

# **INFORMATION BROCHURE 2006**

**for admission to**

**DOCTOR OF PHILOSOPHY - PH.D.**  
**MASTER OF SCIENCE (RESEARCH) - M.S. (R)**

**(II Semester 2006-2007)**



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

## Vision

To contribute to India and the World through excellence in scientific and technical education and research; to serve as a valuable resource for industry and society; and to remain a source of pride for all Indians.

## Mission

To generate new knowledge by engaging in cutting-edge research and to promote academic growth by offering state-of-the-art undergraduate, postgraduate and doctoral programmes.

To identify, based on an informed perception of Indian, regional and global needs, areas of specialization upon which the Institute can concentrate.

To undertake collaborative projects which offer opportunities for long-term interaction with academia and industry.

To develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

## Values

- Academic integrity and accountability.
- Respect and tolerance for the views of every individual.
- Attention to issues of national relevance as well as of global concern.
- Breadth of understanding, including knowledge of the human sciences.
- Appreciation of intellectual excellence and creativity.
- An unfettered spirit of exploration, rationality and enterprise.

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## 1. INTRODUCTION:

Indian Institute of Technology Delhi is one of the seven Institutes of Technology in India, the others being Kharagpur, Bombay, Madras, Kanpur, Guwahati and Roorkee. 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 on an average about 500 students for the undergraduate (B.Tech) programmes and about 1000 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 and 10 kms from the domestic terminal of Delhi Airport.

**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, 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. Also a minimum number of earned credits should be obtained In order to qualify for the degree.

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 2006-2007 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

#### I DOCTOR OF PHILOSOPHY (PH.D.)

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. 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 require a scholar to take a larger number of credits in a particular case.

\* May vary from Deptt. to Deptt.

Admission to the Ph.D. programmes is made on the basis of written test/interview conducted by the Department/Centre concerned. The details of research programmes in various Departments/Centres are given in **Annexure**. 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 to Ph.D./M.S (Research) programme is also possible **any time in the year** through Departmental Research Committee (DRC) / Centre Research Committee (CRC) with the approval of Dean, PGS&R for all categories of scholars. They can be allowed to join any time though the course registration in such cases will be possible only at the beginning of next semester. Candidates seeking admission under this clause must fulfil the required academic qualification/ experience at the time of interview. They must also join within 4 weeks after the issue of admission offer failing which they will have to make fresh application.]

Admission is subject to vacancy being available in the relevant specialisations.

#### (a) Minimum Qualifications for admission:

- (i) Master's degree in engineering/technology or Master's degree in Sciences/ Humanities or equivalent in relevant discipline with a minimum Cumulative Grade Point Average (CGPA) of 6.75 on a 10-point scale or equivalent, as determined by IIT Delhi wherever letter grades are awarded or 60% marks in aggregate, (of all the years/semesters of the qualifying examination) wherever marks are awarded.
- (ii) Full-time students who do not possess an M.Tech degree in the relevant field or equivalent are required to have a valid GATE score (minimum 300 for General and 200 for SC/ST/PH candidates) for engineering/technology/ science disciplines or are required to qualify in CSIR/UGC NET/ICAR fellowship examination for Sciences/Humanities and Social Sciences disciplines.
- (iii) In exceptional cases, candidates with B.Tech. degree or equivalent in respective discipline with excellent academic record (minimum CGPA of 7.5 on a 10-point scale or 70% marks) may be considered eligible for admission on full time basis provided they have qualified either GATE or any other national level examination like CSIR/UGC NET/ICAR etc.

- (iv) However, for self supporting candidates having B.Tech/M.Sc. or equivalent with 75% marks (or 8.5 CGPA) may be considered eligible for admission to Ph.D. programme even without GATE/CSIR/UGC NET/ICAR.
- (v) For Ph.D. Programme in Biomedical Engineering, candidates having an MBBS degree with 60% marks or more are eligible provided they have qualified ICMR examination. The Candidates having post-graduate degree of Doctor of Medicine (MD)/Master in Surgery (MS) with 60% marks or more after MBBS will also be eligible for admission to Ph.D. programme in CBME. For assistantship purposes candidates with MBBS qualification will be considered equivalent to M.Tech. candidates with MD/MS degree will be eligible for Research/Teaching assistantship of Rs.10,000/-p.-m.

