

भारतीय प्रौद्योगिकी संस्थान रुड़की

Indian Institute of Technology Roorkee

Postgraduate Admission-2011

INFORMATION BROCHURE (M.Tech./M.Arch./M.U.R.P.)

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Important Dates	
Start of issue / Downloading of Application Form & Information Brochure	March 21, 2011 (Monday)
Last date of receipt of request at PG Admission Office for issue of Application Form	April 11, 2011 (Monday)
Last date for receipt of filled Application Form at PG Admission Office, IIT Roorkee	April 21, 2011 (Thursday)
Last date for dispatch of letters for Interview/Written Test/Counselling	May 13, 2011 (Friday)
Interview/Written Test	June 05, 2011 (Sunday)
Medical Board for Persons with Disability (PD) Candidates	June 04, 2011 (Saturday)
Announcement of merit list based on Normalized GATE marks only	June 05, 2011 (Sunday)
Announcement of merit list based on Normalized GATE Marks & Interview/Written Test	June 06, 2011 (Monday)
Counselling for admission	June 05-07, 2011 (Sunday-Tuesday)
Institute fee/Waitlisted amount is to be deposited at the time of Counselling	
Last date for Withdrawal of Admission Offered	June 24, 2011 (Friday)
Display of upgradation list of Waitlisted Candidates (on Institute Website)	June 28, 2011 (Tuesday)
Date of Registration	July 18, 2011 (Monday)
Classes Begin	July 25, 2011 (Monday)
Final Counselling cum Registration of the Waitlisted/Candidates in Merit for the vacant seats, if any	July 30, 2011 (Saturday)

IMPORTANT INSTRUCTIONS

1. The candidates are advised to read each and every instruction given in this Information Brochure very carefully before filling-up the Application Form.
2. Application Form **found incomplete or received after the last date** i.e. **April 21, 2011, will be rejected** without any intimation to the candidate and no correspondence will be entertained in this regard.
3. Paste your photograph having good contrast, within the box only, on the Application Form. Photograph must NOT be attested. **Write your mailing address** and put your **signature using BLACK (INK OR BALL POINT) PEN only** within the blocks provided **on the Application Form**.
4. Candidates seeking admission to more than one department (maximum four departments and 14 programmes), must enclose with the Application Form a crossed demand draft drawn in favour of "**Chairman, PG Admission**", payable at Roorkee for a total amount (Rs. 400/- for General/OBC Category and Rs. 200/- for SC/ST/PD category candidate plus Rs.100/- per additional number of Departments applied *for example GEN/OBC candidate applying for 3 departments required to pay Rs. 600/- and SC/ST/PD Rs. 400/- depending on their category*). Candidate must **write his/her name and Address at the back of the demand draft**.
5. **A candidate should submit one Application Form only.**
6. Request for change of category/choices received after the last date, i.e. **April 21, 2011** will not be accepted under any circumstances.
7. After submitting Application Form all enquiries be made either to the Office of Chairman, PG Admission, IIT Roorkee only.
8. **Latest update about vacant seats, dates, etc. will be available on Institute website:** <http://www.iitr.ernet.in>
9. **For further information, please contact:**

Contact Person	Telephone and Fax Nos.
Chairman, PG Admission-2011, OR PG Admissions Office Indian Institute of Technology Roorkee, ROORKEE-247 667 (Uttarakhand)	(01332) 285875 (Tel.) (01332) 284010 (Tel.)
e.mail: pgadm@iitr.ernet.in	(01332) 285874/273560 (Fax)

1. THE INSTITUTE

Indian Institute of Technology Roorkee is the latest member of the IIT family and has its roots in the Roorkee College established in 1847 as the first engineering college in India, which was soon rechristened as Thomason College of Civil Engineering in 1854 after its greatest mentor James Thomason. After about 100 years of distinguished services, the college was elevated to University of Roorkee as the first Engineering University of independent India on November 25, 1949. It has now 22 academic departments/centres offering 11 undergraduate courses in engineering and architecture, 5 dual degree programmes and 6 Integrated Dual Degree courses in M.Sc./Engineering and over 51 postgraduate courses in engineering, architecture, sciences, computer applications and business administration besides research programmes at doctoral level. It has three campuses main campus at Roorkee and other two at Saharanpur & Noida

IIT Roorkee has a highly qualified and motivated faculty of about 390 members who are engaged in research and consultancy in addition to teaching. The faculty members offer their expertise through consultancy services to private/public sector industries as well as to Government agencies. The institute has about 3000 undergraduate students, 1700 postgraduates and Over 900 research scholars.

There are a number of academic and research centres engaged in interdisciplinary research, and many collaborative programmes exist with institutions in India and abroad. Several central facilities exist such as Central Library having more than 3.20 lac volumes of books and periodicals, Information Superhighway Centre with Internet connectivity, an Educational Multi-Media Research Centre with full-fledged television studio, a modern Computer Centre and Institute Instrumentation Centre with highly sophisticated analytical instruments.

The Institute prepares students to meet ever-increasing technological and social challenges with its traditions of self-discipline, hard work, all-round personality development and innovative approach to problems.

IIT Roorkee is fully residential, with well-designed hostels (*Bhawans*) both for boys and girls, sprawling sports ground, hobbies club, Hospital, a modern swimming pool, boat club and a host of facilities for different games including Tennis, Squash and Billiards. Societies and Associations along with activities like NCC, Ranging and Rovering, Mountaineering and Trekking provide excellent opportunities for self-development.

2. ROORKEE TOWN

Roorkee, a quiet town of moderate size in the district of Hardwar (Uttarakhand), is located on the banks of the Upper Ganga Canal, which takes off at Hardwar. It is about 30 km south of the Shivalik range of the mighty Himalayas, about 170 km to the north of Delhi and is situated on the Amritsar-Howrah main railway line. Roorkee is linked by rail to many important mega cities such as Delhi, Kolkata, Chennai and Mumbai. Roorkee is also well connected by road, being located on the Delhi-Hardwar National Highway (NH 58), and on the Roorkee – Panch Kula Highway (NH 73). Roorkee (Latitude 29° 52' N and Longitude 77° 53'52" E) is 268 m above mean sea level and has a cold winter. The summer months, though hot, are moderated by the proximity of the Shivaliks. The rainy season is mainly between July and September with an average rainfall of 1050 mm.

Roorkee town is an important centre of engineering activity. Apart from the IIT Roorkee, which is situated in a 150-hectare campus, Roorkee also has the Central Building Research

Institute, the National Institute of Hydrology, the Irrigation Research Institute, the Irrigation Design Organization, the headquarters of Bengal Engineering Group & Centre along with an important Army base.

The Institute campus is 2.5 km from the Roorkee Railway Station and is only 200 m from the Roadways Bus Stand.

3. ACADEMIC DEPARTMENTS/CENTRES

3.1 Alternate Hydro Energy Centre (AHEC)

Alternate Hydro Energy Centre established in the year 1982 works for small hydropower development (SHP), renewable energy development and conservation of water bodies. The centre offers two M Tech Programmes in "Alternate Hydro Energy Systems" for candidates having civil / electrical / mechanical / electronics / chemical / agricultural / environmental engineering bachelor degree and are suitable to take up responsibilities of investigation, surveys, planning, designs, evaluation, installation of small hydropower and renewable energy projects covering civil engineering designs, hydraulic and structural designs, equipments selection and design and other renewable energy projects.

The second M Tech Programme in "Environmental Management of Rivers and Lakes" is offered as an interdisciplinary programme to create the specialists for restoration, conservation and management of environmentally degraded rivers and lakes. Conservation of Rivers and Lakes involves planning, designing, preparing, executing and monitoring the projects to deal with catchment treatment, pollution and abutment in a sustainable manner in catchment area, rural areas and urban areas.

The centre provides expert support in all aspects of SHP and other renewable energy development to government and private organization. International and national short-term training programme regularly are offered by AHEC to train professionals. Three institute elective courses for undergraduate classes each semester and Ph.D. programme are also offered by AHEC.

3.2 Architecture and Planning

The Bachelor's degree course in Architecture was instituted in the year 1956-57. The Indian Institute of Architects recognized the B.Arch. course in December 1961. The Department has the singular distinction of being the first in India in instituting a Masters degree course in Architecture (M.Arch.) in the year 1969-70. An independent course of Masters degree in Urban and Rural Planning (M.U.R.P.) was added in the year 1973-74. It is also active in doctoral degree programme.

3.3 Biotechnology

The Department of Biotechnology, established in 1981, offers 2-year M. Sc. Biotechnology (sponsored by Department of Biotechnology, Government of India) and Ph. D & B. Tech. (initiated in 2005) Biotechnology programmes. Research is carried out in identified thrust areas in the field of Molecular Biophysics, Genetics, Microbiology, Animal and Plant Biotechnology, Protein Biochemistry and Crystallography, Bioinformatics, Biochemical Engineering and Molecular Biology. Several sponsored research projects have been undertaken in the specialized areas of protein-DNA interactions, 3D structure and Molecular Dynamics of biological molecules based on Nuclear Magnetic Resonance (NMR) spectroscopy, DNA-Anticancer Drug interactions, Structure based Drug Designing, Plant defense proteins, Genetic Engineering of Nitrogen Fixation, Genome and Genomics of Wheat and Rice, Plasma Membrane based Enzymes, Therapeutically important Viral Enzymes and Proteins, Molecular Mechanism of Hormone Action and Endocrine Disruptors, Microbial Biosynthesis of Enzymes and Organic Acids,

Biocatalysis, Biofuels, Biofilms, Cell Surface Antigens, Molecular Biology of abiotic stress in plants, plant therapeutic proteins, biosensors, aptamers, drug discovery for antimicrobials and microbial pathogenesis. Research collaboration has been initiated/exists with institutions such as Tata Institute of Fundamental Research (TIFR) Bombay, Institute of Genomics and Integrative Biology Delhi, Central Drug Research Institute (CDRI) Lucknow, International Centre for Genetic Engineering and Biotechnology (ICGEB), All India Institute of Medical Sciences (AIIMS) New Delhi, Punjab Agricultural University Ludhiana, Indian Agricultural Research Institute (IARI) New Delhi, National Dairy Research Institute (NDRI) Karnal & Birla Institute of Technology & Science (BITS) Pilani-Goa campus.

3.4 Centre for Disaster Mitigation and Management

The Centre of Excellence in Disaster Mitigation & Management was established at IIT Roorkee in March 2006 to initiate multidisciplinary studies & national capacity building in Disaster Mitigation and Management. Initially, focus is on four natural disaster i.e. earthquake, landslide, cyclone and flood. The Core faculty group and facilities are drawn from four participating departments – Civil, Earthquake, Earth Sciences and Hydrology.

The CENTRE is devoted to human resource development; R&D activities leading to Ph.D. degree; disseminates technical know how; provides extension services; evolves strategies for mitigation and management of disasters and establish a national database for rapid dissemination of information and knowledge

3.5 Centre for Nanotechnology

Centre of Nanotechnology was established in December 2005 as one of the Centres of Excellence. The faculty of the centre, drawn from different departments is involved in developing state-of-the-art facilities at the institute and is vigorously pursuing interdisciplinary research on various current aspects of Nanoscience and Nanotechnology. For this purpose the Institute has granted six MHRD assistantships to the centre. A wide range of sophisticated equipment related to nanotechnology has been made operational at IIC involving the multidisciplinary faculty of the centre.

In view of the major impact of 'Nanoscience' in vast disciplines of Science and Technology, M.Tech. program on 'Nanotechnology' was started in 2008. This course is aimed at providing the basic know how to B.Tech./M.Sc. students about various concepts of nanoscale materials, their synthesis, characterization, novel properties, applications and future perspectives. This being a multidisciplinary area, a number of electives have been designed to impart-knowledge on modeling and simulation, physics, chemistry, biological and technological aspects of nanomaterials. Besides, it is providing students a practical training on advanced methods being employed for the synthesis, characterization and elucidation of different nanostructures. This expertise could be utilized to fabricate new materials and nanodevices. This programme is coordinated by the Department of Met. & Mat. Engg.

3.6 Centre for Transportation Systems

CTRANS is a Centre of Excellence of IIT Roorkee in the area of Transportation Systems with an aim to promote multidisciplinary and high quality research and education in Transportation Systems with collective participation of Engineers, Scientists and Researchers from Science & Technology, Humanities and Social Sciences of the Centre, Architecture & Planning and Management background. The research areas are Public Transport System Highway & Airfield Pavement Management System, Intelligent Transport System, Design of Comfort (Rail Transport), Environmental Management, Biofuels for Automobiles, Traffic

Emission Modelling, Air Quality Modeling, Mathematical Modelling, Supply Chain Management, Electric Trolley System, Traction Technology, Remote Sensing, GPS & GIS Applications, Health Hazard in Transportation System, Inland Navigation & Water Transport, Polymer Applications in Transportation Systems, Accident Modelling and Road Traffic Safety, Urban Transportation Policy, Management of Transport Systems, Environmental Impact Assessment, Visual Communication Design System, Aesthetics, etc. The Centre is equipped with a number of modern equipments i.e., Road Measuring Data Acquisition System (ROMDAS), Portable Automatic Traffic Counter-cum-Classifer, Trimble IR 5600 Robotic Total Station, Electrodynamic Vibration System, Falcon Handheld Stationary Radar with Data Logger and measurement of vehicular speeds, Integrating-averaging noise level meter, 50" Plasma TV for Traffic Analysis study, Portable Falling Weight Deflectometer, Diamond Core Drilling System, Portable Reference Measurement System etc. The Centre has Sound Plan, HEADS, TRANSCAD, VISSUM & VISIM softwares for a variety of transportation system problem analysis. The Centre has a good computing facility for modelling and simulation of transportation systems. A multi-Institutional Nationally Co-ordinated Project entitled "Integrated Development of Public Transport System" Sponsored by AICTE is executed at this Centre. A R&D Project on "Design and Analysis of Urban Multimodal Mass Transportation System" sanctioned by DST, Govt. is under progress. CTRANS is also offering advice and Consultancy Services. The CTRANS is providing consultancy services for the RSVY Project of CPWD on "Development of State Highways in Bihar State". A number of research scholars are pursuing Ph.D. on the identified research areas at CTRANS. One of the research scholars has been awarded National Doctoral Fellowship by AICTE. The Ministry of Road Transport and Highways, Govt. of India has established Professorial Chair at CTRANS.

