

INDIAN INSTITUTE OF TECHNOLOGY ROPAR

ADMISSIONS-2019



INFORMATION BROCHURE FOR M.TECH. PROGRAMME

THE INSTITUTE

The Indian Institute of Technology Ropar is one of the eight IITs set up by the Ministry of Human Resource Development (MHRD), Government of India in 2008. In keeping with the spirit of the IIT system, this institute is committed to providing state-of-the-art technical education in a variety of fields, and also to facilitating transmission of knowledge using the latest developments in pedagogy. The institute started operating from the transit campus, i.e., the premises of the Government Polytechnic College for Girls (Ropar) from 18 August 2009. The most important landmark of the year 2018 was that IIT Ropar shifted three major departments to its permanent campus. The drive through the gates of 500 acres of campus near the river Satluj, feeling the cool breeze, one can find a different world altogether. The Ramanujan Block (Department of Computer Science and Engineering), the Radhakrishnan Block (Lecture hall Complex) J C Bose Block (Department of Electrical Engineering), the Satish Dhawan Block (Depts of Mechanical Engineering, Metallurgical and Materials Engg) Utility Building, Hostels (Sutlej and Raavi) and Dining Hall are right now functioning in the permanent campus. The entire administration is also going to follow soon in April 2019. We shall be fully operational Permanent campus from our permanent campus by the mid of 2019. IIT Ropar campus will be developed as a “Green Campus” and has touched upon the large-scale plantation activities that had already been initiated.. The main campus of IIT Ropar has all the required facilities such as class rooms fitted with multimedia, faculty rooms and an administrative wing. Faculty recruitment, creation of laboratories and other support facilities are in full swing.

DEPARTMENTS & CENTER

Each course is offered by an academic unit which could either be a department or center. The various departments and center and their two letter codes are given below. Some courses are offered jointly by multiple academic units and are classified as interdisciplinary courses; their codes are also given in Table.

Academic Departments and Centre

S.No.	Name of Academic Unit (alphabetical order)	Code
1.	Biomedical Engineering	BM
2.	Chemical Engineering	CH
3.	Chemistry	CY
4.	Civil Engineering	CE
5.	Computer Science and Engineering	CS
6.	Electrical Engineering	EE
7.	Humanities and Social Sciences	HU
8.	Mathematics	MA
9.	Mechanical Engineering	ME
10.	Metallurgical & Materials Engineering	MM
11.	Physics	PH

M.TECH. ADMISSIONS

IIT Ropar offers M.Tech. programmes in various Disciplines and Programmes by different departments of the Institute. Total duration of the M.Tech. programme consists of four semester(2 years) and is based on credit system comprises of several core and elective courses and project work.

The various programmes and their specializations are listed below.

S.No.	Programmes	Specialization	No.of seats
1.	M.Tech. (Artificial Intelligence)	-	15
2.	M.Tech. (Biomedical Engineering)	-	15
3.	M.Tech. (Chemical Engineering)	-	10
4.	M.Tech. (Civil Engineering)	Water Resources and Environment	10
5.	M.Tech. (Computer Science & Engineering)	-	20
6.	M.Tech.(Electrical Engineering)	Communication & Signal Processing	15
7.	M.Tech. (Electrical Engineering)	Power Engineering	15
8.	M.Tech. (Electrical Engineering)	Microelectronics & VLSI Design	15
9.	M.Tech. (Mechanical Engineering)	Thermal Engineering	15
10.	M.Tech. (Mechanical Engineering)	Mechanics & Design	15
11.	M.Tech. (Mechanical Engineering)	Manufacturing Engineering	15

Each Discipline/Programme in a department has a faculty advisor to help the students in the choice of academic options for elective courses. Students may be permitted to do their project work in industries and other approved organizations.

FINANCIAL ASSISTANCE

Financial assistance in the form of Half-Time Teaching Assistantship (HTTA) at the rate of Rs.12,400/- p.m. (tenable for a maximum period of 24 months) will be awarded to Indian Nationals doing the M.Tech. Programmes, subject to Institute rules. HTTA students are required to assist the department for 8 hours of work per week related to academic activities of the department such as laboratory demonstration, tutorials, evaluation of assignments, test papers, seminars, research projects, etc.

