E./B.Tech./ four-year B.S. (in person) /M.Sc. or equivalent, fromCFTIs/Central Universities	6 Months
M.S.(R)	B.E./B.Tech./ four-year B.S. (in person) /M.Sc. or equivalent, andworking in IIT Delhi* (Project or Regular)	6 Months
M.S.(R)	B.E./B.Tech./ four-year B.S. (in person) /M.Sc. or equivalent, frominstitutions other than CFTIs/ Central Universities)	1 Year

3. Minimum qualification for these candidates is the same as for full-time candidates (Table 1), except that the requirement of qualifying in a national examination (column 3 in Table 1) is waived.

4. For part-time candidates from outside NCR (or at a radial distance of more than 50 km from IIT Delhi), there is a minimum residency requirement of 6 months. DRC/CRC/ScRC may specify a higher residency requirement based on the courses recommended as well as the background.

5. **Sponsored (full-time) candidates** seeking admission to a Ph.D. programme on the basis of study leave, must submit a "Sponsorship Certificate" on a proper letterhead from the appropriate authority in the organization clearly stating the following:

   - for the period of his/her studies in the programme, the candidate would be treated as on duty with usual salary and allowances; and
   - that he/she will be fully relieved and granted study leave for a minimum period of 3 years (2 years for M.Tech. and equivalent degree holders).

6. **Part-time candidates** are required to submit a "No Objection Certificate" (NOC) on a proper letterhead from the appropriate authority in the organization clearly stating the following:

   - the candidate is permitted to pursue studies on a part-time basis;
   - he/she will be fully relieved from duty and permitted to reside at the Institute for the period of required residency that is essential for completing the course work (this is not a requirement for candidates who are working in NCR or organizations located within a distance of 50 km from the Institute);
   - that his/her official duties permit him/her to attend required classes as per the Time Table of IIT Delhi;
   - that his/her official duties permit him/her to devote sufficient time for research;
   - facilities for research in the candidate's field of research are available at the candidate's place of work, in case the proposed Ph. D. research plan requires him/her to use these facilities when the candidate is physically present at this place of work.

Template of this NOC is available on the IIT Delhi PG admissions website. Kindly note that lack of confirmation and clarity on one or more of the above points in the NOC may make prevent the applicant's application being processed, even if he/she qualifies in the interview/screening.

* *A Department/ Centre/ School may specify a higher credit requirement for all their Ph.D. programmes. It may also require an individualscholar to complete a larger number of credits based on his/her background and preparation level*

II. M. S. (Research) Programme

The Institute M.S. (Research) programme are offered by following Departments/Centres/Schools:

S. No.	Department/Centre/School Programme	Code
1.	Applied Mechanics	AMY
2.	Chemical Engineering	CHY
3.	Civil and Environmental Engineering	CEY
4.	Computer Science & Engineering	CSY*
5.	Biochemical Engineering and Biotechnology	BEY$
6.	Electrical Engineering	EEY@
7.	Energy Science and Engineering	ESY
8.	Materials Science and Engineering	MSY
9.	Mechanical Engineering	MEY
10.	Automotive Research and Tribology	CTY
11.	Atmospheric Sciences	ASY
12.	Healthcare Technology	BMY#
13.	Sensors, Instrumentation and Cyber-physical Systems Engineering	IDY
14.	Amar Nath and Shashi Khosla School of Information Technology	SIY
15.	Machine Intelligence & Data Science	AIY
16.	Bharti School of Telecommunication Technology and Management	BSY
17.	School of Biological Sciences	BLY
18.	VLSI Design Tools & Technology	JVY
19.	Transportation Safety and Injury Prevention	TRY
20.	Optics and Photonics	OPY

**Admission to M.S. (Research) Programme in Computer Science and Engineering is limited to candidates having a Qualifying degree in Computer Science and Engineering, Electrical Engineering, Information Technology, M.Sc. Operations Research/Statics, Electronic and Communication, M.Sc. M.A/M.Sc. Math, M.Sc. Math (with exposure to appropriate level course in Computer Science) and MCA (with Math and Science at B.Sc. level).*

In addition to the above, the programmes CSY is limited to candidates who have appeared in GATE with Computer Science and Engineering or Information Technology.

$ Not offered in 2nd Semester 2025-26.

@ Applicants to EEY(MS (Research)) program must have a minimum of four-year education after 12th standard with degree in science, engineering or medicine (B. Tech/M. Sc./BE/BS/MBBS) or equivalent

 # Admission to M.S. (Research) Programme in Healthcare Technology (Biomedical Engineering) having a Qualifying degree in MBBS, BDS, BVSc, BAMS, BHMS, BPT, BPO, BPharm, MD/MS/DM/MCh/MDS/MPT/MPharm with Qualified NEET (PG), AIIMS(PG), PGI(PG) or any other national level PG exam in respective specialty.

The minimum duration of M.S. (Research) Programme is 4 semesters (24 months) for full-time students and 6 semesters (36 months) for part-time students.

Flexibility of movement: *At IIT Delhi, easy mobility of students from M. Tech. to Ph.D., M. Tech. to M.S.(R), M.S.(R) to M. Tech. and M.S.(R) to Ph. D. is possible. It is possible for a student to join M. Tech./M.S. (R) at IIT Delhi, and subsequently they can apply for a change to a research programme if they feel confident. In this process, they save a considerable amount of time for completing Ph.D. degree. Further details are available in the Courses of Study booklet available on the IIT Delhi website.*

Further, just like Ph.D. admission, admission to M.S.(R) programmes is also possible at any time in the year with the application being processed and candidates interviewed by the respective DRC/CRC/ScRC/PEC (Programme Executive Committee). Students in this programme can be admitted to the Institute at any time of the year, though the course registration in such cases will be possible only at the beginning of the subsequent semester. Such candidates must also fulfill the required academic qualifications /experience at the time of interview. They must join the Institute within 4 weeks after the issue of admission offer unless specifically permitted otherwise. Admission is subject to vacancy being available in the relevant specializations.

Part-Time programmes: IIT Delhi also offers most of its M.S.(R) programmes in the part-time mode for working professionals. They are expected to complete their credit requirements in six semesters (maximum of ten semesters) by registering for a lower load than full-time students each semester. Departments /Centres/Schools offer most of the core courses between 8:00 AM and 10:00 AM to enable these working professionals to attend classes as well as continue with their full-time employment.

Please note it may not always be feasible to slot all courses of the programme in the above morning hours, and those candidates applying for part-time programmes should be flexible to take courses at other times, if required.

II(a) Minimum qualifications and procedure for admission to Full-time M.S.(R) Programme:

Table 3 lists the minimum qualifications required for admission to full-time M.S.(R) programme at IIT Delhi. In this context, please note:

- ***These are Institute minimum requirements and any Department/Centre/School operating through their DRC/CRC/ScRC/PEC can specify higher short-listing criteria than what is specified here.***
- This table includes many degrees for eligibility, but each DRC/CRC/ScRC/PEC is free to specify the qualifying degree disciplines as well as GATE disciplines acceptable for admission to their programmes.
- Admissions to M.S.(R) programmes are normally carried out through short-listing based on the minimum performance in their qualifying degree as given below in Table 3 and GATE score above a cut-off specified for that programme followed by a written test / interview at IIT Delhi.
- Candidates in the final semester/year of their programmes and who expect to complete their qualifying degree requirements before the date of registration, are eligible to apply for admission. For short- listing purposes, their performance till the preceding semester (preceding year if their programme is year based) would be considered, but their admission would be provisional, subject to their meeting the minimum eligibility criteria after their final qualifying examination results are announced.

Table 3: Minimum Qualification for Admission to full-time M.S.(R). Programme

Programme & Admission type	**Qualifying Degree**	**Minimum performance in the qualifying degree for General/ OBC (Non-Creamy Layer) category students**	**National level examination Requirements**
M.S.(R) (Admission with GATE/JEST Score and interview)*	B.E./B. Tech./ M.Sc. or equivalent	60% marks or 6.00 CGPA on a 10- point scale	Valid GATE/ JEST score

** The admission may also be done based on GATE/JEST score only, if any Academic Unit decides to do so. In such a case, the %age/CGPA will be kept at Institute minimum.*

Exemptions, relaxations, and clarifications:

1. For ***SC/ST/PwD category students,*** minimum performance in the qualifying degree is relaxed from 60% to 55% (CGPA 6.00 to 5.50).
2. Qualifying degree performance is computed by ***aggregating performance over all the semesters/years*** of the qualifying degree.
3. For all ***B.Tech.*** from ***IITs*** graduating with a CGPA of 8.0 or above, the requirement of qualification through GATE/JEST is waived.
4. Candidates with AMIE or Grad. IETE qualifications may also be considered for admission. However, if provisionally selected for admission based on their AMIE/Grad IETE performance, they would be required to complete 24 valid undergraduate credits prescribed by the concerned DRC/CRC/ScRC/PEC and clear the GATE/JEST examination before being actually admitted to the M.S.(R) Programme.
5. Requirement of qualification in GATE / National Exam is waived for the following categories of applicants:

   (i) Currently registered students in Centrally Funded Technical Institutes (CFTIs) having CGPA of 8.000 or above (on a 10 point scale) in final semester/yea in B. Tech./B.E./ Integrated M. Tech/ Integrated M. Sc. Programmes (or any other programme of minimum four year duration, admission to which is on the basis of JEE), the requirement of GATE / National Exam is waived for consideration of admission to the M.S. (R) programme in IIT Delhi. Moreover, such students must have obtained a CGPA of 8.000 or above at the time of graduation (and before they formally register for the M.S.(R) programme).

   (ii) Graduates of CFTIs (in the programmes marked under (i) above) with a final graduation CGPA of more than 8.000 (80% aggregate marks, if marks is the primary mode of evaluation);

   (iii) M.A or M.Sc. graduates from IITs with CGPA 8.000 or above.

   However, if a candidate admitted to M.S.(R) programme following the above criterion wanted to convert to M.Tech. programme, he/she should also meet the shortlisting criteria of the M.Tech. programme, in addition to the conversion criteria (including requirement, if any, of a valid examination in GATE / National Level Examination).
6. For purposes of shortlisting, the primary method of evaluation (i.e., CGPA/CPI, or aggregate percentage, as appropriate) followed by the institution where candidate has obtained his/her qualifying degree will be used by IIT Delhi for determining whether the candidate meets the final shortlisting requirements.

II(b) Minimum Qualifications for admission to Part-time and Sponsored (Full-time) M.S.(R) Programme:

The following additional eligibility conditions and relaxations apply for the Part-time and Sponsored full-time programmes.

1. Only employees of Public Sector Undertakings or Government Departments or Research and Development Organizations or Private Industries (approved by Faculty Boards) are eligible for admission to these programmes.
2. Employees of only those organizations which are located within 50 Kilometers radius of IIT Delhi are eligible to be considered for admission to part-time M.S.(R) programme.
3. The minimum experience (Full Time) required after qualifying degree and as on date of registration is as given in Table 2.
4. Minimum qualification for these candidates is the same as for full-time candidates except that the requirement of qualifying in a National Level Examination (column 4 in Table 3) is waived.