3.7 Chemical Engineering

The Department of Chemical Engineering imparts instructions to students at the undergraduate and postgraduate level leading to B.Tech. and M.Tech. degrees in Chemical Engineering. M.Tech. programmes are offered in three specialized areas, namely. Computer Aided Process Plant Design, Industrial Pollution Abatement and Industrial Safety and Hazards Management. The Department also runs an Integrated Dual Degree Programme {B.Tech. (Chemical Engg) plus M.Tech. (Hydrocarbon Engg.)}. The Department also admits students for Ph.D. programme.

The M.Tech. programme of the Department has the highest approved intake in the country. The programmes in Industrial Safety and Hazards Management and Hydrocarbon Engineering are unique in the IIT system and fulfill the crucial needs of the industry. The Department has well equipped laboratory facilities with state-of-art equipment and instruments. New Research laboratories have been established in Air Pollution Abatement, Fire Engineering, Industrial Safety and Hydrocarbon Testing and Analysis. The Department is well recognized for its industrial academic programmes and fundamental and applied research. The research output of the department in terms of published articles in peer reviewed research journals and industrial consultancy projects is formidable and noteworthy. The Department conducts a large number of continuing education and training programmes for sponsored candidates from industries in the emerging areas of Chemical Engineering.

3.8 Chemistry

The Department of Chemistry came into existence in 1960 with an initial strength of 10 M.Sc students and 7 faculty members. Now the department has M.Sc. intake of 36 students and sanctioned faculty strength of 23. The department has been offering specialization in Analytical, Inorganic, Organic and

Physical Chemistry. Each M.Sc. (Final) student is required to carry out a laboratory scale Project work, submit a dissertation and present his/her work in a seminar. These have bearings on the employment opportunities of the students. A five year integrated M.Sc. (Chemistry) programme has been started in the session 2007-08 with admission through JEE. Recently, the laboratories have been renovated and several new modern equipments have been acquired. The students also get an opportunity to use the sophisticated instruments located at Institute Instrumentation Centre as part of their curricular activity. The department pursues interdisciplinary research on contemporary problems of chemical science relating to industrial, rural and agricultural development. More than 350 students have been awarded Ph.D. degrees and more than 1500 research papers have been published. The Department was also supported by DST through FIST during 1999-2002.

3.9 Civil Engineering

The Department of Civil Engineering of the Indian Institute of Technology Roorkee (formerly University of Roorkee) has an illustrious history and a glorious past and is the oldest and the largest Civil Engineering Department in the country. It has its foundation in the Roorkee College that was established on November 25, 1847 as the first Engineering College, not only in India but also in the British Empire at the time, to train Civil Engineers for managing the construction and operation of the Upper Ganga Canal. This was later renamed as the Thomason College of Civil Engineering in 1854. The College laid the foundation for modern technical education and the use of Civil Engineering practices in the infrastructure development of the country. In 1949, the college was elevated to the University of Roorkee. Impressed by its phenomenal growth, the Government of India converted the University of Roorkee into Indian Institute of Technology Roorkee on Sept. 21, 2001.

The department has, in the past, produced several eminent engineers who have made notable contributions in the planning and execution of Civil Engineering projects in many parts of India and as well as in other countries. The department offers a four-year course leading to the Bachelor's degree (B. Tech.) in Civil Engineering. In addition to its high quality undergraduate program, the Department also realized quite early the importance of keeping pace with the latest developments in engineering education. Hence, the postgraduate courses in Structural Engineering and Hydraulic Engineering were started in 1953 followed by the postgraduate courses in Soil Mechanics and Foundation Engineering (now Geotechnical Engineering) in 1954, Highway Engineering (now Transportation Engineering) and Public Health Engineering (now Environmental Engineering) in 1957, Advanced Survey and Photogrammetry (now Geomatics Engineering) in 1958 and Building Science and Technology (now Building Technology) in 1974. Thus, at present the Department offers two-year courses leading to the Master's Degree (M. Tech.) in seven different specializations. Every year, 120 students are admitted to the B. Tech. courses in Civil Engineering and around 150 students to the M. Tech. courses in different streams of Civil Engineering. The Department has also provided education to a large number of sponsored foreign students through arrangements between the Government of India and the Governments of the concerned nations. A number of specialist and refresher courses are regularly organized by the faculty for practicing engineers and the faculty of other engineering colleges. The Department offers Ph.D. programmes in various disciplines mentioned earlier. About 80 research scholars are presently pursuing their research. The research programs of the Department are being funded by various agencies such as CSIR, DST, MoSRT&H, ISRO, BARC, AICTE etc. Besides teaching and research, the faculty of the Department offers consultancy and

R&D services to various public and private sector organizations throughout the country.

3.10 Earthquake Engineering

Earthquake engineering education in India started at the Indian Institute of Technology Roorkee (erstwhile University of Roorkee) in 1960, through the establishment of School of Research and Training in Earthquake Engineering. The School was renamed as Department of Earthquake Engineering and became an integral part of the University of Roorkee in 1979. Four major areas of earthquake engineering namely, Structural Dynamics, Soil Dynamics, Engineering Seismology and Seismotectonics, and Instrumentation have been nurtured for more than half a century. Major functions of the Department include teaching and research, and rendering expert advice to various organizations/agencies in all areas of earthquake engineering. This includes earthquake resistant design of structures and systems, such as dams, bridges, power plants, etc. The Department has played a key role at the national level in formulating Indian standard codes of practice for earthquake resistant design of structures.

Several major facilities exist in the Department for conducting experiments related to earthquake engineering. Some major facilities include: A low cost railway wagon shock table for dynamic testing of full scale structural models, a 3.5 m x 3.5 m computer controlled shake table with a maximum pay-load capacity of 20 tonnes to simulate earthquake ground motion, a quasi static testing laboratory having servo-controlled dynamic actuator systems and servo-controlled compression testing machine of 300 tonnes capacity, a soil dynamics laboratory equipped with facilities for dynamic testing of soils and foundations, liquefaction table, geotechnical centrifuge and cyclic triaxial testing system, and a seismological observatory having state-of-the-art 3-component digital broadband seismograph to record local, regional and tele-seismic events. The Department has deployed a strong motion network of 300 digital accelerographs in the Himalayan region covering seismic zones V, IV and parts of zone III for the purpose of measuring strong ground motion in the event of major earthquakes and a state-of-the-art 12-station telemetered network deployed in the Garhwal Himalaya to continuously monitor the local seismic activity around Tehri dam.

3.11 Earth Sciences

The Department of Earth Sciences is one of the leading departments in the country engaged in teaching and research in the field of Earth Sciences. The main strength of the department is amalgamation of two major divisions of Earth Sciences: Geology and Geophysics under one umbrella. In more than last four and half decades, department has produced large number of trained Earth Scientists who are the backbone of the Country's Mineral, Oil and Exploration Industry. The pioneer research contributions in different disciplines of Geology and Geophysics have been recognized through the awards and laurels conferred on many faculty members, and through the generous funding received from various funding agencies. The Department of Earth Sciences, formerly the Department of Geology and Geophysics, was established in 1960. During the span of more than four and a half decades the department has become one of the foremost centres of post graduate teaching, research and consultancy in the field of Earth Sciences. The department has been recipient of financial aid under the prestigious Special Assistance and COSIST programmes of UGC (Ministry of Human Resources and Development, Govt. of India). The geological studies in the Institute (formerly University of Roorkee) date back to the middle of the last century when Colonel Sir Proby Cautley (who was responsible for establishing the Thomason College of Engineering) was elected

as a Fellow of the Royal Society, London, for his pioneering work on the vertebrate fossils of the nearby Shivalik Ranges. Later Henry Benedict Medlicot, who was also admitted as the Fellow of the Royal Society in 1877, occupied the Chair in Geology and Experimental Sciences at Thomason College. Presently, the department is running two Five Year Integrated M.Tech. programmes and two three year M.Tech. programmes, each in Geological Technology and Geophysical Technology. These two programmes started from 2007 through JEE. One more courses viz. M.Sc. (Applied Geology) of two years duration is also being run by the department. Research work leading to Ph.D. degree in several interdisciplinary areas and research and consultancy programmes constitute an integral part of the departmental activities. The faculty is engaged in a number of research projects sponsored by the Govt. of India agencies like UGC, CSIR, DST, ONGC, AICTE etc. and the consultancy projects sponsored by various industries, and government agencies. The department has Hamrock Society in which all faculty and students are members.

Five Year and Three Year Integrated M.Tech. Courses (Geological Technology)

This course is intended to train the students in different aspects of Geological Technology in an integrated manner. The main objective is to impart the latest technological advancements in the field of Applied Geology and geoexploration. The training will focus on developing the capability to apply the knowledge in the exploration of natural resources. Following branches of Applied Geology will be given special attention: Petroleum Exploration, Remote Sensing and Geographic Information System, Ground Water Exploration, Mineral Exploration, Engineering Geology, Natural disaster Mitigation and Environmental Geology. A special feature of this course will be the training of the students in Geophysical Exploration and Well Logging. Some new courses being introduced for the first time are: Fluid Inclusion, Petroleum Prospect Evaluation, Environmental Geochemistry, Instrumentation in Geochemical Analysis and Mineral Technology. There has been a spurt of activity in the country in Petroleum Exploration. A number of companies in the private sector as well as in public sector have been actively engaged in oil exploration, both onshore and offshore. Besides, in the next decade it seems there will be a tremendous growth in IT related geosciences sector. India is well poised to become an international hub for global geological database generation, Processing and interpretation, and a centre for geoscientific manpower outsourcing. This M.Tech. course aims to focus on all these aspects and gear up to the challenges to provide adequate training to the students. All this requires a large resource of trained manpower. The five-year integrated and Three year M.Tech. programme, with its high level of quality training, will go a long way in meeting the needs of trained geologists in the future.

Five Year Integrated and Three year M.Tech. Course (Geophysical Technology)

The Five Year Integrated M.Tech. Programme in Geophysical Technology is aimed at training the students in different aspects of Geophysical Technology in an integrated manner. The emphasis of the course will be on Applied Geophysics. The aim is to train the students in the latest technological advancements in the field of Applied Geophysics. The training will focus on developing the capability to acquire, process and interpret geophysical data. The course will aim at training the students in seismology, petroleum geophysics, mineral exploration, groundwater exploration, geotechnical investigation, environmental geophysics and borehole geophysics. A special feature of the course will be the training of the students in Geophysical Inversion, and Geophysical Data Processing and Interpretation.

Due to increase in the exploration activity in oil sector, a number of companies in the public and private sector have been actively engaged in oil exploration, both onshore and offshore. The activity in exploration is expected to intensify further resulting in increased

demand of trained personnel. A number of other companies in the IT sector are also taking up work related to processing and interpretation of Geophysical data, related mainly to oil sector. All this requires a large resources of trained manpower. The five-year integrated and three year M.Tech. programme in Geological Technology, with its high level of quality training, will go a long way in meeting the needs of trained geophysicists in the future.

3.12 Electrical Engineering

The Electrical Engineering Department was a part of the Thomason College of Engineering from the year 1897, one of the earliest such specialisations in the world when the discipline itself was in its infancy. The first batch of Electrical Engineers passed out of the College in the year 1900. This department was, however, closed down in the year 1923 following the recommendation of a special committee that the college may be converted to a purely Civil Engineering Institution. This decision was not to be reversed until on the eve of being converted into a University. The Fortescu Committee advised the resumption of instructions in Electrical Engineering and thus, the present Department of Electrical Engineering came into being in 1946, the first graduates of the new department emerging in 1949. Initially, the department offered courses with options in both Electrical and Telecommunication Engineering. Subsequently, in 1964, the department was bifurcated to form the two Departments of Electrical Engineering and Electronics and Telecommunication Engineering. In 1954, this department was one of the first few ones in India, to start the postgraduate program. Ever since then, the department has never looked back and since 1964, over 125 Ph.D. degrees have been awarded. Presently the department is running the courses at both the undergraduate and the postgraduate levels and providing excellent facilities to carry out research work for Doctor of Philosophy (Ph.D.) degree, R&D work for sponsored and consultancy projects and testing and consultancy work for industrial problems. This is, of course, in addition to the regular courses in Bachelor of Technology (B.Tech.) and Master of Technology (M.Tech.) that are a part of the curriculum.

A new five year IDD programme has been started in July, 2007 with B.Tech. degree in Electrical Engineering + M.Tech. degree in Power Electronics, with an intake of 10 students.

The department has specialization in research areas such as : ANN and fuzzy logic applications, Distribution system planning and operation, Telemedicine, ECG signal analysis and classification, System analysis and optimization, Computer controlled system including process control, Computer controlled multi-quadrant solid-state converters, Condition monitoring of electrical machines/drives, Digital signal and image processing, Data base management, Economic dispatch and planning, Flexible AC transmission system, FPGA based control, High performance computer controlled DC and AC drives, Intelligent instrumentation, Industrial instrumentation, Medical system modeling, instrumentation and bio-informatics, Modeling and simulation of electric machines, Optimal system operation, Power system protection, monitoring, control and simulation, Power quality, System automation and monitoring, Relay coordination, Reliability engineering, Robotics, System modeling, Process instrumentation and control, Power system automation, Artificial intelligence applications and Voltage stability of power system, Embedded Systems, Sensors & Sensor Networks.

In recognition of excellent R&D activities in the area of Embedded Systems, Power Quality Conditioning and Biomedical & Image Processing, DST has given financial assistance of

Rs. 2.67 crore under the FIST programme, in 2008.