**(b) Relaxation in minimum eligibility**

- (i) Relaxation in CPGA to 6.25 on a 10-point scale or in marks to 55% in the minimum qualifying criteria may be permitted to scheduled caste/scheduled tribe/physically handicapped candidates and those with M.A. degree in English for admission to the Ph.D. Programme in English in the Department of Humanities and Social Sciences. In the case of SC/ ST/PH candidates falling under category (iii) above, 5% relaxation in marks or equivalent relaxation in CGPA on a 10-point scale may be permitted.

**(c) Additional Requirements for Part-Time and Sponsored (Full-Time) Candidates:**

- (i) Only employees of Public Sector Undertakings or Government Departments or Research Development Organisations or Private Industries (approved by Faculty Boards) with a minimum experience of two years as on 1st January, 2007 for admission in December 2006 are eligible to be considered as **part-time** and **sponsored** (Full-time) candidates.
- (ii) Sponsored (Full-time) candidates seeking admission to a Ph.D. programme on the basis of study leave, must submit at the time of interview a "Sponsoring Certificate" from their employers on proper Letter Head stating that for the period of his/her studies in the programme, the candidate would be treated as on duty with usual salary and allowances, and that he/she will be fully relieved and granted study leave for a minimum period of 3 years. (2 years for M.Tech. & Equivalent degree holders).

Sponsored (Full time) candidates employed in CSIR/DRDO/PSUs may 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.

- (iii) **Part-time candidates** are required to submit a "No Objection Certificate" at the time of interview from their employers stating that the candidate is permitted to pursue studies on a part-time basis and that;
  - a) his/her official duties permit him/her to devote a sufficient time for research.
  - b) facilities for research in the candidate's field of research are available at the candidate's place of work; and
  - c) he/she will be fully relieved from duty (for completing the course work by a candidate coming from a distance beyond 50 K.M.) and permitted to reside at the Institute for a period of not

less than 6 months\* during his/her registration for the degree. (This condition of minimum residence will be automatically waived for candidates who are working in Delhi or in Organisations/Institution located within a distance of 50 km from the Institute).

*\* If the course credit requirement recommended by a Deptt./Centre is more than 12, then the residency requirement for part time Ph.D. Candidates holding degrees from other institutes/ Universities & working in organisation outside Delhi will be 12 months.*

**I. (e) Part-time (Self- financed) candidates without 'No Objection Certificate:** Admission of self-financed candidates without 'No Objection Certificate' can be made in special cases on a case by case basis subject to fulfilling certain conditions such as:

- (i) He/She should have 75% or more marks in the qualifying examination. He/She should have a total of 5 years experience after passing the qualifying examination. The candidate should clearly indicate the nature of work experience and support the same with the documentary proof.
- (ii) He/She should deposit caution money of Rs. 50,000/- (refundable) along with the fee.
- (iii) He/She should furnish guarantee of good behavior during studies at IIT Delhi, from two responsible persons.
- (iv) Admission of such candidates will be made at the rate of one candidate for a Department having Ph.D. registration upto 50 and two candidates for Ph.D. registration more than 50. The number of such candidates at a given time should not exceed one (2 candidates in the case where the strength is more than 50).

## II. M.S. (RESEARCH) PROGRAMME

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

Department	Programme Code
<b>Chemical Engineering</b>	CHY
<b>Computer Science &amp; Engineering</b>	CSY
<b>Electrical Engineering</b>	EEY
<b>Mechanical Engineering</b>	MEY
<b>Civil Engineering</b>	CEY
<b>Amar Nath and Shashi Khosla School of Information Technology</b>	ANY

Admission to M.S. (Research) Programme of the Computer Science and Engineering Department is open to any student from any discipline who has appeared in GATE with Computer Science and Engineering **OR** Information Technology.

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.

Applications for admission to these programmes are invited through an advertisement in the Employment News/leading newspapers in March for the first semester and in October, for second semester every year. [Admission to M.S. (Research) programme is also possible **any time in the year** through Departmental Research Committee (DRC) with the approval of Dean, PGS&R, for all categories of students. They can be allowed to join any time though the course registration in such cases will be possible only at the beginning of next semester. Candidates seeking admission under this clause must fulfil the required academic qualification/experience at the time of interview. They must also join within 4 weeks after the issue of admission offer failing which they will have to make fresh application.]

