INDIAN INSTITUTE OF TECHNOLOGY ROPAR

ADMISSIONS AY 2025-26

Information Brochure
Ph.D. Admissions 2025-26
July, 2025

About the Institute:

The Indian Institute of Technology Ropar started functioning from the academic year 2008--2009 from the campus of IIT Delhi, the mentor institute. The foundation stone laying ceremony was held on 24 February 2009. The Indian Institute of Technology Ropar was initially registered under the Societies' Registration Act 1860 on 29 July 2009. Subsequently, the Institute has been established by the Act of Parliament namely, the Institutes of Technology Act (Amendment) Act 2012 (No. 34 of 2012). The Institute has shifted to its permanent campus in 2018 and currently operates from its permanent campus. The permanent campus of IIT Ropar is spread across 501 acres of land located at Birla Seed Farms, Rupnagar in the lap of nature at the banks of river Satluj. The Institute has been awarded the 5 Star GRIHA (Green Rating for Integrated Habitat Assessment) rating, one of the highest national ratings for Green Buildings.

While the master plan is supposed to accommodate 10,000 students, the academic block is already set up for 2,500 students in the first phase. A total of 2,15,739 square meters of area is dedicated for academic and administration blocks along with accommodation for staff and faculty along with sports and hostel facilities for the students

All hostels are well furnished along with common rooms for recreational activities for each hostel. The campus also has airy common dining area. Naturally, there is no compromise with facilities regarding academics and laboratories for undertaking practical or doing some research. New state-of-the-art equipment is available for the students to use in labs. Apart from these academic facilities, other perks of being at IIT ROPAR include excellent sports facilities (different play fields for each sport, such as cricket, football, tennis, badminton, basketball, volleyball, etc.), utility block, student activity center (equipment and rooms for the various club activities and other student interest group activities), gymkhana, air-conditioned libraries with plethora of books, cafeterias, gymnasium, medical center with top notch 24 x 7 medical facilities.

The Indian Institute of Technology Ropar is ranked 22nd in the engineering category in NIRF 2022 (National Institutional Ranking Framework). IIT Ropar is committed to provide state-of-the-art technical education in a variety of fields. The Institute is facilitating transmission of knowledge in keeping with the latest developments in pedagogy. At present, the Institute offers the degree of Bachelor of Technology in Computer Science & Engineering, Electrical Engineering, Mechanical Engineering, Civil Engineering, Chemical Engineering, Metallurgical & Materials Engineering, Engineering in Physics, Artificial Intelligence & Data Engineering and Mathematics & Computing. It offers the M.Sc. degree in Physics, Chemistry, and Mathematics. It also offers M.Sc. in Data Science and Management under Joint degree programme with IIM Amritsar. It offers the degree of Master of Technology in Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, Chemical Engineering, Civil Engineering, Artificial Intelligence, Materials Engineering and Biomedical Engineering. All the departments of the Institute offer a doctoral degree. The Institute has held 13 convocations so far. Presently the Institute has 1586 UG students, 564 PG students and 904 PhD students..

The overall academic system of IIT Ropar is designed to provide science-based engineering education that will produce quality engineers and scientists. IIT Ropar has implemented a new curriculum from 2017. The curriculum provides broad based knowledge and simultaneously builds a temper for lifelong learning and exploration. A set of science and general engineering courses forms part of the syllabus of the first-year undergraduate students. These courses provide a foundation for further discipline specific topics. In addition to overhauling its UG programs, IIT Ropar has introduced new PG streams.

Career Development and Placement Cell, is actively involved in organizing practical training for the undergraduate students and has been playing a catalytic role in finding placements for its final year students. IIT Ropar has undertaken the task of redefining its vision and mission, and of putting a strategic plan to achieve them into action.