3.13 Electronics & Computer Engineering

The history of telecommunication education at this Institute dates back to 1957 when a B.E. programme in Telecommunication was started in the Department of Electrical Engineering of the then University of Roorkee. In view of the increasing importance of the Electronics Engineering discipline, a separate Department of Electronics and Telecommunication Engineering was established in 1964 to offer Bachelor of Engineering degree in Electronics & Communication and Master of Engineering degrees in Advanced Electronics and Applied Electronics & Servomechanisms. In 1968, the postgraduate programme was restructured with specializations in the areas of Communication Systems, Control and Guidance, Microwaves and Radar, and Solid State Electronics. Two new undergraduate and postgraduate programmes in Computer Science and Technology were started in the year 1982. Keeping in view the activities of the Department, the name was changed to Department of Electronics and Computer Engineering in 1987. The Department has always been on a high growth path and has an experienced and dedicated faculty with a strong commitment to engineering education. To keep pace with the current technology trends, all the undergraduate and postgraduate curricula have been modified and the postgraduate programmes in Microwave and Radar and Solid State Electronics have been renamed RF and Microwave Engineering and Semiconductor Devices & VLSI Technology, respectively. Moreover, the Department has introduced two Dual Degree programmes leading to B.Tech. in Computer Science and Engineering and M.Tech. in Information Technology, and B.Tech. in Electronics & Communication & M.Tech. in Wireless Communication since 2003-04. Besides, a new M.Tech. programme in Information Technology has also been started. Recently, the Ministry of Information Technology has established a Center for Manpower Development in VLSI in the Department. The Department has a strong research programme leading to Ph.D. degrees in the broad areas of Communication Systems, RF and Microwaves, Computer Science and Engineering, Semiconductor Devices and VLSI, and Control and Guidance. Many state-of-the-art Laboratories have been set up with support from Industry/Govt. agencies to facilitate cutting-edge research in these areas. The Department has successfully completed a large number of sponsored research projects funded by DRDO, DST, UGC, ISRO, DOE, AICTE, MIT etc. The Department also provides R&D and consultancy services to various industries.

3.14 Humanities & Social Sciences

Established in 1966, the Department of Humanities and Social Sciences endeavors to integrate human values and social concerns with technical education. Started primarily to teach English and Social Sciences to engineering students, it now possesses a vibrant and distinct identity, with teaching and research programs encompassing almost all the departments of the institute with its core, elective, and Pre-Ph.D, courses numbering thirty one. The Department undertakes teaching and research programs in the areas of English, Economics, Psychology, Philosophy, Sociology, IPR, Fine Arts and related interdisciplinary subjects. Till date, about seventy scholars have been awarded Ph.D. degree in different disciplines of the department, and twenty-four students are currently registered for this program. The Department also runs an evening course in German language. To facilitate and constantly upgrade teaching and research, the Department has Economic Data Base, Computer Lab, Psychology Lab and a state-of-the-art Language Laboratory with 60 booths. The faculty members have

been engaged in sponsored research projects and consultancy. So far 8 major and 12 minor projects and 10 consultancy projects have been undertaken by the members of faculty, besides organizing training programs for teachers through QIP. Further, 405 research papers and book chapters, 25 books have also been published by the departmental faculty, whose erudition has been highlighted through a range of national and international recognitions.

3.15 Hydrology

The Department of Hydrology came into existence with the inception of International PG Course in Hydrology in 1972 with the assistance from UNESCO, Govt. of India and IDRC Canada. The course aims to impart training to engineers and scientists from Asia, Africa and other developing countries. The courses offered by the Department of Hydrology are presently sponsored by Government of India, UNESCO and WMO. So far, 752 trainee officers including 287 foreign trainee officers from 35 countries have participated in the Post Graduate Programme. Since 2003, GATE qualified fresh engineering and science graduates from India have also been admitted in this programme. A candidate can opt for pursuing any of the three specializations viz. Surfacewater Hydrology, Groundwater Hydrology and Watershed Management. The department has excellent laboratories in the field of Hydrometeorology, Hydrological Information Systems, Water Quality, and Ground Water. The department has made significant contributions in the field of flood estimation, flood routing, watershed management and environmental hydrology; and handled more than 100 major research and consultancy projects in different fields of hydrology. Some important investigations include hydrological estimates on the failure of Macchu Dam II in Gujarat, design floods of 21 sub-basins of the Sone river, studies on ground water modeling and subsurface drainage studies in command areas of Sardar Sarover and Narmada Sagar projects respectively and water availability/ design flood estimations for various basins and hydropower projects of India.

3.16 Management Studies

The MBA programme was launched by the Institute to reflect the needs of present-day dynamic business and economic scenario and to enable its students to face the challenges of corporate world. The purpose behind this is to give the student a sustainable competitive advantage. It takes the onus to prepare a breed of managers who have the courage, skills and resilience to excel in the corporate world.

3.17 Mathematics

The Department of Mathematics attained its present status of an independent department in 1960. Growing steadily today the department not only teaches various topics in mathematics to undergraduate and post-graduate students of different engineering and science department, but also run its own 2 Years M.Sc courses in Applied Mathematics and Industrial Mathematics and Informatics and 5-Year Integrated M.Sc Course in Applied Mathematics. The department also conducts an interdisciplinary MCA course. Besides the central computing facilities of the Institute, the department has its own state of the art Computational Laboratory, a Mathematical Modeling Laboratory, Parallel Computing Lab, and Image Processing Lab. The department also offers the facilities for research work leading to Ph.D. degree in different branches of Pure and Applied Mathematics. The department has so far produced over 180 Ph.Ds including some foreign students. Department has collaborations with different national and international organizations and has expertise in various fields of mathematics and others consultancies in mathematical modeling and solution of various industrial and real life problems. The faculty also joins different industrial research and consultancy teams to mutually solve problems of

higher mathematical contents.

3.18 Mechanical & Industrial Engineering

The Department of Mechanical Engineering came into being in the year 1946 and the first batch of Mechanical Engineers graduated in the year 1949. In November 1973, the department was renamed as Department of Mechanical and Industrial Engineering. At present it offers both undergraduate and postgraduate teaching in various facets of Mechanical and Industrial Engineering. The department offers Master of Technology courses in Thermal Engineering, Machine Design Engineering, Production and Industrial System Engineering, Welding Engineering and CAD, CAM and Robotics. Besides doctorate level research facilities, the department has laboratory and workshop facilities with modern sophisticated equipment to carry out research in all areas related to Mechanical and Industrial Engineering. The faculty actively participates in sponsored research and consultancy work, conducts seminars/conferences and short term courses. The excellence of the department in Research and Development has been well recognized. The department has received funding from various agencies including the grant under FIST scheme of DST.

3.19 Metallurgical & Materials Engineering

The department was set-up in the year 1963 when several new disciplines were started in the Institute primarily to train students at the undergraduate level. Postgraduate programs in Physical and Extractive Metallurgy were started in 1969 followed by the Industrial Metallurgy program in 1979. The Doctor of Philosophy program was initiated along with the Bachelors program. In its brief history of nearly fifty years, the department has distinguished itself by making significant contribution to teaching, research and industrial consultancy. In 1997 the name of the department was changed to Metallurgical and Materials Engineering to meet the challenges posed by emerging materials including rapid advancements in the field of engineering polymers, ceramics and composite materials. Recently, a thermo mechanical simulator was procured under the DST sponsored FIST program. It is the first such facility available in an academic institution in India. The department has several on-going research activities in the area of development of alloys, metal matrix composites, modeling and simulation, materials joining, surface engineering, tribology of materials and corrosion engineering. Several faculty members have international collaborations including exchange visits which have enhanced the research contribution of the department. In the last five years, the department has published more than 300 research papers and carried out 30 and 35 research and consultancy projects, respectively, sponsored by various national and international agencies. A number of patents have been filed for innovative research in process and materials development and some of them are under active consideration for industrial licensing. A number of our alumni have received several prestigious national and international awards.

3.20 Physics

From a modest beginning in 1960, the Department has now grown into an active center of quality teaching and research. Today it stands as one of the leading departments in the country well known for its high quality teaching and research. Our programmes have special features, which are present only in a few institutions. The department offers M. Sc., M. Tech. (SSEM) and Ph.D. programmes to the students. A five year integrated M.Sc. (Physics) programme has been started in the session 2007-08 with admission through JEE. Besides teaching the undergraduate

engineering students, the faculty of the department provides active leadership in training the postgraduate students, which is evidenced by their performance in GATE and NET. In fact even up to 75% of the total strength of the students has been qualifying in GATE often holding a few top ranking positions. Our achievements in research have been well recognized by U.G.C. and DST in selecting our department under Special Assistance Programme many times since 1979 and FIST programme respectively. The department has research activities in the areas of Atmospheric Physics, Atomic Physics, Condensed Matter Physics, Photonics, Nuclear Physics, Particle Physics and High Energy Physics. The department is successfully running various major and minor research projects funded by DRDO, DAE, DST, MIT and CSIR. The U.P. Council of Science and Technology has also selected this department as a Centre of Excellence in Physics.

3.21 Paper Technology, Saharanpur Campus

The Department of Paper Technology at Saharanpur Campus, is an Industry Oriented academic department of the Indian Institute of Technology, Roorkee. This department (erstwhile Institute of Paper Technology) originally started in 1964, with the assistance from Royal Swedish Government on the pattern of their Paper Technology School in Markryd, Sweden, with the aim of fulfilling the need of technically trained manpower for the paper industry. It has been offering various academic programmes in Pulp & Paper at UG and PG level. A new 5 years Integrated M.Tech. (Polymer Science and Technology) programme has already been started from July 2006. Another 5 years IDD B.Tech. (Process Engineering) with MBA has been started from July 2007. The department has well developed laboratories and its faculty is engaged in teaching, research and industrial consultancy covering many facets of Pulp and Paper Technology, Polymer Technology and Process Engineering. The Paper Industry has traditionally been an intensive industry in-terms of raw materials usage, energy use, man-power deployment and in discharge of effluents. With liberalization of economy, global competitiveness and high environmental pressures, coupled with growing demands for paper products of high quality and at competitive prices, the process industries have come under enormous pressure for change. This in-turn calls for a new vision in redesigning the academic program and in restructuring the research activities. Accordingly, the faculty keeps itself abreast about the latest development through research, consultancy and Industry Oriented Human Resources Development (HRD) programmes. The departmental faculty has executed successfully many research projects, sponsored and consultancy projects and many such programmes are currently in progress.

3.22 Water Resources Development & Management

The department was established in 1955 as an Asian African Centre to impart training to in-service professionals in the field of water resources development and management. At present, the department offers application based Postgraduate Degree programmes in Water Resources Development and Irrigation Water Management for imparting training to in-service professional & fresh GATE qualified graduates in Civil, Electrical, Mechanical and Agricultural Engineering and Agricultural Sciences. A balanced blend of academicians and field engineers in the faculty with long experience in planning, design, construction, operation, and maintenance of water resources development and irrigation water management projects help in implementation of application oriented academic programmes. The department is actively involved in research, development and extension activities in the areas of water resources and irrigation management. The objective of the Department is to develop manpower that can take the responsibility

of sustainable development and environment friendly management of the available water resources. The department has so far trained about 2500 in service engineers and agricultural scientists from 48 countries including India.

4. ACADEMIC SERVICE CENTRES

4.1 Centre for Continuing Education

It is a pioneering centre in the area of continuing education in the country and has completed more than 50 years of service. This Centre acts as a window to disseminate information and technology on latest technological developments. In the face of rapid technological advancements taking place around the globe, continuing education and upgradation of knowledge of in-service professionals to new technologies is the need of the day. Courses are being organised through the technical expertise available in the departments and centres of the Institute and are innovative, accessible and stimulating addressing to the current needs of the professionals. Experts from industries and R&D organisations are also invited to deliver lectures wherever necessary. Centre organizes the courses in the Institute and also outside the Institute in consultancy as well as in sponsored mode that respond to client's continuing professional development needs. The Centre conducts about 70 short term training programmes in Continuing Education every year in various disciplines of management, engineering, science and technology in which the professionals are trained from all parts of the country as well as from the neighbouring countries.

The Centre has five lecture halls fully equipped with modern teaching aids and in-house boarding and lodging facilities. The Trainee Officers Hostel has thirty six rooms with modern facilities like colour T.V., wi-fi internet connection and telephone. An in-house mess and round the clock canteen cares for the need of the participants.

4.2 Quality Improvement Programme Centre

The Government of India has launched the Quality Improvement Programme in the 1970-71. One of the main objectives of the programme is to upgrade the expertise and capabilities of the faculty members of the degree level engineering colleges/ institutions of the country. Since 1994-95, the programme is being implemented and monitored by All India Council for Technical Education. In "Quality Improvement Programme" only sponsored teachers are eligible for admission to both Master's and Doctoral Degree Programmes, with the aim to enable them to acquire Master's/Doctoral degrees and imbibe in them a culture of research and better teaching capabilities by exposing them to the environment of a higher level institute.

The Programme was launched to improve the overall quality of technical education in the degree level engineering colleges/ institutes. It was anticipated that placing the teachers on the campus of these institutes of excellence including 7 IIT's, and Indian Institute of Science, Bangalore, will expose them to an altogether different environment of sophisticated infrastructure and to improve the standard of technical education in their own institute.

4.3 Institute Instrumentation Centre

The Institute Instrumentation Centre is the shared analytical facility for the academic community of IIT Roorkee. Ever since its inception in 1978 as the University Science Instrumentation Centre of the erstwhile University of Roorkee, it has provided excellent facilities of sophisticated analytical instruments to the students and researchers of not only IIT, Roorkee but also to the users of other organizations of the country. The centre is currently running two national facilities for, (i) Isotope Geology and Geochronology and (ii) Electron Probe Micro Analyzer. It is equipped with more than

fifteen specialized and sophisticated equipment for analysis and solution of intricate scientific and industrial problems. These include, among others, Nuclear Magnetic Resonance, Thermal Ionization Mass Spectrometer, Electron Probe Micro Analyzer, Macromolecular Crystallographic Unit (to be installed shortly), X-Ray Fluorescence Spectrometer, Powder X-Ray Diffractometer, Single Crystal X-Ray Diffractometer, Field Emission Scanning Electron Microscope, 200 KV Transmission Electron Microscope, Atomic Force Microscope, Scanning Electron Microscope, Superconducting Quantum Interference Device, Vibrating Sample Magnetometer, Atomic Absorption Spectrophotometer, Fluorescence Life Time System, Inductively Coupled Plasma Mass Spectrometer, Laser Ablation Micro Analyzer, Differential Thermal and Thermal Gravimetric Analyzer, Sputtering and Pulse Laser Deposition Facility for Nano-material studies. Besides these, the Centre includes a training laboratory for summer training of the engineering students. There are three faculty members each having several sponsored projects and research programmes in the areas of Earth Sciences and Nano-material sciences. Each laboratory generally has an operator working under the supervision of a faculty member or a scientific officer.