RESERVATION OF SEATS:

Seats are reserved for Indian Nationals under the categories, SC/ST/OBC(Non-creamy layer)/PWD (Persons with disabilities)/Economic Weaker Section (EWS) according to the Govt. of India rules.

WHO CAN APPLY ?

1. GATE qualified candidates
2. IIT Graduates with B.Tech. degree having a CGPA of 8.0 and above (For SC/ST a CGPA of 7.5). Please refer to individual programme eligibility for details.

MINIMUM ELIGIBILITY

Candidates qualified in GATE 2017/GATE 2018/GATE 2019 and satisfying anyone of the following :

- i. Bachelor's degree in Engineering/Technology (B.E/B.Tech.) or in a appropriate area from educational institutions approved by AICTE/Government.
- ii. Master's degree in Science/Computer Application or equivalent in the appropriate area.

- iii. IIT Graduate/Graduating from IITs with B.Tech. degree and having CGPA of 8.0 (on a scale of 10) (CGPA of 7.5 for SC/ST/PD candidates) can apply without GATE score

WHAT IS COAP?

'Common Offer Acceptance Portal' (COAP) provides a common platform for a candidate to make the preferred choice for admission into M.Tech programme in participating IITs.

COAP is the platform for Participating Institutes where Admission offers will be uploaded by all IITs in a common time window. To access the offers made by participating IITs, candidates have to login to COAP website and look at the results.

HOW TO APPLY :

Firstly candidates are required to register in 'Common Offer Application Portal' (COAP) and get COAP registration number. (www.coap.iitm.ac.in) Apply online at <http://iitrpr.ac.in/admissions> (instructions and further links available on the website)

If you plan to apply for more than one programme, register separately using the same email and mobile number but with different credentials.

Application timeline	
Opening Date:	27 March 2019
Closing Date:	20 April 2019

The application fee should be paid online at the online Application website.

Application Fee	
SC/ST/PWD/Female candidates	Rs.100/-
All others candidates	Rs.200/-

In case of difficulty in applying ONLINE, please contact

Associate Dean (Postgraduate)/ Deputy Registrar (Academics)
Indian Institute of Technology Ropar
Nangal Road, Ropar -140001
Phone No. 01881242157, 01881242142, 01881242186, 01881242114
Email : aracademics@iitrpr.ac.in, deanpg@iitrpr.ac.in, varshajs@iitrpr.ac.in

Before you start filling the ONLINE Application form, pay attention to the following :

1. Carefully read all the instructions given herein.
2. Register in COAP
3. Study details of programmes
4. Keep ready the soft copy of the following documents (if applicable) for uploading at the website. Please follow the format of application.
 - Image file of your recent passport size photograph
 - Persons with Disability (PWD) are required to upload a certificate of disability from the Authorised Medical Board.*
 - SC/ST certificate *
 - OBC (Non-creamy layer) Certificate*: To consider under OBC category candidates should upload the OBC (non-creamy layer) certificate in the format prescribed by Govt. of India issued by the competent authorities as per Govt. of

India notified. If no valid OBC (Non-creamy layer) certificate copy is enclosed, the candidates will be treated under General Category.

- Economically Weaker Section Certificate/Income proof.
 - Complete Grade Cards(s)* till date.
 - Valid GATE score card.*
- i) Complete the application in all respects. No changes in the applications are permitted once you submit the application.
- ii) Application fee (for each application) should be paid online at the website for online application for example
- If a candidate wishes to apply for Computer Science and Artificial Intelligence, two separate applications would be required with separate application fee corresponding to applications for each application

ADMISSION PROCEDURE

Admission to candidates will be finalized strictly in order of merit as per the GATE score, CGPA & Department Review. The candidates will be offered seat on COAP portal. The candidates have to login to COAP portal and view the seats offered to them. They have the option to **Accept and Freeze, Retain and Wait, Reject and Wait** option for making decision on the seats offered to them

REPORTING FOR ADMISSION

The candidates who accept the offer of admission must produce the following certificates :

1. Degree completion certificate of their qualifying degree examination
2. GATE Score Card
3. All the gradesheets of qualifying degree.