## **MINIMUM Qualification REQUIRED FOR ADMISSION TO M.S. (RESEARCH) PROGRAMME**

Candidates can be admitted to M.S. (Research) Programme :

### **1. Through Test/interview (both full-time and part-time)**

Candidates satisfying the following criteria will be considered eligible for admission :-

B. Tech. or equivalent or M.Sc. (or equivalent) Degree Holders who have qualified GATE with a valid score. No candidate will be admitted to an M.S. (Research) Programme whose GATE Score is lower than the following minimum prescribed :-

For General Category Candidates : 300

For SC/ST/PH candidates : 200

70% weightage will be given for GATE score and 30% for performance in test/ interview.

### **Additional Requirements for Part-time and Sponsored (Full-time) candidates**

In addition to above, sponsored/part-time candidates working in Public Sector Undertakings or Government Departments or Research/Development Organisations or Private industries (approved by Faculty Boards) should have a minimum experience of one year as on 1st January, 2007.

**(Sponsored/Part-time candidates are not required to possess GATE score).**

**Sponsored Candidates (Full-time)** are required to submit at the time of interview a "Sponsorship Certificate" from their employers, on proper Letter Head, stating that for the period of his/her studies at the Institute the candidate would be treated as on duty with usual salary and allowances and that he/ she will be fully relieved for the period of study for pursuing his/her studies.

**Part-time candidates** are required to submit at the time of interview a "No Objection Certificate" from their employers stating that the candidate will be/has been permitted to pursue studies on part-time basis and that he/she will not be transferred to any other place during the period of study. Further, the organisation where he/she is working should also be located within a distance of 50 Kms from the Institute.

**All candidates in the above category (Full-time/sponsored/part-time) with or without GATE should have a minimum of at least 60% marks in aggregate (of all the years/semesters of the qualifying examination) or CGPA of 6.75 on a 10-point scale, as determined, by IIT Delhi, in their qualifying examination.**

For those appearing in the final year their performance upto 7th semester (B.Tech./B.E.) and upto 3rd semester (M.Sc.) may be considered at the time of admission.

### **Relaxation in minimum eligibilities :**

- (a) Relaxation in CGPA to 6.25 or in marks to 55% in the eligibility criteria may be allowed to SC/ST/PH candidates.

## **2. Without Test/interview (Direct Admission)\* (Full-time)**

Subject to stipulations given in the para (i) and (ii) below self supporting candidates fulfilling the following criteria can be considered for direct admission without test/interview :-

### **(a) General Candidates :**

Candidates with B.Tech./M.Sc. or equivalent with 75% marks in aggregate (of all the years/ semesters) (or 8.5 CGPA).

### **(b) SC/ST/PH candidates (Within the quota):**

Candidates with B.Tech./M.Sc. or equivalent with 70% marks in aggregate (of all the years/semesters) (or 7.5 CGPA).

Further, if the candidate has GATE Score 425 for General (275 for SC/ST/PH), he/she can be offered assistantship also.

- \*(i) It is left to the individual DRC/CRC whether or not to select a candidate through direct admission.
- (ii) If the DRC/CRC feels that interviewing the candidate satisfying the minimum requirement for direct admission is essential, they may do so.

**The seats filled through direct admission will be within the total sanctioned strength for a particular programme.**

## **4. RESERVATION OF SEATS:**

- (a) 15% seats are reserved for SC and 7.5% for ST candidates.
- (b) 3% seats are reserved for the physically handicapped persons in the Postgraduate courses and Ph.D. Programmes.

## **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 Co-ordinator. 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 may be higher than those given in the Prospectus. The admitted students must acquire a copy of the departmental norms in such cases.

## **6. MEDICAL EXAMINATION**

It is expected that all full time candidates (except employed) will have good general physique. He/ She will have to produce on the date of Central Registration (at the P.G. Section Counter) certificate to that effect in the prescribed format (copy to be given alongwith the admission offer letter). The admission is subject to his/her being found medically fit. In the case of PH candidates minimum disability should be 40%.

