

1. INTRODUCTION:

Indian Institute of Technology Delhi is one of the seven established Institutes of Technology in India, the others being Kharagpur, Bombay, Madras, Kanpur, Guwahati and Roorkee. Recently, Government has set up eight 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 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.

The Institute offers undergraduate and postgraduate programmes through its Departments and Centres. The Institute admits about 850 students for the undergraduate (B.Tech) programmes and about 1400 students for the postgraduate (M.Sc./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 equipments and laboratory facilities available and go through the specialised courses designed to meet the challenge 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 on the North. The Institute campus is about 19 kms away from the Delhi Main Railway Station, 14 kms from the New Delhi Railway Station, 21 kms from the Inter State Bus Terminal, 22 km from Indira Gandhi International Airport and 10 kms from the domestic terminal of Delhi Airport. The nearest Metro Station is Hauz Khas.

Campus: IIT Delhi is a residential Institution and provides residential facilities to the students as well as the teaching staff as per 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 is a separate entity, all the Departments/Centres together constitute an integrated complex. Large lecture theatres with modern amenities and equipment for projection have been located adjacent to two or more Departments for common use. The campus also provides such amenities as staff clubs, hospital, shopping centres, banks, ATMs, post office, community centre, stadium and playing fields.

The Students Activities Centre provides all facilities for students' extracurricular and physical development. The central two-storeyed block with a swimming pool and a

gymnasium hall 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.

2. CREDIT SYSTEM

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

Each course has a certain number of credits which describe its weightage. A student's performance is measured by the number of credits that he/she has completed satisfactorily. A minimum Grade Point Average is required to be maintained for satisfactory progress.

The minimum academic requirements for the various degrees including minimum & maximum credits to be registered in a particular semester are indicated in the Prospectus for the year 2011-2012 which will be supplied to the admitted candidates on the date of Orientation.

Every course is co-ordinated by a member of the teaching staff of the Department which offers the course in a given semester. This Faculty member is called the Course Co-ordinator. He has full responsibility for conducting the course, co-ordinating 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 Co-ordinator for advice and clarification.

3. ADMISSION PROCEDURES AND REQUIREMENTS

I. Ph.D. Programmes

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

Course work and other academic requirements: In order to overcome any deficiency in the breadth of fundamental training or proper foundation for advanced work; special make up or pre-doctoral courses are given by each Department/ Centre. These courses are given either by faculty member or by guests speakers and specialists in the profession. Normally candidates having a B.Tech./M.Sc./M.A. or equivalent degree are required to complete a minimum of 12 * credits with a minimum required GPA of 7.5. M.Tech or equivalent degree holders are required to complete a minimum of 6* credits with a minimum required GPA of 7.5.

**A Department/Centre may specify a higher credit requirement for all their PhD programmes and/or require an individual scholar to complete a larger number of credits based on his/her background and preparation level.*

Admission to the PhD Programmes: Admission to the Ph.D. programmes is normally made on the basis of a interview conducted by the Department/Centre concerned through its Department research committee (DRC) / Centre research committee (CRC). DRC/CRC may decide to conduct a written test as well to screen the candidates. Applications are invited from candidates by advertising the programmes in Employment News/leading newspapers in March for the first semester and in October, for the second semester every year.

Admission schedule: Normally, Ph.D. programmes are advertised in the month of March and October each year in the Employment news as well as in leading newspapers and admissions are carried out in the months of May and December. Further, admission to Ph.D programme is possible **any time in the year** through DRC/CRC. They can be allowed to join any time though the course registration in such cases will be possible only at the beginning of the next semester. Candidates seeking admission under this clause must fulfill the required academic qualification/ experience at the time of interview. They must also join within 4 weeks after the issue of admission offer unless specifically permitted to do so. Admission is subject to 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.

I(a) Minimum Qualifications for admission to Full-time PhD Programmes:

The following table defines the minimum qualifications required for admission to full-time PhD programmes at IIT Delhi for **General/OBC (Non-creamy Layer)** category students. Please note:

- These are Institute minimum requirements and any Department/Centre operating through their DRC/CRC can specify higher short-listing criteria than what is specified here.
- This table includes most of the degrees but each DRC/CRC is free to specify the qualifications and disciplines acceptable for admission to their programmes.
- Candidates in the final year of their programmes and who expect to complete all their qualifying degree requirements before third week of July 2011 are eligible to apply for admissions. For short-listing purposes, their performance till the preceding semester (preceding year if their programmes are year based) would be considered but their admission would be subject to their meeting the minimum eligibility criteria after their final qualifying examination results are announced.

Qualifying Degree	Minimum performance in the qualifying degree for General/OBC (Non-Creamy Layer) category students	Qualification through national level examination requirements
M.Tech./M.E./M.D. or equivalent	60% marks or 6.75 CGPA on a 10-point scale	Nil
M.Sc./MBA/M.A./MBBS or equivalent	60% marks or 6.75 CGPA on a 10-point scale	GATE score \geq 300 or qualifying score whichever is higher CSIR/UGC NET/ICAR/ICMR/DST INSPIRE fellowship
B.E./B.Tech or equivalent	70% marks or 7.5 CGPA on a 10-point scale	Qualified GATE/CSIR/UGC NET/ICAR/DST INSPIRE fellowship

Table 1: Minimum Qualification for Admission to full-time PhD Programmes

Exemptions, relaxations and clarifications:

1. For **SC/ST/PH category students**, minimum performance in the qualifying degree with postgraduate qualifications (first two rows) is relaxed from 60% to 55% (6.75 to 6.25) and GATE score requirement from 300 to 200.
2. Qualifying degree performance is computed by **aggregating performance over all the semesters/years** of the qualifying degree.
3. For all **B.Techs. from IITs** graduating with a CGPA of 8.0 or above, the requirement of qualification through a national examination (row three in Table 1) is waived off.
4. For assistantship purposes candidates with **MBBS qualification** will be considered equivalent to M.Tech.
5. For candidates with M.A. degree in English, a 5% relaxation in marks or 0.5 relaxation in CGPA may be permitted for admission to the PhD programme in Humanities & Social sciences.
6. Candidates holding MBA degree, where admission was through JMET, are eligible for applying to the PhD programme in the Department of Management Studies.

I(b) Minimum Qualifications for admission to Part-time and Sponsored (full-time) PhD Programmes:

The following eligibility conditions 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. All candidates should have a minimum experience of two years as on 1st August, 2011 for admission in July 2011.
3. Minimum qualification for these candidates is the same as for full-time candidates except that the requirement of qualifying in a national examination (column 3 in Table 1) is waived off.
4. For part-time candidates from outside NCR (or at a radial distance of more than 50 KMs from IIT Delhi), there is a minimum residency requirement of 6 months. DRC/ CRC 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 (2years for M.Tech. and equivalent degree holders).
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 research.
 - facilities for research in the candidate's field of research are available at the candidate's place of work; and
 - he/she will be fully relieved from duty and permitted to reside at the Institute for the period required residency (This is not a requirement for candidates who are working in NCR or in organizations located within a distance of 50 KMs from the Institute).

II. M.TECH. / M.S. (Research) / M.Des. Programmes

The Institute runs a number of M.Tech. and M.S. (Research) programmes offered by various Departments and Centres. M.Tech. and M.S.(R) programmes mainly differ in the fraction of course and project/thesis credits. M.Tech. programmes have 2/3rd credits for the coursework while MS(R) programmes have 2/3rd credits for the thesis component. Some of these programmes are interdisciplinary programmes (IDP) where multiple academic units are involved in running of each of these programmes. Also in these IDPs, students with different backgrounds are eligible to be admitted to the programme. IDPs are administered through a Programme Executive Committee or PEC. Master of Design (or M.Des. Programme) in Industrial Design is also offered as an Interdisciplinary Programme. IIT Delhi also offers a number of industry sponsored programmes. In these programmes either industry supports full-time students recruited by the Institute or sponsors their employees for the programme. In either case, regular Industry feedback is obtained to adopt and improve the curriculum to the needs of the industry. Industry sponsors also play a significant role in defining the projects. The listing of all the programmes is given in **Annexure-II**.