IIT Ropar aims to promote research in interdisciplinary areas. The Institute also undertakes a number of research and consultancy projects that are sponsored by various funding agencies, including the Government and Industry. The Institute has taken major research activities in the fields of national importance, such as non-conventional energy, sensors, drug delivery, materials synthesis and their modification, image processing, cloud networks, robotics, pattern recognition, renewable energy systems, microelectronics and nano-devices, mathematical biology, fluid dynamics, pure mathematics, quantum optics and quantum matter physics, ion beam physics, renewable energy, nanophotonics and metamaterials, surface patterning, sustainable energy, biomechanics, nanofluids, complex fluids, nanocomposites, neuro-cognition, financial mathematics and markets, phonetics, etc. The Institute provides ample funds to the departments and faculty members for the upgradation of laboratories and creation of research facilities. This has enabled our faculty members to take up research projects in frontier and emerging areas of science and technology.

Institute has a counselling cell to monitor the mental well-being of the students. Its mission is to promote well-being, aiding to develop better understanding of the self, to grow both intellectually and emotionally, to be more satisfied and productive and to improve the depth and quality of your life. To ensure sound mental health, we provide help in dealing with emotional and behavioural problems, such as guilt, anxiety, stress, lack of confidence, low self-esteem, depression and internet addiction of any sort, dependency, personal problems in relationships, such as codependency, rejection, separation, homesickness etc. Counselling Cell does fostering and inculcating life skills to make better adjustments and enrich healthy relationships.

The campus of IIT Ropar is well equipped with all required facilities. Classrooms fitted with multimedia, faculty offices and administrative wings are all in place. There are separate hostels for boys and girls. These hostels are equipped with modern mess units. Faculty recruitment, setting up of laboratories and other support facilities are done on a continuous basis to keep up with the progress.

The IIT Ropar community has undertaken an important exercise of developing the Mission, Vision and Strategic Plan for the coming years. The exercise was carried out in active consultation with Indian Institute of Management Calcutta. A participative bottom up approach was followed in formulating the Mission, Vision and Strategic Plan. The Motto, Mission and Vision statements for IIT Ropar are as follows.

Motto: Deploy our intellect on the right path.

Mission: To foster a transformative learning environment and a culture of excellence enabling creation of knowledge and development of socially responsible, enterprising leaders contributing significantly to national progress and humanity.

Vision: To be a trendsetter among the technology universities born in this millennium.

Faculty:

The Faculty members of the Institute are selected through a rigorous selection process. The approximate mean age of a faculty member at IIT Ropar is 35 years. The faculty members who have been selected from the best institutes from India and abroad embody the spirit of enthusiasm that comes with youth. The Faculty members lay as much emphasis on the development of their technical know-how as on ethical and moral development; so when the student graduates she/he makes not just a good engineer but also a good human being. IIT Ropar takes the best raw material and the faculty carves them out into engineers and entrepreneurs of tomorrow.

July 2025 ADMISSIONS (ACADEMIC YEAR 2025-26)

Applications are called from the candidates for July 2025 admissions (Academic Year 2025-26) for admission to the Ph.D. program.

Last Date of Receipt of Online Applications: 20th April 2025

Guidelines

1. Please visit the link : https://www.iitrpr.ac.in/phd-admissions
2. Submit the application ONLINE. After filling the form, take a print of your application and keep the same for your record. Print copy of the application is not required to be submitted.
3. Application Fee:
   - Women candidates & SC/ST/PwD category candidates : Rs. 100/-
   - All other candidates : Rs. 200/-
4. The fee is to be paid by SB Collect (Online Payment System). Applications without online payment details will not be considered. Fees payment method is as follows:

i) Go to onlinesbi.com
ii) Select SB Collect
iii) Tick the terms and conditions and continue
iv) Select state- Punjab
v) Select educational institute- IIT Ropar (Type I I T Ropar after giving space in each letter of IIT).
vi) Select the option for payment category
vii) Select the option- Application Fees for PhD admission
viii) Pay the requisite fee.

5. Application fee is NON-REFUNDABLE.
6. The dates of the written test/interview will be informed to the shortlisted candidates through email.
7. The candidates who wish to apply to multiple departments or research programmes are required to register for each application and pay the application fee separately subject to fulfilling the eligibility criteria for applying to the concerned department/research programme as mentioned in the admission brochure & website. Candidates can apply in multiple departments subject to fulfilling the minimum eligibility requirement of respective departments.
8. The OBC (Non-Creamy Layer) certificate and Income & Assets certificate [for EWS category] issued after 31.03.2024 (for financial year 2024-2025) in the prescribed format must be uploaded in the ONLINE application and submitted at the time of interview/admission
9. Please check the admission website regularly for important announcements and department website for short listing updates and results
10. The candidates called for a written test/interview should bring with them a printed copy of the application submitted online along with original and photocopies of relevant certificates/documents.
11. Incomplete applications will be rejected.
12. Applicants must submit a legible copy of the documents.