## 7. HOSTEL ACCOMMODATION

All post-graduate non-Delhi based students admitted on full-time basis (except Self-financing and sponsored Indian students) can, subject to availability, avail of residential facilities in the hostels. The Institute has nine boys' hostels, two girls' hostel 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

### INSTITUTE DUES PAYABLE BY 2006 ENTRY PH.D. STUDENTS

- (a) If Hostel allotted : Rs.9,635/- at the time of admission for General Category  
: Rs.7,135/-for SC/ST ;  
: Rs.4,695/-at every subsequent semester for General Category  
: Rs.2,195/-for SC/ST
- (b) Non-Hostelers : Rs.8,785/- at the time of admission for General Category  
: Rs.6,285/-for SC/ST  
: Rs.3,845/-at every subsequent semester for General Category  
: Rs.1,345/-for SC/ST

### M.S. (RESEARCH)

- (a) If Hostel allotted : Rs.9,135/- at the time of admission for General Category  
: Rs. 6,635/-for SC/ST  
: Rs.4,695/-at every subsequent semester for General Category  
: Rs.2,195/- for SC/ST
- (b) Non-Hostellers : Rs.8,285/-at the time of admission for General Category  
: Rs. 5,785/- for SC/ST  
: Rs. 3,845/- at every subsequent semester for General Category  
: Rs.1,345/-for SC/ST

Note: (1) The exact amount of fees and mode of payment will be indicated in the offer of admission.

(2) The Institute Dues payable at the time of admission includes a refundable security deposit of Rs.2000/-.

(3) The SC/ST Students are exempted from payment of Tuition Fee of Rs. 2500/-

### MESS DUES PAYABLE BY STUDENTS

Those allotted Hostel will be required to pay Mess Dues as under :-

	<b>GIRLS</b>	<b>BOYS</b>
(a) Mess Security Deposit (Refundable)	Rs.2,000	Rs. 2,000
(b) Mess Admission (one time payment) Non-Refundable	Rs. 1,500	Rs. 1,500
(c) Mess Advance (one time payment adjustable against Mess dues) :	Rs.6,000	Rs. 7,000
(d) Membership of student cooperative Society (non-refundable)	Rs. 50	Rs. 50
<b>TOTAL :</b>	<b>RS. 9,550</b>	<b>RS.10,550</b>

## 9. FINANCIAL ASSISTANCE TO Ph.D. STUDENTS

A scheme for the award of Teaching/Research Assistantship for providing financial assistance to the students exists. In terms of this scheme, those students who are admitted on full-time basis are considered, on request, for the award of Half Time Teaching/Research Assistantship as indicated below:-

Amount of Assistantship to Students		Number of hours of Assistance per week to be provided by the student to the Institute
With B./Tech/B.E./M.Sc./or Equivalent Qualifications	With M.Tech./M.E./M.B.B.S. or Equivalent Qualifications	
Half-time first 2 years	Rs. 8000/- pm	8
For next 2 years	Rs. 9000/- pm	
	Rs. 9500/- pm	
	Rs. 10,000/- pm	

In addition students are given contingency grant of Rs.20,000/- p.a. 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 scheme. For this purpose a 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 academically. It is to be noted that admission to the Programmes and award of Assistantship are not linked. Admission to any programme does not guarantee the award of assistantship. Those who are not awarded Assistantship can continue with the programme as self-financing student.

The faculty of Engineering/Science Colleges may be considered for the award of Institute Assistantship for pursuing Ph.D. Programme at IIT Delhi subject to the following terms and conditions:-

1. The concerned faculty member of the Engineering/Science College must be sponsored by their respective Institutions to pursue the Ph.D. Programme at IIT Delhi.
2. The sponsored faculty of Engineering/Science Colleges must be eligible for Institute Assistantship i.e., he/she should either hold an M.Tech, degree or valid GATE score (minimum 300 for General and 200 for SC/ST/PH) or CSIR/UGC NET.
3. The Assistantship should be within the sanctioned limit of a particular Department/Centre.
4. The DRC/CRC should examine each case on merit before making recommendations to the Dean, PGS&R for award of Institute Assistantship.
5. On admission to the Ph.D. Programme they will be entitled to Assistantship, as applicable to other regular Institute scholars irrespective of the quantum of salary they get from their Colleges/ Institutes.

The faculty of Engineering/Science colleges admitted to Ph.D. programme, who are eligible for Institute Assistantship as per the above norms may also be considered for the award of Industry Fellowship if they are sponsored/granted leave without pay.

**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).**

#### **FINANCIAL ASSISTANCE TO MS (Research) STUDENTS**

A scheme for the award of Teaching/Research Assistantship for providing financial assistance to the students exists. In terms of this scheme, 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.5000/- per month. The maximum duration for which Assistantship can be awarded to M.S. (Research) students is 4 semesters. In return, the student renders 8 hours per week of assistance outside his normal academic work as assigned by the Department. In addition they are given contingency grant of Rs.5000/- p.a. in accordance with the Institute rules.