Flexibility of movement: *Very recently, IIT Delhi has adopted major changes in its rules and regulations. These changes enable easy mobility of students from M.Tech. to PhD, M.Tech to MS(R), MS(R) to M.Tech. and MS(R) to PhD. With these changes, it is now possible for a student to join M.Tech./MS (R) at IIT Delhi and then they can apply for change to a research programme if they feel confident. In this process save considerable amount of time to complete Ph.D.*

Eligibility for programmes: B.Tech. or M.Sc. degree holders of a particular discipline are eligible for admission to one or more programmes. The list of programmes which a graduate of a specific discipline is eligible to apply, is given in **Annexure III**.

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

Admission schedule: Normally, M.Tech/MS(R)/M.Des. programmes are advertised in the month of March each year in the Employment news as well as in leading newspapers and admissions are carried out in the month of May. MS(R) programmes are also advertised in the month of October followed by admissions in December.

Further, just like Ph.D, admission to MS(R) programmes is possible **any time in the year** through DRC/CRC/PEC. They can be allowed to join any time though the course registration in such cases will be possible only at the beginning of the next semester. Candidates seeking admission under this clause must fulfill the required academic qualification/experience at the time of interview. They must also join within 4 weeks after the issue of admission offer unless specifically permitted to do so. Admission is subject to vacancy being available in the relevant specializations.

Part-Time programmes: IIT Delhi offers most of its M.Tech./MS(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 in each semester. Departments/Centres offer most of the core courses between 8:00 AM to 10:00 AM to enable these working professions 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 morning 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.Tech./MS(R)/M.Des. Programmes:

Table 2 defines the minimum qualifications required for admission to full-time M.Tech./MS(R)/ M.Des programmes at IIT Delhi for **General/OBC (Non-creamy Layer)** category students. In this context please note:

- These are Institute minimum requirements and any Department/Centre operating through their DRC/CRC/PEC can specify higher short-listing criteria than what is specified here.
- This Table includes many degrees for eligibility but each DRC/CRC/PEC is free to specify the qualifying degree disciplines as well as GATE disciplines acceptable for admission to their programmes.
- Admission to M.Tech/MS(R)/M.Des programmes are carried out by first short-listing the eligible candidates (meeting the minimum performance in their qualifying degree – Column 3 of Table 2) and scoring above a GATE cut off specified for that programme and then interviewing them at IIT Delhi. GATE cut offs for various Programmes last year (admission year 2010) is tabulated in **Annexure IV**. In all such cases, GATE score is given a minimum weight of 70% in judging the overall performance of the candidates appearing for interview.
- DRC/CRC/PEC is empowered to offer direct admission for M.Tech./MS(R) programmes without interview to exceptionally meritorious students. The minimum performance required by such candidates is listed in row 2 of Table 2. This is the Institute minimum and again DRC/CRC/PEC is free to set higher eligibility criteria for direct admissions without interview. DRC/CRC/PEC may decide not to offer any direct admissions without interviews.
- Candidates in the final year of their programmes and who expect to complete all their qualifying degree requirements before third week of July 2011 are eligible to apply for admission. For short-listing purposes, their performance till the preceding semester (preceding year if their programmes are year based) would be considered but their admission would be subject to their meeting the minimum eligibility criteria after their final qualifying examination results are announced.

Programme & Admission type	Qualifying Degree	Minimum performance in the qualifying degree for General/OBC (Non-Creamy Layer) category students	National level examination requirements
M.Tech./MS(R) (Direct without test/interview)	B.E./B.Tech/ M.Sc or equivalent	75% marks or 8.5 CGPA on a 10-point scale	GATE score \geq 300 or qualifying score whichever is higher
M.Tech./MS(R) (Admission with test/interview)	B.E./B.Tech/ M.Sc or equivalent	60% marks or 6.75 CGPA on a 10-point scale	GATE score \geq 300 or qualifying score whichever is higher
M.Des.(Direct without test/interview)	B.E./B.Tech/ M.Sc or equivalent	75% marks or 8.5 CGPA on a 10-point scale	CEED Percentile \geq 75
M.Des.(Admission with test/interview)	B.E./B.Tech/ M.Sc or equivalent	60% marks or 6.75 CGPA on a 10-point scale	CEED Percentile \geq 75

Table 2: Minimum Qualification for Admission to full-time M.Tech./MS(R)/M.Des. Programmes

Exemptions, relaxations and clarifications

1. For Direct admission of **SC/ST/PH category students** (row 2 & 4 of Table 2), minimum performance in the qualifying degree is relaxed from 75% to 70% (8.5 to 7.5) and GATE score requirement from 300 to 200. For M.Des programme CEED score is relaxed from 75 percentile to 50 percentile.
2. For admission with interview of **SC/ST/PH category students** (row 3 & 5 of Table 2), minimum performance in the qualifying degree is relaxed from 60% to 55% (6.75 to 6.25) and GATE score requirement from 300 to 200. For M.Des programme CEED score is relaxed from 75 percentile to 50 percentile.
3. Qualifying degree performance is computed by **aggregating performance over all the semesters/years** of the qualifying degree.
4. For all **B.Techs. from IITs** graduating with a CGPA of 8.0 or above, the requirement of qualification through GATE is waived off.
5. Candidates with AMIE or Grad. IETE qualifications may also be considered for admission to the M.Tech. Programmes; 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/PEC and clear the GATE examination before being actually admitted to the M.Tech./MS(R)/M.Des. Programmes.

II(b) Minimum Qualifications for admission to Part-time and Sponsored (full-time) M.Tech./MS(R) Programmes:

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 KMs radius of IIT Delhi are eligible to be considered for admission to part-time M.Tech./MS(R) programmes
3. All candidates should have a minimum experience of one year as on 1st August, 2011 for admission in July 2011
4. Minimum qualification for these candidates is the same as for full-time candidates except that the requirement of qualifying in a national examination (column 4 in Table 2) is waived off.
5. **Part-Time M.Tech (Evening) Programme In Energy And Environmental Management** is a special programme for working professions only. In this programme, lecture classes are held on week days in the evening between 1830 to 2030 hrs. and laboratory classes on Saturdays/ Sundays in the forenoon.
6. **Sponsored (full-time) candidates** seeking admission to a M.Tech./MS(R)/M.Des. 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 2 years
7. **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

4. RESERVATION OF SEATS:

- (a) 15% seats are reserved for SC and 7.5% for ST candidates.
- (b) 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 OBC's in the Central list at the time of interview. For details and specimen form visit : <http://www.iitd.ac.in/pgadmission>.
- (c) 3% seats are reserved for the physically handicapped persons in the Postgraduate courses and Ph.D. Programmes.

Note : All shortlisted candidates applying for admission under the reserved categories are required to produce the relevant certificate at the time of interview.

5. 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 Course Coordinator. The courses to be run 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** regarding the rules governing their academic duties and performance. In some Departments, the required performance levels for continuation of registration may be higher than those given in the Prospectus. The admitted students must acquire a copy of the departmental norms in such cases.

6. HOSTEL ACCOMMODATION

All post-graduate students admitted on full-time basis can, subject to availability, avail of residential facilities in the hostels. Delhi based and sponsored students admitted to M.Tech./MS(R)/M.Des. programmes have a lower priority in hostel accommodation. The Institute has nine boys' hostels, two girls' hostels and a hostel for married students. For married students, only a limited accommodation is available. Each hostel, except Married Research Scholar accommodation, is self-contained with amenities such as a reading room, an indoor games room, a lounge and a dining hall with mess. Hostel rooms are adequately furnished. The hostel for married students has one/two-room suite(s) with an attached bath and a kitchen for each resident family.