Selection Procedure:

Eligible candidates possessing the minimum educational qualifications & eligible degree and satisfying additional and stiffer criteria set by the departments from time to time, will be called for an "test and interview" or "interview" by the Selection Committees of the respective departments.

Admission Procedure

Admission is offered on the basis of an interview held usually a month before the commencement of the semester for which admission is sought. The interview may be supplemented by a written test, if necessary.

Merely satisfying the general eligibility criterion as well as criterion set for each admission category is no guarantee for being called for test/interview. Depending on the number of applications received and considering the constraints of time and other resources for conducting Written Test and Interview, the Academic Units may put additional academic performance based shortlisting criteria.

Reservation of Seats:

Reservations are applicable to SC/ST/OBC-NCL/EWS/Persons with Disability (PwD) candidates as per Govt. of India rules.

CATEGORIES OF ADMISSION

Candidates will be admitted to the Ph.D. program of the Institute through an institute selection process under any one of the following categories:

REGULAR FULL-TIME Ph.D.

1. ***Institute fellowship****: Candidates under this category are entitled for Institute Research Assistantship/Fellowship as per Ministry of Education, Govt. of India norms.*

2. ***Visvesvarya Ph.D Scheme****: Candidates under this category are entitled for Visvesvaraya fellowship. Details are at link: https://negd.gov.in/visvesvaraya-phd-scheme/*

3. ***Govt./ Semi Govt. Fellowship Awardees, such as PMRF, CSIR-JRF, UGC-JRF, DST-INSPIRE, DBT, NBHM, PMRF, QIP, DST- WISE PhD, etc. or any other full time fellowship:*** *These candidates are financially supported under various Govt./Semi Govt. schemes. The admission procedure and other requirements are the same as applicable to research scholars/institute fellowship.*

4. ***Fellowship through Project (FTP):*** *The admission procedure and other requirements for research Fellows (JRFs/SRFs) in various projects/schemes in the institute who wish to enroll for the PhD programme are the same as applicable to Institute Research Scholars. They will be paid assistantship/fellowships as per the norms of the project and sanctioned amount. The candidate has to fulfill all the eligibility requirements of the funding agency and the institute criteria.*

5. ***Self -financed Indian Nationals, including those on Study Leave (SF)****: The candidates admitted under this category are not eligible for any financial support from the Institute (IIT Ropar). Candidates with the provisional DST -INSPIRE fellowship award letter may apply under Self-Finance (SF) category. After successful admission, if the candidate subsequently clears the final round of selection of DST-INSPIRE, s/he would be allowed to convert from the Self-Finance (SF) to Fellowship Award (FA)*

category. Candidates who are released from the Government or educational Institutions on study leave for a period not less than three years for doing research work at IIT Ropar, can seek admission under this category. Employer's Letter for Study Leave should be produced at the ti888o99me of joining, if selected.

6. ***Sponsored Candidate (SW):*** *The candidates admitted under this category are not eligible for any financial support from the Institute (IIT Ropar) and are sponsored by their employers. They are expected to be relieved for full time course work and research at the Institute for a minimum period of three years. An appropriate sponsorship letter should be submitted at the time of written test and/or interview.*

PART-TIME Ph.D.

1. External Registration Program (ERP):
This category refers to a candidate employed in an R&D organization/academic institution/industry having adequate research facilities. The research work leading to the Ph.D. degree may be carried out largely in the parent organization of the candidate under a Local Supervisor from the organization but with the overall guidance provided by a faculty member (Institute Supervisor) of the department in which the candidate is registered.