The candidates are required to join the Institute on the date of registration. Failure to do so will result in cancellation of the offer of admission. Selected candidates will have to pay various fees and deposit amounts as applicable. The candidate must produce medical fitness certificate from a Registered Medical Practitioner in the format which can be downloaded along with the letter of offer of admission. The candidates have to check www.iitrpr.ac.in/admissions for updated information. In all matters, relating to admissions, the decision of the M.Tech. Admission Committee will be final.

DATE OF REPORTING AND REGISTRATION : 23 JULY 2019.

PAYMENT OF ADMISSION FEE AND REFUND POLICY

When admission is offered and accepted by candidates, the candidates have to pay the following fees, using the online payment facility. A student who accepts the offer and want to withdraw seat before subsequent round of allotment or before registration, the institute will refund the fee amount deposited by him/her after deduction of Rs.1000/-. Once the students registered in the program, no fees will be refunded.

SB Collect

Category	Institute Fees (Rs.)
General, OBC and EWS	23735
SC/ST and PWD	18735

Hostels fees will be notified later.

STUDENT AMENITIES

Library Facilities

Library The Central Library functions as the primary information resource centre and repository of printed and electronic resources for teaching and research activities at the institute. Apart from textbooks and recommended reading materials prescribed for each course offered at the institute, the library houses a growing collection of research monographs, reports, multi-volume reference works, dictionaries, encyclopedias, handbooks, and so on. The library facilitates access to electronic journals through its participation in consortia, such as E-Shodh Sindhu. The library also subscribes to several e-journals directly from publishers as well as through reputed subscription agencies. At present, users can consult more than 17000 books (available on shelves) and thousands of electronic books, journals. Online access is also provided to economic and political databases, scientometric databases such as Scopus, MathSciNet, and Web of Science.

The library operations are automated using LIBSYS 7 (EJB Version) software. The Online Public Access Catalogue (OPAC) which is on public domain enables users to search documents in possession of the library. The library is using the Radio Frequency Identification Technology (RFID), a state-of-the-art auto identification technique which helps in self-servicing and enhanced security. A separate e-resources section is provided in the library to browse CDs and DVDs of books, theses, and dissertations. The library has developed institutional digital repository (IDR) using open source software (DSpace) to archive and provide online access to the intellectual output of the institute. IDR is available publicly. These steps will greatly enhance the library's efficiency in making the resources available to the academic community at large and also enable the institute to participate in various inter-library initiatives at national and international levels.

Our Library is providing extensive research support services such as citation analysis, usage of reference management tools, copyright and plagiarism support etc. We are using a Turnitin, a leading academic plagiarism tool to improve the quality of research publications. Library is constantly striving to identify and adopt the emerging academic and research support tools and helping the institute in achieving its vision and mission.

Medical Facilities

The institute has a Medical Center in the Utility Complex at the Permanent campus and adjacent to Hostels in the Transit campus. Doctors (Homeopathic, Ayurvedic & Allopathic), Pharmacist & Staff nurse will attend medical needs of the students, faculty and staff of the Institute. For medical emergencies an state-of-art ambulences are available in both the campus. In addition, the institute relies on a few super-specialty hospitals in the city of Ropar and Chandigarh for providing medical care to its members.

Hostels and Dining Facilities

The Institute campus houses four hostels with the latest and modern facilities: Jupiter, Mercury (Wing A & Wing B), Neptune Hostels for boys and Venus Hostel for girls. The Institute has two more hostels Satluj for Boys and Raavi for Girls in the Main Campus of Institute. The hostels are well equipped for comfortable board and lodging of students. All hostels are provided with water coolers with RO systems.

Student Activities

The Institute has a Society for Publication and Communication Skills Development. In addition, there are Music, Dance, Dramatics and Literary Societies where the students can participate and develop a well-rounded personality.