8. FEES AND PAYMENTS

(a) INSTITUTE DUES PAYABLE BY 2011 ENTRY PH.D./M.Tech/M.S.(R)/M.Des STUDENTS

	Category	Tuition Fees	Other Registration Charges	Hostel Seat Rent	Total	
I. Full Time / Part Time Ph.D.	General/OBC/PH	2500	6735	850	10085*	
	SC/ST	0	6735	850	7585*	
II. Full Time M.Tech/MS(R)/M.Des. (Institute /Project Assistantship)	General/OBC/PH	5000	5935	850	11785*	
	SC/ST	0	5935	850	6785*	
III. Full Time M.Tech/MS(R)/M.Des./DIIT (Sponsored Candidates)	Teaching Position holders	General/OBC/PH	5000	5935	850	11785*
		SC/ST	0	5935	850	6785*
	Non-Teaching Position Holders	General/OBC/PH	25000	5935	850	31750*
		SC/ST	0	5935	850	6785*
IV. Part Time M.Tech./MS(R) Institute or Project Employee of IITD or Teaching position holders in any institution	General/OBC/PH	5000	5935	0	10935*	
	SC/ST	0	5935	0	5935*	
	Non-Teaching Position holders	General/OBC/PH	25000	5935	0	30935*
		SC/ST	0	5935	0	5935*

*Includes Insurance

Table 3 : Schedule of Fee applicable for different programmes in July 2011 admission.

Note:

- Part - Time students are not to pay Hostel Seat Rent
- SC/ST 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.
- The Institute Dues payable at the time of admission includes a refundable security deposit of Rs.2,000/-.

(b) MESS DUES PAYABLE BY 2011 ENTRY STUDENTS

Membership of associated mess is compulsory for those allotted Hostel accommodation. They will be required to pay Mess Dues at the joining as detailed in Table 4.

Details	Boys	Girls
Mess Security Deposit (Refundable)	Rs. 3,000	Rs. 3,000
Mess Admission (one time payment)(Non refundable)	Rs. 2,400	Rs. 2,400
Mess Advance (one time payment adjustable against mess dues)	Rs. 9,500	Rs. 9,000
SCOOPS membership (one time payment)(Non refundable)	Rs. 100	Rs. 100
Total	Rs.15,000	Rs.14,500

Table 4: Mess Dues applicable at the time of joining the Mess for July 2011 admissions.

8. 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 MHRD recently and are as indicated below:

Period of assistantship	Assistantship amount		Hours/week assistance to be provided
	With B./Tech/B.E./M.Sc.or equivalent qualifications	With M.Tech./M.E./MBBS or equivalent qualifications	
First 2 years of registration	Rs. 16,000/- p.m.	Rs. 18,000/- p.m.	8
Next 2 years of registration	Rs. 18,000/- p.m.	Rs. 20,000/- p.m.	8

Table 5: Assistantship amounts for Full-time Institute PhD students

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.

- All Institute assistantships students are given contingency grant per annum in accordance with the rules of the Institute.
- The maximum duration for which assistantship can be awarded to a Ph.D. student is 4 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 course work will be considered as satisfactory performance. For details of SGPA calculation refer to the Institute Prospectus.

- All fulltime students participating in a sponsored project/consultancy project (in addition to their assistantship work) can be paid an honorarium of upto Rs. 10,000/- 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 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.
- In exceptional cases with the approval of the Chairman, Senate, Sponsored (Full-time) 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 a seed money of Rs. 20,000/- once during the program as partial financial assistance for presenting papers abroad in good academic conferences
- Institute is in the process of formalizing a number of agreements with leading foreign institutions or agencies for supporting upto 6 month long research visits by PhD students. This would enable interested students with the consent of their supervisor and DRC/CRC 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 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.TECH/MS (R) / M.DES STUDENTS

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.Tech/ M.S. (Research) and M.Des. Programmes on full-time basis are considered for the award of 'Half-time' Research/Teaching Assistantship under which they will be paid Rs.8,000/- per month and would be required to provide assistance of 8 hours/week to the Department/Centre

- The maximum duration for which Assistantship can be awarded to M.Tech/ MS(R)/ M.Des students is 4 semesters.
- Only full-time non-sponsored students who have qualified GATE/CEED 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 (6.75 in the case of SC/ST/PH) at the end of the semester is treated as satisfactory academic performance.
- All fulltime M.Tech./MS(R)/M.Des students participating in a sponsored project/ consultancy project (in addition to their assistantship work) can be paid an honorarium of upto 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.Tech/M.S.(R) programmes. 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).
- A number of DAAD scholarships under the Sandwich System may be available. Indian Students pursuing M.Tech./M.S. (R) at IIT Delhi are eligible for this scholarship for doing their thesis work for about 9 months at one of the nine German technical Universities
- 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.

9. GENERAL GUIDELINES

- (a) The minimum eligibility criteria indicated above for each programme is only an enabling clause. The Deptt./Centre may fix higher criteria at the time of short listing keeping in view the number of candidates, minimum background expected to cope with the programme etc.
- (b) The minimum prescribed 60% 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 subject to the availability of seats for part-time and decision of the respective DRC/CRC/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 21 July, 2011. Candidates must inform P.G. Section, IIT Delhi in writing by 21 July, 2011, if the requirements of their qualifying degree including Viva-Voce, if any, are not met by 21 July, 2011. Failure to inform the 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 concerned. The Department/Centre will call an adequate number of eligible candidates for a written test/interview which may be held between **May 13 and June 14, 2011**. The exact date for the test/interview will be communicated by the Department/Centre. For any query regarding date of interview, selection result and operation of waiting list please contact the concerned Deptt./Centre at the Telephone Nos. given on page 18 of this brochure.
- (f) Application incomplete, in any respect, is liable to be rejected.
- (g) The Ph. D. candidates called for appearing in test and/or interview will be paid to and fro II Class Railway Fare by shortest route. However, this provision will not apply to the sponsored and part-time candidates.
- (h) No TA/DA will be paid to the candidates applying for M.Tech./MS(R)/M.Des. Programmes.
- (i) A provisional list of applicants selected for admission and of applicants selected for the award of Assistantship alongwith those placed on waiting will be displayed on

the Department/Centre notice board within a day of the test/interview. The selected candidates would be required to pay the first instalment 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.

10. APPLICATION PROCEDURE

i) Submission of Online Application

Online submission of application may be made by accessing the Institute website <<http://www.iitd.ac.in>>. There is a concession of Rs. 100/= for online submission of application. For online submission of form the candidates should first get a Bank Draft of Rs.200/- for General/OBC (Non-Creamy layer) (Rs.50/- for SC/ST/PH) categories drawn in favour of “**Registrar, IIT Delhi**” payable at SBI, IIT Delhi or Canara Bank, SDA.

ii) Application by downloading form

Please visit our website <<http://www.iitd.ac.in>> to download the Information Brochure and Application Form. The completed application form along with a Bank Draft of Rs.300/- for General/OBC (Non-creamy layer) candidates (Rs. 150/- for SC/ST/PH), drawn in favour of “**Registrar, IIT Delhi**”, payable at SBI, IIT Delhi or Canara Bank, SDA should be sent to the address given in para (iv) below. The form not accompanied with the Bank Draft will not be entertained.

iii) Collection of Application form through post or in person

Application Form and Information Brochure can also be obtained from the the address given in para (iv) below by sending application fee of Rs. 300/- for General/OBC (Non-creamy layer) candidates (Rs. 150/- for SC/ST/PH candidates) by a Bank Draft drawn in favour of “**Registrar, IIT Delhi**” payable at SBI, IIT Delhi or Canara Bank, SDA along with a self addressed envelope (25 cm x 20 cm) affixing postage stamps worth Rs. 15/-. The form can also be had personally against Bank Draft for Rs.300/150 from the Institute Counter (Room No.AD-229) or from SBI/Canara Bank, IIT Delhi on cash payment of Rs. 300/- for General/OBC (Non-creamy layer) candidates (Rs. 150/-for SC/ST/PH).

iv) Completed forms prepared or collected in any of the above three modes along with the demand draft of appropriate amount can be sent by post along with a self addressed stamped post card, and four address slips to :

**Deputy Registrar (PGS&R)
IIT Delhi, Hauz Khas, New Delhi-110016.
OR**

can be deposited **in person** to P.G. section (Room No. AD-229) IIT Delhi.