A candidate in this category is a professionally employed person having regular employment in Government Organizations, like MEITY, DRDO, MHA, CSIR, Central Universities (including IIT Ropar regular staff), the employees of National and International reputed private organizations/industries, viz. Reliance, TATA, Birla, Samsung, Nokia, Infosys, GE, similar MNC companies, etc., who would like to pursue the Ph.D. program while continuing the employment at their parent organization. The institute does not provide any financial assistance/fellowship to such a candidate.

Temporary employees, outsourced employees, employees from private universities, state universities, start-ups, small enterprises etc are not eligible.

2. Part-time*: A research scholar under the Part time PhD Programme will carry out major part or all of his/her research work at IIT Ropar under the supervision of supervisor(s) at IIT Ropar. The feasibility of doing this with sufficient intensity will be an important consideration in admitting the scholar in this category.*

A candidate in this category is a professionally employed person having regular employment in Government Organizations, like MEITY, DRDO, MHA, CSIR, Central Universities (including IIT Ropar regular staff), the employees of National and International reputed private organizations/industries viz. Reliance, TATA, Birla, Samsung, Nokia, Infosys, GE, similar MNC companies, etc., who would like to pursue the Ph.D. program while continuing the employment at their parent organization. The institute does not provide any financial assistance/fellowship to such a candidate.

Temporary employees, outsourced employees, employees from private universities, state universities, start-ups, small enterprises etc are not eligible.

3. IIT Ropar regular Staff:
Members of non-teaching staff (working in permanent capacity, including technical and non-technical) may be permitted to join the Ph.D. program under this category. All common rules laid down in the Ph.D. Regulations relating to course work, prosecution of research work under the supervision of a member of faculty, etc. shall be applicable.

Regulations pertaining to all kinds of PhD programs will be common, unless stated otherwise.

Minimum Eligibility Requirement for Admission to PhD program.

The following are Institute Minimum Eligibility Requirements and any Department/Center can specify higher short-listing criteria than what is specified here.

Regular Full-time Ph.D.

For the Minimum Eligibility Qualification (MEQ) for admission to Regular Full-time Ph.D programmes refer table:1 below:

Table:1: Minimum Eligibility Qualification for admission to Regular Full-time Ph.D programmes

Sr. No.	Qualifying Degree	Minimum Performance in Qualifying Degree for General/OBC (Non-Creamy Layer)/EWS Category Candidates	Minimum Performance in Qualifying Degree for SC/ST/PwD category Candidates	Qualification Through National Level Examination Requirements
1.	M.Tech./M.E/M.D. or equivalent	60% marks or 6.00 CGPA on a 10-point scale	55% marks or 5.5 CGPA on a 10-point scale	Nil
2.	M.Sc/MBA/M.A/M.B. B.S. or equivalent	60% marks or 6.00 CGPA on a 10-point scale	55% marks or 5.5 CGPA on a 10-point scale	Qualified GATE/CSIR/UGC-NET/DST-INSPIRE/JEST/NBHM or other national fellowship
3.	B.E./B.Tech. or equivalent four years program	60% marks or 6.00 CGPA on a 10-point scale	55% marks or 5.5 CGPA on a 10-point scale	Qualified GATE/CSIR/UGC-NET/DST-INSPIRE/JEST/NBHM or other national fellowship

Exemptions:

Requirement of qualification in GATE / National level Exam is waived off for the following categories of applicants.

Candidates from Centrally Funded Technical Institutes (CFTIs) completed B.Tech./B.E./ Integrated M.Tech./ Integrated M.Sc. programmes (or any other programme of minimum four year duration, admission to which is on the basis of JEE), must obtain a CGPA of 7.5 or above (on a 10 point scale) at the time of graduation, and before they formally register for Ph.D. programme (75% aggregate marks, if marks is the primary mode of evaluation).

Eligibility Requirement for ERP candidates

(i) Minimum Eligibility Requirements: In addition to possessing the academic qualifications mentioned in the table 1 under regular full-time Ph.D program, an applicant should fulfill the following additional requirements also:

(ii) GATE or equivalent qualification: GATE or Equivalent Qualification is not required for admission.

(iii) Professional Experience: Should have completed full time employment of 2 years of service as on the deadline of application.