4.4 Institute Computer Centre

The Centre works towards the common goal of implementing the academic agenda of the Institute by constantly interacting, evaluating and updating the resources to meet the international standards.

Computing Resources:

- ICC, a central computing facility, is equipped for High Performance Computing, which includes infrastructure for Cluster Computing and Grid Computing, besides high-end Servers and Workstations on heterogeneous platforms.
- Centre has a wide range of servers from Intel processor based ones to high-end RISC servers from SUN, IBM, SGI and NAS (Network Attached Storage) servers of 2x1.6 TB (terabytes) capacity.
- ICC has state-of-the-art facilities for applications such as: CAD/MCAD, Computational Fluid Dynamics (CFD), FEM & FEA, Image Processing / Scientific Visualization, 3DAnimation/Visual Simulation/ Geospatial imaging and analysis.
- It has mid-range to high-end configured graphics workstations with MIPS R16000 64 bit RISC based (SGI)/ 64 bit Quad-core Intel Xeon (dual cpu) with 4/16 GB 667 quad-channel DDR2 fully buffered DIMM memory and 512/768MB VRAM / AMD Opteron /Xeon EM64T with 2 GB RAM/PIV EM64T CPUs.
- Linux based HPC Cluster and all the other servers can be accessed within the campus including DPT Saharanpur Campus through campus LAN.

Major Engineering and Scientific software resources:

- ICC's software licensing facilities provide the following major engineering and scientific softwares available throughout the campus over the LAN with network floating licenses:
- MATLAB R2010b with various Tool Boxes;
 - ArcGIS 10: ERDAS Imagine 9.3.2 with Leica Photogrammetry Suite & Imagine Developer's Toolkit and ER Mapper 7.2;
 - SPSS 16.0; Mathematica 5.0; NAG Libraries and Compilers; Intel Visual Fortran 9.0;
 - MagNet64 bit v 6.22.1;
 - LabVIEW 2010 academic site license with Campus Teaching;
 - Pro/ENGINEER Wildfire 4.0; Solid Edge 18.0; Mechanical Autodesk Inventor Series 11; Abaqus/Standard & Abaqus/CAE 6.8; STAR-CD 4.08 for Computational Fluid Dynamics;

SAP2000 for structural analysis and design of 3D structures & ETABS for analysis, design and drafting of building systems; Microstation and Bentley suite of products for Civil under academic subscription; AutoCAD Revit Architecture Suite 2010 & Educational Solution Set 2010(Architecture); ChemOffice Ultra 10.0; Felix for Nuclear Magnetic Resonance (NMR) spectral data off-line processing; Oracle 9i & 10g and MS Visual Studio.Net 2008

Microsoft Campus Agreement under academic pricing for major and latest software ranging from High Performance Computing(HPC) to latest versions of OSs (32/64 bit - Standard and Enterprise) for Server, Workstation and Desktop along with RDBMS, .NET development environment and Office Applications suites, have been licensed for the year 2010 under School and Campus Agreement.

Computing Environment and Access Timings:

- The Centre maintains a comfortable environment, conducive for research & training for both students and faculty.
- **It provides dedicated high-end systems with specialized software required by M. Tech and Ph.D. scholars during their dissertation/thesis period in Research Scholars Lab.**
- Short term training programmes /workshop/seminar for students, faculty members and office staff are also being organized by the centre.
- It has eight job-specific labs with about 250 desktops/thin clients of latest configuration in 100/1000 mbps CAT 6 based structured network having gigabit managed switches with internet connectivity at every system.
- Computer Centre runs in two shifts from Monday to Friday from 8:00 AM to 11:00 PM and on Saturday and Sunday 8:45 AM to 11:00 PM.
- It is rendering services all 7 days/week. Computing and software license serving facilities are available on 24x7 basis within the campus including DPT Saharanpur.

4.5 Information Superhighway Centre

The Information Superhighway Centre(ISC) was established in March 1996. It is the nodal centre for outside/inside connectivity to the campus and serves as an Information Technology Center for promoting the effective use of IT, IT Systems, resource management and facilities for modernization/automation of the IP Infrastructure of the Campus. The Institute has a star topology Gigabit Ethernet Switch based, state-of-the-art Enterprise class network with data, voice and video communication capabilities. All department and Centres are connected to the Information Superhighway through Optical Fiber. The network covers 365 acres of area through 35 Km of OFC and 65 km of CAT6/E CAT 5 UTP, connecting all Departments/Centres, Hostels and Saharanpur Campus. The Intranet has 2700+ wired-line I/Os and 3000+ points through Wireless access, providing internet/intranet, and e-mail facility to all faculty, students, staff, library, and laboratories. Institute has 50 Mbps internet leased line link from TATA Communication, New Delhi, 50 Mbps internet leased line link from BSNL Hardwar and 1 Mbps SCPC VSAT based link from ERNET India, New Delhi. All research scholar Hostels have wired line internet connectivity in each room. All Under Graduate/Graduate hostels have 802.11g based Wi-Fi network providing wireless internet connectivity, besides that hostels are also provided with Cyber cafe equipped with 20 desktop for internet connectivity. Residences of faculty and other staff in the campus has been provided with ADSL and Dial-In Internet connectivity. Above Facilities through the Centre are being used extensively by the faculty and the students for their educational and research

needs and provides an avenue for the exchange of Information with other libraries and the centres of research and education The ISC also has an Information Management Group(IMG) which is managed and run solely by B. Tech. students for developing website and intranet applications.

4.6 Central Library

The library serves as a central organ of the academic activities of the Institute. To this end, it continues to fulfill its obligations in providing necessary infrastructure facilities in the form of books, advanced treatises, works of reference and bibliographical nature, current and back volumes of journals, theses, CD-ROMS, e-journals, e-databases, e-books and other kinds of monographs to its members. It has well bound collection of more than 3.59 lakh volumes to meet the growing and varied requirements of its clientele consisting of undergraduate and postgraduate students, research scholars, faculty members. The library strives to provide physical facilities with calm and cozy atmosphere conducive to study for long hours. It subscribes to over 900 current journals in all branches of Engineering, Physical Sciences, Bio-Sciences and Humanities & Social Sciences. Besides this the library provides access to e-resources including more than 12,000 e-journals and 20,000 e-books published by major science and technology publishers of the world. All the e-resources of the library are available throughout the campus on Institute network. Library also maintains 5 LCDs, 7 servers and more than 100 Desktop PCs on its Local Area Network. Forty two CCTV cameras have been recently installed at various places of the library.

Mahatma Gandhi Central Library building is one of the most beautiful buildings in the country. It is a state-of-the-art facility fully air-conditioned which provides the best possible environment to the students and faculty. It occupies an area of over 90,000 sq.ft. A small cafeteria, ample sunlight through dome and skylight provision, state-of-the-art cabling for internet and light, fire services, cyber rooms, open terminal, wi-fi environment are some of the main features. A separate reading room with 80 seating capacity for round the clock opening is a unique feature. The Central Library is on its way to provide library services in such a way that Saakaar becomes Niraakaar and believe in becoming pro-active rather than providing services on demand.

5. OTHER UNITS

5.1 Educational Technology Cell

Educational Technology Cell a part and parcel of IIT Roorkee is situated near the building of Centre for Continuing Education. This cell was primarily intended to produce high quality Video/web/multimedia based instructional material, Syllabus based content development for the National Programme for Technology Enhanced Learning (NPTEL) project, short courses/training programmes for faculty for development of video/web based course. Over the period of time its role has expanded to absorb new paradigms of e-learning, training of faculty to develop their own e-content and use of e-content developed by NPTEL, training of faculty about streaming of video & web based lectures in their respective institutes, streaming of round the clock video lectures on demand, at IIT Roorkee, creation of question banks, quality control of e-content generation through feedback mechanism, conduct of research related to pedagogies in e-learning, creation of innovative virtual experiments, support to "National Mission Challenges" undertaken by the Department of Higher Education, MHRD. The cell has state-of-art digital video camera, non-linear editing systems, audio and video systems, teaching aids, substantial number of computers, servers and

softwares required to produce high quality Web based and Video based course. The cell has already produced 6 web based courses and 9 video based courses under NPTEL Project. These courses are accessible to anyone in India and abroad through the web site <http://nptel.iitm.ac.in>. This centre is also connected to satellite through EDUSAT (a facility provided by ISRO) to provided facility for the functioning of country-wide class room.

5.2 Intellectual Property Rights Cell

The intellectual Property Rights Cell of IIT Roorkee primarily functions to create awareness and to provide guidance to the academic and non-academic staff, students and research scholars on the practices and the rules and regulations of the Institute regarding Intellectual Property Rights (IPRs) and obligations within the frame work of the IPR policy of the Institute. It works to safeguard the interest of inventors regarding IP with legal support which is necessary. During last five years of January 2005- January 2010 IPR Cell has processed 36 Disclosures/applications for patent filing. A Technopreneur Promotion Programm (TePP) outreach centre (TUC) is also operating from teh IPR Cell. This is a programme of DSIR to support innovative ideas towards commercialization. Since 2007 this centre has received 27 proposals for financial support out of them 3 proposals have been considered for financial support from DSIR and 5 proposal are in active consideration for the same. The IPR Cell also takes initiatives in developing syllabus on education of IPR for the UG and PG students, which are successfully running in this institute, institute has also planed to start a two years Masters Programme in IP Management (MIPM).

The institute IPR Cell organizes **hands on training session for students, research scholars and faculty members twice in a academic year** with the primary objective to brief them in (1) organizing the research work and innovation identification, (2) record keeping of the work (3) procedural aspect of patent search and (4) filing of disclosure for patent filing.

IPR Cell has initiated a programme to meet the investigators and scholars of various ongoing research projects of every department/ centre of the institute to discuss about the state of the art and objective of their studies. This is in order to explore the possibility to organize their work towards creation of IP in which IPR Cell extends its relevant support appropriately.

5.3 Training & Placement Cell

The Training & Placement Cell of the Indian Institute of Technology Roorkee, is committed to provide best placement opportunities to the students of high caliber passing out of this institute. Under the Campus Recruitment Programme, companies are invited to make their Pre-Placement Talk and conduct their selection procedure by holding written test/group discussions and interviewing the short-listed candidates and making their final selection. Every year there is an increase in the number of companies visiting the campus with more new companies preferring to hold their selection process in our Institute. Approximately one hundred fifty new companies were added in last three years. Maximum and average annual salary package of last three years are ' 36.00 lac per annum and ' 7.00 lac per annum respectively.

6. POSTGRADUATE PROGRAMMES

6.1 The Objective

The main aim of the postgraduate education at this Institute is to inculcate in the students a deep understanding of the fundamental principles, concepts and practices in the chosen area of specialisation and to develop abilities for undertaking research and development through dissertation. To achieve the above goals, the curriculum is designed to motivate the students

for self-study, train them for independent work and create environment conducive for innovation. The programme also offers design courses aimed at translating theoretical knowledge to practical application. It also provides opportunities to develop strong linkages with research institutions and industrial R&D units. The postgraduate programmes offer considerable flexibility to students in choosing the electives in pursuance of their academic goals.

Upon admission, the student is attached to a faculty advisor who guides the student in choosing the electives depending upon his/her area of specialisation. Each course shall have certain number of credits assigned to it depending upon the academic load and weekly contact hours of lecture, tutorial and practical classes. Students shall be evaluated for their academic performance through tutorials, home work assignments, term papers, field work, surprise quizzes, mid-term examinations and the end-term examination on a 10-point grade system.

6.2 Postgraduate Academic Programmes leading to M.Tech./M.Arch./M.U.R.P.

The postgraduate programmes in Engineering and Architecture include 42 full-time programmes in different specialisations leading to M.Tech./M.Arch./M.U.R.P. degree. In addition, the departments of Hydrology and Water Resources Development & Management, also offer PG Diploma programmes. Details of different academic programmes leading to M.Tech./M.Arch./M.U.R.P. degree available in different departments along with their codes, number of seats and the minimum educational qualifications for admission are given in **Table-1**. GATE discipline(s) to be considered for preparing merit list for admission to different programmes are given in **Table-2**. The curriculum structure of these programmes is given on the Institute website: <http://www.iitr.ernet.in>

The ordinances and regulations in force determine the general academic requirements for the above programmes for full-time and part-time students.

Admission is open to full time sponsored and part time sponsored candidates also.

6.3 Postgraduate Academic Programmes leading to M.Sc./M.Tech. (post B.Sc.)/MCA and MBA

These programmes include 6 courses of study leading to Master of Science (M.Sc.) degree in Geology, Applied Mathematics, Biotechnology, Chemistry, Industrial Mathematics & Informatics and Physics; one post B.Sc. programme leading to Master of Technology (M.Tech.) degree in Applied Geophysics, one interdisciplinary programme leading to Master of Computer Applications (MCA) and another programme leading to Master of Business Administration (MBA). Admission to these postgraduate academic programmes except MBA, offered by the science departments are based on the results of JAM, the details of which can be obtained from the office of GATE, IIT Roorkee.

The curriculum structure of these programmes is given on the Institute website: <http://www.iitr.ernet.in>

Admission to Master of Business Administration (MBA) offered by the Department of Management Studies is based on JMETS, Group Discussion, Experience and Interview.

6.4 Eligibility Requirements for admission to M.Tech./M.Arch./MURP

Essential Requirements

Candidates who possess the minimum educational qualifications as given in **Table-1** are eligible to seek

admission to these postgraduate programmes. In addition, candidates of General and OBC category must have secured at least 60% marks or CGPA of 6.00 on a 10 point scale at the qualifying degree level; but for SC/ST/PD category candidates, this percentage is 55% or 5.50 CGPA on a 10 point scale. The aggregate marks awarded for the qualifying degree will be considered for eligibility.