[THE NUMBER AND DATE OF THE BANK DRAFT AND NAME OF THE ISSUING BANK SHOULD BE MENTIONED BY THE CANDIDATE IN THE APPROPRIATE COLUMN WHILE SUBSEQUENTLY SUBMITTING THE COMPLETED APPLICATION FORM].

Last date for receipt of completed form in any mode is 14.4.2011.

11. REFUND OF FEES

The whole amount of fees/other charges deposited by the students will be refundable after deduction of Rs.1,000/- if the candidates do not join the programme after paying the dues and leave the Institute by applying for refund on or before the date of registration

For refund of fees and/or security deposit the student must apply on the prescribed form available from the P.G. Section, IIT Delhi or the Institute Website : <http://www.iitd.ac.in>.

12. IMPORTANT INSTRUCTIONS FOR FILLING APPLICATION FORM

- (a) Separate application form should be used for Ph.D. programme along with separate Demand Draft for each Department/Centre.
- (b) Separate application form should be used for each M.S.(R) programme along with separate Demand Draft.
- (c) Separate application form should be used for M.Des. programme along with separate Demand Draft.
- (d) Separate application form should be used for each interdisciplinary M.Tech programme along with separate Demand Draft.
- (e) The applicant seeking admission to M.Tech. programme of a particular department should fill a separate application form. He/she may give upto **four choices** in order of preference for the M.Tech. Programmes available in that department. However, he/she will be considered only for two choices for which he/she is eligible in the order of preference given. In case a candidate is found to have filled more than one form of a particular department, his/her candidature will be cancelled.
- (f) GATE score cut off criteria used for shortlisting candidates in different non-sponsored (full-time) M.Tech. programmes during the Academic year 2010-2011 is given in **Annexure IV**. This is only for the candidate's reference and the criteria may even change substantially based on applications received for the current admissions i.e. academic year 2011-2012.
- (g) Do not send any attested copies of Certificates with this form.
- (h) Part-time/Sponsored (full-time) candidates must submit NOC/Sponsorship Certificate from their employer at the time of interview.
- (i) Filling of false information will lead to rejection of application/cancellation of admission.
- (j) No column should be left blank. Write not applicable against a column if the same does not apply to you. .
- (k) Tick (✓) the relevant box wherever provided.
- (l) The number and date of the Bank Draft should be mentioned by the candidate in the appropriate column while subsequently submitting the completed application form.
- (m) Write the programme code at the appropriate place in the Application Form. The Ph.D. programme codes are given in **Annexure-I** and M.Tech/M.S. (R)/M.Des. programme codes are given in **Annexure-II**.

13. CONTACT TELEPHONE/FAX NOS.

1. For any query/clarification please contact **P.G. Section** at the following fax/telephone Nos.:

Fax: 11-26582032

Tel: 11-26591723

2. For query regarding date of interview, selection result and operation of waiting list please contact the concerned Deptt./Centre at the following Telephone Nos.

DEPARTMENTS TELEPHONE

Applied Mechanics	26591201
Biochemical Engineering & Biotechnology	26591001
Chemical Engineering	26591021
Chemistry	26591501
Civil Engineering	26591241
Computer Science & Engineering	26591291
Electrical Engineering	26591071
Humanities & Social Sciences	26591371
Management Studies	26591171
Mathematics	26591471
Mechanical Engineering	26591051
Physics	26591331
Textile Technology	26591401

CENTRES

Applied Research in Electronics	26591101
Atmospheric Sciences	26591301
Biomedical Engineering	26596132
Energy Studies	26591251
ITMMEC	26591281
Instrument Design Development	26591431
Polymer Science & Engineering	26591421
Rural Development & Technology	26591121
National Resource Centre for Value Education in Engineering	26596585

SCHOOLS

Bharti School of Telecommunication Technology & Management	26596200
Amar Nath and Shashi Khosla School of Information Technology	26596056
School of Biological Sciences	26596104

INTERDISCIPLINARY R&D PROGRAMMES

Opto-Electronics and Optical Communication	26596121
Transportation Research and Injury Prevention Programme	26591147

INTERDISCIPLINARY M.TECH. / M.DES. PROGRAMMES

Computer Applications	26591291
Industrial Tribology & Maintenance Engineering (ITME)	26591280
Instrument Technology	26591437
Polymer Science & Technology	26561494
VLSI Design, Tools & Technology	26591085
Telecommunication Technology and Management	26596200
Industrial Design (M.Des.)	26591431

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:

Department of Applied Mechanics [Code AMZ] Large Deformations, Impact Mechanics, Elasticity, Analysis of Manufacturing Processes, Composite Materials, Plates and Shells, Non-linear Dynamics and Chaos, Railway Vehicle Dynamics, Off-Shore Structures, Smart Structures, Structural Stability, Snow Mechanics, Dynamic Plasticity, Nano composites and Damage Mechanics, Experimental and Computational Methods in solids and fluids.

Internal and External Flows, Pipeline Engineering, Solid-Liquid Flows, Computational Fluid Dynamics, Hydrodynamic Stability and Turbulence, Environmental Aerodynamics.

Computer Aided Design, Design Engg., Reliability Engineering, Availability and Maintainability Engg.

Physical and Mechanical Metallurgy, Crystal, Plasticity, Phase Transformations, Fracture Mechanics, Fatigue, Environmental cracking, Failure Analysis, Mechanical Properties of Solids, Functionally Graded materials, Residual Life Estimation, Nano Materials, Quasicrystals, Amorphous Materials, Metal Forms, Severe Plastic Deformation, Electron Microscopy.

Department of Biochemical Engg. & 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; application of artificial neural networks for control of bio processes.

Bioseparation and down stream processing: Membrane separation techniques, chromatographic separation techniques, water purification etc.

Animal and plant cell culture: Development of cell culture techniques for cultivation of plant and animal cells in specialized reactors for production of therapeutic compounds.

Environmental Biotechnology: The development of reactors and processes for stabilization of organic and industrial wastes.

Biochemistry and molecular biology: Industrial enzymes, development of recombinant clones for over-production of enzymes and metabolites; development of expression systems in bacteria and yeasts; bioenergetics and biological molecular machines; chaperone-mediated proteins folding of native and recombinant proteins; protein conformation study and structure-function relationship using biophysical methods; application of bio-informatic tools for development of bioprocesses.

Department of Chemical Engineering [Code CHZ] Mixing, Adsorption, Ion-Exchange, Absorption, Distillation and other separation processes, Particle Technology, catalysis and Reactor Engineering, Petroleum Refining Engineering, Membrane Synthesis & Processes, Waste Management, Environmental Engineering, Biomass, Fluidization, Computer Aided Design, Modeling Simulation and Optimization, Interfacial Engineering, Polymers, Computational fluid dynamics, control of Reactors, fuel cells, multiphase flow & reactors, Bioseparations and Bioprocessing complex fluids, Polymer Rheology, Process operations Planning and scheduling.