(iv) Organization/Institution: Organization/Institution must have at least 5 years of its existence for sponsoring candidates to the ERP programme. Only persons engaged in R & D work in Technical / Scientific Institutions/ Industries or R & D Establishments are eligible. The organization should have adequate facilities for carrying out research. All CFTIs/GFTIs will be considered irrespective of their years of existence.

(v) Sponsorship/NOC

Unconditional sponsorship or NOC by the employer is essential and a must at the time of joining. IIT Ropar will not have any financial liability for the candidate throughout the tenure of PhD. The sponsorship certificate must be provided in the format specified at FORMAT-A.

Eligibility Requirement for Part-Time candidates

(i) Minimum eligibility requirements: In addition to possessing the academic qualifications mentioned in the table 1 under regular full-time Ph.D program, an applicant should fulfill the following additional requirements also:

(ii) Professional Experience: The minimum full-time experience required after obtaining the qualifying degree and as on date of application deadline, is given in table 2 below:

(Table 2)

Sr. No.	Qualifications	Work Experience (Post Qualification)
1	M.E./M.Tech./M.S.(R)/M.D. or Equivalent	Nil
2	B.Tech./BE with valid GATE	Nil
3	B.E./B.Tech./M.Sc./M.A./M.B.A./MBBS or equivalent, from CFTIs/Central Universities	1 Year
4	B.E./B.Tech./M.Sc./M.A./MBA/MBBS or equivalent, from institutions other than CFTIs/Central Universities	2 Years

(iii) Minimum Eligibility Qualification for these candidates is the same as for full-time candidates, except that the requirement of qualifying in a national examination is waived for serial No. 1, 3 and 4 of above table.

(iv) No Objection Certificate: Part-time candidates are required to submit a "No Objection Certificate" on a proper letterhead from the Head of the Institute/Competent authority in the organization on the specified format given at FORMAT-B.

If the candidate after joining the PhD program changes the organization, he should inform the Institute immediately and get NoC from the new organization as well.

Eligibility Requirement for IIT Ropar Staff:

(i) Minimum eligibility requirements: In addition to possessing the academic qualifications mentioned in the table 1 under regular full-time Ph.D program, an applicant should fulfill the following additional requirements also:

(ii) GATE or equivalent qualification:

Minimum qualification for these candidates is the same as for regular PhD candidates except that the requirement of qualifying in a national examination (e.g., GATE or equivalent) is waived off.

(iii) No Objection Certificate:

Prior permission/No Objection Certificate (NOC) has to be obtained from competent authority before applying for admission to the program. NOC has to be submitted at the time of submission of application. Institute work should not suffer due to joining the PhD programme by the candidate.

(iv) Selection Procedure:

Short-listed eligible staff will be called for a written exam or interview or both. Final selection is based on the performance of the staff in the written exam or interview or both.

(v) Fellowship:

Members of staff permitted and enrolled for the PhD degree shall not be entitled to institute fellowship.

(vi) Duration:

The minimum period to be spent in the research work registered under the Part-Time Ph.D. degree for staff shall be 4 years. The maximum period admissible for completion of the course work, research work and submission of the thesis, shall, however, remain to be the same as in the case of regular candidates.

International Candidates– Admission to Ph.D

Foreign Nationals are those with foreign passports including those who are Person of Indian Origin (PIO) / Overseas Citizen of India (OCI) card holders.

Foreign nationals can only register as full-time scholars. Foreign nationals with eligible degrees from Indian Universities will be treated on par with Indian nationals for admission purposes with prescribed fee for foreign nationals. Foreign nationals with foreign degrees must meet the minimum educational requirements as specified on the website/admission brochure.