5. ***Sponsored (full-time) candidates*** seeking admission to a M.S.(R) programme on the basis of study leave, must submit a "Sponsorship certificate" on a proper letterhead from the appropriate authority in the organization clearly stating the following:
    a. for the period of his/her studies in the programme, the candidate would be treated as on duty with usual salary and allowances, and
    b. that he/she will be fully relieved and granted study leave for a minimum period of 2 years
6. ***Part-time candidates*** are required to submit a "No Objection Certificate" on a proper letterhead from the appropriate authority in the organization, clearly stating the following:
    - the candidate is permitted to pursue studies on a part-time basis
    - that his/her official duties permit him/her to devote sufficient time for studies
    - that he/she will not be transferred to any other place during the period of study
    - that his/her official duties permit him/her to attend required classes as per the Time Table of IIT Delhi.
7. Please note that all part-time and sponsored candidates will have to go through an interview or selection process.

Template of this NOC is available on the IIT Delhi PG admissions website. Kindly note that lack of confirmation and clarity on one or more of the above points in the NOC may make prevent the applicant's application being processed, even if he/she qualify in the interview/screening.

RESERVATION OF SEATS (Where GoI Rules apply)

1. 15% seats are reserved for SC and 7.5% for ST candidates.
2. 27% seats are reserved for Non-Creamy layer OBC candidates. All candidates applying for admission under this category should produce the OBC (Non-Creamy Layer) Certificate applicable for OBCs in the Central list at the time of interview.
3. 10% seats are reserved for EWS (Economically Weaker Section) candidates.
4. 5% seats in the respective categories are reserved for the Persons with Disability (PwD).

Note: All shortlisted candidates applying for admission under the reserved categories are required to produce the relevant certificate at the time of interview. The Scheduled Tribe (ST) category candidates are required to produce 'Validity Certificate' along with the ST category certificate.

GENERAL GUIDELINES

(a) The minimum eligibility criteria indicated above for each programme is only an enabling clause. The Deptt./Centre/School may fix higher criteria at the time of shortlisting keeping in view the number of candidates, minimum background expected to cope with theprogramme etc.

(b) The minimum prescribed marks in aggregate (of all the years/semesters of the qualifying examination) is calculated by IIT Delhi as per example given below:

Years	1st Semester (%)		IInd Semester (%)	
1st year	250/400	62.50	290/400	72.50
IInd Year	205/400	51.25	280/400	70.00
IIIrd Year	210/400	52.50	350/400	87.50
IVth Year	240/400	60.00	150/200	75.00
Total	**905/1600**		**1070/1400**	

Aggregate (% age) 1975/3000=65.83% (of all the years/semesters)

(c) Admission on part-time basis is further subjected to the availability of seats for part-time and decision of the respective DRC/CRC/ScRC/PEC.

(d) Candidates who are in the final year of their qualifying examination can be considered for admission only if they complete the requirement of their final examination including Viva-Voce by the date of Registration (see **Important Dates page)**. Candidates must inform Academic (P.G.) Section, IIT Delhi in writing by the date of Registration, if the requirements of their qualifying degree including Viva-Voce, if any, are not met by this date. Failure to inform the Academic (P.G.) Section about non- completion shall result in forfeiture of entire fees deposited by them in addition to cancellation of their admissions.

(e) The applications will be scrutinized by the Department/Centre/School concerned.

(f) The exact date for the test/interview, wherever applicable, will be communicated by the Department/Centre/School. For any query regarding the date of test/interview,

(g) For selection result and operation of waiting list please contact the concerned Deptt./ Centre/School at the **Telephone numbers given separately** in this brochure.

(h) Incomplete Application, in any respect, is liable to be rejected.

(i) A provisional list of applicants selected for admission and of applicants selected for the award of Assistantship along with those placed on waiting will be displayed on the Department/Centre/School notice board /website within a day of the test/interview. The selected candidates would be required to pay the first installment of fees soon after the admission offer letter is issued to the candidates, failing which seats will be offered to those on the waiting list.

APPLICATION PROCEDURE

Submission of application is only through online procedure. Candidates are NOT required to send hard copy of the application form and bank challan. Online submission of the application form may be made by accessing the Institute website: https://home.iitd.ac.in/pg-admissions.php. Candidates belonging to General/OBC/EWS category are required to pay for each application form a fee of Rs. 200/- and the candidates belonging to SC/ST/PwD categories are required to pay Rs. 50/-. The bank charges will be borne by the candidate.

IMPORTANT INSTRUCTIONS FOR FILLING APPLICATION FORM

a. Separate application form should be filled for Ph.D. programme for each Department/Centre/School.

b. Separate application form should be filled for each M.S.(R) programme for each Department/Centre/School.

c. Part-time/Sponsored (full-time) candidates must submit NOC/Sponsorship Certificate from their employer at the time of interview.

d. Filling false information will lead to rejection of application/cancellation of admission.

e. The application fee is not refundable in any case.

Please fill in the form carefully. It may be noted that no change can be made after the form is submitted. Further, no request for any change in the form will be entertained. Fill in the programme code at the appropriate place in the Application Form. The Ph.D. programme codes are given in Annexure-I and M.S.(R) programme codes are given in Annexure-II.

If you find any difficulty in completing your application, please see Frequently Asked Questions (FAQ).

HOSTEL ACCOMMODATION

IIT Delhi campus has a total of 12 male hostels, 4 female hostels and 1 transit accommodation (for females) to accommodate its undergraduate and post-graduate (including PhD scholars) full-time students (13 old, non-A/C hostels & 3 new, A/C hostels). With a student population of ~13000, only ~7000 hostel seats are available (several on sharing basis only; please see the following link – https://bhm.iitd.ac.in/static/media/Hostel_Accommodation_IITD.66923f5fb816b23af9cc.pdf)

Only limited number of students can be accommodated in the campus, mostly on sharing basis. Allotment of seats in hostels is based on a clearly defined institute policy. All female, international and differently abled students are offered hostel accommodation (mostly on sharing basis). Male PG students (non-MSc) may be offered hostel accommodation on sharing basis, based on availability generally after two semesters. It is not compulsory to avail the hostel accommodation offered.

Detail about hostels and charges are available below, and at https://bhm.iitd.ac.in/resources

REGISTRATION FOR COURSES

All students are required to report for Orientation and Central Registration before the commencement of each semester according to the schedule/procedure notified in advance. The students register themselves for the courses in consultation with the Supervisor/Programme Coordinator. The courses offered by the Departments are made known to the students before registration. On admission, the students should go through carefully the Departmental advice of courses for their discipline. They should also go through the Prospectus as well as the Courses of Study regarding the rules governing their academic duties and performance. In some Departments, the required performance levels for the continuation of registration may be higher than those given in the Prospectus and the Courses of Study. The admitted students must acquire a copy of the departmental norms in such cases.

FEES AND PAYMENTS

(a) Institute Dues Payable by 2025 Entry Ph.D./M.S.(R) Students

Table 8: Schedule of Fee Applicable (per semester) for various Programmes

Category	Tuition Fees	Other Charges*	Total Amount
M.S.(R) Students Receiving Institute/Project Assistantship or Teaching Positions Holders			
General/OBC/EWS	17,500	22,400	Rs. **39,900**
SC/ST/PwD	0	22,400	Rs. **22,400**
M.S.(R) Students (Sponsored Full-time, Part-time and Non-teaching Position Holders)			
General/OBC/EWS	75,000	20,150	Rs. **95,150**
SC/ST/PwD	0	20,150	Rs. **20,150**
All Full-time Ph.D. Students			
General/OBC/EWS	7,500	22,400	Rs. **29,900**
SC/ST/PwD	0	22,400	Rs. **22,400**
All Part-time/ Sponsored Full-time Ph.D. Students			
General/OBC/EWS	17,500	20,150	Rs. **39,900**
SC/ST/PwD	0	20,150	Rs. **20,150**

Note: - SC/ST/PwD students are given 100% exemption from payment of tuition fee.
- The exact amount of fees and mode of payment will be indicated in the offer of admission.
- For detailed breakup of fee please visit:
https://home.iitd.ac.in/uploads/prospectus/IITD%20Prospecus%202025-26.pdf

[*] ***Other charges include one time charges at the time of admission in addition to per semester charges.***

(b) MESS DUES PAYABLE BY 2025 ENTRY STUDENTS

S. No.	Details	Amount
ONE-TIME CHARGES (for every fresh allotment)		
A	**BHM Deposits (one-time)**	
1	Seat allotment charges *(Non-refundable)*	7,000/-
2	Security *(Refundable)*	15,000/-
PER-SEMESTER CHARGES (No pro-rata applicable due to hostel operations being fully cooperative in nature)		
B	***Hostel Mess Charges** (Include food, kitchen consumables, human resources, IGL and associated costs)	
1	Old Hostels (non-A/C)	36,000/-
2	Nalanda (transit accommodation)	36,000/-
3	New Hostels (Centralized A/C, only for PG students, including PhD scholars and non-MSc/MA students)	36,000/-
C	**** Centralized AC charges** (Applicable for all residents in new hostels; irrespective of program/entry year)	
1	All students in new hostels	15,000/- *(Single Occupancy)* 7,500/- *(Double Occupancy)*

** The charges for mess are tentative based on expenditures incurred during previous semesters and may vary as per actuals – the actuals are calculated only at the end of semesters. The charges are also subject to revision from time to time (e.g., depending on IGL rates, revision of minimum wages by the Government etc.). At the end of the semester, any excess charge paid by the students in a semester will be adjusted towards the charges to be paid for the next semester, i.e., the amount to be paid by students in the next semester will be reduced by any excess charges paid by student in the previous semester. Any student leaving/vacating the hostel permanently (due to termination, or due to completion of academic requirements at IIT Delhi or due to exceptional personal circumstances after proper communication and permissions from competent authority) is refunded the excess amount paid in their bank account after duly submitting requisite form(s) with required information.*

*** New Hostels, i.e., Dronagiri, Saptagiri and Sahyadri have centralized A/C and, are only for PG (including PhD, excluding MSc and Dual Degree) students. These centralized A/C charges are also subject to revision from time to time as communicated by the infrastructure unit.For more information, please visit https://home.iitd.ac.in/hall-of-residence.php*

It is NOT compulsory to avail hostel accommodation at IIT Delhi (if it is offered).
The transparent hostel allotment process does not have any provisions to hand-pick/choose any particular hostel/seat.
Other information related to hostel accommodation is available at-
(a) https://home.iitd.ac.in/hostel-rules.php
(b) https://bhm.iitd.ac.in/resources

Please note that for all students availing accommodation facility, 'Hostel Seat Rent' is applicable. This is part of academic fee and details may be referred from academic fee details. It may be revised from time to time based on the changing operational costs as communicated by the Infrastructure and Institute Accounts units.