Department of Chemistry [Code CYZ] : Theoretical Chemistry. Quantum & classical computer simulation on chemical and biochemical systems. Biophysical chemistry Synthetic and Mechanistic organic chemistry. Carbohydrate Chemistry. Bio-organic chemistry, Organometallics, Coordination & bio-inorganic chemistry. Solid state chemistry. Dielectric materials, Inter metallic compounds, Polyoxo metallates, Trace metal extraction. Ion-exchangers. Supramolecular chemistry, Molecular organization and recognition, Process Developments for the Organic Transformations, Polymer chemistry. NMR spectroscopy, Enzyme structure, stability & folding, Peptide synthesis. Bio separations, Design of reusable biocatalyst. Non-aqueous chemistry. Enzyme Immobilization and Bioconversions, Nanomaterials (optical properties, photovoltaics) Nanocatalysis in ionic liquids, Fluorescence Spectroscopy (Ensemble & Single molecule)

Department of Civil Engineering [Code CEZ]

Environmental Engineering : Urban air quality management; indoor air pollution; water and waste water treatment; urban water Management; Non-point source of Pollution; Membrane Process; Modeling, simulation and optimization of Environmental systems; Environmental Impact Assessment; solid waste management; incineration; circulating fluidized bed operations; Landfill Management; Environmental Risk Analysis, GIS and Remote Sensing Applications for Environmental Management.

Geotechnical Engineering : Soil mechanics; rock mechanics; foundation engineering; slope stability and dams; ground improvement: geosynthetics; reinforced soil; geo-environmental engineering; offshore geotechnology; underground structures; constitutive modeling; ash ponds and ash utilization; landfills; expansive soils; geophysical methods; engineering geology; soil dynamics and earthquake geotechnics; seismic microzonation; geotechnology for tracks and pavements; computational methods.

Structural Engineering : Structural Health Monitoring; Smart Materials Structures Tenacity Structures; Biomechanics; Analysis and design of structures; tall buildings; bridges; earthquake engineering; wind engineering; offshore structures; masonry, RCC and steel structures; artificial intelligence; damage assessment and strengthening; structural dynamics; structural control; constitutive modelling; computational methods; constitutive Modelling of damage Plasticity and creep concrete; High Performance construction Management; durability of concrete; rebar corrosion; cement based

composites; construction technology; construction management; financial analysis; contract administration; quantitative methods in compaction concrete.

Transportation Engineering : Transport planning and systems; traffic flow modeling; fuzzy systems; urban engineering; pavement materials and highway engineering; airways; Environmental impact-assessment; Interaction between Environment and Land use Transport.

Water Resources Engineering : Hydrology; irrigation; water resource systems; watershed modeling; hydrological modeling, GIS; environment impact assessment; irrigation management; CAD; ground water contamination; Ground water Modelling; contaminant Transport Modelling; Leachate Pollution; bioremediation; flow through porous media; remote sensing; stochastic processes; large river basin modeling; water resources conflicts; River Water quality Modelling; water allocation waste load; flood forecasting and Modelling; snow dynamics; Rain water Harvesting.

Department of Computer Science & Engineering [Code CSZ] Computer Architecture, VLSI Design Automation, Embedded Systems, Hardware-Software Co-design, System-level Design and Design Space Exploration, ASIP Synthesis, Computer Vision, Computer Graphics, Virtual environments, Geometric modeling, Model representation, 3D Visualization and Animation, Image Processing, Artificial Intelligence, Natural Language Processing, Databases, Data Mining, Computer Networks, High-Speed Networks, Wireless and mesh networks, WiFi/WiMax, ad hoc and Sensor networks, Delay Tolerant Networks and Opportunistic communication, Multimedia systems, Peer-to-peer networking, Network measurement and modeling, Social networking, Protocol validation and verification, Analysis of algorithms, Randomized and Approximation algorithms, Graph algorithms, Computational Geometry, Combinatorial Optimization, Web-related computation, Parallel and Distributed Computing, Programming Language Semantics and Design, Semantics of Concurrency and Distributed Computation, Formal Methods and Verification, Compilers, Software Engineering, Service-oriented computing, Foundations and Models of Computing, Computational and Systems Biology.

DEPARTMENT OF ELECTRICAL ENGINEERING [Code EEZ]

Electronic Engineering: Electronic Circuits, Microprocessor, Instrumentation, Microelectronics, VLSI, Digital Signal Processing, Computer Aided Circuit Design, Graph Theory, Biological and artificial, Neural Networks, Testing and Fault Diagnosis, Fault-tolerant Design, Mixed-signal design.

Power Engineering : Electrical Machines, Energy Conversion, Power Electronics, Power Quality, Drives, Powers System, Protection, Stability, Optimisation, Energy Conservation, HVDC & FACTS, Computer Applications in Power (computational intelligence, microcomputer/DSP control, CAD software & application) Renewable Energy Systems (Small Hydro, PV, Wind), Energy Audit & Efficiency.

Communication Engineering : Signal Processing, Speech and Image Processing, Coding & Information Theory, Communication Systems, Optoelectronics, Optical Communications, Communication Networks, Wireless and Mobile Communications, Microwaves, Antennas.

Computer Engineering : Computer Vision, Multimedia Systems, Image Processing, Computer Networks, Computer Architecture, Embedded Systems, Mobile computing, soft computing, Pattern Recognition, Artificial Intelligence, Information Technology, Music information retrieval, Bioinformatics.

Control Engineering : Control theory Robust Control, Intelligent control, Robotics, Optimal Control, Parameter Estimation, Mechatronics, Neuro-FUZZY control, Adaptive Systems, distributed parameter systems, Numerical methods in control, sliding mode control, computational electromagnetics, Interval Analysis.

Department of Humanities & Social Sciences [Code HUZ] Development Economics, Macroeconomics, Microeconomics, Sociology of Culture and Knowledge, Sociology of Development, Environmental Sociology, Sociology of Social Movements, Globalization and Transnationalism, Sociology of Religion, Sociology of Agriculture Technology and Rural Development Policy, Sociology of Information and Communication Technologies (ICTs) for Development, Visual Anthropology/Sociology, Economic Sociology, Technology, Work and Society, Gender Studies, Cultural Studies, Performance Studies, New Media Studies, Science and Technology Policy, Energy and Environmental policy, Modernist and Postmodernist Literature, Indian English Theatre, Indian Writing in English, Contemporary Fiction, Postcolonial Literature, Linguistics (Formal Syntax and semantics, Language Acquisition), Cognitive studies, Philosophy of Language, Epistemology, Metaphysics, Ethics, Aesthetics, Continental philosophy, Phenomenology, Hermeneutics, Philosophy of Science, Philosophy and Film, Philosophy of Mind and Cognition, Wittgenstein; Metaphysics of the Self Religion and Development, Buddhism (including Buddhism in the Himalayas and Political Buddhism), Philosophy of Culture and History, Social and Political Philosophy.

Department of Management Studies [Code SMZ] Production Management and Operations research, Manufacturing Systems Management, Enterprise Resources Planning, Project Management, System analysis and computer Applications, Management of Information Technology, Network Security Management, Management Information system & Decision support system, Electronic commerce Systems approach to Waste Management and Productivity, Human Resource Management, Organization Management Behaviour and Development, Business Ethics, Leadership, Financial Analysis and Control, Financial Management of Manufacturing and Service sectors, International Financial Management, Capital Markets, Derivative Securities, Portfolio Management, Mutual Funds, Behavioural Finance, Managerial economics, International Economics, Economics of Education, Productivity and Efficiency Analysis, Business forecasting, Economics Feasibility & Technoeconomic Analysis, Marketing management, Industrial and Hi-Tech Marketing: Public Sector Management, Entrepreneurial

Management, Management of Technology, Management and Planning of Service System (Energy, Transportation, Health Care, Banking), Corporate Planning and Strategic Management, Global Strategy and strategic Alliances, Global Competitiveness, Country Competitiveness, Breakthrough Management, Strategic Innovation, Organisational Growth Strategies, Innovation Difusion, Business Strategy and Competitiveness, General Management, Total quality Management, flexible Systems Management, Comparative Management, Product Management, Business Process Re- engineering, Mergers and Acquisition, Strategic Business Management, Knowledge Management, International marketing Management, Industrial Marketing and Service Marketing Management, Longitudinal and Lateral Thinking. International Business and negotiations.

Department of Mathematics [Code MAZ] Pure Mathematics, Applied Mathematics, OR & Statistics and Theoretical Computer Science.