RESEARCH AREAS OF DEPARTMENTS:

1. Biomedical Engineering

a. Biomaterials for drug delivery
b. Physics, Optics & Biophotonics in Healthcare and Agriculture, AI/ML
c. BioImaging and Image analysis
d. Electrochemical Biosensors for cancer & diabetes
e. Biomechanics

2. Chemical Engineering

i) Transport Phenomena and Thermodynamics

a) Soft Matter and microfluidics
b) Computational Studies: Molecular simulations, CFD, Multiscale Modelling
c) Characterization of materials
d) Granular Materials
e) Complex Fluids, Polymer physics
f) Crystallization
g) Active particle, Active gel dynamics
h) Colloid and Interfacial Engineering
i) Interfacial flows

ii) Catalysis and Chemical Reaction Engineering

a) Heterogeneous Catalysis
b) Energy and Environment
c) Synthesis of novel materials, nanoparticles, nanofibers etc.
d) Polymer synthesis
e) Crystallization
f) Wastewater Treatment
g) Energy conversion and storage devices
h) Nanoscience and Nanotechnology
i) Computational Catalysis : Multiscale modelling

iii) Process Systems Engineering and Data Analytics

a) Process Control and Optimization
b) Machine Learning for Process Engineering
c) Process Design, Analysis, Integration and Operation
d) Fault Detection and Diagnosis
e) State Estimation
f) Process Modeling and Simulation
h) Techno-economic and Sustainability Analysis

iv) Biochemical and Bioprocess Engineering

a) Biomedical Engineering
b) System biology
c) Computational Biology
d) Active particle, Active gel dynamics
e) Wastewater Treatment

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	Selective Hydrogenation of Furfural to Tetrahydrofurfuryl Alcohol (THFA) over Supported Pd-Co Catalysts: Experimental and Theoretical Study	Dr. Arghya Banerjee
2.	Design and Development of Gold Nanobipyramids and Dye Based Nano-hybrids for Enhanced Sensing Applications: Theoretical and Experimental Investigation	Dr Santosh Kumar Meena

3. Chemistry

Thematic Research Areas

Energy; Healthcare; and Sensors

Major Research Areas

Aqueous batteries (Na-ion/S, Zn-S, Fe-S, Zn-air so on), electrocatalysis (hydrogen production, CO_2 to value-added products, N_2 to ammonia); Catalysis and materials synthesis, renewable synthesis of chemicals and fuels, and photocatalysis; Nuclear magnetic resonance (NMR) theory and experiments: Theoretical and computational biophysical chemistry: statistical mechanics, molecular dynamics, and Monte Carlo simulations; Hydrogen storage, ultracold chemistry, quantum dynamics, and machine learning.

Inorganic and organometallic chemistry; Inorganic synthesis and catalysis; Framework materials; Polymer chemistry; and Supramolecular synthesis, sensors, and environmental chemistry.

Biomaterials; Peptide chemistry; Organic synthesis and homogeneous catalysis; Transition metal and transition metal free catalysis; and Organoboron chemistry; Photoredox chemistry, Lewis acid catalysis, and organocatalysis; Synthesis of π-conjugated compounds for molecular materials; Aromaticity and anti-aromaticity; and Electro-organic synthesis, asymmetric synthesis, and medicinal chemistry.

4. Civil Engineering

I. Geotechnical Engineering:

Soil Mechanics and Foundation Engineering, Geomaterial Stabilization, Geoenvironmental Engineering, Geosynthetics and Reinforced Soil walls, Slope stability studies, Soil Dynamics and Earthquake Geotechnics, Site specific response studies, Seismic Hazard Analysis and Microzonation, Landslides in Static and Dynamic Conditions, Rock mechanics and rock Engineering, Rock Dynamics, Microcrack detection and propagation in rocks, wave propagation in rocks, dynamic properties of geomaterials, ground improvement techniques, Stability Problems in Geomechanics, Unsaturated Earth Retaining Structures, Finite Element Analysis, Stability of Slopes, Footings, Anchors, Slip Line Method, Unsaturated Soil Mechanics, Theoretical and Numerical Limit Analysis, Stability of Geostructures under Seepage and Earthquakes, Application of Soft Computing Techniques

