INFORMATION BROCHURE

(Second Semester 2012-2013)

for admission to

DOCTOR OF PHILOSOPHY   - PH.D.

MASTER OF SCIENCE (RESEARCH)   - M.S. (R)

**INDIAN INSTITUTE OF TECHNOLOGY DELHI
HAUZ KHAS, NEW DELHI-110016**

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Message to the Applicants from Dean, Academics

Dear Applicant,

I am very happy to note that firstly you are planning to pursue your post graduate education and secondly you are considering IIT Delhi as one of your choices. India is fast emerging as a knowledge economy and in the next decade or so would emerge as a major centre for research and technology development. In this context your decision to pursue post graduate education would definitely have a significant impact on your long term career prospects. IIT Delhi with its 39 M.Tech., 26 Ph.D, 9 MS(R), 3 M.Sc and 2 MBA programmes offers you an extensive choice of specialization. The strength of the Institute is its 450+ highly qualified faculty due to which it is continuously ranked among the top 50 technical institutions globally (Times Higher Education Supplement http:// www.timeshighereducation.co.uk)

In the last few years we have been constantly 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 academic departments/centres offer M.Tech. and PhD programmes while some of them also offer an MS(R) programme. Major policy changes now permit the student to switch from one programme to another anytime after one semester of joining. For example, a candidate joining an M.Tech. programme can apply for switch to a PhD programme in the same department (or even in another eligible department) after completing 12 credits with a minimum GPA of 8.0. All his/her credits, if relevant to the new programme, can be transferred and thus make his/her transfer to the new programme as a student with advanced standing. Similar flexibility exists for switching between other programmes.
2. Last year IIT Delhi initiated sponsored research activity worth approximately Rs. Rs. 100 crores which is 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 provide for much higher assistantship amounts when you participate in the sponsored research projects. One significant policy change that has been adopted is the recruitment for the project can also be carried out by the same department research committee (DRC) that admits students to the post graduate programmes.
3. IIT Delhi is striving towards ensuring each of its Ph.D students and a good number of post graduate students have an opportunity to present a paper and attend atleast one international conference before they graduate. A number of initiatives taken in the last couple of years have yielded significant results. Visit http://www.iitd.ac.in for other details.

There are many more things I would like to share with you but I would wait for your joining IIT Delhi. Once accepted for admission in one of your preferred post graduate programmes, I would like to see you in the Registration on 1st January 2013.

Yours sincerely

Prof. Anurag Sharma
Dean, Academics, IIT Delhi

IMPORTANT DATES

Submission of online application commences on	:	10.10.2012
Last date for Submission of online application	:	10.11.2012
Registeration	:	01.01.2013
Commencement of classes	:	02.01.2013

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 2012-2013 which will be supplied to the admitted candidates on the date of Registration.

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 CGPA of 7.5. M.Tech or equivalent degree holders are required to complete a minimum of 6* credits with a minimum CGPA of 7.5. A Department/Centre may specify a higher credit requirement for all their Ph.D 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 Ph.D 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.

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. In addition to this, 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 Ph.D Programmes:

The following table defines the minimum qualifications required for admission to full-time Ph.D 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 December 2012 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 >= 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 Fellowship

Table 1: Minimum Qualification for Admission to full-time Ph.D 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. Similarly, for SC/ST/PH candidates falling under third row above, the minimum performance in the qualifying degree is relaxed from 70% marks to 65% (7.50 CGPA to 7.00).

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 Ph.D programme in Humanities & Social sciences.

6. Candidates holding MBA degree, where admission was through JMET, are eligible for applying 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 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 January, 2013 for admission in January, 2013.

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 3years (2 years 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.S. (Research) Programmes

The Institute runs M.S. (Research) programmes offered by the following Departments :

Departments / Schools	Programme Code
Applied Mechanics	AMY
Amar Nath and Shashi Khosla School of Information Technology	SIY
Bharti School of Telecommunication Technology and Management	BSY
Chemical Engg.	CHY
Civil Engineering	CEY
Computer Science & Engg.	CSY*
Electrical Engg.	EEY
Mechanical Engineering	MEY

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).