Recreational Facilities

At present, the transit campus has excellent facilities for several sports, including a cricket field, three lawn tennis courts, a football field, a hockey field, a gymnasium, a basket ball court, badminton courts, an athletics track, table tennis room and also facilities for several athletic events. The institute encourages its students to participate in inter-IIT sport events and other competitions. Space for recreational and creative activities is also available.

ABOUT THE CENTER AND DEPARTMENTS

1) CENTER FOR BIOMEDICAL ENGINEERING (CBME)

Center for Biomedical Engineering (CBME) was established on 25 October 2014 by superseding the Biomedical Engineering (BME) program, established earlier in May 2013. The main goal of CBME is to meet the challenges of affordable healthcare facing the nation by encouraging research and entrepreneurship in interdisciplinary areas, encompassing engineering, medical sciences, and natural sciences. Because of the diverse research backgrounds of our faculty, there is a strong thrust on interdisciplinary research at the center. Going forward, the center seeks collaboration with national and international universities/institutes and partnership with industries to realize its goals.

i) **What we offer : M. Tech.& PhD programme.**

As far as academic programs are concerned, the center is offering MTech, and PhD in Biomedical Engineering degrees. Since its inception, Center is organizing the Biomedical Engineering Seminar Series and supporting summer interns / undergraduate research projects for students at the institute and from outside of it.

ii) **Research areas:** Biomedical Imaging, Medical Devices, Cancer Diagnostics and Therapy, Biomaterials and Tissue Engineering.

For further details, please visit <https://sites.google.com/a/iitrpr.ac.in/cbme/>

2) DEPARTMENT OF CHEMICAL ENGINEERING



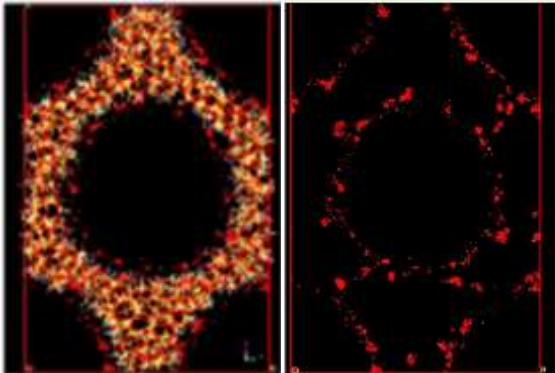
The Department of Chemical Engineering has been introduced by IIT Ropar from the academic year 2017-18. The newly established department is presently offering UG (B. Tech) and PG (Ph. D.) programs. The department has dedicated faculty members in all the major areas of chemical engineering such as Fluid Mechanics, Transport Phenomena, Thermodynamics, Catalysis, and Chemical Reaction Engineering. In addition to the conventional core courses, the department will offer advanced courses such as Computational Fluid Dynamics, Engineering Application of Rheology, Heterogeneous Catalysis and Chemical Reactor Design etc. Currently, the department is functioned by eleven active faculty members, including one professor, one associate professor, nine assistant professors.