FINANCIAL ASSISTANCE AND OTHER SUPPORT

I. Ph.D. Programme

A scheme for the award of Teaching/Research Assistantship for providing financial assistance to the students exists. In terms of this scheme, those non-sponsored students who are admitted on full-time basis are considered for the award of Half Time Teaching/Research Assistantship. These rates have been significantly enhanced by the MoE recently, and are as indicated below:

Table 6: Assistantship amounts for Full-time Institute Ph.D. students

Period of Assistantship	Assistantship Amount With B.Tech/B.E./M.Sc./ M.Tech./M.E./MBBS or equivalent qualifications	Hours/ Week Assistantship to beProvided
First 2 years of Registration	Rs. 37,000/- p.m.	8
Next 3 years of Registration	Rs. 42,000/- p.m.	8

A certain number of fellowships are allocated to the Institute under the Prime Minister's Research Fellowship (PMRF) Scheme. While PMRF fellows are governed by the same academic rules as any other research scholar, the selection of PMRF fellows is through a centralized process across all IITs/IISc. For details, visit: https://pmrf.in

Other conditions and benefits: In addition, the full-time students enjoy a number of benefits but are also required to satisfy academic performance requirements for continuation of assistantship from semester to semester.

- The maximum duration for which assistantship can be awarded to a Ph.D. student is 5 years.
- In the first instance, the assistantship is awarded for one semester. Continuation of the assistantship during the subsequent semesters is contingent upon satisfactory academic performance and satisfactory performance in the discharge of responsibilities assigned under the assistantship scheme. For this purpose, an SGPA of 7.00 at the end of a semester in respect of those semesters when the student has been assigned coursework will be considered as satisfactory performance. For details of SGPA calculation refer to the Institute Prospectus.
- All full-time students participating in a sponsored project/consultancy project (in addition to their assistantship work) can be paid an honorarium of up to Rs. 40,000/- p.m. by the PI/CI of the project. All such work can be undertaken only with the consent of their supervisor(s).
- The faculty of an Engineering/Science College sponsored by his/her institution for pursuing Ph.D. at IIT Delhi and meeting all the academic requirements of full-time Institute assistantship can be considered by the DRC/CRC/ScRC/PEC for the award of Institute Assistantship. This assistantship would be over, and above the emoluments, he/she may be getting from his/her parent institution.
- Apart from Institute assistantship, IIT Delhi has a number of assistantships sponsored by national as well as international institutions and/or industries. All students including faculty of engineering/science colleges meeting the academic qualifications for admission as full-time students with Institute assistantship are also entitled to apply for these. For more information on the availability of such scholarships in your area, please contact your respective Department/Centre/School.
- In exceptional cases with the approval of the Chairperson, Senate, Sponsored (Fulltime) candidates employed in CSIR/DRDO/PSUs may also be offered assistantship provided they have qualified either GATE or any other national level examination like CSIR/UGC NET/ICAR etc. and fulfill the requirement for award of assistantship and their employer has no objection to the same.
- Institute provides seed money of Rs. 20,000/- once during the program as partial financial assistance for presenting papers abroad in good academic conferences. All full time (and part-time on IRD/ FITT Projects) Research Scholars are also eligible for additional financial assistance of Rs. 1,80,000/- as Research Scholar Travel Award (RSTA). Some highly meritorious Research Scholars are also eligible for an additional travel grant of Rs. 2,00,000/- as Research Excellence Travel Award (RETA).
- Institute is in the process of formalizing a number of agreements with leading foreign institutions or agencies for supporting up to 6 months long research visits by Ph.D. students. This would enable

interested students with the consent of their supervisor and DRC/CRC/ScRC to undertake a research visit which would increase his/her exposure while adding value to his/her work.

- It is expected that all assistantship holders will have the good general physique. He/She will have to produce on the date of Central Registration, a certificate to that effect in the prescribed format. A copy of the format would be given along with the admission offer letter. The admission is subject to his/her being found medically fit.

II M.S. (R) Programme

A scheme for the award of Teaching/Research Assistantship for providing financial assistance to the students exists. The present scheme is described below:

- Students admitted to M.S. (Research) on a full-time basis are considered for the award of Teaching Assistantship under which they will be paid Rs.12,400/- per month and would be required to provide assistance of 8 hours/week to the Department/Centre/School.
- The maximum duration for which Assistantship can be awarded to M.S.(R) students is 4 semesters.
- Only full-time non-sponsored students who have qualified GATE are eligible for assistantship.
- In the first instance, the assistantship is awarded only for one semester. Thereafter continuation of the assistantship during each semester is contingent upon satisfactory academic performance and satisfactory performance in the discharge of responsibilities assigned under the assistantship scheme. For this purpose, an SGPA of not less than 7.00 (6.00 in the case of SC/ST/PwD) at the end of the semester is treated as satisfactory academic performance.
- All full-time M.S.(R) students participating in a sponsored project/ consultancy project (in addition to their assistantship work) can be paid an honorarium of up to Rs. 3,000/- p.m. by the PI/CI of the project. All such work can be undertaken only with the consent of their supervisor(s).
- Candidates qualified for CSIR JRF will not be allowed to avail fellowship for doing M.S.(R) programme. However, they can avail the CSIR fellowship for doing the Ph.D. programme.
- Apart from the above-mentioned scheme for teaching/research assistantships, there are a number of fellowships/scholarships instituted by Industries/Individuals. (For more information on these scholarships/ assistantships/fellowships please contact the respective department).
- Institute is pursuing a number of other collaborative agreements with leading research laboratories an universities to enable such research visits by post-graduate students
- It is expected that all assistantship holders will have good general physique. He/She will have to produce on the date of Central Registration, a certificate to that effect in the prescribed format. A copy of the format would be given along with the admission offer letter. The admission is subject to his/her being found medically fit.

REFUND OF FEES

In case, student withdraws the admission due to any reason, refund of fees will be as under:

Admission timeline	**Last date for applying for refundof fee for 2nd Sem 2025-26**	**Amount to be refunded**
For admission acceptedbefore 22nd December 2025	On or before 22nd December 2025	Fee paid less Rs. 1000/- (processing fee)
	23rd December to 31st December 2025	Security money less Rs.1000/- (processing fee)
For admission accepted from 23rd December to 31st December 2025	On or before 31st December 2025	Fee paid less Rs. 1000/- (processing fee)
	After 31st December 2025	Security money less Rs.1000/- (processing fee)

For refund of fees and/or security deposit the student must apply on the prescribed form available on the Institute Website: APPLICATION FORM FOR REFUND OF FEES AND SECURITY DEPOSIT

CONTACT TELEPHONE NUMBERS AND EMAIL-IDS

1. For any query/clarification, please contact **Academic Section** at admissions@admin.iitd.ac.in
2. For query regarding the date of interview, selection result and operation of waiting list, please contact the concerned Deptt./Centre/School at the following Emails IDs (preferred) or Telephone Numbers (prefix area code 011 if calling from within India, and country code/area code 0091/11 if calling from outside India):
3.

DEPARTMENTS	TELEPHONE	EMAIL-ID
Applied Mechanics	26591201	hodam@admin.iitd.ac.in
Biochemical Engineering and Biotechnology	26591001	hoddbeb@admin.iitd.ac.in
Chemical Engineering	26591021	hodchemical@admin.iitd.ac.in
Chemistry	26591501	hodchemistry@admin.iitd.ac.in
Civil and Environmental Engineering	26596422	hodcivil@admin.iitd.ac.in
Computer Science and Engineering	26591291	hodcse@admin.iitd.ac.in
Design	26591431	hoddod@admin.iitd.ac.in
Electrical Engineering	26591071	hodee@admin.iitd.ac.in
Energy Science and Engineering	26591251	hodces@admin.iitd.ac.in
Management Studies	26591171	hoddms@admin.iitd.ac.in
Mathematics	26591471	hodmaths@admin.iitd.ac.in
Materials Science and Engineering	26596659	hodmse@admin.iitd.ac.in
Mechanical Engineering	26591051	hodmech@admin.iitd.ac.in
Physics	26591331	hodphysics@admin.iitd.ac.in
Textile and Fibre Engineering	26591401	hodtextile@admin.iitd.ac.in
CENTRES		
Applied Research in Electronics	26591101	hodcare@admin.iitd.ac.in
Atmospheric Sciences	26591301	hodcas@admin.iitd.ac.in
Automotive Research and Tribology	26591281	hodcart@admin.iitd.ac.in
Biomedical Engineering	26596132	hodcbme@admin.iitd.ac.in
Rural Development and Technology	26591121	hodrdat@admin.iitd.ac.in
Sensors, Instrumentation and Cyber-physical SystemsEngineering	26591431	hodsense@admin.iitd.ac.in
National Resource Centre for Value Education in Engineering	26596585	hodnrcvee@admin.iitd.ac.in
Transportation Research and Injury Prevention	26596361	coordetri@admin.iitd.ac.in
Optics and Photonics	26591336	hodopc@admin.iitd.ac.in
SCHOOLS		
Amar Nath and Shashi Khosla School of InformationTechnology	26596056	hodsit@admin.iitd.ac.in
Bharti School of Telecommunication Technology andManagement	26596200	bharti.coord@admin.iitd.ac.in
School of Artificial Intelligence	26596076	hodscai@admin.iitd.ac.in
Kusuma School of Biological Sciences	26596104	biocoordinator@admin.iitd.ac.in
School of Interdisciplinary Research	26548519	headsire@admin.iitd.ac.in

ANNEXURE-I

RESEARCH PROGRAMMES: DOCTOR OF PHILOSOPHY (Ph.D.)

The Institute offers research programmes leading to the degree of Ph.D. in the following areas in the various Departments/Centres/Schools.

Department of Applied Mechanics [Code AMZ]

Research Areas in Solid Mechanics: Large Deformations, Impact Mechanics, Elasticity, Piezothermoelasticity, Composite Materials and structures Plates and Shells, Non-linear Dynamicsand 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 Modelling of Nano-Structures, Biomechanics/Cell Mechanics, Cardiovascular Biomechanics, Brain Biomechanics, Computational Surgery, Fracture Mechanics, Contact Mechanics, Machine Learning, Stochastic Mechanics, Soft Robotics, Scientific AI, Digital Twin/health, Wearable Robotics/Device.

Research Areas in Fluid Mechanics: Internal and External Flows, Solid-Liquid Flows, Computational Fluid Dynamics, Hydrodynamic Stability; Turbulence, Aerodynamics and Aeroacoustics; Turbulent Heat Transfer Compressible Flows, Fluid-structure Interaction, Stratified Flows, Low Dimensional Modeling Biofluid Mechanics.

Research Areas in Design Engineering: Computer Aided Design, Design Engineering., Reliability Engineering, Engineering Alternative, Ergonomics, Reverse Engineering, Design and Analysis of Biomedical Devices, Compliant Mechanisms and Smart Instrumentation, Bio-inspired Engineering, Design under Uncertainty, Generative Design.

Department of Biochemical Engineering and Biotechnology [Code BEZ]

Microbial and Enzyme Engineering: Analysis and design of microbial and enzyme reactors for production of industrially important products such as biofuels, industrial enzymes, biopolymers, organic solvents, biofertilizers and biopesticides etc.; development of bio-sensors for detection of various analytes; Whole cell catalyzed biotransformations.