#### **ONLY FULL-TIME (OTHER THAN 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 scheme. For this (purpose 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.

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).

**Scholarship under German Exchange Programme (DAAD):** A number of DAAD scholarships under the Sandwich System are available. Indian Students pursuing M.S.(Res.) at IIT Delhi are eligible for this scholarship for doing their thesis work for about 9 months at 6 German Universities.

It is to be noted that admission to the Postgraduate programmes and award of Assistantship are not linked. Admission to any programme does not guarantee the award of assistantship. Those who are not awarded Assistantship can continue with the programme as self financing students.

## 10. 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 shortlisting keeping in view the number of candidates 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 :

	Ist 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
<b>Total</b>	<b>905/1600</b>		<b>1070/1400</b>	

Aggregate (% age.) **1975/3000 = 65.83%**

(of all the years/semesters)

- (c) Those who wish to apply for admission to more than one Department should make separate applications for each Deptt. They must also enclose separate Bank Draft with each application form.
- (d) Admission on part-time basis is further subject to the availability of seats for part-time and decision of the respective departments/interdisciplinary programmes.
- (e) 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 31.12.2006.
- (f) The applications will be scrutinised 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 11 to December 15, 2006. The exact date for the test/interview will be communicated by the Department/Centre.
- (g) Application incomplete, in any respect, is liable to be rejected.
- (h) The Ph. D. candidates called for appearing in test and/or interview will be paid to and from II Class Railway Fare by shortest route. However, this provision will not apply to the sponsored and part-time candidates.
- (i) No TA/DA will be paid to the candidates applying for MS(R) Programme.
- (j) 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.

## 11. APPLICATION PROCEDURE

Please visit our Website <www.iitd.ac.in> to download the Information Brochure and Application Form. The candidates using the downloaded form must deposit in person or send by post, the completed form alongwith the Crossed Bank Draft of Rs.300/- (Rs. 150/- for SC/ST/PH), drawn in favour of "Registrar, IIT Delhi" payable at SBI, IIT Delhi or Canara Bank, SDA , along with a self addressed stamped post card, and four address slips, to **Assistant Registrar (PGS&R), IIT Delhi, Hauz Khas, New Delhi-110016**. The form not accompanied with the Bank Draft will not be entertained.

Application Form and Information Brochure can also be obtained by post from the **Asstt. Registrar (PGS&R) IIT Hauz Khas. New Delhi 110016** by sending application fee of Rs. 300/-(Rs. 150/- for SC/ ST/PH candidates) by a crossed Bank Draft 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/- (Rs.150/- for SC/ST/PH) from the Institute Counter (Room No. AD-225).

**THE NO. AND DATE OF THE BANK DRAFT SHOULD BE MENTIONED BY THE CANDIDATE IN THE APPROPRIATE COLUMN WHILE SUBSEQUENTLY SUBMITTING THE COMPLETED APPLICATION FORM.**

The completed application for admission on the prescribed form obtainable as above should be sent to the **Assistant Registrar (PGS&R). IIT. Hauz Khas. New Delhi-110016**.

## 12. REFUND OF FEES

The whole amount of fees/other charges deposited by the students will be refundable after deduction of Rs 2000/- if the students do not join the programme after paying the dues and leave the Institute by applying for refund on or before the date of registration. No refund of fees will be permissible to students who have registered for the programme but leave immediately thereafter. In such cases, only caution money will be refunded and that too only at the end of the semester.

For refund of fees and/or security deposit the student must apply on the prescribed form available from our website <www.iitd.ac.in>

## 13. IMPORTANT DATES & Telephone/Fax Nos.

ISSUE OF FORMS COMMENCES ON		09.10.2006
LAST DATE FOR ISSUE OF FORMS	BY POST	06.11.2006
	IN PERSON	13.11.2006
LAST DATE FOR RECEIPT OF COMPLETED FORMS		13.11.2006

### **FOR CANDIDATES OFFERED ADMISSION :**

REGISTRATION	1.1.2007
COMMENCEMENT OF CLASSES	2.1.2007

**Note: 1.** For any queries/clarifications contact **P.G. Section** at the following fax / Telephone Nos. :

Fax: 11-26582032 Tel: 11-26591723

**Note : 2.** For any query regarding date of interview and selection result please contact the concerned Deptt./Centre at the following Telephone Nos.:-