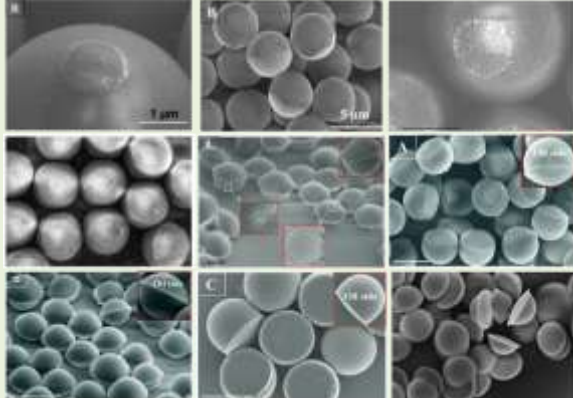
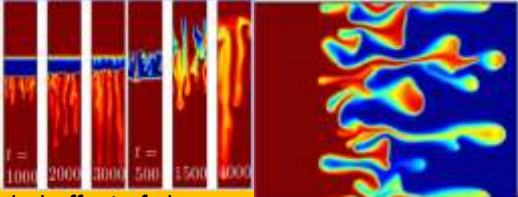
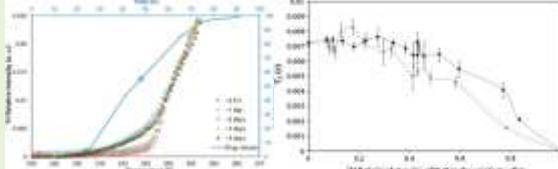
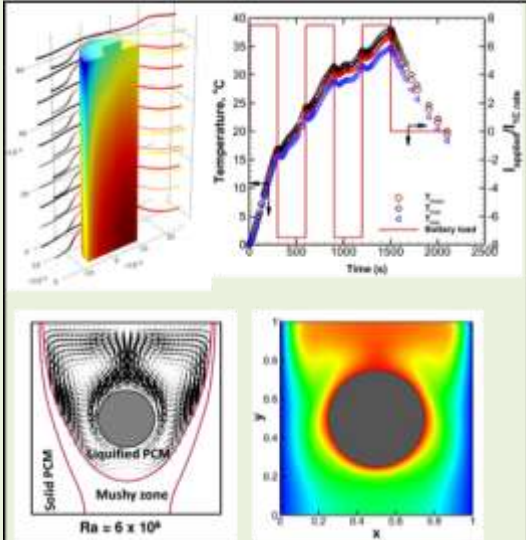
i) **What we offer:** M. Tech in Chemical Engineering, B.Tech in Chemical Engineering

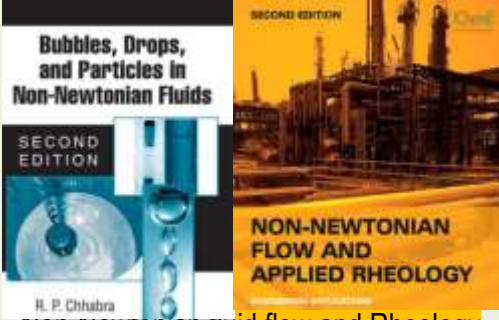
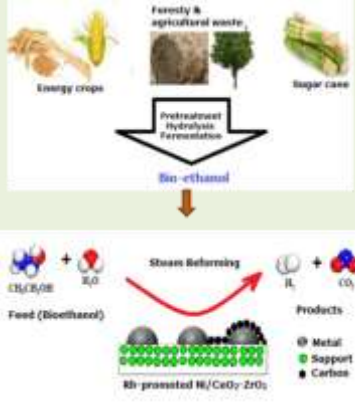
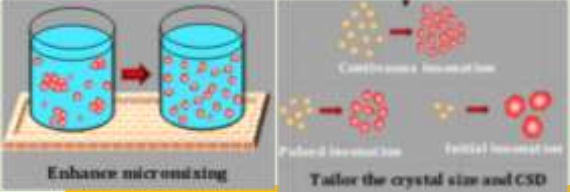
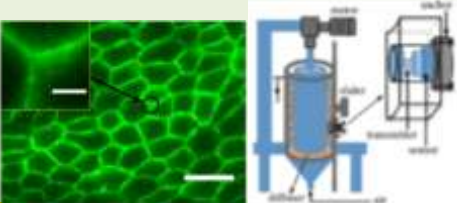
ii) **Highlights of the programme:**

- To train the skilled manpower in Chemical Engineering with an overall objective to provide the skilled workforce in Chemical Engineering for industry and research.
- To equip students to take up challenging problems in most of the aspects of Chemical Engineering by providing a state-of-the-art engineering perspective.