Bioseparation and Downstream Processing: Membrane based separation processes, chromatographic separation processes, Membrane processes for water recycle.

Metabolic engineering: Application of metabolic engineering principles for the development of cell factories for the production of important metabolites including renewable chemicals and therapeutic compounds.

Animal and plant Mammalian cell culture: Development of cell culture techniques for cultivationof plant and animal Mammalian cells in specialized reactors for production of therapeuticcompounds.

Environmental Biotechnology: The development of reactors and processes for stabilization of organic and industrial wastes; enzymes engineering for treatment of textile effluents and plasticwaste; Effect of environmental factors on microbial community dynamics.

Biochemistry and molecular biology: Industrial enzymes, development of recombinant clones for over- production of enzymes and metabolites, development of expression systems in bacteria andyeasts, Human therapeutics production in yeast, bioenergetics and biological molecular machines,Nanoparticle-based drug delivery and protein-based nanodevices, cancer biology, microRNA biology.

Bioinformatics and Genomics: Genome editing with programmable nucleases; analysis and interpretation of next-generation sequencing data; traditional home-medicine and cancer big data analysis.

Biophotonics: Development of fluorescence and optical imaging methods for detection of single molecules to the whole cell. Application of these methods for biosensing of pathogenic microbes and cancer cells.

Agricultural Microbiology: Plant microbe interactions; biocontrol.

Electromicrobiology: Extracellular electron transfer; microbial electrochemistry.

Biomicrofluidics: Development of lab-on-a-chip based techniques to study the physiology of vascular cell, Fluid mechanics at low Reynolds number limit, In-vitro model development for human microvasculature and its applications in the characterization of vascular diseases, Microfluidic approaches to study cellular dysfunction.

Theoretical and Computational Biophysics: Biological fluid dynamics, biophysics of membrane deformation, theoretical modeling of bacterial physiology, mechanics of cell adhesion receptors and cytoskeleton, cell migration in diseases

Department of Civil and Environmental Engineering [Code CEZ]

Environmental Engineering: Urban air quality management; indoor air pollution; water and waste water treatment; Emerging water contaminants (Nano particles, Antibiotics); urban water and waste water Management; Non-point source Pollution; Membrane Biological Treatment Process; Modeling, simulation and optimization of Environmental systems; Environmental Impact Assessment; Human Health Risk Assessment; solid waste management; incineration waste-to- energy; circulating fluidized bed operations; Landfill Management; Carbon sequestration; sustainable development (Urban cities/growth centres); Environmental Risk Analysis, GIS and Remote Sensing Applications for Environmental Management. Aerosol characterization, local and regional air quality, climate change and health impact.

Geotechnical Engineering: Soil Mechanics and Foundation Engineering; Rock Mechanics, Rock Engineering and Underground Structures; Rock Dynamics; Geo-environmental Engineering; Landfills; Ash Ponds and Ash Utilization; Geotechnical Re-utilization of waste; Energy Geotechnology; Slope Stability and Dams; Ground Improvement; Geosynthetics; Reinforced Soils; Soil Dynamics and Earthquake Geotechnics; Foundations for Industrial Machines; Site specific response studies; Engineering Geology; Seismic Hazard Analysis and Microzonation; Expansive

Soils; Geophysical Methods; Geotechnology for tracks and pavements; Blast and Impact Analysis; Dynamic Behaviour of Tunnels and Slopes; Landslides in Static and Dynamic Conditions; Offshore Geotechnology; Constitutive Modelling; Numerical Methods; Mechanics of granular materials; Post-Geodisaster Reconnaissance Studies; Bioinspired Geotechnics.

Structural Engineering : Analysis and design of structures; tall buildings; bridges; Earthquake engineering; wind engineering; offshore structures; masonry, RCC and steel structures; Construction Management; Construction Technology; Concrete Technology; structural dynamics; structural control; wave propagation; constitutive modeling; computational methods; modeling of damage, plasticity and creep of concrete; durability of concrete; rebar corrosion; modeling of cements; supplementary cementitious materials; use of marble, granite or other waste powder in concrete; composites; high performance concrete; self-compacting concrete; financial analysis; contract administration, quantitative methods in construction management; Infrastructure Project Management Risk and Financial Management; sustainable construction, green building, resilient infrastructure, design

management, automation in construction; BIM (Building Information Modeling) in construction projects; structural health monitoring; smart materials and structures; meta material; tensegrity structures; biomechanics; engineered bamboo structures; artificial intelligence; damage assessment and strengthening; microstructural modeling; mechanics of composite materials; non-destructive testing and evaluation using ultrasound; subsurface imaging using ultrasonic wave propagation; piezoelectric energy harvesting; radiation damage; nanomechanics; multiscale modeling; fracture and failure modeling; mechanics of glasses & disordered materials; atomistic modeling, machine learning.

Transportation Engineering : Transport planning; Transport policy; Transportation safety; Construction work zone safety; Heterogeneous traffic flow modeling; Traffic safety and capacity of hill roads; Mass transportation planning; Urban transport infrastructure planning and design; Non-motorized transport planning; Modeling of pedestrian behavior; Activity-travel behavior analysis; Network modeling; Transportation logistics and optimization; Traffic operations; Geometric design of transportation infrastructure; Characterization of pavement materials; Pavement design (flexible and rigid); Damage modeling of bitumen and bituminous mixtures; Constitutive modeling of pavement materials; Recycling of civil infrastructure materials; Rheology of asphaltic materials; Condition assessment of highway infrastructure; Pavement management systems; Highway engineering; Airport infrastructure.

Water Resources Engineering : Hydrology in natural and urban environment; Hydrological modeling and simulation; Stochastic processes; Data mining in hydrology; Flood forecasting and modeling; Snow and glacier hydrology; Snow dynamics; Hydroclimatology; Climate change effects in water resources; Watershed modeling; Large river basin modeling; water resources systems, planning and management; Water allocation; Water resources conflicts; Irrigation management; Flow through porous media; Groundwater modeling; Ground water contamination & remediation; Contaminant transport modeling; Leachate pollution; Bioremediation; River water quality modeling; Environmental impact assessment of water resources projects; Surface and subsurface drainage; Hydraulic structures; Sediment transport; Application of numerical methods, CAD, FEM,

GIS, and Remote sensing in Water Resources Engineering. Slurry Pipeline, CFD modeling of Multiphase flows, Economic Analysis of water resources projects; Anomalous Hydro Dynamics; Transport Phenomena.

Department of Chemical Engineering [Code CHZ]

Catalysis and reactor engineering, Multiphase flow & rectors, Control of reactors, Petroleum refining engineering, Computer Aided Design, Computational fluid dynamics, Microfluidics, Hydrodynamic, instability, Particle technology, Mixing, Fluidization, Distillation and other separation processes, Complex fluids, Interfacial engineering, food, Polymers, Polymer rheology, Membrane synthesis & processes, Biomass, Bioseparations and Bioprocessing, Process operations planning and scheduling, Biosimilars, Quality by design, Protein characterization, Colloids, and interfacial science, Nanotechnology, Biosensors, Renewable energy, Biorenewable Chemicals and Solid Oxide Fuel Cells, Electrochemical process, Hydrogen fuel cells, Lithium-ion batteries, Electrochemical modeling Supercapacitor, Electrochemical energy storage Devices, Flow batteries, Therapeutics, Drug delivery, Waste management, Environmental engineering, Aerosols, Air Pollution, Process systems engineering, Model Predictive control, Process monitoring, Application of machine learning in chemical process modeling and control Structural Bioinformatics, Polymer Informatics, Computational material design, Density Functional Theory and Molecular Dynamics Simulations.

Department of Computer Science & Engineering [Code CSZ]

Algorithms and Complexity Theory: Algorithmic graph theory, Computational geometry,

Randomized algorithms, Approximation algorithms, Complexity theory, Online algorithms and Cryptography.

Artificial Intelligence (AI) and Machine Learning (ML): Reinforcement learning and AI planning, Neuro- symbolic ML, Probabilistic graphical models, Statistical relational learning, Extreme classification, Embodied artificial intelligence, Ethical AI, Fairness and reliability in ML, Privacy issues in ML, ML for graphs, ML applications to healthcare, AI for crowdsourcing, Knowledge-basedAI, Computational advertising, AI for robotics.

Natural Language Processing (NLP): Intelligent information systems, Information extraction, Question answering, Dialog systems, Knowledge-base completion, Neural architectures for NLP.

Databases and Data Analytics: Intention mining, Policy driven databases, Information retrieval, Information dissemination in social networks, Semantic web data management, Opinion mining, Indexing and querying in graph databases, Spatio-temporal data analytics, Data wrangling.

Architecture and Embedded Systems: Hardware-software co-design, Embedded systems design, Reconfigurable computing, Fault-tolerant computing, Hardware implementations, Temperature-aware architectures, Energy-efficient architectures, Design-for-debug, Cache memory, 3D and non-volatile memory, Architectural extensions for mobile security, Architectures for machine learning, Architectures for computer vision, Secure architectures.

Graphics and Vision: Computer graphics, Virtual reality, Computer vision, Digital image and video processing, Mobile multimedia, Embedded computer vision, Robotic vision, Medical image analysis.

Computer Networks and Distributed Systems: Mesh networks, 4G LTE/ WiMAX, Cognitive radio, Cellular network measurements, Wireless networks, Network security, Operating systems security.

Programming Languages, Semantics and Verification: Programming language semantics, Theory and practice of concurrent systems, Process algebras, Distributed computing, Program analysis and verification, Logic in computer science, Applications of verification in network models, multiprocessors, and relaxed memory models and Language-based security.

Operating Systems, High Performance Computing and Systems Software: Compiler design, mobile operating systems and device drivers, Virtualization and Operating systems for IoT system

Information and Communication Technologies for Development: Poverty mapping,Urbanization, Bias in mass media, Computer systems for less-literate populations, Content distribution in rural areas, Community radio, Community media, Mobile health, Governance andaccountability.

Neuroinformatics and Medical informatics: Brain Imaging, Functional MRI (fMRI), Electroencephalography (EEG), Near- infrared spectroscopy (NIRS), Human Functional Connectome.

Cyber Security and Secure Information Systems: Formal notions of security, Formal verification for security, Language-based security, Secure architectures and Embedded systems, Network security, Blockchain-based systems, Privacy and data protection, Electronic voting, Digital identity.