Department of Mechanical Engineering [Code MEZ]

Design Engineering

Mechanical Vibrations, Rotor Dynamics, Damped Structures, Composite Structures, Smart structures, Active Vibration Control, Experimental Modal Analysis & Identification, Structural Dynamic Modification, Finite Element Model Updating, Dynamic Design, Noise Engineering, Condition Monitoring, Bearing Dynamics, Lubrication, Mechanical System Design, Computer Aided Mechanical Design, Computer Controlled Mechanisms, Vehicle Dynamics, Modelling the Impact of Vehicles, Impact Biomechanics, Concurrent Engineering Design, Mechanisms, Robotics, Multibody Dynamics, Application of Multibody Dynamics in Design and analysis of Rural Engineering Systems, Mechatronics, Sensors and Actuator Design, MEMS, Design of Microsystems, Nanomechanics, Artificial Intelligence Applications in Mechanical Engineering & Expert Systems for Design & manufacturing and Mechanical Engineering Applications to Medical Science.

Thermal Group

Internal Combustions Engines, Phenomenological and Multi-dimensional modeling of engines, Combustion, Radiation from flames, Engine Simulation, Turbo charging, Combustion Generated Pollution, Alternate Fuels, Utilization of biogas, Biomass gasification, Energy efficient kilns, Energy flow through radial rectilinear cascades, Centrifugal and axial compressors Internal flow and Laser anemometry, Optimization of power plants, Sustainable Energy Systems, Computer Simulation and Design of Thermal Systems, Refrigeration & Air Conditioning Systems, Thermal Comfort, Fire Research, Air Water Spray Injection, Waste Heat Utilization, Energy Conservation, Renewable Energy Sources, Heat Transfer, High temperature natural convection Microchannel Heat Exchangers, Particle-laden Flow, Fluid Mechanics & Machines, Turbulence Computational Fluid Dynamics (CFD) Turbo machines, Numerical modeling of radiation heat transfer in

participating media; Heat and mass transfer in porous Media; Solar cooling; Micro/ nano scale heat transfer; Theoretical/computational modeling of mass transfer, Charge transfer; fluid flow in microfluidic/nanofluidic devices.

Production Engineering

Metal Cutting, Metal Forming, Welding, Metal Casting, Material Characterization, Non-traditional Manufacturing Processes, Measurements & Metrology, Grinding of Ceramics and Metal Matrix Composites, Processing of Polymers & Composites, Injection Molding, Microcellular Injection Molding, Finite Element Applications in Manufacturing, CAD/CAM, Rapid Prototyping, Intelligent Manufacturing, Micro & Nano-Manufacturing, Biomaterials and Medical Implants, Nanocomposites, Modeling of Material Behavior, Lean concepts in Machine Tool Design.

Industrial Engineering

Quality, Reliability and Maintenance, Lean Manufacturing, Agile Manufacturing Productivity Management, Operations Research, Operations Management, Project Management, Supply Chain Management, Applied Probability Models, Decision Support Systems, Value Engineering, Flexible Systems, Healthcare Systems, Intelligent Manufacturing Systems, e-Business, Reverse Logistics, Financial Engineering, Wireless Systems.

Department of Physics [Code PHZ]

Material and Condensed Matter Physics : Thin Films, Materials and Devices, Novel Functional Materials, Nanomaterials, Lattice Dynamics, Semiconductors and Amorphous Materials, Electronic Ceramics, Microwave Materials, Quantum Functional Materials, Spintronics, Superconductivity, Photovoltaics; **Optics and Photonics**: Holography, High density data storage, Liquid crystals, Nonlinear Phase Conjugation, Optical Information Processing, Optical data security, Nonlinear Optics, Nonlinear guided wave optics, Solitons Quantum Optics, Fiber Optics, Integrated Optics, Fiber Optic Sensors and Biosensors, Fibre Optic components, Nanophotonics, Laser Spectroscopy and Applications, Laser Processing, Optoelectronics; **Plasma Physics**: Particle acceleration, Nonlinear waves and instabilities in plasma, Thermo Nuclear Fusion, Microwaves and Plasma Interaction, Solitons in Plasma, Space Plasmas; **Theoretical Physics**: Mathematical Physics, Statistical Mechanics and Computational Physics, Nuclear and particle physics, ultra fast optics.

Department of Textile Technology [Code TTZ]

Textile Engineering: Design and analysis of yarn and fabric formation systems: rotor spinning, ring spinning and 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: geotextiles, filter fabrics, medical textiles, protective textiles, textile composites etc; systems analysis; textile production and marketing; operation management and supply chain management; textile instrumentation and machine development; modeling and simulation of textile processes and products; quality management.

Textile Chemical Technology : Textile chemical processing: preparatory processes, dyeing, printing and 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 textiles; modification of natural and synthetic fibres; nanofibers by electrostatic spinning, nanomaterials: synthesis and application in textiles; coated textiles; nanocomposites, green composites; medical textiles, tissue engineering, sustainability and polymer recycling.

Centre for Applied Research in Electronics [Code CRZ] Signal Processing; Underwater Acoustics-Signal and Image Processing, Human and Machine Speech Communications, Digital Communications, DSP Hardware Design; Microwaves and RF; Active and Reconfigurable Circuits and Antennas, Millimeter Wave circuits and sub-systems, RF MEMS, Wideband Microwave Circuits, Modeling of Active Devices; Microelectronics; Micro-Electro-Mechanical Systems (MEMS) Technology, Thermal, Acoustic and Optical Non-Destructive Characterization, Organic Electronics.

Centre for Atmospheric Sciences [Code ASZ]

Meteorology, Oceanography, Air Pollution and Climate change.

Centre for Biomedical Engineering [Code BMZ] Biomedical Instrumentation, Physiological Monitoring, Rehabilitation Engineering, Technical Evaluation of Complimentary Medical System, Bioelectronics-Digital Signal Processing, Medical Imaging, Biomechanics-injury biomechanics, Ergonomics, Biomaterials-Synthesis and Characterization of Biomedical Polymers, Controlled Delivery of Drugs, Biosensors, Biomechanics, Biodesign, Vascular Biology.

Centre for Polymer Science & Engineering [Code PTZ] Synthesis of speciality polymers; Structure-property correlation in polymeric materials; Rheology and processing polymers, polymer blend and alloys; Fibre/particulate filled thermoplastic/thermoset composites: Degradation and stabilization of polymers; Mechanical and thermal properties of polymeric systems, crystallization of polymers in blends/composites, Reactive Processing; Modification of polymers, photodegradable polymers. Morphological Studies of polymers; polymer nanocomposites. Smart polymers, Micro and nano hydrogels; high performance polymeric materials for fuel cells; Modelling and simulation in polymers processing; Computer analysis of mould filling; Design and stress analysis of engineering component form polymeric materials. Polymer electronics, Synthesis of conjugated organic materials, Olefin polymerization catalysts.

Centre for Rural Development and Technology [Code RDZ] Artisanal technologies and rural industries; Bamboo technologies; Biogas production and enrichment, animal energy; Dairy and Food Processing; Biofuels, Biofertilizers and Biopesticides; Biomass production, conversion and utilization systems; Environmental microbiology and bi ore

mediation; Natural products including aromatics, medicinal plants, nutraceuticals; Pesticide residue and food safety; Renewable energy technologies; Rural energy systems; Traditional Knowledge Systems; Solid Waste Management, Treatment of Industrial/domestic waste; Wasteland reclamation; Tissue Culture; Mushroom Technology; Ethnoveterinary Medicine; Ecological Sanitation.

Industrial Tribology, Machine Dynamics & Maintenance Engineering Centre [Code ITZ]

Tribology: Tribology of Polymers & composites, nano-composites, ceramics and metals. Wear Mechanisms and modeling of metallic and non-metallic materials and surface engineering. Boundary and Hydrodynamic lubrication, E-HD lubrication, lubricant characterization and analysis, tribology of bearings and other machine elements. Pneumatic, conveying of bulk solids, operational problems like erosion and degradation.