iii) **Research areas:**

S. No.	Name of the Faculty member	Research interests
1.	Dr. Asad Sahir	<p>Energy and Environmental Engineering; Energy Systems Analysis (Techno-economic, infrastructure integration and life cycle aspects); Particle technology and reaction engineering; Combustion; Modelling and Simulation; Process Engineering and Design; Process Systems Engineering.</p>  <p>Energy Conversion Processes: Catalytic Fast Pyrolysis</p>
2.	Dr. Chandni Sasmal	<p>Polymer physics, microfluidics, single polymer dynamics, dynamics of DNA molecules in porous media, Brownian and molecular dynamics simulations, CFD, multiscale modeling of heat and mass transfer in non-Newtonian fluids and nanofluids.</p>  <p>Microfluidic cross slot device</p>
3.	Dr. Himanshu Paliwal	<p>Algorithm development to accelerate high throughput thermo-physical property estimation using molecular simulations; Molecular modelling and design; Chemical process design, optimization and techno-economic feasibility analysis; Multi-scale modelling and simulation.</p>  <p>Solid Sorbent for CO2 capture</p>
4.	Dr. Manigandan S.	Synthesis of polymeric and inorganic colloids; Synthesis of

			<p>shape & functional anisotropic (Janus or Patchy) colloids; Self-assembly; Thermodynamics of interfacial systems; Pickering emulsion; Soft materials.</p>  <p>Functional and shape anisotropic colloidal particles</p>
5.	Dr. Manoranjan Mishra		<p>Fluid dynamics; Scientific computing; Chemo-hydrodynamic instability; Reaction diffusion system.</p>  <p>Coupled effect of viscous and gravitational fingering</p>
6.	Dr. Navin Gopinathan		<p>Porous media characterization; controlled drug delivery; oil upgrading; enhanced oil recovery.</p>  <p>NMR Cryoporometry data Variation of cyclohexane</p>
7.	Dr. Neelkanth Nirmalkar		<p>Bulk Nanobubbles; Rheology; Multiphase Flow; Heat Transfer; Motion of Bubbles/Drops; CFD modelling of pyrolysis of biomass; Thermal ablation in composite Materials; Cooling system for Li-battery pack using PCM; Electro-kinetic particle transport in nanopores.</p>  <p>Convective and phase change heat transfer around Li-battery</p>
8.	Prof. R.P. Chhabra		<p>Hydrodynamics of non-Newtonian fluid-particle systems including bubbles, drops, particles and fluidization, Multiphase (Gas/Liquid) flow in pipes and in packed beds, Interaction</p>

		<p>between nonlinear properties of fluids and shapes of particles, Modeling of non-Newtonian fluid flow in fibrous media.</p>  <p>non-Newtonian fluid flow and Rheology</p>
9.	Dr. Tarak Mondal	<p>Catalysis (Heterogeneous), Reaction Kinetics and Modelling, Hydrogen Production, Biomass Conversion Processes, Renewable Energy.</p>  <p>Hydrogen production from renewable sources</p>
10.	Dr. Swati A Patel	<p>Complex Fluid Mechanics, Computational Fluid Dynamics, Transport Phenomena.</p>  <p>Enhancement of crystallization by power ultrasound</p>
11.	Dr. Vishwajeet Mehandia	<p>Complex fluids (Active suspensions), Dynamics of Granular Materials, Biophysics (Active cellular processes, Physics of Tissue morphology).</p>  <p>Dynamics of Living mater Granular materials</p>

iv) Internship/Placement:

- (i) Government organizations e.g. ISRO, DRDO, BPCL, IOCL, GAIL, HPCL etc.
- (ii) Research organizations e.g. IITs, IISc, Educational Institutes etc.
- (iii) Private organizations e.g. ANSYS, HLRC, Reliance, Dr. Reddy's Lab, Samsung etc.

- v) Any other item or achievements of the department which is required to be brought into the brochure for the attention of prospective students.