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. The minimum Credits requirement for the M.S. (Research) degree is 60 credits including thesis.

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 Ph.D, M.Tech to MS(R), MS(R) to M.Tech. and MS(R) to Ph.D. 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.

Admission schedule: Normally, MS(R) 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 also offers its 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 MS(R) Programmes:

Table 2 defines the minimum qualifications required for admission to full-time MS(R) 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 MS(R) 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 cutoff specified for that programme and then interviewing them at IIT Delhi. 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 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 December 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

Programme & Admission type	Qualifying Degree	Minimum performance in the qualifying degree for General/ OBC (Non-Creamy Layer) category students	National level examination requirements
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 >= 300 or qualifying score whichever is higher
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 >= 300 or qualifying score whichever is higher

Table 2: Minimum Qualification for Admission to full-time MS(R) Programmes

meeting the minimum eligibility criteria after their final qualifying examination results are announced.

Exemptions, relaxations and clarifications

1. For Direct admission of **SC/ST/PH category students** (row 2 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.

2. For admission with interview of **SC/ST/PH category students** (row 3 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.

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.

II(b) Minimum Qualifications for admission to Part-time and Sponsored (full-time) 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 MS(R) programmes

3. All candidates should have a minimum experience of one year as on 1st January 2013 for admission in January 2013.

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. **Sponsored (full-time) candidates** seeking admission to MS(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:

   - 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

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

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.

(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 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 MS(R) programmes have a lower priority in hostel accommodation. The Institute has ten boys' hostels, two girls' hostels and a hostel for married students. One more girls hostel is likely to be ready for occupation before the start of the next academic year. 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.

7. FEES AND PAYMENTS

(a) INSTITUTE DUES PAYABLE BY 2012 ENTRY PH.D. / M.S.(R) STUDENTS

		Category	Total
I.	**Full Time / Part Time Ph.D.**	General/OBC/PH SC/ST	10235* 7735*
II.	**Full Time MS(R)** (Institute /Project Assistantship)	General/OBC/PH SC/ST	11935* 6935*
III.	**Full Time MS(R)** (Sponsored Candidates, FT/PT) Teaching Position holders Non-Teaching Position Holders	General/OBC/PH SC/ST General/OBC/PH SC/ST	11935* 6935* 31935* 6935*

*The Fees includes Rs. 850.00 towards Hostel Rent (Non-Hostlerts need not to pay the Hostel Rent Fees)

Table 3 : Schedule of Fee applicable for different programmes in January 2012 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 2012 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. 10,000	Rs. 10,000
Mess Admission (one time payment)(Non refundable)	Rs. 3,400	Rs. 3,400
Mess Advance (one time payment adjustable against mess dues)	Rs. 12,000	Rs. 11,000
SCOOPS membership (one time payment)(Non refundable)	Rs. 100	Rs. 100
Total	Rs. 25,500	Rs. 24,500

Table 4: Mess Dues applicable at the time of joining the Mess for January 2012 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 Ph.D 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. 6,000/- 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 Ph.D 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.S. (R) 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.S. (Research) 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 MS(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 (6.75 in the case of SC/ST/PH) at the end of the semester is treated as satisfactory academic performance.

- All fulltime MS(R) 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).

- 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:

(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.

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)

(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 31 December, 2012. Candidates must inform P.G. Section, IIT Delhi in writing by Ist January, 2013, if the requirements of their qualifying degree including Viva-Voce, if any, are not met by 31 December, 2012. 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 **December 3 and December 21, 2012.** The exact date for the test/interview will be communicated by the Department/Centre.

(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 MS(R) 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

Submission of Application is only through online procedure. Candidates are **NOT** required to send hard copy of the application form and blank challan. Online submission of application form may be made by accessing the Institute website <http://www.iitd.ac.in>. Candidates belonging to General / OBC category are required to pay for each application form a fees of Rs. 225/- and the Candidates belonging to SC/ST/PH categories are required to pay Rs. 75/-.