Department of Chemistry [Code CYZ]

Asymmetric Synthesis, Catalysis (Asymmetric, Nano, Photo-Redox, Electro, Bio, Homogeneous, Heterogeneous), Carbohydrate Chemistry, Chemistry of Peptides, Synthetic & Mechanistic Organic Chemistry, Total Synthesis of Bioactive Natural Products, Organo-fluorine Chemistry, Supramolecular Chemistry, Biochemistry (Enzyme Technology, Microbial Biochemistry, Fermentation & Bioremediation, Cloning & Proteomics, Nucleic Acid Biochemistry), Bio-Inorganic Chemistry, Bio-Organic Chemistry, Bio-Physical Chemistry, Physical-Organic Chemistry, Polyoxometalate Chemistry, Organometallic and Main Group Chemistry, Coordination Chemistry,

Molecular Magnetism, Small Molecule Activation, Metal-Organic Frameworks, Inorganic Polymers, Solid State Chemistry, Fluorescence Spectroscopy (Ensemble & Single Molecule), Vibrational Spectroscopy & Imaging, NMR Methodology, Porphyrinoids, π-Conjugated Organic Materials, Molecular Solids, Modern Battery Electrolytes, Nanomaterials (Optical Properties, Photovoltaics, Biological), Electrochemistry, Green Hydrogen, CO2 Reduction, Energy Storage, Water Splitting, Artificial Photosynthesis, Energy & Environment, Surface Chemistry, Quantum Crystallography, Quantum & Classical Computer Simulations on Chemical & Biological Systems, Theoretical Chemistry, Computational Chemistry, Artificial Intelligence and Machine Learning for Chemists.

Department of Design [Code DDZ]

Age-friendly Built Environments; Analogical design (including Biologically-inspired Design); Animation; Artificial Intelligence in Design; Augmented, Virtual and Mixed Reality; Behavioural Design (Methodology and Methods); Comics Studies; Computer Aided Design and Manufacturing; Computer Graphics; Craft Practices; Creativity in Art & Design; Data-driven Design for Environmental Health; Data Science and Design; Design & Culture; Design Cognition and Behaviours of Designers; Design for Children's Education; Design for Development/Base of the Pyramid; Design for Environment; Design for Health and Wellness in Built Environment; Design for Industry 4.0; Design for IoT for Environmental Health; Design for Product Life-Cycle; Design for Sustainability; Design for Sustainable Behaviours (Health, Environment and Socially Responsible Design); Design for Wellness; Design of Assistive Technologies; Design of Healthcare Environments; Design of Sustainable Habitats; Design Theory & Methodology; Digital Heritage; Environmental Ergonomics; Film Making; Graphic Design; Healthcare Design; Human Factors & Ergonomics; Immersive Media Design in Education; Inclusive Mobility; Industrial Design; Packaging Design; Product Design; Qualitative Research Methodologies; Sedentary Behaviour and Health; Study of Creative & Aesthetic experiences from Perspectives of Philosophy, Psychology, Phenomenology & Cognitive Neuroscience; Universal Design; Usability; User Experience; Visual Communication; Visual Narratives; Playful and experiential learning, Serious games (for health, citizen science or behaviour change), design for marginalized populations.

Department of Electrical Engineering [Code EEZ*]

Applicants from any STEMM (science, technology, engineering, mathematics, and medicine) discipline are considered.

Materials, Devices, Circuits and Systems Engineering: a) **Logic, memory and VLSI:** CMOS technology and VLSI design, device modeling, simulation and characterization, CAD for VLSI device fabrication and reliability, compact modeling and PDKs, memory devices and architecture,logic device design, neuromorphic computing and NVRAM technology, semiconductor process technology and packaging, machine learning,; b) **Sensors, detectors and photonics**: sensor and photonic materials, biosensors, fiber-optic and chip based optical sensors, CMOS image sensors and vision systems, NIR/SWIR/MWIR/LWIR detectors, pressure sensors, measurement and instrumentation, plasmonics, nanophotonics, photonic and optoelectronic materials and devices, LEDs and solid state lighting; c) **MEMS, Sensors and Bio-electronics**: bio-inspired devices and system design, MEMS devices (RF MEMS, BioMEMS, Neuromorphic MEMS, acoustic MEMS), electromagnetics, microfluidics and microplasmas, nanorobotics, flexible electronics, transducers; d) **Analog, Digital and Mixed Signal Circuits**: low-power analog design, analog and mixed signal circuit design, high speed circuit design, RF and cryogenic circuit design; e) **Nano and Quantum Technology:** nanoelectronics, quantum electronics, quantum computing, quantum and functional materials, spintronics and micromagnetics; f) **Energy and Power Devices**: energy harvesting, wireless power transfer using piezoelectric, magnetic devices, photovoltaics, batteries and supercapacitors, and

power semiconductor devices.

Power Engineering: Electric machines and drives - Electric machine design, control and converter design, Power electronics - converter topology, multilevel converters, magnetic component design, Wide Band Gap device converter design, Wireless power transfer, Electric vehicles machine design, Electric vehicle charging converters, High power Fast EV Chargers, Grid forming converters, Large-scale Battery storage system and their control. Power systems - Protection, stability, optimization, power quality, HVDC & FACTS, Computer applications - development and design of control platforms, CAD software for system development, Renewable energy systems - Solar, wind, micro hydro Electric vehicle, Smart grid, Electricity markets.

Communication Engineering: Signal Processing, Speech and Image Processing, Coding & Information Theory, Information Security, Communication Systems, Optoelectronics, Optical Communications, Communication Networks, Wireless and Mobile Communications, 5G and 6G Technologies.

Computer Technology: Computer Vision, Multimedia Systems, Image Processing, Computer Networks, Computer Architecture, Embedded Systems, Mobile computing, soft computing, Pattern Recognition, Artificial Intelligence, Machine learning, Information Technology, Music information retrieval, Bioinformatics, Braincomputer interface, Natural language processing, Biomedical signal/image processing, Computational neuroscience, Swarm intelligence, Internet of things.

Control Engineering: Robust Control, Intelligent Control, Robotics, Optimal Control, System Identification, Neuro-Fuzzy Control, Reinforcement Learning Control, Nonlinear Systems and Control, Dynamical Systems, Applications to Biomolecular Circuits, Flight Control and Navigation, Adaptive Control, Cooperative Control and Path Planning, Sensor Fusion, Guidance, Navigation and Flight Control, Sliding Mode Control, Interval Analysis in Control Design, Computational Methods, for Simulation and Control, Modeling and Model Order Reduction, Attitude Control and Structural Control, Numerical Modeling and Simulation Embedded Control System.

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* *Full-time applicants with UGC (JRF), CSIR (JRF) and other government funded fellowships (OGF) will also be considered. Applicants must have a minimum of four-year education after 12th standard with degree in science, engineering or medicine (B.Tech/M.Sc./BE/BS/MBBS) or equivalent.*

Department of Energy Science and Engineering [Code ESZ]

Internal Combustion Engines, Thermal Engineering, Solar Thermal, Power Systems, Power Electronics, Machine Drives, Control System and Devices, Instrumentation and Control, Solar Photovoltaics, Wind Energy, Hydro Power, Plasma Science and Technology, Nuclear Engineering, Energy Conservation and Management, Bio-Energy, Water Resources Engineering, Turbo Machinery, Functional Materials, Building Design and Energy Management, Computational Fluid Dynamics (Thermal Fluids), Fuel cell Systems, Energy Storage and supercapacitors, Fuels and Combustion Science, Material Science.

Department of Humanities & Social Sciences [Code HUZ]

Literature, Sociology, Psychology, Linguistics, Philosophy, Economics, Psychology (Cognitive Neuroscience), History.

Note: Candidates must refer to the Department website (*http://hss.iitd.ac.in/areas*) *for details on areas of specialization in which applications will be considered.*
Not offered in 2nd Semester 2025-26.

Department of Mathematics [Code MAZ]

Algebra, Cryptography, Numerical Linear Algebra, Number Theory and Combinatorics, Dynamical Systems and Fractals, Topology, Algebraic Topology, Harmonic Analysis, functional Analysis, Operator Theory, Micro Local Analysis, Numerical Analysis, Partial and Stochastic Differential Equations, Algorithms and Graph Theory, Machine Translation, Applied Probability, Stochastic Modeling, Queueing Theory, Optimization, Game Theory, Financial Mathematics.

Department of Mechanical Engineering [Code MEZ]

Design Engineering: Mechanical Vibrations, Rotor Dynamics, Smart structures, Experimental Modal Analysis & Identification, Structural Dynamic Modification, Finite Element Model Updating, Acoustics and noise control, Active control of sound and vibration.

Condition Monitoring and Fault Diagnosis, Bearing Dynamics, Lubrication, Polymer Tribology, Bio-tribology; Precision Machine Design, Computer Aided Mechanical Design, Computer Controlled Mechanisms, Vehicle Dynamics, Modelling the Impact of Vehicles, Mechanisms, Robotics (including Medical Robotics), Medical Devices/instruments, Multibody Dynamics, Design and analysis of Rural Engineering Systems, Mechatronics, Sensors and Actuator Design, MEMS,

Design of Microsystems, Artificial Intelligence Applications Computational Mechanics, Fracture Mechanics, Fatigue & Failure analysis, Composite Mechanics, Impact Mechanics, Nanomechanics, Experimental solid Mechanics, Impact Biomechanics, Tissue biomechanics, Orthopaedic Biomechanics, Implant Design, Musculoskeletal modelling, Gait and Motion Analysis.

Thermal Engineering: Design and analysis of thermal systems/processes based on fundamentals of thermodynamics, fluid mechanics, heat and mass transfer, and combustion through experimental / analytical / computational methods.

The specific research areas include the following: Phenomenological and multi-dimensional modelling of IC Engines, Combustion systems, Clean coal technologies, Biomass gasification and char-making, Air pollution characterization and remediation, Microfluidics, Fluid mechanics of biologically inspired flyers, Fluid dynamics and heat transfer in biosystems, Inverse heat transfer, Multiphase flows, Phase-change processes, Heat and mass transfer in drying of porous media, Turbomachinery including compressors, steam/gas/hydel turbines, micro and pico-scale turbomachines, Rural energy systems, Thermal comfort, Refrigeration and air conditioning, Solar cooling, Thermochemical reactions for heating and cooling, Energy efficient buildings, Advanced controls of thermo-fluid systems, AI/ML for design of thermal systems, Water purification and desalination, Thermal energy storage, Lithium-ion batteries, AI/ML methods for electric vehicle health estimation.

Production Engineering: Metal Cutting, Metal Forming, Welding, Metal Casting, Material Characterization, Nontraditional Manufacturing Processes, Measurements & Metrology, Grinding of Ceramics and Metal Matrix Composites, Processing of Polymers & Composites, Injection Moulding, Microcellular Injection Moulding, Finite Element Applications in Manufacturing, CAD/CAM, Rapid Prototyping, Intelligent Manufacturing, Micro & Nano-Manufacturing, Biomaterials and Medical Implants, Nanocomposites, Modelling of Material Behaviour, Lean concepts in Machine Tool Design. Manufacturing Automation, Magnetorheological Finishing, Additive manufacturing, Laser material processing, Auxetic metamaterials, Ballistic Materials and Manufacturing of High-Performance Composites, Diamond brazing, joining of ceramics to metals, Microstructural Evolution, Development of cutting tools, Coating Technology,

Industrial Engineering: Public Systems, Quality, Reliability and Maintenance, Lean Manufacturing, Agile Manufacturing, Productivity Management, Operations Management, Project Management, Supply Chain Management, Flexible Systems, Healthcare Systems, Intelligent Manufacturing Systems, e-Business, Reverse Logistics, Financial Engineering, Wireless Systems; Operations Research, Applied Probability Models, Decision Support Systems, Linear and Nonlinear Optimization, Combinatorial Optimization, Simulation, Machine Learning and Data Analytics, Simulation Modelling, Heuristic Optimization, Multi-agent Planning.