II. Environmental Engineering :

Source Apportionment study, Analysis through AERMOD and WRF Chem, Urban air quality management; indoor air pollution; Aerosol characterization, local and regional air quality, climate change and health impact. Modeling, simulation and optimization of Environmental systems; Environmental Impact Assessment; Human Health Risk Assessment; solid waste management; incineration waste-to energy; circulating fluidized bed operations; Landfill Management; Carbon sequestration; sustainable development (Urban cities/growth centres); Environmental Risk Analysis; water and wastewater treatment; Emerging water contaminants (Nanoparticles, Antibiotics); urban water and waste water Management; Non-point source Pollution; Membrane Biological Treatment Process; GIS and Remote Sensing Applications for Environmental Management. Water Quality Assessment Processes, Contaminant Fate and Transport, Cyber Physical System in Water and Soil Quality Assessment, Emerging Water Contaminants, Contaminant Remediation Technologies, Electrochemical Advanced Oxidation processes (Electro catalysis) and Wastewater Treatment.

III. Structural Engineering:

Structural Dynamics; Seismic design of non-structural components; Seismic Vulnerability and Risk Evaluation of Structures; Earthquake response and recovery modelling of residential communities; Seismic Evaluation and Retrofitting of Structures; Performance-Based Design of Structures; Nonlinear Modeling and Analysis of Structures; Physics-based machine learning and its application is earthquake engineering; Seismic upgradation of existing structures; Seismic safety assessment of the Himalayan vernacular and contemporary buildings; Seismic design of building at liquefiable sites; Structural resilience; Structural fire engineering; Blast and impact load analysis; AI and ML in structural engineering; Analysis and design of structures; Tall buildings; Bridges; Wind engineering; Offshore structures; Masonry, RCC and steel structures; Structural control; Wave propagation; Constitutive modeling; Computational methods; Damage modelling; Structural health monitoring; Smart materials and structures; Energy efficient materials and structures; Meta material; Damage assessment and strengthening; Mechanics of composite materials; Multiscale modeling; Fracture and

failure modeling; Developing low-carbon concrete options using carbon sequestration and waste valorization; Evaluation and upgradation of deteriorating reinforced concrete structures; Life cycle assessment and optimization of construction materials and processes; Construction Management; Construction Technology; Concrete Technology; Durability of concrete; Rebar corrosion; Modeling of cements; Supplementary cementitious materials; Composites; High performance concrete; Self-compacting concrete; Sustainable construction, Green building; Design management, Automation in construction; Building Information Modeling in construction projects, Non-destructive testing and evaluation;

IV. Transportation Engineering :

Transport planning; Transport policy; Transportation safety; Construction work zone safety; Heterogeneous traffic flow modeling; Traffic safety and capacity of hill roads; Mass transportation planning; Urban transport infrastructure planning and design; Non- motorized transport planning; Modeling of pedestrian behavior; Activity-travel behavior analysis; Network modeling; Transportation logistics and optimization; Traffic operations; Geometric design of transportation infrastructure; Characterization of pavement materials; Pavement design (flexible and rigid); Damage modeling of bitumen and bituminous mixtures; Constitutive modeling of pavement materials; Recycling of civil infrastructure materials; Rheology of asphaltic materials; Condition assessment of highway infrastructure; Pavement management systems; Highway engineering; Airport infrastructure.

V. Water Resources Engineering:

Rainfall-runoff modeling, Regionalization of hydrological extremes, Regional frequency analysis of extreme rainfall and floods, Prediction in ungauged basins, Multi- fractal analysis of rainfall and flood, Climate change impacts on hydrological processes, Dam safety analysis and inundation studies, Groundwater flow and transport modeling, Machine learning
application in water resources, Geothermal Energy and geothermal resources modeling, Aquifer storage and recovery, Groundwater recharge, Soil water plant interaction, soil salinity, Hillslope hydrology, Stream-Aquifer interaction, Irrigation systems, Unsaturated flow modeling, Drought mitigation, Sustainable groundwater development.

VI. Geomatics Engineering:

Remote Sensing and GIS data and models. Remote sensing applications in the area of Natural resources Mapping, Modeling and Change Predictions. Remote Sensing applications in the areas of Agricultural Science, Cryosphere, Disaster and Water Resources. Planetary Remote Sensing. GNSS and its applications. Remote sensing of urban areas and city planning.