For payment of application fees the candidates will generate a bank challan for each form submitted online and make payment through challan to the nearest branch of State Bank of India after 2 days of generating the bank challan. The last date for submission of bank challan for payment to SBI branch is 14.11.2012.

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 for each Department/Centre.

(b) Separate application form should be used for each M.S.(R) programme.

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

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

(e) No column should be left blank. Write not applicable against a column if the same does not apply to you.

(f) 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.

(g) Write 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 on page 6 of this brochure.

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
ITMMEC	26591281
Instrument Design Development	26591431
Rural Development & Technology	26591121
National Resource Cen tre for Value Education in Engineering	26596595

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	26591361
Transportation Research and Injury Prevention Programme	26591147

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 & rectors, 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, Bioseparations, Design of reusable biocatalyst, Non-aqueous enzymology, Enzyme Immobilization and Bioconversions.

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; Membrance 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. Risk and reliability in Geotechnical nd Geoenvironmental Engineering; Blast and impact analysis; Energy Geotechnology; Non-linear soil pile interaction; Pile dynamics.

Structural Engineering : Structural Health Monitoring; Smart Materials and Structures Tensigrity 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 compaching 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] Educational, Industrial and Organisational Psychology; Social Psychology, Organisational Behaviour, Human Resource Development, Sociology of Culture and Knowledge, Sociology of Development, Environmental Sociology, Sociology of Social Movements, Globalization and Transationalism, Sociology of Religion, Economic Sociology, Technology work and society, Gender Studies, Cultural Studies, Policy Studies, British and American Literature, Indian English Theatre, Popular Culture, Critical Theory, Indian English and Postcolonial Literature and Theory, Language and Communication, Technical Communication, Creativity and Creative writing, Linguistics, Formal Syntax and Semantics, Lanauage Acquisition, Pragmatics, Cognitive Studies, Philosophy of Language, Epistemology, Metaphysics, Ethics, Aesthetics, Continental Philosophy, Phenomenology, Hermencutics, Deconstruction, Philosophy of Science, Philosophy and Film, Philosophy of Culture, Social and Political Philosophy, Philosophy of Mind and Cognition.

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] Applied Mathematics, Pure Mathematics, Numerical Analysis, statistics and Operations Research, 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.

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

Industrial Quality Control, Quality, Reliability and Maintenance, Lean Manufacturing, Productivity Management, Queuing, Systems Simulation, Simulation Dynamics, Operations Research & Management, Production & Materials Management, Project Management, Total Quality Management, Supply Chain Management, Computer Integrated Manufacturing Systems, Business Process Reengineering, Applied Probabilities, Facilities Planning, Enterprise Modeling, Information Systems, Decision Support Systems, Value Engineering, Flexible Systems, Healthcare Systems, Education Systems, Agile Manufacturing Systems, ERP, CIMS and Beyond, Enterprise Modeling, Enterprise Architecture, Extended Enterprises, Decision-Information Synchronization in Flexible Systems, Concurrent Planning, Methodology of Enterprise Modeling, Intelligent Manufacturing Systems, Knowledge Management, e-business, IT effectiveness in Enterprise Systems

Department of Physics [Code PHZ]

Experimental & Theoretical Solid State 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; Nanophotonics, Laser Spectroscopy and Applications; Laser Processing, Optoelectronics; **Optics;** Holography, High density data storage, liquid crystals, Nonlinear Phase Conjugation, Optical Information Processing, Optical data security, Nonlinear Optics, Nonlinear guided wave optics, Solitoris Quantum Optics, Fiber optics, Integrated Optics, Fiber Optic Sensors and Biosensors; Fibre optic component, **Plasma Physics;** Particle acceleration, Nonlnear waves and instabilities in plasmas, Thermo Nuclear Fusion; Microwaves and Plasma Interaction, Solitons in Plasmas, Space Plasmas, Mathematical Physics, Statistical Mechanics and Computational Physics; Nuclear and particle physics, cosmology.