Department of Materials Science and Engineering [Code MSZ]

- **Metals, Glass and Ceramics:** Structure-property correlation in advanced materials, Fracture and Fatigue, Indentation, nano-scale friction and wear, Material characterization using advanced microscopy, phase transformations, solid-state diffusion-controlled reactions, Synthesis and characterization of metal matrix composites, Light metals and alloys, 3D printed metals and alloys, Auxetic materials, Bulk metallic glasses and composites, functionally graded materials, nanomaterials.

  High entropy alloys, materials for extreme environments, thermal barrier coatings, alloy processing and properties, refractory metals and compounds, aluminide bond coats. Advanced ceramics, optical glass, toughened and tempered glass, structural and functional ceramics, and glass-ceramics.

- **Polymers:** Synthesis of polymers, structure-property correlation in polymers, rheology and processing of polymers, functional and smart elastomeric materials, polymer matrix composites, tribology and mechanical behaviour of polymers, 3D printing of functional elastomeric/polymeric materials, membranes for various applications, antifouling and antibiofouling materials and membranes, redox polymers, materials for energy storage, separation and purification, organic-inorganic hybrid materials, catalytic materials and nanomaterials for catalysis and environmental applications, 2D materials, graphene, Covalent organic frameworks, biodegradable materials and biomaterials, organically modified mesoporous silica nanoparticles, surface engineering using controlled radical polymerization techniques, recycling of materials, 3D printing.

- **Computational Materials Science:** First principle-based materials design, micromagnetic simulations, computational materials chemistry, molecular modelling, and simulations of soft materials (self-assemblies, (bio)polymers, nanomaterials), machine learning for materials informatics, Computational materials science, Optoelectronic Materials, Ion Dynamics, Machine Learning, Spintronics, Low-Dimensional Materials.

- **Functional Materials**: Functional-electrical, optical and magnetic properties of materials. Conventional semiconducting materials processing and device applications. Low dimensional materials, Layered 2D materials, nanostructures devices and physics. Nanowires - Magnetic tunnel junctions. Photo voltaic in organic and inorganic materials. Low temperature electron transport, ballistic transport, superconductivity and other strongly correlated systems. Micro and Nano electro- mechanical device fabrication and characterization, modeling and simulation. Electron transport, opto-electronics in oxide and other wide bandgap materials

Department of Physics [Code PHZ]

Astronomy and Astrophysics:

The research in Astronomy and Astrophysics at IIT Delhi encompasses a wide range of topics, including Classical and Quantum Aspects of Gravity, Cosmology, Galactic Astronomy, Solar Physics, and Relativistic Quantum Information. Through interdisciplinary approaches and advanced theoretical and observational techniques, we strive to push the boundaries of our understanding of the universe. Our current research interest are -

Classical and Quantum Gravity : Small Scale Structure of Spacetime, Quantum effects in Gravity, Cosmology, Numerical & Mathematical Relativity; Galactic Astronomy : Probing galaxies and the circumgalactic medium; Relativistic Quantum Information : Decoherence, Quantum-to-Classical Transition, Quantum Computing; Solar Physics : Solar corona - Instrumentation, Imaging, Data Processing and analysis, and Physics

Atomic and Molecular Physics: Our area of interest is ion-atom/molecule/cluster/ices collisions. Heavy ion impact Ionization and fragmentation of the molecules of biological and astrophysical interest are studied. Our area of expertise include secondary electron spectroscopy, recoil-ion-momentum spectroscopy and Infrared spectroscopy. We are also interested in development of equipment which are useful in atomic physics experiments and our aim is to collaborate with the industry to make them commercially available.

Condensed Matter Experiments:

The research activity of condensed matter experimental (CME) group at the Physics Department covers a wide range of topics such as (i) nanostructured materials, thin films and devices, (ii) novel magnetic multifunctional and topological materials, (iii) spintronics and magnetism, and (iv) wide band gap semiconductors such as GaN and Ga2O3, AlGaN/GaN heterostructures, 2D quantum materials like graphene, transition metal dichalchogenides and thin-films of half Heusler alloys Growth and nanoscale devices based on semiconductor nanowires, and (v) optical properties of condensed matter e.g., ultrafast dynamics of condensed matter with femtosecond laser. CME group houses several specialized laboratories as well as several departmental facilities. The CME group has close links with Central Research facilities (CRF) and Nanoscale Research Facility (NRF) of the Institute. NRF houses Class 100 and 1000 clean rooms as well as several characterization facilities. At present, the department has an X-Ray diffractometer (XRD), a SQUID magnetometer, a Physical Property Measurement System (PPMS), ultrafast-optics laboratory (also housing a Raman spectrometer and a photoluminescence set-up), a Pulsed Laser Deposition (PLD) system and an Atomic Force Microscope (AFM) as departmental facilities. Individual research labs also have

several state-of-the-art facilities, the details of which can be found by visiting the corresponding laboratory web pages.

Condensed Matter Theory:

The CMT group has an interdisciplinary focus with broad research interest spanning from first principles-based simulation of designing new materials and understanding their properties using "state-of-the-art density functional theory (DFT) and beyond methods" to the theoretical modelling of transport and other properties of various condensed matter systems. We also theoretically model transport in quantum Hall systems, graphene, and topological insulators. Theoretical modelling of twisted van der Waals heterostructures (dubbed as Twistronics) and moiré materials are other research activities in this direction. Quantum simulation of exotic condensed matter phases with ultra-cold atoms is another area of expertise. Our research also aims to theoretically discover and characterize different topological phases consisting of fractional fermions and Majorana fermions with features uniquely advantageous for topological quantum computing. Using DFT we probe the fundamental physics and related technological applications for atomic and many-atomic complex systems. Some properties of our interest include electronic and band structure, electric and magnetic properties, phonons, magnons and electromagnons in complex (anti) ferroic oxides bulk and nanostructures. We also use ab initio calculation to explore the viability and rational design of real-world functionalized CNT metastable photoswitches and single-photon emitters (SPEs). We also theoretically model transport in quantum Hall systems, graphene, and topological insulators. Quantum simulation of exotic condensed matter phases with ultra-cold atoms is another area of expertise. Our research also aims to theoretically discover and characterize different topological phases consisting of fractional fermions and Majorana fermions with features uniquely advantageous for topological quantum computing.

High Energy Physics (https://hep.iitd.ac.in):

High energy physics encompasses both the very small and the very large distance scales — from the femtometer scale or smaller (elementary particles) to the scale of the observed universe (cosmology). Small scales are well described by the Standard Model, which brings together three fundamental interactions — electromagnetic, weak and strong — while cosmology is concerned with the gravitational force. We study particle production in particle collider experiments in an attempt to understand both perturbative and non-perturbative aspects of the Standard Model interactions. In particular, strong interactions, described by quantum chromodynamics, are per se notoriously difficult. We employ effective field theoretical techniques to understand its non-perturbative aspects—to study low energy properties of hadrons and quark gluon plasma—as well as perturbative techniques and phenomenology for describing high energy phenomena of hadron structure and gluon saturation. We also study particle production in gravitational fields and aspects of quantum gravity.

The Standard Model of Particle Physics is stupendously successful in explaining elementary particle interactions. However, the presence of a few theoretical shortcomings and pieces of experimental evidence, e.g., non-zero neutrino masses and mixing, demands physics beyond the Standard Model (BSM). We explore these novel aspects in the context of neutrino physics, dark matter, collider searches, and charged lepton flavour-violating decays. We also scrutinize the feasibility of probing gravitational waves in BSM frameworks through Phase Transition, which offers a particle physics probe of the history of the Universe.

We also conduct research in more theoretical and mathematical aspects of high energy physics, including the holographic correspondence to better understand quantum gravity, and the development of novel quantum spacetime models through discrete approaches inspired by graph theory, number theory, and quantum information theory.

Optics and Photonics:

Historically the Physics Department at IIT Delhi has a strong background in broad areas of Optics

and Photonics. IIT Delhi started the first Optics Master's program in the country in 1960's. Current research activities span a wide ranging topics that include areas of fundamental importance (e.g. Physical Optics, Statistical Optics, Singular optics and inhomogeneous polarization states, quantum photonics, non-linear optics, nano-photonics, metamaterials, light propagation in random media) as well as cutting edge applied research areas (e.g. integrated optics and optical communication, holography, microscopy/nanoscopy, optical metrology, computational imaging, green photonics, illumination engineering, bio-photonics including applications to medical diagnostics, THz optics, ultrafast optics, spectroscopy, optical tweezers, beam engineering, atmospheric optics and development of optical sensors). Optics and Photonics faculty have number of collaborations across different disciplines within IIT Delhi (electrical engineering, biosciences/biomedical engineering, material science, chemistry), as well as outside IIT Delhi with DRDO, ISRO and other national research facilities like CSIR labs, as well as medical schools/hospitals (e.g. AIIMS), and industry. The department hosts a DST-FIST facility on ultrafast optics that has state-of-the-art instrumentation enabling collaborative work with various disciplines.

Physics of Quantum Materials & Information Systems:

The three focussed attempts in quantum computation (QC) are- (i) Majorana-based topological quantum computation (TQC) (ii) superconducting qubits-based QC and (iii) trapped ion-based QC. Importance of the field is evident from the fact that Google and IBM have invested heavily in superconducting qubits while Microsoft has invested in Majorana qubits. The focus of our Department are towards (i) cold atom-based quantum technologies, (ii) quantum photonics and (iii) general Quantum Materials like Topological Insulators, quantum well based semiconductor technologies, spintronics related research etc. In cold atom-based technologies, the atoms are cooled to a million times colder than room temperature using precisely frequency tuned lasers. The inherent quantum nature of atoms and photons allows one to design versatile quantum systems and fully control their properties by simple and clever approaches. These technological and conceptual developments will lead us to build large scale quantum information processing network, quantum computation protocols for solving industry and society relevant problems.
A group of researchers, in the department are putting their efforts in the direction of studying Topological semi-metals, a quantum phase of matter that host Dirac and Weyl fermions. They study the transport properties of these exotic materials under very low temperature, high magnetic field and high pressures and realise the exotic quantum features in the laboratory scale.