In case of CGPA awarded on different point scale, **Table-3** as approved by the Senate will be considered for eligibility.

These essential eligibility requirements are applicable to all the categories of candidates, viz: regular, full-time sponsored and part-time sponsored candidates. Other conditions for these three categories are as follows:

A. Regular Candidates

- (a) Admission to postgraduate programmes leading to M.Tech./M.Arch./M.U.R.P. as given in **Table-1**, will be opened to the candidates qualified in GATE on the basis of either valid Normalized GATE marks only in the disciplines as given in **Table-2** or valid Normalized GATE marks in the disciplines as given in the **Table-2** alongwith Interview/Written Test to be conducted at IIT Roorkee. **The normalized GATE marks of different papers will be used to prepare the merit list for programmes of a department. The Normalized GATE marks will be calculated as follows:**

$$\text{Normalized GATE Marks in the Paper} = \frac{\text{Marks Out of 100 of the candidate}}{\text{Maximum Marks Awarded in that Paper in that year}} \times 100$$

Example: Assume marks scored by the candidate is 64 out of 100 in EE Paper, where maximum marks in EE paper of that year is, say, 92. Then normalized GATE marks of the candidate in EE paper will be as follows:-

$$\text{Normalized Gate Marks in EE Paper of the candidate} = \frac{64}{92} \times 100 = 69.57$$

There will be cutoff Normalized GATE marks for calling the candidates for Interview/Written Test and for preparing merit list for different programmes for different categories of candidates.

- (b) Final year students who will be completing all the requirements of their qualifying examination before the date of registration may also apply. Such candidates will be required to submit a certificate as per the proforma given in **Annexure-1** along with the application. Such candidates may be admitted provisionally but they will be required to produce the proof of having passed the qualifying degree with the required percentage or CGPA **latest by September 30, 2011, failing which their admission shall be cancelled.**
- (c) Direct admission will be offered to IIT graduates with minimum CGPA of 8.00 on a 10 point scale without GATE upto 10% of Intake.
- (d) Candidates having AMIE/AMIS/AMICHe/AMIIM/Grad IETE, who possess B.Sc. or Diploma in engineering and have at least three years research, teaching or other professional experience in relevant field, are also eligible to apply for admission to M.Tech. courses.

B. Full-Time Sponsored Candidates

- (a) The candidates must have a minimum of two years of full-time work experience (subject to provision A.[d] as for regular candidates) in responsible capacity in a Registered Firm/Company/Industry/Educational and Research Institution/ Govt./Quasi Govt./Autonomous Organisation in the relevant field in which admission is being sought. The Firm/Company/ Industry shall either be a public sector undertaking or a public limited undertaking registered in a stock exchange or a private concern whose annual turnover during the past years exceeds Rs. 5.0 crores. For the candidates employed in an educational Institution, it should be recognized by AICTE.
- (b) The candidates seeking admission to programmes leading to M.Tech./M.Arch./M.U.R.P. including post M.Sc./M.Phil. but not qualified in GATE, may also be considered for admission to different academic programmes but their admission will be based on performance in an Interview/Written Test to be held at IIT Roorkee. Preference in admission will be given to those candidates who are GATE qualified. The candidates will be called for Interview on the basis of their results of the qualifying degree.
- (c) Candidates should submit the sponsorship certificate along with the application, duly signed by the Head of the Institution/ Organisation on the proforma as per **Annexure-2**.
- (d) A few candidates are also admitted under QIP, Early Faculty Induction Programme of AICTE and Defence Research & Development Organization Schemes, for which the admission procedure is separate. For further details, please contact **Assistant Registrar (PG Admission), Indian Institute of Technology Roorkee, ROORKEE-247667.**

The sponsored candidates who meet the above mentioned eligibility conditions, along with the minimum educational qualifications given in **Table-1** should apply on the prescribed Application Form.

C. Part-Time Sponsored Candidates

- (a) The candidates must satisfy condition B (a) as for full-time sponsored candidates, with the additional requirement that such organisations must be located either at Roorkee or within a 20 km radius from Roorkee.
- (b) The candidates seeking admission to programmes leading to M.Tech./M.Arch./M.U.R.P. including post M.Sc./M.Phil. but not qualified in GATE, may also be considered for admission to different academic programmes but their admission will be based on performance in an Interview/Written Test to be held at IIT Roorkee. Preference in admission will be given to those candidates who are GATE qualified. The candidates will be called for Interview/Written Test on the basis of their results of the qualifying degree. However, no self sponsored candidate will be admitted for part time study.
- (c) There will not be any age restriction. However, preference will be given to those who are below 45 years of age.
- (d) For admission to a postgraduate programme as a part-time student, a certificate from the Head of the Institution/Organisation as per **Annexure-3** must be submitted along with the application.
- (e) For part-time students, the concerned academic department will draw up the detailed academic programme on an individual basis.
- (f) The part-time students will be required to attend all lectures, tutorials and practical classes for the courses prescribed for them and must satisfy the attendance requirements.

- (g) The part-time students will not be eligible for any scholarship, prize etc.
- (h) The status of a part-time student will not be changed from part-time to a regular full-time student.
- (i) Members of the Staff of the Indian Institute of Technology Roorkee seeking admission as part-time sponsored candidates should submit the sponsorship certificate from the Registrar and the Staff working in different projects in the Institute should submit the sponsorship certificate from the appointing authority.

D. Foreign Candidates

- (a) Foreign candidates seeking admission to postgraduate courses should apply through the Govt. of India, if they wish to come through any Govt. supported programmes or under Cultural Exchange Programmes, or through Educational Consultants (India) Ltd., New Delhi. They may seek necessary help from the Indian Embassy in their country or their Embassy in India. In addition to these avenues, a provision of direct admission for Non-Resident Indians (NRI's) and self-financing Foreign National candidates exists for Postgraduate and Ph.D. degree programmes in Engineering, Architecture, and Sciences (PG only). For details please refer to the inside back cover page of this Information Brochure.
- (b) Foreign candidates are required to undergo medical examination as per medical rules of the Ministry of Human Resource Development, and have to undergo test for HIV at NICD, Delhi within one month of their admission. The admission of foreign candidates would be confirmed only after medical examination and the receipt of the test report regarding HIV.
- (c) Foreign candidates will be admitted only after obtaining the clearance from the Govt. of India. Foreign candidates having student's/provisional student's visa only are eligible for admission.

Note: *Admission to full time/part time sponsored candidates will only be offered over and above the sanctioned intake provided department concerned agrees.*

For NRI and Self Financing Foreign Candidates

Non-Resident Indian (NRI) nationals residing and studying abroad and self-financing, non-sponsored foreign nationals who are interested in obtaining admission should fulfill the following criteria (besides seeking medical and Government clearances as per Section 6.4 D).

- (i) Qualification equivalent to educational qualifications required for admission to PG programmes,
- (ii) Certificate of good conduct and character from the Head of Institution last attended,
- (iii) GRE score where applicable,
- (iv) Proof of proficiency in English, and
- (v) Three reference letters.

7. ADMISSION PROCEDURE

7.1 Introduction

Admission to various Postgraduate (PG) academic programmes of the Institute is open to all Indian nationals irrespective of caste, creed and sex.

The postgraduate admission for the academic session 2011-12 in different academic programmes leading to M.Tech./M.Arch./M.U.R.P. degree including M.Tech. degree after M.Sc. and M.Phil, will be made on the basis of either valid Normalized GATE marks only or valid Normalized GATE marks alongwith

Interview/Written Test to be conducted at IIT Roorkee. The eligible GATE disciplines for different programmes are as per **Table-2**.

Direct admission will be offered to IIT graduates with minimum CGPA of 8.00 on a 10 point scale without GATE upto 10% of Intake.

There are approved numbers of seats in different programmes as indicated in **Table-1** for which assistantships are given by the MHRD to GATE qualified candidates selected for admission. However, the Institute may admit additional eligible (GATE qualified) candidates without assistantship, **provided the concerned department agrees to admit more than the sanctioned intake**. Sponsored candidates may be admitted without MHRD assistantship through an Interview/Written Test.

All the candidates seeking admission to the PG programmes leading to M.Tech./M.Arch./M.U.R.P. degree will have to apply on proper Application Form.

There are few programmes like M.Tech./PG Diploma exclusively for sponsored candidates for which separate admission process is followed and is carried out by the concerned departments which may be contacted directly by the aspiring candidates.

7.2 General Information

- (a) Admission will be offered to the first semester of the various postgraduate programmes.
- (b) (i) B.Tech. degree holders from IITs with minimum CGPA of 8.00 on a 10 point scale will be offered direct admission with MHRD assistantship without GATE upto 10% of the intake after receipt of Application Form.
- (ii) Admission to various PG programmes for the vacant seats would be based on a merit list prepared on the basis of either valid Normalized GATE marks only or valid Normalized GATE marks alongwith Interview/Written Test to be conducted by the IIT Roorkee.
- (c) Non-GATE sponsored candidates may be admitted to various PG programmes on the basis of Interview/Written Test to be conducted at IIT Roorkee and relevant experience, provided the concerned department agrees to admit more than the sanctioned intake.
- (d) A candidate seeking admission to postgraduate programmes leading to M.Tech./M.Arch./M.U.R.P. degree is allowed to apply maximum for **4 departments** and may give prioritized preference for maximum of **14** academic programmes given in **Table-1**. Preference filled-in in the Application Form will not be altered at any stage under any circumstances after the last date i.e. **April 21, 2011**.
- (e) A student, who is admitted and registered for a postgraduate programme at the Institute but leaves without completing the programme, or discontinues his studies for any reason whatsoever, including withdrawal from the programme for not achieving the required SGPA/CGPA for continuation of his registration in the said programme, shall not be admitted to a programme at the same level, that is to say that a student who has/is withdrawn from the M.Sc. programme cannot be admitted to any other M.Sc. programme; a student who has/is withdrawn from the M.Tech. programme cannot be admitted to any other M.Tech. programme, of the Institute.
- (f) Selected candidates will be offered admission only in one programme depending on the preference and the merit.
- (g) The Institute reserves the right not to run any particular programme, if the number of students in that programme

is less than the minimum number specified by the Institute at the time of admission.

- (h) All the students have to generally reside in the Institute Campus at Roorkee except those admitted to postgraduate programme in Pulp and Paper, who will reside at the Saharanpur Campus of the Institute located about 45 km from Roorkee.
- (i) The Institute reserves the right to change its statutes and regulations relating to academic programmes and the modalities of admission without prior notice.
- (j) Candidates belonging to SC, ST, OBC and Persons with Disability (PD) categories must submit along with filled Application Form the requisite certificate as applicable from the competent authority, as per the list given in **Annexure-4**, failing which their candidature will not be considered under Reserved Category.
- (k) Candidates belonging to OBC category must submit Xeroxed copy of category certificate as per GOI, the format of the same is also available in the brochure, OBC Non-creamy layer certificate should have been issued after 31.03.2010 by a competent authority and duly attested by Gazetted Officer.
- (l) There is no age restriction for admission to a postgraduate programme.
- (m) In matters of interpretation of the provisions or any matter not covered herein this Information Brochure, the decision of the Chairman, Senate IIT Roorkee shall be final and binding on both the parties.

7.3 Number of Seats

The number of seats in each academic programme are given in **Table-1**. The Institute, however, reserves the right to alter the number of seats in any programme without prior notice.

7.4 Reserved Seats

Certain number of seats are reserved for candidates belonging to various categories. The details of the seats reserved (in percentage) under different categories at present as per the directives of the Govt. of India, are given in **Table-4**.

Table-1
Details of Academic Programmes leading to M.Tech./M.Arch./M.U.R.P.

Sl. No.	Academic Department/Centre & (Code)	Academic Programmes		No. of Seats	Minimum Educational Qualifications
		Code	Name		
1.	Architecture & Planning (ARD)	10	M.Arch.	18	B.Arch. or its equivalent
		11	M.U.R.P.	18	B.Arch. or its equivalent or Bachelor's degree in Civil Engg.
2.	Alternate Hydro Energy Centre (AHC)	12	M.Tech. Alternate Hydro Energy Systems	25	Bachelor's degree in Civil/Electrical/Mechanical/Industrial/Chemical/Electronics/Computer/Agricultural/Environmental Engg. or equivalent.
		13	M.Tech. Environmental Management of Rivers and Lakes	15	Bachelor's degree in Civil/Electrical/Mechanical/Industrial/Chemical/Agriculture/Environmental Engg./Biotechnology/Arch./Town Planning or its equivalent or Master in Science in any subject with Mathematics at graduation level.
3.	Chemical Engineering (CHD)	14	M.Tech. Computer Aided Process Plant Design	28	Bachelor's degree in Chemical/Biochemical/Pulp & Paper Engg./Chemical Technology/ Petrochemical/ Polymer Technology/ Petroleum Refining or equivalent
		15	M.Tech. Industrial Pollution Abatement	28	Bachelor's degree in Chemical/Pulp & Paper Engg./ Civil/ Biochemical/ Petroleum/ Environmental Engg./ Chemical Technology/ Polymer Technology or equivalent
		16	M.Tech. Industrial Safety and Hazards Management	15	Bachelor's degree in Chemical/Mechanical/Biochemical/ Petroleum/Environmental Engg./Chemical Technology/ Pulp & Paper Engg./Polymer Technology or equivalent
4.	Civil Engineering (CED)	17	M.Tech. Building Technology	18	Bachelor's degree in Civil Engg./ Structural Engg./Construction Tech. or equivalent, B.Arch. Three seats are reserved for Architecture candidates).
		18	M.Tech. Computer Aided Design	18	Bachelor's degree in Civil Engg. or its equivalent.
		19	M.Tech. Environmental Engg.	18	Bachelor's degree in Civil Engg./Chemical Engg./Environmental Engg. or equivalent.
		20	M.Tech. Geomatics Engg.	18	Bachelor's degree in Civil Engg./Electronics Engg./Electrical Engg./Computer Science/ Information Technology/Marine Engg./ Mining Engg./Architecture or equivalent.
		21	M.Tech. Geotechnical Engg.	18	Bachelor's degree in Civil Engg./Mining Engg. or equivalent.
		22	M.Tech. Hydraulic Engg.	18	Bachelor's degree in Civil Engg./Mechanical Engg./ Chemical Engg./Agricultural Engg. or equivalent.
		23	M.Tech. Structural Engg.	18	Bachelor's degree in Civil Engg. or its equivalent.
		24	M.Tech. Transportation Engg.	18	Bachelor's degree in Civil Engg. or its equivalent.