S. No.	Academic Programme: M. Tech in Chemical Engineering
1.	Postgraduate Courses:
	 <p data-bbox="379 689 571 723">Courses offered:</p> <ul style="list-style-type: none"> <li data-bbox="379 723 893 757">▪ Chemical Engineering Thermodynamics <li data-bbox="379 757 813 790">▪ Advanced Transport Phenomena <li data-bbox="379 790 861 824">▪ Engineering Applications of Rheology <li data-bbox="379 824 877 857">▪ Chemical Reactor Analysis and Design <li data-bbox="379 857 989 891">▪ Heterogeneous Catalysis and Catalytic Reactors <li data-bbox="379 891 941 925">▪ Particulate Products: Design and Processing <li data-bbox="379 925 829 958">▪ Introduction to Molecular Dynamics <li data-bbox="379 958 941 992">▪ Modelling of Chemical Engineering Systems <li data-bbox="379 992 813 1025">▪ Statistics for Chemical Engineers
2.	Research Facilities
	<p data-bbox="379 1093 1465 1160">The Indian Institute of Technology, Ropar has the following equipment as a part of its Central Research Facilities.</p> <ul style="list-style-type: none"> <li data-bbox="379 1171 766 1205">• High-performance computing <li data-bbox="379 1205 766 1238">• Nuclear Magnetic Resonance <li data-bbox="379 1238 1005 1272">• Nano-indenter and Scanning Electron Microscopy <li data-bbox="379 1272 909 1305">• Gas chromatography–mass spectrometry <li data-bbox="379 1305 1101 1339">• FT-IR and Sum frequency generation spectroscopy (SFG) <li data-bbox="379 1339 798 1373">• UV-Vis-NIR Spectrophotometer <li data-bbox="379 1373 973 1406">• Single Crystal XRD and Surface Area Analyzer <li data-bbox="379 1406 670 1440">• X-Ray Diffractometer <li data-bbox="379 1440 734 1473">• High-Temperature Furnace

3.

Research Interest Matrix of our Faculty members

Faculty	Catalysis and Reaction Engineering 	Energy and Environment 	Multiscale Modeling $f(x)$	Soft Matter Engineering 	Transport Phenomena and Thermodynamics 
Prof. Raj Chhabra					
Dr. Vishwajeet Mehandia					
Dr. Manoranjan Mishra					
Dr. Tarak Mondal					
Dr. Neelkanth Nirmalkar					
Dr. Himanshu Paliwal					
Dr. Swati Patel					
Dr. Asad Sahir					
Dr. Chandni Sasmal					
Dr. Manigandan S.					
Dr. Navin Gopinathan					

4.

Additional details of the Programme

Academic Year from which the Department would like to Start the programme	2019-2020
Minimum qualification for the admission to the programme:	Candidates with B. Tech./B.E. in Chemical/Mechanical Engineering and related areas with Valid score of GATE [Chemical Engineering (CH) or Allied Braches].
National level test/Entrance Examinations	GATE
GATE Paper Code	CH
Minimum CGPA for the award of the degree	5.0
Total No. of credits requirement for the programme	63-64
Distribution of credits	(a) Core: 18 (b) Departmental Electives: 12 (c) Open Electives: 3 or 4 (d) Project: 30 (e) Total Credits: 63 – 64
Area of Research for Internship/ Project	All Chemical Engineering areas
Prospective Employees/ Takers	<ul style="list-style-type: none"> Government organizations e.g. ISRO, DRDO, BPCL, IOCL, GAIL, HPCL etc. Research organizations e.g. IITs, IISc,

Educational Institutes etc.

- Private organizations e.g. ANSYS, HLRC, Reliance, Dr. Reddy's Lab, Samsung etc.

For further details, please visit <http://www.iitrpr.ac.in/chemical>

3) DEPARTMENT OF CIVIL ENGINEERING:

Civil Engineering department came into existence in 2016 in a rather modest way with three faculty members, 25 B. Tech students and one PhD student. The department has evolved significantly since then on all fronts. The faculty strength has gone up to 7 and three more likely to join soon. Recently two faculty members were selected from USA and France by the visiting overseas delegation of IIT Ropar. Several basic labs have been commissioned and many advanced ones including, a state of art Soil-Water-Plant lab spread over an area of 2.5 acre in the new campus, are being setup. The faculty has been actively interacting with the authorities of the Government of Punjab to build up collaborative activities and have already conducted several consulting studies including a training program for PUDA engineers. A comprehensive computer model of groundwater flow and transport in Bist doab is being developed. Recently the department got its first Research project funded by prestigious and highly competitive Newton-Bhabha grant with a budget of more than 1 crore. The department introduce MTech programs from this Academic Year.