Maintenance Engineering and Machine Dynamics: Condition based maintenance, signature analysis, vibration, acoustic emission, temperature and wear debris monitoring techniques, maintenance planning and control, computer aided maintenance audit, reliability, availability and maintainability (RAM) engineering, vibration & noise analysis and control, risk analysis and safety, non-destructive testing, residual life estimation, failure analysis, performance and dynamic study of machine elements and equipment like pumps, compressors, turbines, design for maintenance, etc.

Instrument Design & Development Centre [Code IDZ] CAD and Simulation of Electronic Systems, Microprocessor Applications, Power Electronics and Control, Electric Drives, Electromagnetic Sensors and Instrumentation, Smart Sensors and Sensors Networks, Digital System Design and DSP Applications, Sonar Systems and Ultrasonic Instrumentation, **Digital Holography, Digital Speckle Pattern Interferometry, Optical Coherence Tomography and Profilometry, Flame Tomography, Fiber-Optic Sensors, Optical Tweezers and Their Applications**, Moire/High Resolutions Moire and It's Applications to Strain Analysis, **Solid Mechanics**, Fiber re-inforced plastic composites, Photo & Electro-Photo Chemical Machining, Mechanical Properties of Polymers and Composites, Hybrid Polymer Nano-Composites materials, Design Methodology and Management, Computer Aided Product Design, Ergonomics, Graphic Design, Passive Solar Architecture, *Environment Design, Design for Comfort, Human Computer Interface, Disaster Management*, Designs and Emotions, History of Design, Hybrid Energy Systems, **Design for user Experience, Affective Interface Design, Design for customer persuasion and e-commerce, Soft computing applications in product design, Sustainable product design for rural needs.**

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

Dependable Computing, Information Security, Information Storage and Retrieval, High Speed Networks, Web based computing, Multimedia Systems, E-Commerce, HCI (Human - Computer Interface), Robotics and Intelligent systems, Embedded Systems and Sensor Networks, Geographical Information Systems, Optical Information Processing, Nano-technology Modeling and Bio-informatics.

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.

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, **Cognitive** and computational neuroscience, Engineering biomaterials, Viral diseases, Nanoparticle-based targeting, Structural Biology, Diagnostic Virology, **Cancer** Biology, Plant-based therapeutics, Marine Bioprospecting, insulin signaling and insulin resistant diabetes, Leishmaniasis

Opto-Electronics and Optical Communication Programme [Code OEZ]

For research areas please refer to the relevant areas mentioned above under the Departments of Physics and Electrical Engineering.

Transportation Research & Injury Prevention Programme [Code TRZ]

Transportation Planning; Traffic Flow Modelling and Optimization; Public Transport Systems; Sustainable Urban Transport; Highway Safety; Vehicle Crash Modeling; Road Traffic Injury Prevention.

National Resource Centre for Value Education in Engineering [NRZ]

Philosophy of Values; Professional Ethics; Interaction of Science, Technology and Human Values.

ANNEXURE -II

M.Tech./M.S.(Research) and M.Des. Programmes offered

Department/Centre/ Interdisciplinary Programme	Programme	Programme Code	
A. M.Tech Programmes of Deptts./Centre			
Applied Mechanics	Engineering Mechanics	AME	
	Design Engineering	AMD	
Applied Research in Electronics	Radio Frequency Design and Technology	CRF	
Atmospheric Science	Atmospheric-Oceanic Science & Technology	AST	
Chemistry	Molecular Engineering; Chemical Synthesis and Analysis	CYM	
	Chemical Engineering	CHE	
Civil Engineering	Construction Engg. & Management.	CET	
	Environmental Engineering and Management	CEV	
	Geotechnical and Geoenvironmental Engg.	CEG	
	Rock Engineering Underground Structure	CEU	
	Structural Engineering	CES	
	Transportation Engineering	CEP	
	Water Resources Engineering	CEW	
	Computer Science & Engineering	Computer Science & Engineering	MCS
	Electrical Engineering	Communications Engineering	EEE
		Computer Technology	EET
Control & Automation		EEA	
Integrated Electronics & Circuits		EEN	
Power Electronics, Electrical Machines & Drives		EEP	
Power Systems		EES	
Mechanical Engineering		Design of Mechanical Equipment	MED
	Industrial Engineering	MEE	
	Production Engineering	MEP	
	Thermal Engineering	MET	
Physics	Applied Optics	PHA	
	Solid State Materials	PHM	
Textile Technology	Fibre Science & Technology	TTF	
	Textile Engineering	TTE	

B. Interdisciplinary M.Tech. Programmes

i) M.Tech. Programmes:	Computer Applications	JCA	
	Energy Studies	JES	
	Instrument Technology	JID	
	Industrial Tribology & Maintenance Engg	JIT	
	Opto-Electronics & Optical Communication	JOP	
	Polymer Science & Technology	JPT	
	Telecom Technology & Management	JTM	
	VLSI Design Tools & Technology	JVL**	
	ii) Special part-time M. Tech (Evening) Programme	Energy & Environmental Management	JEN

C. M.S. (Research)

Applied Mechanics	AMY
Amar Nath and Shashi Khosla School of Information Technology	SIY
Bharti School of Telecommunication Technology and Management	BSY
Biochemical Engg. & Biotechnology	BEY
Chemical Engg.	CHY
Civil Engineering	CEY
Computer Science & Engg.	CSY
Electrical Engg.	EEY
Mechanical Engineering	MEY
Industrial Design	JDS

D. M.Des. Programme

* Admission to M.Tech. programme in Computer Science & Engineering (MCS) is limited to candidates who have a Qualifying degree in Computer Science, Electrical Engineering, Information Technology, Electronics and Communication, M.Sc Mathematics (with exposure to appropriate level course in Computer Technology) and MCA (with Math and Science at B.Sc level).

* Admission to M.S. (Research) Programme in Computer Science & Engineering Department (CSY) is limited to candidates who have a Qualifying degree in Computer Science, Electrical Engineering, Information Technology, M.Sc Operations Research, Electronics and Communication, M.Sc Statistics, MA/M.Sc Math, M.Sc Math (with exposure to appropriate level course in Computer Technology) and MCA (with Math and Science at B.Sc level).

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

** M.Tech. Programme in VLSI Design Tools and Technology is an interdisciplinary programme jointly offered by Electrical Engg. Deptt., Computer Science and Engineering Department & Centre for Applied Research in Electronics. The M.Tech. programme is wholly sponsored by industries such as Philips Semiconductors, Analog Devices, Temic Usha Ltd. Texas Instruments, SGS Thomson. The Students will get a monthly fellowship as per rules. Candidate applying for admission to this programme should have basic degree in Computer Science (B.Tech. or equivalent) or Electrical Engineering (B.Tech or equivalent) or Physics with electronics specialization (M.Sc. or equivalent) plus GATE.