Department of Textile Technology [Code TTZ]

Textile Engineering: Analysis and Design of Yarn and Fabric Formation Systems such as rotor spinning, Ring Spinning and airjet spinning, Friction Spinning, Weaving, Knitting, Nonwovens, Braiding etc; Structural Mechanics of Yarns, Knits, Woven, Braided and Nonwoven Materials; High stress Elastic Materials (Ropes and braided structures) Comfort, handle and other functional aspects of fibrous assemblies; Design and development of technical textiles such as geotextiles, filter fabrics, medical textiles, protective textiles, packaging textiles etc; systems analysis; textile production and marketing, operation management and supply Chain Management, Textile instmentation and Machine development.

Textile Chemical Technology : Chitosan Chemistry and Application, Isolation and Application of Sericin, Surface Functionalisation by Plasma and UV Excimer Lamp, Micro-Encapsulation and Nano Encapsulation, Processing of Bamboo Fibres, Natural Dyes, Dyeing and Finishing, Conducting Fabrics, Bio Acive Fabrics, Textile Ecology and Environment.

Fibre Science & Technology : Synthesis and characterization of advanced polymeric materials, Structure property correlation, Functional polymers and systems, Stimuli responsive polymers and Phase change materials for heat storage, Modification of natural and synthetic fibres, Nanofibers by electrostatic spinning, Nanoparticle Synthesis and Coatings, Polymeric Nanocomposites, Nanoclay based coatings and composites, Nano engineered fire resistant composite fibres, Biomedical applications of Textiles, Tissue Engineering, Sustainability and polymer recycling, Modeling and simulation, Green composites.

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 Rural Development and Technology [Code RDZ] Artisanal technologies and rural industries; Bamboo technologies; Biogas enrichment and animal power; Dairy and Food Processing; Biofuels, Biofertilizers and Biopesticides; Biomass production, conversion and utilization systems; Environmental microbiology and bioremediation; Natural products including aromatics, medicinal plants, nutraceuticals; Pesticide residue and food safety, Renewable energy technologies; Rural energy systems; S&T Policy; Solid Waste Management, Treatment of industrial/domestic waste; Wasteland reclamation; Tissue Culture; Mushroom Technology; Ethnoveterinary Medicine

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 & control, Electric drives, electromagnetic Sensors and Instrumentation, Smart Sensors and Sensors Networks, Digital System Design and DSP applications, Sonar Systems & Ultrasonic Instrumentation, Laser Application & Digital Holography (Digital Speckle Pattern Interferometry and Applications, Optical Coherence Tomography and Profilometry), Opto-Electronic Sensors. Moire/High Resolution Moire & its application to strain analysis, Fibre reinforced plastic composites, Photo & Electro-photo chemical machining, Mechanical properties of Polymers & Composites, Hybrid and Nano-composites, Design Methodology & Management, Computer Aided Product Design, Ergonomics, Graphic Design, Passive Solar Architecture, Designs for Handicapped, Design & Emotion, History of Design, Hybrid Energy Systems.

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]

Systems Biology, Chemical Biology, Cellular Biophysics, Protein Folding & Misfolding with a focus on Infectious Diseases and Non-communicable Disorders, Cognitive and Computational Neuroscience, Engineering Biomaterials.

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; Substainable 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.

Water resouces Engineering

Hydrology in natural and urban environment; Hydrological modeling and simulation; Stochastic processes; Data mining in hydrology; Flood forecasting and modeling; Snow dynamics; Hydroclimatology; Climate change effects in water resources; Watershed modelling; Large river basin modeling; water resources systems, planning and management; Water allocation; Water resources conflicts; Irrigation management; Flow through porous media; Groundwater modeling; Groundwater contamination; 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, CFD, AEM, GIS, and Remote sensing in Water Resources Engineering.

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 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.