<b>DEPARTMENTS:</b>	<b>TELEPHONE NO.</b>
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
<b>CENTRES</b>	
Applied Research in Electronics .....	26591101
Atmospheric Sciences .....	26591301
Biomedical Engineering .....	26596132
Energy Studies .....	26591251
ITMMEC .....	26591281
Instrument Design Development Centre .....	26591431
Polymer Science & Engineering .....	26591421
Rural Development & Technology .....	26591121
<b>INTERDISCIPLINARY R&amp;D PROGRAMMES</b>	
Opto-Electronics and Optical Communication .....	26591361
Entrepreneurship Development Programme .....	26591168
Transportation Research and Injury Prevention Programme .....	26591147
Bharti School of Telecommunication Technology and Management.....	26596200
Amar Nath and Shashi Khosla School of Information .....	26591290

**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, Experimental and Computational Methods of Stress Analysis Structures.

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. Damage Mechanics, 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 physiology and biochemistry, Metabolic regulation and engineering, Recombinant DNA technology, Development of expression systems in *Cornebacterium* and *Pichia*; Molecular biology and applications of industrial enzymes, Microbial engineering and technology, Enzyme science and engineering, Animal and plant cell fermentations, Bioreactor design and analysis, Bioseparation and downstream processing systems, instrumentation and process control, Biological waste treatment, Bioenergetics, Biological molecular machines, Biosensors, Chaperone-mediated protein folding, Protein engineering and structure-function relationship of industrially important proteins.

**Department of Chemical Engineering [Code CHZ]** Mixing, Adsorption, Ion-Exchange, Gas Absorption with Chemical reaction, Particle Technology, Chemical Reaction, catalytic and Reactor Engineering, Petroleum Refining Engineering, Membrane Synthesis & Processes, Waste Management, Environmental Engineering, Biomass, Fluidization, Residence Time Distribution Studies, Computer Aided Design, Modelling Simulation and Optimization, Interfacial Engineering, Polymers, Expert Systems, Computational fluid dynamics application, control of Reactors, fuel cells, multiphase flow & reactors.

**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; bisorptive processes; colour removal; disinfection of treated waste water; modeling, simulation and optimization of Environmental systems; Environmental Impact Assessment; solid

waste management; incineration; circulating fluidized bed operations; Leachate Management; Environmental Risk Analysis.

**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; seismic geotechnics; seismic microzonation; geotechnology for tracks and pavements; computational methods. ‘

**Structural Engineering** : 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; concrete mechanics; computational methods; durability of concrete; rebar corrosion; cement based composites; construction technology; construction management; financial analysis; contract administration.

**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; bioremediation; flow through porous media; remote sensing; stochastic processes; large river basin modeling; water resources conflicts.

**Department of Computer Science & Engineering [Code CSZ]** Computer Architecture, VLSI Design Automation, Embedded Systems, Hardware-Software Co-design, ASIP Synthesis, Computer Vision, Computer Graphics, Image Processing, Artificial Intelligence, Natural Language Processing, Databases, Data Mining, Computer Networks, High-Speed Networks, Wireless Networks, Protocol Verification, Distributed Computing, Algorithms, Randomized and Approximation Algorithms Computational Geometry, Combinatorial Optimization, Web-related Computation, Parallel and Distributed Algorithms, Programming Language Semantics and Design, Semantics of Concurrency and Distributed Computation, Formal Methods and Verification, Compilers, Models of Computing. Grid computing, Computational Finance, computational biology.

#### **DEPARTMENT OF ELECTRICAL ENGINEERING [Code EEZ]**

**Electronic Engineering:** Electronic Circuits, Microprocessor, Instrumentation, Microelectronics, VLSI, Digital Signal Processing, Computer Aided Circuit Design, Graph Theory, 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.

**Control Engineering** : Control theory Robust Control, Intelligent control, Robotics, Optimal Control, Parameter Estimation, Mechatronics, Neuro-FUZZY control, Adaptive Systems, distributed parameter systems.