- What we offer:** B. Tech & M.Tech (Specialization in Water Resources and Environment), PhD, Post Doctoral Fellowship National post Doc Fellowship
- Area of research:** Hydraulics and Water Resource Engineering

For further details, please visit <http://www.iitrpr.ac.in/civil>

4) DEPARTMENT COMPUTER SCIENCE & ENGINEERING

Department of Computer Science and Engineering offers M.Tech programme with the Objective to prepare students for their career in industry, research, higher studies, or entrepreneurship. To meet this broad objective, special focus is given on fundamentals of computer science complementing with enhancing their programming, communication, and analytical skills. Student specialize themselves in one area of computer science with number of electives and choose of M. Tech. project area according to the career they want to pursue.

- What we Offer :** M. Tech (Computer Science &Engineering) & M. Tech (Artificial Intelligence), B. Tech MS(R),PhD
- Research Areas:** Theoretical computer Science, Cloud computing, Software and its Engineering, Applied Computing, Scheduling and Resource Allocation in Parallel and Distributed Systems, Real-Time Systems, Wireless sensor networks and IoT, Computer architecture and Embedded Systems, Machine learning and AI Ubiquitous Computing, Vision and image processing, Security and Analytics, Cryptography and Network Security, Wireless ad-hoc Networks, Human Centred Computing, Social Networks and Crowd Computing, Geographic Information Systems, Multimedia Systems, Surveillance and Safety, Data Engineering and Management

For further details, please visit <http://cse.iitrpr.ac.in/>

5) DEPARTMENT OF ELECTRICAL ENGINEERING:

Department currently runs three programs, a Bachelors programme with a total intake of forty students per academic year, a Master of Science (Research) program and a Doctoral programme to cater to the ever challenging needs of technical excellence in specialised avenues of Electrical Engineering. The undergraduate programme provides the students with a strong background in the four broad areas of Electrical Engineering, namely, communication technology, control technology, electronics, and power & energy. A strong exposure to state-of-the-art technologies is further provided through elective courses that are carefully designed for the interested students. The Department has produced outstanding students and academic toppers, including the institute topper securing President's Gold Medal for the pioneering batch of 2008 entry students.

- i) **What we offered :** M.Tech (Specialization Communication & Signal Processing), M.Tech (Specialization in Power Engineering), M.Tech (Specialization in Microelectronics & VLSI) B.Tech, PhD, MS(R).
- ii) **Research Areas :**Renewable Energy, Communication, Infrared Imaging, Signal and Image processing, Power Systems, Nano-Optics and Photonics, High Voltage Engineering, Nano-Dielectrics, Space Charges in Dielectrics, Image Retrieval, Medical Imaging and Face Recognition.

For further details, please visit <http://www.iitrpr.ac.in/department-electrical-engineering>

6) DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering offers UG, M.Tech. and Ph.D programs. The department has a dedicated faculty in all the major areas of mechanical engineering such as, design and analysis, fluids and thermal engineering, materials, and manufacturing. In addition to the conventional core courses, the department offers state-of-the-art courses such as product design and realization, sustainability for engineers, continuum mechanics, medical devices and equipments, biomechanics, control engineering, noise and vibration, finite element analysis, energy science and technology, robotics and mechatronics, micro-manufacturing, and tribology. The laboratories have been set up with modern facilities for strengthening teaching and research.

- i) **What we offer:** B.Tech, B. Tech- M.Tech (Dual Degree), M.Tech (Specialization in Thermal Engineering, Specialization in Mechanics & Design, Specialization in Manufacturing Engineering)
- ii) **Research Areas:** Additive Manufacturing, Combustion, Advance Material, Energy &Environment, Health, Indigenous Technology.

For further details, please visit <http://www.iitrpr.ac.in/smmeee>