Sl. No.	Academic Department & their (Code)	Academic Programmes		No. of Seats	Minimum Educational Qualifications
		Code	Name		
5.	Earthquake Engineering (EQD)	25	M.Tech. Soil Dynamics	18	Bachelor's degree in Civil/Structural Engg. or equivalent.
		26	M.Tech. Structural Dynamics	31	Bachelor's degree in Civil/Structural or equivalent.
6.	Electrical Engineering (EED)	27	M.Tech. Electric Drives & Power Electronics	23	Bachelor's degree in Electrical Engg. or its equivalent.
		28	M.Tech. Instrumentation and Signal Processing	23	Bachelor's degree in Electrical/ Electronics & Communication/ Instrumentation Engg. or equivalent.
		29	M.Tech. Power System Engg.	23	Bachelor's degree in Electrical or its equivalent
		30	M.Tech. Systems and Control	23	Bachelor's degree in Electrical Engg. or Electronics & Communication/ Instrumentation Engg. or equivalent.
7.	Electronics & Computer Engineering (ECD)	31	M.Tech. Communication Systems	18	Bachelor's degree in Electronics & Communication Engg. or its equivalent.
		32	M.Tech. System Modeling and Control	15	Bachelor's degree in Electronics & Communication/ Electrical Engg. or equivalent.
		33	M.Tech. R.F. & Microwave Engg.	15	Bachelor's degree in Electronics & Communication Engg. or its equivalent.
		34	M.Tech. Microelectronics and VLSI	15	Bachelor's degree in Electronics & Communication Engg. or its equivalent.
		35	M.Tech. Computer Science & Engg.	31	Bachelor's degree in any branch of Engg./ Tech. or M.Sc. in Electronics/Computer Science/ Physics/Mathematics/Statistics or MCA.
		36	M.Tech. Information Technology	23	Bachelor's degree in any branch of Engg./Tech. or M.Sc. in Electronics/Computer Sc. or MCA.
8.	Hydrology (HYD)	37	M.Tech. Hydrology	15	Bachelor's degree in Civil/Mechanical/Agricultural Engg./ Hydrology or equivalent. M.Sc./M.Tech. in Chemistry/Geology/Geophysics/Applied Geology/Applied Geophysics/Physics/Meteorology/ Geography/Atmospheric Physics/Environmental Science with Mathematics in B.Sc. as one of the subjects or M.Sc. (Master's) degree in Statistics with Physics or Mathematics at B.Sc. or M.Sc. degree in Mathematics with Physics in B.Sc. or its equivalent.
9.	Mechanical & Industrial Engineering (MID)	38	M.Tech. CAD, CAM & Robotics	15	Bachelor's degree in Mechanical/Industrial/ Production Engg. or equivalent.
		39	M.Tech. Machine Design Engg.	18	Bachelor's degree in Mechanical/Industrial/Production/ Aeronautical/Automobile Engg. or equivalent.
		40	M.Tech. Production & Industrial Systems Engg.	18	Bachelor's degree in Mechanical/ Industrial/Production Engg. or equivalent.
		41	M.Tech. Thermal Engg.	18	Bachelor's degree in Mechanical/Industrial/ Production/Chemical/Aeronautical/ Automobile Engg. or equivalent.
		42	M.Tech. Welding Engg.	18	Bachelor's degree in Mechanical/Industrial/Production/ Metallurgical or equivalent.

Sl. No.	Academic Department & their (Code)	Academic Programmes		No. of Seats	Minimum Educational Qualifications
		Code	Name		
10.	Metallurgical & Materials Engineering (MTD)	43	M.Tech. Corrosion Engg.	18	Bachelor's degree in Metallurgical & Materials Engg. or its equivalent or Engineering graduates of all branches or M.Phil. degree in Chemistry, Physics or Materials Science.
		44	M.Tech. Industrial Metallurgy	18	Bachelor's degree in Metallurgical/Mechanical/Industrial/Production Engg., or equivalent.
		45	M.Tech. Physical Metallurgy	18	Bachelor's degree in Metallurgical Engg. or its equivalent.
11.	Paper Technology Saharanpur Campus (PPD)	46	M.Tech. Pulp & Paper	18	B.Tech./B.E. degree in Chemical Engg. or Chemical Technology/Pulp & Paper Engg./Mechanical Engg./Polymer Engg./Biotechnology/Cellulose Technology/Alcohol, food and Fermentation Technology or equivalent. Note: The two years post B.Sc. diploma awarded by the IPT/DPT plus a minimum of two years relevant experience in Industry/Research Organisation will be considered equivalent to a B.Tech./B.E. degree
12.	Water Resources Development & Management (WRD)	47	M.Tech. Irrigation Water Management	3	Bachelor's degree in Civil Engg. or its equivalent/ Agricultural Engg. or M.Sc Agriculture in Agronomy, Soil Science, Agrometeorology, with Mathematics as one of the papers at the level of B.Sc./B.Sc. Agriculture.
		48	M.Tech. Water Resources Development	12	Bachelor's degree in Civil/Electrical/Mechanical/ Electronics & Telecommunication Engg. or equivalent.
13.	Chemistry (CYD)	49	M.Tech. Advanced Chemical Analysis	15	B.Tech. (Chemical Engg.)/M.Sc. (Chemistry)/ M.Sc. (Environment Science) or its equivalent.
14.	Physics (PHD)	50	M.Tech. Solid State Electronic Materials	18	B.Tech. Engg. Physics/M.Sc. (Physics)/ Bachelor's degree in Electrical/Electronics/ Metallurgical Engg. or its equivalent.
15.	Nanotechnology (NTC)	51	M.Tech. Nanotechnology	15	B.Tech. (Met. & Mat. Engg./Mech. Engg./E&C/Electronics/ Chemical Engg./Pulp & Paper/Biotechnology) or equivalent; M.Sc. (Physics/Chemistry/ Biotechnology), or equivalent with Mathematics at 10+2 or higher level.

Notes: 1. The seats given above shall be available with MHRD assistantship. However, additional candidates may be admitted to these programmes without any assistantship, including those sponsored by industry, QIP, foreign students, DRDO, Defence, Atomic Energy etc. and valid GATE qualified self financed candidates, as approved by the Chairman, Senate, subject to ratification by the Senate. The Institute reserves the right not to fill the seats in any programme and may drop any programme.

2. The minimum duration of all academic programmes would be four semesters for Full-Time candidates and six semesters for Part-Time candidates.

Table-2
Details of eligible GATE Discipline(s) for Admission to different Programmes

Sl. No.	Academic Department & thier (Code)	Academic Programmes		Code of Eligible	Code of Other Eligible
		Code	Name	GATE Discipline(s) (Minimum No. of Seats)	GATE Discipline (s) (Maximum No. of Seats)
1.	Architecture & Planning (ARD)	10	M.Arch.	AR (18)	—
		11	M.U.R.P.	AR (14)	CE (4)
2.	Alternate Hydro Energy Centre (AHC)	12	M.Tech. Alternate Hydro Energy Systems	CE (05)	AG/CH/EC/EE/ME/PI/XE (20)
		13	M.Tech. Environemntal Management of Rivers and Lakes	CE (05)	AG/CH/EE/ME/PI/XE/AR/CY/BT PH/MA/XL (10)
3.	Chemical Engineering (CHD)	14	M.Tech. Computer Aided Process Plant Design	CH (28)	—
		15	M.Tech. Industrial Pollution Abatement	CH (24)	CE (4)
		16	M.Tech. Industrial Safety and Hazard Management	CH (12)	ME (3)
4.	Civil Engineering (CED)	17	M.Tech. Building Technology	CE (15)	AR (3)
		18	M.Tech. Computer Aided Design	CE (18)	—
		19	M.Tech. Environmental Engg.	CE/CH (18)	—
		20	M.Tech. Geomatics Engg.	CE (9)	AR/CS/EC/EE/MN (9)
		21	M.Tech. Geotechnical Engg.	CE/MN (18)	—
		22	M.Tech. Hydraulic Engg.	CE (9)	ME/CH/AG (9)
		23	M.Tech. Structural Engg.	CE (18)	—
		24	M.Tech. Transportation Engg.	CE (18)	—
5.	Earthquake Engineering (EQD)	25	M.Tech. Soil Dynamics	CE (18)	—
		26	M.Tech. Structural Dynamics	CE (31)	—
6.	Electrical Engineering (EED)	27	M.Tech. Electric Drives & Power Electronics	EE (23)	—
		28	M.Tech. Instrumentation and Signal Processing	EC/EE/IN (23)	—
		29	M.Tech. Power System Engg.	EE (23)	—
		30	M.Tech. Systems and Control	EC/EE/IN (23)	—

Sl. No.	Academic Department & thier (Code)	Academic Programmes		Code of Eligible	Code of Other Eligible
		Code	Name	GATE Discipline (Minimum No. of Seats)	GATE Discipline (Maximum No. of Seats)
7.	Electronics & Computer Engineering (ECD)	31	M.Tech. Communication Systems	EC (18)	—
		32	M.Tech. System Modeling and Control	EC/EE/IN (15)	—
		33	M.Tech. R.F. & Microwave Engg.	EC (15)	—
		34	M.Tech. Microelectronics and VLSI	EC (15)	—
		35	M.Tech. Computer Science & Engg.	CS (31)	—
		36	M.Tech. Information Technology	CS (23)	—
8.	Hydrology (HYD)	37	M.Tech. Hydrology	CE/ME/AG (10)	GG/CY/MA/PH/XE (5)
9.	Mechanical & Industrial Engineering (MID)	38	M.Tech. CAD, CAM & Robotics	ME/PI (15)	—
		39	M.Tech. Machine Design Engg.	ME/PI/AE (18)	—
		40	M.Tech. Production & Industrial Systems Engg.	ME/PI (18)	—
		41	M.Tech. Thermal Engg.	ME/PI/AE (14)	CH (4)
		42	M.Tech. Welding Engg.	ME/MT/PI (18)	—
10.	Metallurgical & Materials Engineering (MTD)	43	M.Tech. Corrosion Engg.	MT (3)	CE/CH/CY/EC/EE/IN/ME/MN/PI/TF/XE (15)
		44	M.Tech. Industrial Metallurgy	MT (3)	ME/PI (15)
		45	M.Tech. Physical Metallurgy	MT (18)	—
11.	Paper Technology Saharanpur Campus (PPD)	46	M.Tech. Pulp & Paper	CH/BT (13)	ME (5)
12.	Water Resources Development & Management (WRD)	47	M.Tech. Irrigation Water Management	CE/AG (3)	—
		48	M.Tech. Water Resources Development	CE/EE/ME (12)	—
13.	Chemistry (CYD)	49	M.Tech. Advanced Chemical Analysis	CY/CH (12)	XL (3)
14.	Physics (PHD)	50	M.Tech. Solid State Electronic Materials	EE/EC/PH (14)	MT (4)
15.	Nanotechnology (NTC)	51	M.Tech. Nanotechnology	CY/PH (6) MT/ME/EC/CH (6)	BT/XL (3)

Codes of GATE disciplines are given below:

GATE Discipline	Code	GATE Discipline	Code	GATE Discipline	Code
Aerospace Engg.	A E	Chemistry	CY	Mining Engg.	MN
Agricultural Engg.	A G	Electronics & Comm. Engg.	E C	Metallurgical Engg.	MT
Architecture and Planning	A R	Electrical Engg.	E E	Physics	PH
Biotechnology	B T	Geology & Geophysics	G G	Production & Industrial Engg.	PI
Civil Engg.	C E	Instrumentation Engg.	I N	Textile Engg. and Fibre Sci.	T F
Chemical Engg.	C H	Mathematics	M A	Engineering Sciences	X E
Computer Science and Information Technology	C S	Mechanical Engg.	M E	Life Sciences	X L

Table-3

Conversion between Grade Point Average and Marks for the Purpose of Eligibility Check

Marks	10 point scale		9 point scale		6 point scale		5 point scale		4 point scale	
	CGPA	% Mrks	CGPA	% Mrks	CGPA	% Mrks	CGPA	% Mrks	CGPA	% Mrks
40	4.00	40	3.45	38.33	2.30	38.33	2.00	40	1.62	40.50
45	4.50	45	3.90	43.33	2.55	42.50	2.25	45	1.80	45.00
50	5.00	50	4.37	48.56	2.85	47.50	2.50	50	1.98	49.50
55	5.50	55	4.78	53.11	3.19	53.17	2.75	55	2.13	53.25
60	6.00	60	5.34	59.33	3.56	59.33	3.00	60	2.38	59.50
65	6.50	65	5.76	64.00	3.85	64.17	3.25	65	2.55	63.75
70	7.00	70	6.19	68.78	4.13	68.83	3.50	70	2.75	68.75
75	7.50	75	6.70	74.44	4.45	74.17	3.75	75	2.95	73.75
80	8.00	80	7.15	79.44	4.75	79.17	4.00	80	3.16	79.50
85	8.50	85	7.60	84.44	5.05	84.17	4.25	85	3.35	83.75
90	9.00	90	8.05	89.44	5.35	89.17	4.50	90	3.58	89.50
95	9.50	95	8.50	94.44	5.70	95.00	4.75	95	3.80	95.00
100	10.00	100	9.00	100.00	6.00	100.00	5.00	100	4.00	100.00

Table-4
Reservation of Seats for Different Categories

Sl. No.	Category	Seats reserved
1.	Scheduled Castes (SC)	15%
2.	Scheduled Tribes (ST)	7.5 %
3.	Other Backward Classes	As per Govt. policy
4.	Persons with Disability (including leprosy-cured)	3% as per Govt. policy

Notes:-

- (1) The provisions for reservation of seats given above are subject to modification in accordance with any Govt. Order, if issued subsequently by the Govt. of India.
- (2) It will entirely be the responsibility of the candidate to prove his/her eligibility in terms of minimum educational qualifications and for claiming reservation under a specific category, if any, at the time of counselling and thereafter.
- (3) The requisite certificate for SC/ST/OBC/PD category must be submitted along with filled Application Form, issued by a competent authority listed in **Annexure-4**, failing which the benefit of the reserved category will not be given.