**Department of Humanities & Social Sciences [Code HUZ]** Educational, Industrial and Organisational Psychology; Organisational Behaviour, Human Resource Development, Behavioural Science, Economic Theory, Development Economics, International Economics, Quantitative Economics, Transport Economics, Sociology of Culture and Knowledge, Sociology of Development and Environment Sociology of Religion, Gender Studies, British and American Literature, Critical Theory, Indian English and Postcolonial Literature, Language and Communication and Technical Communication, Linguistics, Cognitive Studies, Philosophy of Language, Epistemology, Metaphysics, Ethics, Aesthetics, Continental Philosophy, Phenomenology, Hermeneutics, Reconstruction, Philosophy of Science, Sociology of Science, Interface of Science and Technology with Humanities.

**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, Financial Analysis and Control, Financial Management of Manufacturing and Service sectors, International Financial Management, Managerial economics , 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, 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, Dynamics of Rotating Machines, Damped Structures, Composite Structures, Smart Structures, Active Vibration Control Finite Element Modelling, Modelling of impact of Vehicles, Finite Element Model Updating, Structural Dynamic Modification, Dynamic Design, Noise Engineering, Active Noise Control, Bearings and Lubrication, Computer Aided Mechanical Design, Artificial Intelligence Applications in Mechanical Engineering, Concurrent Engineering Design, Mechanisms, Robotics, Mechatronics and Multibody Dynamics, Sensors and Actuators design, MEMS, Design for manufacturing.

**Thermal Engineering:** IC Engines, Engine Simulations, Turbocharging, Combustion Generated Pollution, Alternative fuels, Utilisation of Biogas, Ethanol: Methanol Producer Gas, Hydrogen as Fuels, Mixed Refrigerants, Ecofriendly Refrigerants, Thermodynamic Properties of Refrigerants, Simulation and Optimisation of Refrigeration Systems, Desiccant cooling Systems, Heat Transfer; Numerical simulation, Boiling and condensation of Refrigerants, Fire Research, Airwater spray Interaction/Waste heat utilisation, Combustion, Radiation from flames, Pyrolysis, combustion and Heat Transfer in Biomass Stoves, Flow Through Radial Rectilinear Cascades, Centrifugal and axial Compressors, Internal Flows and Laser Anemometry Optimisation of Power Plants, Pneumatic Engines.

**Production Engineering:** Metal Cutting, Metal forming, Welding, Non-traditional manufacturing, processes, Textile Manufacturing Systems, Layered Manufacturing and Manufacturing of Composites.

**Industrial Engineering:** Operations Research, Long Range Corporate Planning, Production & Materials Management, Quality, Reliability and Maintenance, Project Scheduling, Queuing, Systems Simulation, Systems Dynamics, Value engineering, Productivity Management, Ergonomics, Total Quality Management, Business Process Reengineering, Applied Probability, Principles of Management, Facilities Planning, Enterprise Resource Planning, Supply Chain Management, Decision Support Systems.

**Department of Physics [Code PHZ]** Experimental & Theoretical Solid State Physics: Thin Films, Materials and Devices, 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, Solitons Quantum Optics, Fiber optics, Integrated Optics, Fiber Optic Sensors and Biosensors; Fibre optic component, **Plasma Physics;** Particle acceleration, Nonlinear waves and instabilities in plasmas, Thermo Nuclear Fusion; Mathematical Physics, Statistical Mechanics and Computational Physics; Nuclear and particle physics, cosmology.

#### **Department of Textile Technology [Code TTZ]**

**Textile Engineering:** Analysis & Design of Spinning and Weaving Machinery, Microprocessor Applications in Textile, Rotor Spinning, Friction Spinning, Development of Sizing Materials and Weavability of Sized Yarns, Knitting, Air-Jet & False Twist Texturizing, Blend Compositions in Yarn, Structural Mechanics of Yarns, Non-wovens, Knitted & Woven Fabrics, Technical Textiles and Computer Applications in Textiles such as Woven and print Designs, Information Systems, Systems Analysis of Textile Mill, Simulation and optimization of Textile Processes. On-line Monitoring and control. .

**Textile Chemical Technology:** Preparatory processes dealing with Desizing, Scouring and Bleaching, Application of Natural Synthetic Dyes on Textiles, Mechanism of Dyeing, Printing of Natural & Synthetic Fibre Fabrics. Development of Synthetic Thickeners for Textile Printing. Computer Colour Matching, Finishing Treatment for Silk Polymeric Coatings, Eco-friendly Dyeing Processes.