ANNEXURE-III**Options for M.Tech., M.S.(Research) & M.Des. Programmes according to the discipline in which the candidate holds the Qualifying Degree.**

Discipline	Programme Options see Annexure-II for codes)
Aeronautical Engineering	AMD, AME, AMY, EEA, MCS, MED, MEE, MEP, MET, JCA, JIT, JDS
Agricultural Engineering	CEW, MCS, MED, MEE, MEP, JIT, JDS, AST
Automobile Engineering	SIY, AMD, AME, MCS, MED, MEE, MEP, MET, JIT, JDS, JES, JEN
Biochemical Engineering/Biotechnology	SIY, BEY, CEV, MCS, MEE, TTF, JDS
Chemical Engineering	AMD, AME, AMY, CEV, BEY, CHE, CHY, EEA, MCS, MEE, MET, TTF, JES, JEN, JCA, JPT, JIT, AST, JDS
Civil Engineering	SIY, AMD, AME, AMY, CEG, CEP, CES, CET, CEU, CEV, CEW, CEY, MCS, MEE, JCA, JES, JEN, AST, JDS
Computer Science	SIY, BSY, CSY, EEE, EET, EEA, EEN, EEP, EEY, EES, MCS, JOP, JCA, JVL, JTM, EEY, JDS, MEE
Electrical Engineering	SIY, BSY, CRF, CSY, EEE, EET, EEA, EEN, EEP, EES, EEY, MCS, MEE, PHA, PHM, JOP, JES, JEN, JCA, JID, JVL, JTM, JDS, TTE
Environmental Engineering	AST, CEV, JEN
Food Engineering Technology	BEY, MCS, MEE, MET, JDS
Industrial Biotechnology	BEY
Industrial Design	SIY
Industrial Engineering	SIY, MCS, MEE, MEP, MEY, JIT, JCA, JPT, JDS
Informational Technology	SIY, CSY, MCS, EET, EEN, EEY, BSY, JVL
Instrumentation Engineering	SIY, MEE, EEA, EEP, EEN, EET, EEY, JVL, MCS, JDS, JID, JTM, JES, JEN, BSY
Mechanical Engineering	SIY, AMD, AME, AMY, CEP, EEA, MCS, MED, MEE, MEP, MET, MEY, JIT, JCA, JPT, JDS, JID, JES, JEN, AST, TTE
Metallurgy	AMD, AME, AMY, SIY, MCS, MEP, MED, MEE, JCA, JDS
Mining	CEU, MCS, JIT, MEE
M.Sc. Operations Research	CSY, SIY, JCA
M.Sc. Meteorology	SIY, JCA
Electronics & Communication	CSY, MCS, PHA, PHM, JOP, EEA, MEE, EEE, EEN, EEP, EET, EEY
Engineering Physics	PHA, PHM, JOP, JVL, JES, JID, JEN, SIY, JPT, MCS, JCA, CRF, EEN, EEY, TTF
M.Sc. Physics	EEN, MCS, PHA, PHM, TTF, JCA, JID, JES, JEN, JPT, JOP, JVL, AST

M.Sc. Geo-Physics	MCS, JCA, AST
Polymer and Rubber Technology	MCS, TTF, JPT
Production Engineering	SIY, AMD, AME, AMY, MCS, MED, MEE, MEP, MET, MEY, JCA, JIT, TTE
Manufacturing Science & Engg.	AMD, AME, AMY, SIY, MEY, JIT, JPT, JDS, MEP, MEE, TTE
Marine Engineering	JIT, AST
M.Sc. Statistics	CSY, SIY, JCA, AST
Textile Chemistry	MCS, TTF, JPT
Textile Engg/Technology	MCS, MED, MEE, MEP, TTF, TTE, JCA, OPT, JDS
M.Sc. Chemistry	MCS, TTF, JES, JEN, JPT, AST
M.A./M.Sc. Maths	CSY, SIY, MCS, JCA, AST
M.Sc. Mathematics/with an exposure to appropriate level course-in Computer Technology.	CSY, EET
M.Sc. Physics with specialisation in Electronics	SIY, EEN, EET, EEY, MCS PHA, PHM, JOP, JVL, AST, BSY, JTM, JES, JEN
Architecture	CET, CEP, MCS, JEN, JDS,
Naval Architecture	AMD, AME, AMY, SIY, MCS, JDS
MCA (with Maths and Science at B.Sc. level).	SIY, MCS, JCA, AST

ANNEXURE-IV

GATE Score cut off for admission to non-sponsored full-time

M.Tech. Programmes in the Academic Year 2010-2011

(This is only for reference as the cut off this year may change even substantially)

SNo.	M.Tech. Programme	Code		GEN	OBC		SC		ST		PH
1.	Engineering Mechanics	AME		550	495		200		200		200
2.	Design Engineering	AMD		550	495		200		200		200
3.	Radio Frequency Design & Technology	CRF		674	611		436		310		310
4.	Atmospheric-Oceanic Science Technology	AST		400	360		200		200		200
5.	Molecular Engg.Chemical Synthesis and Analysis	CYM		400	360		250		250		250
6.	Chemical Engineering	CHE		509	483		350		350		350
7.	Construction Engg. & Management	CET	CE	391	346		301		329		260
			OTHERS	460	407		271		-		-
8.	Environmental Engg. & Management	CEV	CE	411	370		236		333		260
			OTHERS	504	461		391		-		-
9.	Rock Engg. & Underground Structure	CEU	CE	387	348		252		268		260
10.	Geotechnical and Geoenvironmental Engg.	CEG	OTHERS	485	390		367		-		-
11.	Structural Engineering	CES	CE	660	594		460		321		260
			OTHERS	-	-		-		-		-
12.	Water Resources Engg.	CEW	CE	342	308		248		295		260
			OTHERS	477	427		320		297		-
13.	Transportation Engg.	CEP	CE	550	495		409		307		260
			OTHERS	550	495		200		-		-
14.	Computer Sc. & Engg.	MCS	CS/IT	750	675		500		500		500
15.	Communication Engg.	EEE	EE/EC	800	730		550		430		500
			OTHERS	850	810		600		600		600
16.	Computer Technology	EET	IT/CS	710	675		460		390		370
			EC	710	675		-		-		-
17.	Control & Automation	EEA	EE/EC	775	710		450		450		450
			OTHERS	780	720		480		480		480
18.	Integrated Elect. & Circuits	EEN		825	760		480		480		480
			OTHERS	850	790		480		480		480
19.	Power Electronics,Elect. Machines & Drives	EEP	EE	750	700		450		450		450
			OTHERS	750	700		700		700		700

SNo.	M.Tech. Programme	Code		GEN	OBC		SC		ST		PH
20.	Power Systems	EES	EE	690	650		450		450		450
			OTHERS	900	800		700		700		700
21.	Design of Mech. Equipment	MED	ME	750	675		500		300		300
22.	Industrial Engineering	MEE	ME	650	595		475		300		300
23.	Production Engineering	MEP	ME	650	595		475		300		300
24.	Thermal Engineering	MET	ME	700	630		500		300		300
25.	Applied Optics	PHA	PH	400	360		266		266		266
			EC/EE	700	630		466		466		466
26.	Solid State Materials	PHM	PH	440	395		295		295		295
			EC/EE	710	650		470		470		470
27.	Textile Engineering	TTE	BE/								
			BTech (Text)	400	360		266		266		266
			BE/BTech								
			(Non-Text)	550	495		366		366		366
28.	Fibre Science & Tech.	TTF	BE/								
			BTech (Text)	400	360		266		266		266
			BE/BTech								
			(Non-Text)	550	495		366		366		366
29.	Computer Applications	JCA	CS/IT	700	630		560		560		-
			MA	515	463		412		412		-
			OTHERS	600	540		480		480		-
30.	Energy Studies	JES	PHY	400	360		260		260		260
			Mech	550	495		360		360		360
			Ele/EC	620	558		400		400		400
			OTHERS	450	405		300		300		300
31.	Industrial Tribology & Maintenance Engg.	JIT		500	450		310		310		310
32.	Instrument Technology	JID	PHY	400	-		-		-		-
			Mech	538	484		390		390		390
			Ele/EC	659	594		390		320		301
33.	Optoelectronics & Optical Communication	JOP	EE/EC	710	675		500		360		350
			Bkgnd PH	450	405		300		300		300
34.	Polymer Science & Tech.	JPT		375	337		250		250		250
35.	Telecom. Tech. & Mgmt.	JTM		714	714		500		500		500
36.	Industrial Design (M.Des)	JDS	Arch.	90*	80*		75*		65*		-
			B.Tech	80*	70*		70*		65*		-

*CEED Percentile

Some Important Information for Candidates

- Ragging in any form is banned in IIT Delhi.
- The Institute treats ragging as a cognisable offence and stern action will be taken against the offenders.

NOTE :

- IIT Delhi will not be responsible for any postal delays.
- All matters of disputes will be subject to legal jurisdictions of the courts at Delhi only.
- The institute reserves the right to amend, without any notice, any provisions stated in this brochure.