Candidate must ensure that he/she possesses the required eligible qualification and has valid Normalized GATE marks in the required discipline.

- (4) Persons with Disability should submit along with the filled Application Form, the certificate in original, from a Govt. Medical Board. However, such a candidate shall have to appear before a Medical Board duly constituted by IIT Roorkee for this purpose. The Medical Board will decide the programmes which cannot be offered to a candidate, on the basis of the nature of his/her disability. The candidate will be offered admission out of the remaining programmes as per the Institute policy.

7.5 Application Form

Application Form can be obtained as follows:-

a) Download Application Form from Institute website.

The Application Form along with the Information Brochure can be **downloaded** from Institute website <http://www.iitr.ernet.in> from **March 21, 2011 to April 21, 2011**

b) Obtain Application Form by making Written Request

The Application Form along with the Information Brochure can also be obtained from the **Chairman, PG Admission, Indian Institute of Technology Roorkee, Roorkee-247667**, by sending a Demand Draft of **Rs. 50/-** drawn in favour of "**Chairman, PG Admission, IIT Roorkee**" payable at Roorkee, along with a self addressed envelope of "A4 size".

Such requests must reach the PG Admission Office, IIT Roorkee latest by **April 11, 2011**. The application material shall be dispatched by Registered Post/Speed Post/ Courier service. However, the Institute does not take any responsibility for the loss of documents in transit or

late delivery due to postal delay. Once an Application Form has been purchased from the Institute, any claim for refund of the fee, for any reason whatsoever, will not be entertained nor can this fee be held in reserve for the next year.

7.5.1 Submission of Filled Application Form

The filled Application Form (**Downloaded or Obtained by written request as the case may be**) alongwith Application Fee through a **demand draft drawn in favour of "Chairman, PG Admission" payable at Roorkee crossed "A/c Payee Only"** as given below along with xeroxed documents (given in 8.6) in the A4 size envelope sent to the "**Chairman, PG Admission, IIT Roorkee, Roorkee-247667**"

For General/OBC Category Rs. 400/- + *Rs. 100/-

For PD/SC/ST Category Rs. 200/- + * Rs. 100/-

***Rs. 100/- for each additional department**

The candidates seeking admission to postgraduate programmes in more than one department/centre should clearly mention their options in the Application Form.

The last date for receipt of filled Application Form in the PG Admission Office, IIT Roorkee, Roorkee-247667 is **April 21, 2011**. In order to avoid any postal delay, the candidates are advised to send the filled Application Form by Registered Post/Speed Post well before the last date i.e. **April 21, 2011**.

Candidates are informed that the Application Form should be carefully filled-in and no columns be left blank. Incomplete or partially filled Application Forms shall be rejected without any intimation.

Application Form (Downloaded or Obtained by written request or Printout of the On-line Application Form as the case may be) received after due date will not be accepted.

7.6 Scholarships/Assistantship

- Assistantship @ Rs. 8000/- per month may be awarded to GATE qualified candidates as per norms for the duration of the programmes i.e. two years to the full time students for M.Tech./M.Arch./M.U.R.P. excluding sponsored candidates. The number of assistantships in each programme will be as per guidelines of MHRD as given in **Table-1 (Note-1)**. However, GATE qualified candidates do not automatically become eligible for the sanction of this assistantship.
- B.Tech. degree holders from any IIT with minimum CGPA of 8.00 on a 10 point scale and given admission without GATE are also eligible for MHRD assistantship.
- Scholarship/Assistantship will not be awarded to those who are in receipt of salary from any source. However, teacher candidates may be granted scholarship/assistantship in addition to the study leave benefits provided that they are not in receipt of any deputation allowance from their employer, in addition to the study leave salary as per norms.
- The continuance of the assistantship/scholarship to a student shall depend upon his/her satisfactory progress report of work, attendance, conduct and the academic performance (SGPA/CGPA), as per Ordinances/Regulations in vogue.
- Under MoU with the Department of Atomic Energy, the

candidates qualifying under Department of Atomic Energy Graduate Fellowship Scheme may be admitted to M.Tech. programmes. The details of the scheme may be obtained from www.hrdbarc.gov.in

- Some foreign scholarships may be available to selected M.Tech. students for doing their dissertation under exchange programmes such as DAAD Sandwich Model Programme of Germany, programme of KTH, Sweden, Macquarie University, Australia etc.

8. SELECTION AND ADMISSION

8.1 Basis of Selection for Admission

Admission will be made on the basis of either Normalized GATE marks only or Normalized GATE marks and Interview/Written Test. For Sponsored candidates the admission will be made on the basis of Interview/Written Test and relevant experience. There will be GATE cut offs for calling the candidates for Interview/Written Test and for preparing merit list for different programmes for different categories of candidates.

Admission will be made strictly in order of merit and the preferences for the programmes given by a candidate in his/her Application. The basis for determining candidate's merit position is given in **Table-5**.

Table-5
Basis for Selection

Candidate's Status	Basis for Selection
Regular candidates* GATE qualified	Valid Normalized GATE marks only, or Valid Normalized GATE marks alongwith Interview/Written Test
Regular B.Tech. degree holders from the IIT without GATE marks	CGPA \geq 8
Sponsored candidates (Full Time and Part Time)	Interview/Written Test & relevant Experience

The candidates having B. Tech. degree from any IIT with CGPA \geq 8 will be given direct offer without GATE requirement upto 10% of the sanctioned intake in a programme.

The number of candidates to be called for Counselling/Interview/Written Test, in different categories, shall be decided by the PG Admission Committee with a cut off equal to or higher than the minimum cut off Normalized GATE marks at Institute level for all PG programmes. The merit list of candidates shall be based on 70% Normalized GATE marks and 30% Interview/Written Test marks. For those programmes where no Interview/Written Test is required, the merit list will be based on 100% Normalized GATE marks of the candidate.

In case sum total of valid GATE percentile and Interview/Written Test of the candidates becoming equal, preference will be given to the candidate securing higher marks in the Interview/Written Test conducted at IIT Roorkee and thereafter in the qualifying examination.

8.2 Criteria and Schedule of Interview/Written Test/ Counselling

The Interview/Written Test wherever required will be conducted by different Departments/Centres at IIT Roorkee Campus. The schedule for Interview/Written Test and Counselling is given in **Table-6**.

Table – 6

Department	Admission Criteria	Interview/ Written Test/ Counselling
A. NORMALIZED GATE MARKS & INTERVIEW / WRITTEN TEST CRITERIA		
Arch. & Plang.	70% Normalized GATE marks and 30% Interview	Interview/ Written Test on 05.06.2011 at 9.00 A.M. (for all regular, full-time and part-time sponsored candidates) and Counselling on 06 & 07.6.2011 at 9.00 A.M.
AHEC	70% Normalized GATE marks and 30% Interview	
Chemistry	70% Normalized GATE marks and 30% Interview	
Electrical Engg.	70% Normalized GATE marks and 30% Written Test	
Hydrology	70% Normalized GATE marks and 30% Interview	
Met. & Mat. Engg.	70% Normalized GATE marks and 30% Written Test	
Nanotechnology	70% Normalized GATE marks and 30% Interview	
WRD&M	70% Normalized GATE marks and 30% Interview	
B. ONLY NORMALIZED GATE MARKS CRITERIA		
Chemical Engg.	Only Normalized GATE marks	Interview for Sponsored Candidates on 05.06.2011 at 9.00 A.M. and Counselling for all candidates on 05, 06 & 07.6.2011 at 9.00 A.M.
Civil Engg.	Only Normalized GATE marks	
Earthquake Engg.	Only Normalized GATE marks	
E&CE	Only Normalized GATE marks	
Mech. & Ind. Engg.	Only Normalized GATE marks	
Physics	Only Normalized GATE marks	
Paper Technology#	Only Normalized GATE marks	

Interview for M.Tech. (P&P) Sponsored Candidates will be held at Roorkee campus.

Declaration of Merit List

The Merit List after the Written Test/Interview will be declared on June 06, 2011.

The Merit List and Waiting List after Counselling will also be available on the Institute Website:<http://www.iitr.ernet.in>

The candidate will have to accept the offer and deposit the requisite fee or the waitlisted amount at the time of counselling.

The offer of admission will be provisional subject to submission of all required documents and fee by the specified dates.

8.3 Offer of Admission

The candidates will be offered admission in the following manner:

- Offers will be made to IIT graduates without GATE but having CGPA \geq 8.00 upto 10% of intake in all programmes.
- Candidates will be given offer after counselling for the remaining seats of a programme. Candidates will be given admission offer after counselling based on either Nor-

malized GATE marks only, or Normalized GATE marks alongwith Interview/Written Test, as applicable.

A waiting list will also be prepared for the rest of the candidates as per the merit for each department.

3. The vacant seats, if any, will be filled from amongst the waitlisted candidates as per schedule given on **page 1**.
4. Further vacancies, if any, will be filled through final counselling from amongst the remaining waitlisted candidates just after the date of Registration. The date will be announced later on.

The candidates will be offered admission in a programme as per merit and their preferences given in Application Form.

The candidates offered admission will have to deposit Institute fee at the time of counselling. Rest of the candidates will be required to deposit Institute Fees and Processing Fees to get themselves waitlisted. This amount will be adjustable later on against the Institute fee at the time of registration. In case of non-acceptance of the offer by a waitlisted candidate by a specified date, the waitlisted amount will be forfeited. In case the Institute is not able to offer admission to a waitlisted candidate, the waitlisted amount will be refunded.

PROCEDURE FOR UP-GRADATION

Up-gradation will be done automatically only for higher preferences as filled by the candidate in Application Form on the basis of merit prepared after the Interview/Written Test and normalized GATE marks whichever is applicable, availability of seats in respective category. This process will continue till last date of Registration. Thereafter no up-gradation will be allowed even vacancy exists. However, candidate will have an option at the time of counseling whether they would like to freeze the seat allotted and do not want further up-gradation.

8.4 Fee/Dues

The existing Institute fee/dues for various programmes are given in **Table-7**. Any further details of the fee may be obtained from the Asst. Registrar (Academic), IIT Roorkee.

The fee structure given in **Table-7** is provisional and may be modified by the Institute as and when necessary, without intimation. Mess Advance of Rs. 7500/- and Electricity Advance of Rs. 2000/- per semester will be extra.

Table-7
Institute Fee* to be Deposited for Admission

Sl. No.	Particulars	Amount
1.	Semester fee: (a) Tuition Fee (b) Other Fee (c) Hostel Fee	Rs. 5,000/- Rs. 2,350/- Rs. 5,500/-
2.	One Time Fee	Rs. 2,790/-
3.	Yearly Fee for Group Insurance Scheme, Bhawan fund	Rs. 100/-
4.	Medical Insurance fee	Rs. 280/-
5.	Refundable Deposits	Rs. 3,000/-
	Total:	Rs. 19,020/-

Tuition Fee for Sponsored Candidates is Rs. 25,000/- per semester

* Tentative and subject to change.

Note: (1) Hostel Fee Rs. 5500/- and Mess Charges Rs. 9500/- per semester will be extra.

2. Tuition fee is not chargeable from SC/ST students.

8.5 Registration

A system of registration is followed for all the students joining the Institute. The selected candidates will have to register themselves **personally** on the date & time to be intimated to them. At the time of registration, the candidate is required to fill-up the registration cards and get himself/herself registered. After registration, students should report to the concerned Head of the Department/Centre and submit the joining report. The proof of joining the Institute shall be the registration card and the fee receipt. Scholarship/Assistantship will be granted only after receiving the joining information from the departments/centre and the undertaking as per the Institute norms (wherever applicable). Regular classes will start from the next working day as per the time schedule declared by the Institute. The candidates selected for admission to M.Tech. (P&P) shall have to report to the Head, Department of Paper Technology, Saharanpur (Campus) after registration.

8.6 Documents at the Time of Registration

The candidates admitted to various PG programmes of study must present themselves for the registration **in person** along with the following documents as per the schedule specified by the Institute:

- The letter from the Institute offering admission.
- The original and attested copy of marks-sheet of the qualifying examination showing essential requirements. In case, the result for the qualifying examination has not been declared at the time of admission the same may be submitted till September 30, 2011. Under such circumstances, the admission will remain provisional until the candidate is able to submit the results indicating successful completion of the requirement of his/her qualifying degree of the candidate, with the specified minimum percentage of aggregate marks/CGPA, by the specified date failing which the admission shall automatically be cancelled.
- The original and attested copies of certificate and marks-sheet of High School or equivalent examination
- The original and attested copy of GATE Score Card for GATE qualified candidates.
- A certificate from the College/University authority where from the candidate has to appear for the qualifying degree examination is given in **Annexure-1**.
- Relevant certificate (s) for Sponsored candidates are given in **Annexures-2 & 3** as applicable.
- The category certificate of SC/ST/OBC, in original (along with an attested copy), issued by a competent authority (list given in **Annexure-4**).
- A certificate from the College/University authority where from the candidate has appeared for the qualifying degree examination but not received the degree till date is given in **Annexure-5**.
- A certificate from the Government Medical Board to support the physically disabled status, if applicable.

8.7 Cancellation of Admission/Programme

The Institute reserves the right to cancel, at any stage, the admission of a candidate who is found admitted to a programme to which he/she is not entitled, being unqualified or ineligible in accordance with the Ordinances and Regulations in vogue, or

suspension/termination of programme.

8.8 Matters of Dispute

Disputes, if any, arising out of or relating to any matter whatsoever shall be subject to the exclusive jurisdiction of the Roorkee Courts.