**Fibre Science & Technology:** Synthesis and Spinnability of Fibre forming Polymers (polyester, polyamides, acrylic & polyolefins). Rheology of Polymer Fluids and its Relation to the properties of Extruded Filaments. Structure and Properties of Fibrous Materials and Fibers, Heat-setting of Synthetic Fibers, Fibers from Polymer Blends, Chemical Modification of Natural & Man-made Fibers, Polymeric Membranes, Waste Management & Pollution Control. High Performance Fibers (Carbon, Aramides

Ceramic), Rigid and Flexible Composites, Polymerization Reaction Engineering, Simulation of Fibre Production Processes.

**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; Millimeter Wave Circuits and Antennas, Wireless Components and Systems, RF MEMS, Wideband Microwave Circuits, Modeling of Active Devices; Microelectronics; Micro-Electro-Mechanical Systems (MEMS) Technology, Surface Acoustic Wave Devices, CAD of Low Loss Filters, Design and Modeling of Hetero-structures; Thermal, Acoustic and Optical Non-Destructive Characterization.

**Centre for Atmospheric Sciences [Code ASZ]** Meteorology, Oceanography and Air Pollution.

**Centre for Biomedical Engineering [Code BMZ]** Bioelectronics-Digital Signal Processing, Medical Imaging. Biomechanics-injury biomechanics, ergonomics, vascular Mechanics, Biomaterials-Synthesis and characterization of biomedical polymers, Controlled delivery of drugs, Biosebsirs, Orthopaedic Biomechanics.

**Centre for Energy Studies [Code ESZ]** Energy Efficiency, Fuel Technology, IC Engines, Electrical Energy Systems, Heat & Mass Transfer, Renewable Energy Systems, Environmental Pollution and Control Energy Planning, Plasma Physics, Industrial Application of Plasma, Waste Management.

**Centre for Polymer Science & Engineering [Code PTZ]** Synthesis of speciality polymers; Structure-property correlation in polymeric materials; Smart Polymers, Micro and nano hydrogels; high performance polymeric materials for fuel cells; Rheology and processing of polymers, polymer blends 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; Modifications of Polymers, Morphological Studies of Polymers ;Modelling and simulation in Polymers Processing; Computer analysis of mould filling; Design and stress analysis of engineering component from polymeric materials.

**Centre for Rural Development and Technology [Code RDZ]** Artisanal technologies and rural industries; Metalwork pottery, bamboo & wood, pulp & paper, leather, carpets, dairy & food processing; Biofuels and Biofertilizers; Biomass production, conversion and utilization systems; Environmental microbiology and bioremediation; Environmental pollution and protection; Natural products including medicinal plants, aromatics, nutraceuticals and botanical pesticides; Panchagavya products; Pesticide residues and food safety; S&T Policy, Solid waste management, Sustainable agriculture; Holistic Development, Traditional Sciences and technologies Indigenous Technical Knowledge; Treatment of industrial / domestic waste; Rural energy systems, Renewable energy technologies; biogas enrichment & animal power, Wasteland reclamation, Rural water supply and treatment.

**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, Sonar Systems & Ultrasonic Instrumentation, Laser Application & Holography, Opto-Electronic Sensors. High Resolution Moire & its application to strain analysis, Photo & Electro-photo chemical machining, Mechanical properties of Polymers & Composites, Design Methodology & Management, Computer Aided Product Design, Ergonomics, Graphic Design, Passive Solar Architecture, Designs for Handicapped.

**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.

**Entrepreneurship Development Programme [Code EDZ]**

Technical Entrepreneurship, Management issues of Small & Medium Enterprises, Industrial Sickness Evaluation of Support Mechanisms for Promoting SME's, Gender Related issues of Entrepreneurship, Rural &, Energy Entrepreneurship, IT for SMEs, Entrepreneurial Personality, Opportunity Identification, Start Up Industries. Turn Around Strategies Intellectual Property Rights and SMEs, Role of Promotional Agencies in developing Entrepreneurship, Features of Technical entrepreneurship and their Sectorial Manifestation, Resource Based Entrepreneurship and Market Oriented Entrepreneurship, Joint Ventures, Mergers, Acquisition, Takeovers, Evaluation of Entrepreneurship Development Programmes, Ventures Capital for Entrepreneurship Development Tackling Problems of Small Enterprises, Organisation Development for Small Scale Enterprises, Marketing by SMEs.

**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 and Safety.

- **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.

**Visit : <http://www.iitd.ac.in>**

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