Plasma Physics:

Plasmas are known as the fourth state of matter and constitute the majority of the visible universe, including the Sun. A plasma contains a large number of positive ions and electrons in almost equal numbers, along with some neutral particles, and are overall charge neutral. There are examples where a plasma may also contain negative ions and/or negatively charged dust particles, which is referred to as a multi-component / dusty plasma. Each plasma species can contribute to different applications of plasmas. For example, electrons are responsible for high-frequency phenomena, including EM radiation generation, whereas the ions contribute to the synthesis of materials, surface hardening, sputtering, device fabrication, etc. We are primarily working in the broad research areas of intense laser-plasma interactions, plasma-material interaction, plasma-based charged particle acceleration, plasma propulsion, plasma-based radiation sources, and dusty plasmas. We employ theoretical as well as numerical methods, namely, hydrodynamics, molecular dynamics, and particle-in-cell (PIC) techniques, to investigate the above areas and also perform experiments in some of the areas.

Statistical Physics and Soft Matter:

Statistical Physics is devoted to understanding macroscopic assemblies of identical particles. Such systems appear over a wide range of length scales in many different fields. We study diverse systems of contemporary interest, ranging from classical solids, exotic liquids, soft materials, mesoscopic

systems, active matter and granular matter to name a few. Broadly, our research encompasses the following themes: (i) emergent phenomena in complex spin systems with disorder and long-ranged interactions; (ii) non-equilibrium properties of complex fluids such as liquid crystals, ferronematics, living liquid crystals, magnetic fluids; (iii) Colloidal self assembly; (iv) Stochastic processes, stochastic thermodynamics of active Brownian heat engines, active matter, optimal control of cyclic heat engines, population dynamics and open quantum systems; (iv) Motility of microorganisms on surfaces, micro-swimmers in Newtonian and non-Newtonian fluids; (v) Driven and active granular matter; and (vi) Capillary and elastocapillary phenomena. We use a variety of analytical techniques from equilibrium and non-equilibrium statistical physics, computational techniques such as Monte Carlo, parallel tempering, molecular dynamics and graph cuts, along with experiments involving state-of-the-art imaging and rheological measurements, often using in-house developed techniques.

Department of Management Studies [Code SMZ]

Economics: Managerial Economics, International Economics, Productivity and Efficiency Analysis, Business Forecasting, Economic Feasibility & Techno economic Analysis, Sustainable Development, Socio-economic Analysis, Energy Economics, Econometric Methods and Applications, Macroeconomic Theory and Policy. Security and Information Risk, Merger and Acquisitions, Big Data Analytics, Digital Economy, Development Economics, Public Policy, Environmental Economies and Climate Change.

Finance: Financial Analysis and Valuation, Financial Management, International Financial Management, Capital Markets, Derivative Securities, Portfolio Management, Mutual Funds, Banking, Financial Markets and Services, Mergers and Acquisitions, Risk Management, Behavioral Finance, Corporate Governance, Corporate Social Responsibility, Supply chain Finance, Entrepreneurial Finance.

Human Resource Management: Organizational Behaviour, Ethical Decision Making, Whistleblowing, Ethical leadership, Organization Management and Change, Organization Development, Human Resource Management, Career Management, Flexible Work Arrangements, Workplace Deviance, Workplace Incivility, Gig work and workers, Identity work.

Information Systems: Adoption, Impacts and Management of Emerging ICTs; Data Science; Artificial Intelligence and Machine Learning; Social Media and Web 4.0; Digital Transformation; Smart Cities; ICTs, Development and Business; E-Commerce & M-Commerce; Sharing / Platform Economy; e-Governance; Digital services management; Cyber Security, Privacy and Information Risk Management; Public Policy for Emerging Technologies; Blockchain; Internet of Things; Financial Technologies; Healthcare technologies, Metaverse, Digital Public Infrastructure and Digital Public goods.

Marketing: Marketing Management, Industrial and Hi-Tech Marketing, Advertising, Sales promotion, Product Management, Market Research.

Operations: Production, Management and Operations research, Sustainable and Big Data Operations, International Manufacturing Network, Enterprise Resources Planning, Project Management, Modeling and Simulation of Operations, Healthcare Operations System Analysis, Total Quality Management, Logistics Management, Modelling and Simulation Closed Loop Systems, Industrial Waste Management, Supply Chain, Big Data Analytics, Deep /Machine Learning, AI Implications, Sustainable Humanitarian Supply Chain Solution and Green Packaging.

Strategy: Strategic Management, Strategic Innovation, Strategic Thinking, Corporate Strategy,

Public health, Management of Technology, International Business, Ambidexterity, Strategic alliance and Joint ventures, Flexible Systems Management, Strategic Implementation.

Department of Textile and Fibre Engineering [Code TTZ]

Textile Engineering: Design and analysis of yarn and fabric formation systems: rotor spinning, ring spinning, air jet spinning, friction spinning, weaving, knitting, nonwovens, braiding etc. ; Structural mechanics of textiles; High stress elastic materials; Apparels and garments; comfort; handle and other functional aspects of fibrous assemblies; Design and development of technical textiles: geo-textile, filter fabrics, medical textiles, protective textiles, textile composites etc.; Systems analysis; Textile production and marketing: operation management and supply chain managements; Textile production and operations management, supply chain management; Sustainability and circularity; Textile Instrumentation and machine development; Modeling and simulation of textile processesand products; Quality management.

Textile Chemical Technology: Textile chemical processing; preparatory processes; dyeing, printingand finishing, Surface functionalization by plasma and UV excimer lamp; Micro and nano-encapsulation; Conducting textiles; Natural dyes; Bio-active textiles; Textile ecology and environment.

Fibre Science & Technology: Synthesis and characterization of advanced polymeric materials; Fibre formation processes; Modeling and simulation; Structure-property correlation; Functional and responsive polymers; Smart & intelligent textiles; Modification of natural and synthetic fibres; Nanotechnology in textiles: nanofibres by electrospinning, nanomaterials; Synthesis and application in textiles; Coated textiles; Polymer nanocomposites; Green Composites; Medical textiles, Tissue engineering; Sustainability and polymer & fibre recycling; 3D Bioprinting; Wearable electronics: Conducting fibres, piezoelectric materials, Supercapacitors, batteries etc.

Centre for Applied Research in Electronics [Code CRZ]

Signal Processing: DSP Algorithms and Systems, Underwater and Air Acoustics, Speech and Audio Processing, Machine Learning, Optimization for Signal Processing, Digital Communications, Multi-Sensor Data Fusion;

Microwaves and RF: Active and Reconfigurable Circuits and Antennas, Millimeter Wave and T Hz circuits and sub-systems, Microwave imaging; RF MEMS, Wideband Microwave Circuits, Modelingof Active Devices;

Microelectronics: Micro-Electro-Mechanical Systems (MEMS) Technology, Nanoelectronic Devices, Optoelectronic & Quantum Sensors, CMOS Device & Circuit Design, GaN HEMT Design & Modeling, Magnetic/spintronic and neuromorphic devices.

Centre for Atmospheric Sciences [Code ASZ]

Mesoscale Modelling: Numerical Modelling of the Atmosphere, Tropical Meteorology and Indian Monsoon, Land-Surface Process Modelling, Land-Atmosphere Interaction, Renewable Energy Resource Assessment and Forecasting.

Numerical Modelling of Weather and Climate: Numerical Methods for Weather and Climate Models, Numerical Modeling of the General Circulation of Atmosphere and Advection of Atmospheric Tracers.

Ocean Modelling: Ocean Circulation Modelling, Ocean State Simulations and Forecasting, Storm Surges and Inundation, Coastal Ocean Processes, Simulation of Ocean Surface and Internal Waves.

Climate and Climate Change: Global and Regional Climate Modeling, Climate Dynamics, Climate Variability and Changes, Climate Change Detection and Attribution, Climate Projections, Climate Change Impacts, Science of Extreme Weather and Climate Events, Health, Agriculture, Water Resources and Energy, Aerosol-Cloud- Climate Interactions, Greenhouse Gas-Vegetation Interactions, Paleoclimate, Proxy Reconstructions, Abrupt Climate Change.

Air Pollution: Urban Meteorology, Chemical Transport Modelling, Health Impact Assessment of Air Pollution, Greenhouse and Trace Gases Modelling, measurements of aerosols and greenhouse/trace gases.

Centre for Automotive Research and Tribology [Code CTZ]

AC/DC Charger, Solar-powered charger, Charging Protocols, Effect of Charging on Grid, Motor and Drives for EVs, Hybrid Electric Vehicles, Aircraft power system, Battery for EVs, Battery materials, Vehicle Telematics, Applied dynamics and vibrations, Rotordynamics, Hysteresis, Tire mechanics, Vehicle stability, Vehicle nonlinear dynamics and control, Autonomous and Connected Vehicle, Tribodynamics, Tribological and acoustical materials, Automotive Fault Diagnosis and Prognosis, Noise Control Materials, Automotive NVH, Sound Quality and Application of Machine Learning in Condition Monitoring.

Centre for Biomedical Engineering [Code BMZ]

Electrical/ Electronic/ Instrumentation Engineering; Mechanical/ Manufacturing/ Production Engineering; Chemistry/ Biochemistry/ Polymer Chemistry/ Material Sciences/ Pharmaceutical Sciences; Chemical Engineering; Mathematics/ Physics/ Bio-Physics; Computer Science Engineering; Biomedical Engineering; Biotechnology, MBBS/ BDS/ Homeopathy (B.H.M.S)/ Physiotherapy (BPT))/ Veterinary Sciences.

Centre for Rural Development and Technology [Code RDZ]

Artisan technologies and rural industries; Water & sanitation; Rural housing & habitat; Traditional knowledge systems; Frugal innovation; Rural entrepreneurship; Design for sustainability; Rural energy systems;; Embodied energy & Carbon footprint; Biofuels, SYN Gas, Biogas production & enrichment; Compressed Biogas (CBG) Biofertilizers & biopesticides; Biomass production and valorization; Green chemistry and materials; Environmental microbiology & bioremediation; Microbial Biochemistry and enzymology; Algal technologies; Natural plant products processing; Applied secondary metabolites; Agro-food processing, storage & value addition; Food fortification, food safety quality, and measurement techniques, 3D Printing of biological materials; Protein biochemistry; Isolation, encapsulation & value addition of bioactives; Clean cookstoves; Solid & liquid waste management; Wetland reclamation; Clean & sustainable technologies; Natural fibre products; Environmental impact assessment; Natural resource Management; Medicinal mushroom production technologies; Panchagavya – processes, validation & standards;Application of block chain, AI, ML in agri foodtechnology; Nanotechnology & Nano toxicology in agriculture; Indigenous people (especially remote & peripheral communities) & development; Environment & sustainable development; PVTGs; Governance & governmentality studies; Andaman and Nicobar islands, Leh-Ladakh, Jammu & Kashmir, and northeast India.

Centre for Sensors, Instrumentation and Cyber-physical Systems Engineering [Code: IDZ]

Sensors and Transducers; Electronic and optical sensors; Electronic Components and Circuits; Electronic circuit design (analog and digital); Electronic Techniques for Signal Conditioning and Interfacing; Signal and Image processing; CMOS analog and mixed signal circuits & systems for sensors; Optical Metrology; Micro-optics; Aspheric and freeform optics; Optical instrumentation; Holographic microscopy; Digital speckle pattern interferometry; Optical coherence tomography; Display Devices and Technology; Quantum optical devices; Integrated quantum technologies; Optical image processing; Machine Vision and Automation; Signal, Image and Video Processing Techniques for Non-destructive Testing; Tera Hz, InfraRed, X-ray, and UltrasoundImaging Modalities; Precision Measurement Systems; Precision mechanics; Instrumentation and Control; Instrument Design and Simulations; Mechatronics; Embedded systems; Sensors Systems; Smart Systems.