8.9 Ragging

Ragging is banned in the Institute and anyone indulging in ragging is likely to be punished appropriately and the punishment may include expulsion from the institution, suspension from the institution or classes for a limited period, or fine with a public apology. The punishment may also take the shape of: (i) withholding of scholarships or other benefits, (ii) debarring from representation in events, (iii) withholding of results, (iv) suspension, rustication or expulsion from hostel or mess, (v) monetary fine and the like.

9. CATEGORY CODES

Category Codes for candidates of General and reserved categories are given below in **Table-8**:

Table-8

Category	Code
General	GEN
Scheduled Caste	SC
Scheduled Tribe	ST
Other Backward Classes	OBC
Persons with Disability	PD

10. DEPARTMENTS/CENTRE CODES

The codes of all the Departments/Centres are given in **Table-9**.

Table-9
Code of Departments/Centres

Sl.No.	Name of the Department/Centres	Code
1.	Alternate Hydro Energy Centre	AHC
2.	Architecture & Planning	ARD
3.	Chemistry	CYD
4.	Chemical Engg.	CHD
5.	Civil Engg.	CED
6.	Earthquake Engg.	EQD
7.	Electrical Engg.	EED
8.	Electronics & Computer Engg.	ECD
9.	Hydrology	HYD
10.	Mechanical & Industrial Engg.	MID
11.	Metallurgical & Materials Engg.	MTD
12.	Nanotechnology	NTC
13.	Physics	PHD
14.	Paper Technology	PPD
15.	Water Resources Development & Management	WRD

11. INSTRUCTIONS FOR FILLING THE APPLICATION FORM

One may now proceed to fill the Application Form **Downloaded or Obtained by written request or Print out of On-line Application Form** for different item numbers as given below:

1. Name of the Candidate:

Write your name in CAPITAL LETTERS as given in the mark-sheet of pre-final year or final year examination of the qualifying degree.

2. Father's Name

Please write the Father's name in short form in the space provided.

3. Mother's Name

Please write the Mother's name in short form in the space provided.

4. Date of Birth

Enter the date, month and year of your birth as per the English calendar and as recorded in your birth/ board examination certificate. Use numerals 01 to 31 for DATE, and 01 to 12 for MONTH, and the YEAR of birth. For example, if born on 17/09/1978, the date should be entered as follows: 17 09 78

5. Gender

Write your gender MALE or FEMALE in the space provided.

6. Nationality

Indian nationals should write INDIAN. Foreign nationals should write FOREIGN.

7. Category

Write your category GEN/SC/ ST/OBC in the space provided. But, candidates claiming to belong to SC/ST category will have to enclose documents as specified in **section 7.4** of this Information Brochure.

8. Person with Disability

Write YES if you fulfill the requirements of Person with Disability as given in **section 7.4** of this Information Brochure.

9. Qualifying Examination Passed

Qualifying examination for different academic programmes are given in **Table-1**. If a candidate has passed the qualifying examination for the academic programmes in which he/ she is seeking admission, such candidate should tick YES. The candidates who are in the final year of the qualifying degree should tick NO.

10. Percentage of Marks / CGPA

Write in the box the percentage of marks or CGPA up to two decimal places, obtained in the qualifying examination or up to pre-final year if appearing in qualifying examination in 2011, as the case may be.

11. Bachelor's Degree from IIT

The candidates who have graduated from IIT should tick YES. The candidates who are not graduate from IIT should tick NO. If you are an IIT graduate, write the IIT from where you graduated e.g. IIT Roorkee or IIT Kanpur etc.

12. GATE Qualified

The candidates who have qualified GATE should tick YES. The candidates who are not required to qualify or have not yet qualified in GATE should tick NO.

13. GATE Discipline

If you have marked YES in item 12, write in the box the subject code like AG, AR etc., of the discipline in which you have qualified GATE.

14. GATE Marks Out of 100

If you have marked YES in item 12, write in the boxes the GATE Marks Out of 100 given in your GATE score card.

15. GATE Qualifying Year

If you have marked YES in item 12, write in the boxes the year of qualifying GATE i.e. 2010 or 2011.

16. Sponsored Full Time/Part Time

If you are Sponsored candidate, please tick YES else NO. If YES please tick Full Time or Part Time.

17. Departments/Centres Applied

write all those departments/centres (maximum four) in which you are applying for admission as per **Table-9**.

18. Code of Academic programme, preference-wise

The candidate is allowed to give up to 14 preference of academic programmes in terms of codes given in **Table 1** by writing the codes in the boxes of each preference. No change will be entertained at the time of counselling/admission. **(Candidate is advised to fill maximum number of admissible programmes depending on GATE discipline and eligibility requirements for his/her maximum advantage to get admission in PG-Programme).**

19. Number of Additional Departments/Centre

If you are seeking admission in more than one department/centre, write in the box the number of additional departments. A candidate can apply in maximum 04 deptts., i.e. 03 additional deptts/centre.

20. Amount of Application Fee including Fee for Additional Departments

If you are seeking admission in more than one department/centre, the fee will be Rs.400/(General and OBC Category) or Rs.200 (SC/ST category plus Rs.100/- per additional deptt.

Write the total amount of application fee including fee for additional department applied for in the boxes provided.

21. Details of Demand Draft and Bank Name

Write your **Demand Draft No., Date of Demand Draft** and **Name of the Payee Bank at Roorkee**, in the space provided.

22. Mailing Address

Carefully write your complete mailing address including NAME, C/o (if any), House No./Street, Mohalla/Village, Post Office, City and its PIN CODE number. This address will be used for the dispatch of Admission Offer Letter, counselling letter etc. Also write legibly your e-mail ID, if any, in the space provided and the **Telephone No., Fax No.**, if available, including **STD code** through which you may be contacted.

23. Declaration by the Candidate

The declaration is to be signed by the candidate. The place and date are to be filled in the places marked for this purpose. Unsigned Application Forms will not be considered.

24. Signature of the Candidate

Please put your signature in the space provided for the purpose.

25. Photograph

Paste a recent 3.5 cm x 4.5 cm, good quality colour photograph. Note that the photograph must not be larger than the space (box) provided for pasting it. The candidates are advised to have some

spare copies of this photograph with them. The photograph must not be attested.

Notes:-

- Options filled by you in this form are final and cannot be changed at a later stage.
- Please note that your name, father's name and your date of birth should be exactly the same as in the mark-sheet of pre-final year or final year examination of the qualifying degree. Any departure, whenever discovered, may lead to cancellation of your candidature.
- Your application must be complete in all respects. Incomplete Application Form will be summarily rejected.

12. CHECK LIST OF DOCUMENTS SUBMITTED WITH THE APPLICATION FORM

Please **check the documents** to be submitted with the application form against the list given below, before sealing the envelope for sending it to the Chairman, PG Admission-2011.

- The Application Form duly filled-in and completed in all respects.
- A copy of the GATE SCORE CARD for GATE qualified candidates.
- An attested copy of the aggregated final marks sheet/ CGPA for the qualifying degree.
- Certificate from the forwarding officer from those candidates who have yet to appear in the final examination as per **Annexure-1**.
- An attested copy of the sponsorship certificate for sponsored candidates in the format provided in **Annexure-2**.
- An attested copy of the No Objection certificate for part-time candidates in the format provided in **Annexure-3**.
- An attested copy of the category certificate for SC/ST/OBC candidates, issued by a competent authority (list given in **Annexure-4**).
- Certificate from the forwarding officer from those candidates whose final year result has not been declared as per **Annexure-5**.
- An attested copy of the certificate from the Govt. Medical Board to support the physically disabled status, if applicable.

**CERTIFICATE FOR APPEARING IN THE FINAL SEMESTER/YEAR EXAMINATION
(Required from candidates who are yet to appear in the qualifying examination)**

I hereby certify in connection with the application of Mr./Ms. that he/she is a bonafide student of our institution and is applying for admission to PG programme(s) at IITR. He/She is yet to complete the requirements of qualifying examination including theory, practical and project examination for B.E./B.Tech./M.Sc./..... (Strike out the non-applicable ones and write in the blank space if the degree is not mentioned) and the result is likely to be announced by 2011. The percentage of aggregate marks/CGPA obtained by him/her upto prefinal year examination is His/her conduct and character during his/her stay at the Institute/University is "GOOD".

Place:
Date:

Signature of the Principal/Dean/Registrar/
Dy. Registrar/Proctor/Administrative Officer/
Asstt.Registrar of the institute attending/last attended with seal

**SPONSORSHIP CERTIFICATE
(Required from full-time sponsored candidates only)**

The undersigned is pleased to sponsor Mr./Ms. who is working in this organisation for the last years and is presently holding the rank/position of for pursuing the programme (course) at IIT Roorkee in the Department of with specialisation in the following areas:

1. 2. 3. 4.
His/her conduct and character has been good.

The Institution/Organization would relieve him/her immediately for joining the above course, if selected for admission. The Institution/Organisation also agrees to pay the contingent/all expenses stipulated by the Institute. This is further certified that the sponsorship for admission will not be withdrawn midway till completion of the course. Our enterprise is registered in a stock exchange/had an annual turn over of over Rs. 5.0 crores in the past two years (for candidates working in a Firm/Company/Industry).

Place:
Date:

Signature of Head of the Institution/Organisation with seal
Name
Designation

**NO OBJECTION CERTIFICATE
(Required from candidates seeking admission on part-time basis)**

The undersigned is pleased to permit Mr./Ms. who is working in this organisation for the last years and is presently holding the rank/position of for pursuing the programme (course) at IIT Roorkee in the Department of with specialisation in the following areas:

1. 2. 3. 4.
His/her conduct and character has been good.

The Institution/Organization would relieve him/her immediately for joining the above course, if selected for admission. If admitted the candidate will be permitted to be present at the Institute as required by the academic schedule for a period of three years and will continue to remain in service for the duration of the course.

Place:
Date:

Signature of Head of the Institution/Organisation with seal
Name
Designation

AUTHORITIES WHO MAY ISSUE CASTE/TRIBE CERTIFICATE

SC/ST/OBC candidates should submit certificate issued by any of the following authorities:

District Magistrate/Additional District Magistrate/Collector/Deputy Commissioner/Additional Deputy Commissioner/Deputy Collector/1st Class Stipendiary Magistrate/City Magistrate/Sub-Divisional Magistrate/Taluka Magistrate/Executive Magistrate/Extra Assistant Commissioner/Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate/Revenue Officer not below the rank of Tehsildar/Sub-Divisional Officer of the area where the candidate and/or his/her family normally resides/Administrator/Secretary to Administrator/Development Officer (Lakshadweep Island).

(Certificate issued by any other authority will be rejected.)

**CERTIFICATE FOR NON-DECLARATION OF RESULT
(Required during registration from candidates whose result of the qualifying examination has not been declared)**

I hereby certify that Mr./Ms. has appeared in the final year examination including theory, practical and project examination for B.E./B.Tech./M.Sc./..... degree (strike out the non-applicable ones and write in the blank space if the degree is not mentioned) and the result is likely to be announced by 2011. The percentage of aggregate marks/CGPA obtained by him/her in the pre-final year examination is His/her conduct and character during his/her stay at the Institute/University/College was "GOOD".

Place:
Date:

Signature of the Principal/Dean/Registrar/
Dy. Registrar/Proctor/Administrative Officer/
Asstt. Registrar of the institute last attended with seal

(Registration without this certificate may not be allowed)

Prescribed Format for OBC Certificate

FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR ADMISSION TO CENTRAL EDUCATIONAL INSTITUTIONS (CEIs), UNDER THE GOVERNMENT OF INDIA

This is to certify that Shri / Smt. / Kum. _____
Son / Daughter of Shri / Smt. _____ of Village/Town
_____ District/Division _____ in
the _____ State belongs to the
_____ Community which is recognized as a backward class under:

- (i) Resolution No. 12011/68/93-BCC(C) dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186 dated 13/09/93.
- (ii) Resolution No. 12011/9/94-BCC dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163 dated 20/10/94.
- (iii) Resolution No. 12011/7/95-BCC dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88 dated 25/05/95.
- (iv) Resolution No. 12011/96/94-BCC dated 9/03/96.
- (v) Resolution No. 12011/44/96-BCC dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 11/12/96.
- (vi) Resolution No. 12011/13/97-BCC dated 03/12/97.
- (vii) Resolution No. 12011/99/94-BCC dated 11/12/97.
- (viii) Resolution No. 12011/68/98-BCC dated 27/10/99.
- (ix) Resolution No. 12011/88/98-BCC dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270 dated 06/12/99.
- (x) Resolution No. 12011/36/99-BCC dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71 dated 04/04/2000.
- (xi) Resolution No. 12011/44/99-BCC dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 21/09/2000.
- (xii) Resolution No. 12015/9/2000-BCC dated 06/09/2001.
- (xiii) Resolution No. 12011/1/2001-BCC dated 19/06/2003.
- (xiv) Resolution No. 12011/4/2002-BCC dated 13/01/2004.
- (xv) Resolution No. 12011/9/2004-BCC dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 16/01/2006.

Shri / Smt. / Kum. _____ and / or his family ordinarily reside(s) in the
_____ District / Division of _____ State. This is also to certify that he/she does
not belong to the persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department
of Personnel & Training O.M. No. 36012/22/93-Estt.(SCT) dated 08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.)
dated 09/03/2004.

Dated: _____

District Magistrate / Deputy Commissioner / Competent Authority
Seal

NOTE:

- (a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
- (b) The authorities competent to issue Caste Certificates are indicated below:
 - (i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
 - (ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
 - (iii) Revenue Officer not below the rank of Tehsildar' and
 - (iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

Declaration/undertaking - for OBC Candidates only

I, _____ son / daughter of Shri _____ resident of village/town/
city _____ district _____ State _____ hereby declare that I
belong to the _____ community which is recognised as a backward class by the Government of India for the
purpose of reservation in services as per orders contained in Department of Personnel and Training Office Memorandum No.36012/
22/93- Estt. (SCT), dated 8/9/1993. It is also declared that I do not belong to persons/sections (Creamy Layer) mentioned in Column 3
of the Schedule to the above referred Office Memorandum, dated 8/9/1993, which is modified vide Department of Personnel and
Training Office Memorandum No.36033/3/2004 Estt.(Res.) dated 9/3/2004.

Signature of the Candidate

Place: _____

Date: _____