National Resource Centre for Value Education in Engineering [NRZ]

Holistic Health and Wellness. All issues pertaining to holistic view of individual's health and wellness. These include modern scientific research on proven mind-body techniques for physical and mental health, such as Mindfulness, Yoga, Tai-Chi, Qi-Gong, Ayurveda, Holistic nutrition and others. Yogic Neuroscience, Indian Psychology, Cognitive Sciences, Clinical trials on Yoga and Ayurveda, fMRI-based Neuroimaging (fMRI), EEG, MEG, PET, fNIRS**.**

Leadership for Sustainable Development. Various aspects of holistic and sustainable development. Notions of development which go beyond purely material well-being, and consider other aspects of human/societal well-being such as intellectual, emotional and overall happiness. Notions of development which encompass sustained co-existence among human beings as well as with nature. How to create leadership (in various walks of life – especially in engineering/technology) for taking forward these alternate views on development.

Inner Development. Understanding first person mental phenomena, especially those pertaining to Meditation, Mindfulness and Contemplation in a rigorous academic framework. Theoretical frameworks for alternative worldview based on deep contemplative insights. Teaching and research on first person mental phenomena through accurate and reproducible observations.

Inner and Outer Harmony through Music and Arts. Classical music, dance and art forms that promote introspection, concentration, various aspects of self-awareness and devotion. Evolution of parallel streams of classical music in India. Development of classical art forms through folk art forms. Societal awareness through classical music. Streams of thought in classical music. Connections between 32ufism32c music and 32ufism. Technology-based analysis and dissemination of music.

Value Education and Technology. Teaching the teachers, tools and techniques for inculcating value education to students, especially at tertiary level of science and engineering. Research on effectiveness of various techniques for value education. Newer models of education. Use of technology for large scale dissemination of knowledge.

Transportation Research & Injury Prevention Centre [Code TRZ]

Transportation planning; traffic flow modeling, simulation, and optimization, public transport systems; sustainable urban transport; travel behaviour modeling; pedestrian dynamics and evacuations; construction safety and work zone safety; highway safety; vehicle crash modeling; road traffic injury prevention; human body modeling and injury estimation; pedestrian and non-motorized vehicle safety; freight modelling, road accident costing; network modelling; climate change; human migration; driving simulators; vehicle dynamics; intelligent transport systems.

Optics & Photonics Centre [Code OPZ]

The newly established Optics and Photonics Centre aims to foster an interdisciplinary environmentwhere students and researchers with diverse backgrounds will explore new frontiers in Optics and Photonics with equal emphasis on fundamentals as well as device development.

Research topics of the Centre are in areas of Optical Engineering, Optical Instrumentation and Metrology, Optical Imaging, Fiber Optics, Integrated Optics, Optical Sensors, Laser Science and Technology, Ultrafast Optics, Silicon Photonics, Nanophotonics, Plasmonics, Biophotonics, Green Photonics, Statistical and Quantum Optics, Quantum Photonics, Terahertz Photonics, Optical Metamaterials, Nonlinear Optics, Optical and Magneto-optical Storage Devices, Photonic Devices, and other relevant areas.

School of Artificial Intelligence [Code AIZ]

Artificial Intelligence and related applications include but not limited to Machine Learning (deep learning, reinforcement learning, probabilistic modelling, generative models, neuro- symbolic machine learning), Data Mining (graph mining, information retrieval, intelligent query processing, knowledge graphs), Computer Vision and its applications (medical Imaging, perception

of mobility, etc), Natural Language Processing and related applications (machine translation, dialog systems, summarization, etc.), AI & Robotics (planning, learning, human-interaction, embodied systems, multi-agent systems), Mathematical foundations of AI, Ethics of AI, AI on the edge, and Applications of AI to domain areas such as healthcare, agriculture, education, industry 4.0, material science, earth observation etc.

Amar Nath and Shashi Khosla School of Information Technology [Code ANZ]

Application areas: Computing for sustainability and social development (Climate action for rural communities, Urban transportation and mobility, Community information services, Air pollution, Sustainable Agriculture and nature-tech solutions); Sustainable and scalable computing (Energy efficient computing, Thermal-aware systems, AI/ML Hardware, ML-based technologies for industrial design, AR/VR for industry 4.0); Health and social care technologies (Assistive technologies, Cancer detection, Analytics for public health, Community health processes, Surgical devices and simulators for skill evaluation and enhancements, Indian knowledge systems of health, Neuroimaging and neuroscience); Safe and responsible computing (Quantum-Resistant Cryptography, Robust and Auditable Artificial Intelligence (AI) Systems, Privacy-Enhancing Technologies, Cyber-physical Systems Security (IT / OT security), Ethics of Computing, Cryptanalysis, Biometric Security).

Research areas: Data science / Machine learning / AI / Deep learning, Computer graphics / Digital media processing / Computer vision, Natural language processing / Information retrieval, Databases / Knowledge representation, Algorithms / Complexity theory, Human computer interaction, Computer security / Network security / Cryptography / Data privacy, Computer networks / Computer systems / Distributed systems / Concurrent systems, Programming languages / Formal systems / Verification, Computer architecture / Embedded systems

Bharti School of Telecommunication Technology and Management [Code BSZ]

Telecom Networks, Telecom Software, Wireless Technologies, Optical Networks, Signal Processing,

Telecom Systems Design, Planning and Management, Regulatory and Policy Aspects of Telecom Services and Systems, Embedded Telecom Systems, Telecom Network Management, Performance Analysis of Communication System and Resource Management, Wireless Security, Machine learning for wireless communication, Internet of Things, Wireless Sensor Networks, Autonomous Driving Technology, Mobile Commerce, Mobile Applications, Mobile Services, Digital Public Infrastructure & Development, Quantum Communications, Quantum Machine Learning, Optical Wireless Communications.

School of Interdisciplinary Research [Code SRZ]

The prime focus of the School of Interdisciplinary Research (SIRe) is to nurture talents who are interested in interdisciplinary/multidisciplinary/cross-disciplinary research problems. SIRe provides an absolute interdisciplinary research environment to the students. To facilitate this, IITD faculty from two or more different Departments/Centres/Schools define Interdisciplinary Research problems as projects. The Scientist/Researchers/Professor from the National or International Universities can also serve as one of the mentors, if required. The student selection is done for specific research projects advertised periodically on the School website (https://sire.iitd.ac.in/); the student is supervised by all the concerned faculty.

School of Public Policy [Code PPZ]

Agriculture, Food and Water; Energy and Environment; Internet, Digital Information and Society; Innovation Systems and Processes; Industry and Economy; Technical Higher Education and Sustainable Habitats. Candidates must refer to the School website (https://spp.iitd.ac.in/academic) for details.

Note: *Not offered in 2nd Semester 2025-26.*

Kusuma School of Biological Sciences [Code BLZ]

Computational Biology, Systems Biology, Chemical Biology, Cellular Biophysics, protein folding & misfolding with focus on infectious diseases and non-communicable disorders, Chaperone assisted protein folding, Molecular biophysics of protein folding, unfolding and conformational properties, Therapeutics against protein aggregation-associated diseases , Cognitive and computational neuroscience, Molecular and cellular Neuroscience, Viral diseases, Nanoparticle- based targeting, drug delivery, Structural Biology, Diagnostic Virology, Cancer Biology and therapeutics, Tumour metabolism, Leukemia and myeloproliferation, Plant-based therapeutics, Marine Bioprospecting, insulin signaling and insulin resistant diabetes, Leishmaniasis, ion channel and receptor biology, Host pathogen interaction, single molecule biophysics, DNA-Protein interactions, force spectroscopy, Vascular Biology, Aging biology, cytoskeletal dynamics, Development, regeneration, photopharmacology, stem cell biology and organoids.

ANNEXURE -II

RESEARCH PROGRAMMES: MASTER OF SCIENCE BY RESEARCH (M.S. (R))

The Institute M.S. (Research) programme offered by following Departments/Centres/Schools:

S. No.	Department/Centre/School Programme	Code
1.	Applied Mechanics	AMY
2.	Chemical Engineering	CHY
3.	Civil and Environmental Engineering	CEY
4.	Computer Science & Engineering	CSY*
5.	Biochemical Engineering and Biotechnology	BEY$
6.	Electrical Engineering	EEY@
7.	Energy Science and Engineering	ESY
8.	Materials Science and Engineering	MSY
9.	Mechanical Engineering	MEY
10.	Automotive Research and Tribology	CTY
11.	Atmospheric Sciences	ASY
12.	Healthcare Technology	BMY#
13.	Sensors, Instrumentation and Cyber-physical Systems Engineering	IDY
14.	Amar Nath and Shashi Khosla School of Information Technology	SIY
15.	Machine Intelligence & Data Science	AIY
16.	Bharti School of Telecommunication Technology and Management	BSY
17.	School of Biological Sciences	BLY
18.	VLSI Design Tools & Technology	JVY
19.	Transportation Safety and Injury Prevention	TRY
20.	Optics and Photonics	OPY

**Admission to M.S. (Research) Programme in Computer Science and Engineering is limited to candidates having a Qualifying degree in Computer Science and Engineering, Electrical Engineering, Information Technology, M.Sc. Operations Research/Statics, Electronic and Communication, M.Sc. M.A/M.Sc. Math, M.Sc. Math (with exposure to appropriate level course in Computer Science) and MCA (with Math and Science at B.Sc. level).*

In addition to the above, the programmes CSY is limited to candidates who have appeared in GATE with Computer Science and Engineering or Information Technology.

$ Not offered in 2nd Semester 2025-26.

@ Applicants to EEY(MS (Research)) program must have a minimum of four-year education after 12th standard with degree in science, engineering or medicine (B. Tech/M. Sc./BE/BS/MBBS) or equivalent.

 # Admission to M.S. (Research) Programme in Healthcare Technology (Biomedical Engineering) having a Qualifying degree in MBBS, BDS, BVSc, BAMS, BHMS, BPT, BPO, BPharm, MD/MS/DM/MCh/MDS/MPT/MPharm with Qualified NEET (PG), AIIMS(PG), PGI(PG) or any other national level PG exam in respective specialty.

ADDITIONAL IMPORTANT INFORMATION FOR CANDIDATES

- Ragging in any form is banned in IIT Delhi.
- The Institute treats ragging as a cognizable offence and stern action will be taken against the offenders.
- IIT Delhi will not be responsible for postal delays, if any.
- Communication mostly will be by electronic means (emails/website/mobile). Candidates should check their emails, mobilesand IITD website regularly.
- All matters of disputes will be subject to legal jurisdictions of the courts in Delhi only.
- The Institute reserves the right to amend, without any notice, any provisions stated in this brochure.