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	Assessment of Local Site Effects Specific to State of Punjab: A Pre-requisite for Seismic Risk Reduction	Dr. Putul Haldar
2	Earthquake Risk and Engineering towards Seismic Safety of Building Stock in Punjab	Dr. Putul Haldar
3	Development of Indigenous Seismic Vulnerability And Risk Assessment (SeisVARA) Tool Tailored for the State of Punjab	Dr. Putul Haldar

5. Computer Science and Engineering

ML/AI, Approximation Algorithms, IoT, Systems for AI/ML, Computer Networks, Game Theory, Operating Systems, distributed computing, wireless sensor networks, blockchain technology, databases, complexity theory, architecture, memory management, multimedia systems, network security, Reinforcement learning, cloud computing, social networks, computer vision, medical image processing, Image Forensics, software engineering, quantum computing, Intrusion Detection Systems, Malware Analysis and Cyber-Security, Natural Language processing, large language models, and education technology,.

Projects

Sr. no	Project Title	Principal Investigator
1	Digital design for quantum computing	Dr. Neeraj Goyal
2	Doc-Forensics: Effective Methods for Source Camera Identification of Document Images in Real-World Scenarios	Dr. Puneet Goyal
3	Beyond AI Models, Integrating Human Expertise with AI for Improving their combined Performance	Dr. Shweta Jain
4	Optimising Machine Learning Models for Resource-Constrained Edge Devices in AIoT Applications through ML Model Compression	Dr. Sudeepta Mishra
5	AI in Agriculture	Dr. Sudarshan Iyengar
6	AI in Agriculture	Dr. Mukesh Saini

6. Electrical Engineering

i. Microelectronics and VLSI Design

Analog, digital, mixed-signal, RF and broadband integrated circuit design; High-speed interconnects; Electronic packaging; Chemical and Biological Sensors; 2-D Material-based Electronics; Multigate Devices; Memristor or Resistive Random Access Memory; Gate all around

MOSFET; Semiconductor devices and reliability; Ferroelectric Memory Devices; Spintronic devices for communication, energy harvesting and neuromorphic applications: Device fabrication, high-frequency measurements and simulation; Topological materials for Quantum sensing and Communication: Device fabrication, transport measurements and simulation; Neuromorphic computing: device, circuits and algorithms design

ii. **Signal Processing and Communications**

Image and Video Processing:

Image processing, Deep Learning, computer vision, Distributed Learning, Machine learning and Quantum Machine Learning.

Communication Networks:

Wireless Communication and Networks; Internet of Things; AI/ML driven Next generation communication systems; AI native 6G networks, UAV networks; Vehicular Communication, Intelligent Transportation Systems, Radar Systems, mmWave Communication and sensing systems, Underwater Smart Mobility, B5G/ 6G Communication

Antennas for Smart RF and millimeter-wave systems, Wireless Power Transmission, Drone/UAV antennas, detection and localization, RF Energy Harvesting, IoT hardware.

AI-ML driven radios, Smart Beam-forming systems, Underwater Wireless charging systems

Quantum Machine Learning (QML), Quantum Machine Learning for Computer Vision (QML for CV).

Satellite Image Analysis

iii. Power Engineering

Renewable Energy integration, High Voltage Power Systems and Equipment, Nano Dielectrics, Smart and Micro-grids; Power System Dynamics and Control, Power Electronics, Electric Machines and Drives, Electric Vehicle Technologies, Power System Optimization, Underwater Wireless Charging System.

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	**Quality of Service (QoS) improvement through efficient integration of FR-1 and FR-2 in 6G Open RAN**	Brijesh Kumbhani
2	AI-driven Open-PHY for 6G RAN	Satyam Agarwal
3	ARISE ML ML driven SixG AR optimization for Advanced Self sustainable IoT devices	Ashwani Sharma

4	An Underwater Wireless Charging System for AUVs with Integrated Near-Field Localization	Ashwani Sharma
5	Development of quantum machine learning use cases and applications	Dr. Santosh Kumar Vipparthi
6	National Quantum Mission Project - Design and demonstration of a highly scalable quantum computer using semiconducting qubits	Dr. Devarshi Das
7	TTDF/6G/363 - Electromagnetic Interference Mitigation Techniques for Analog and Mixed-Signal CMOS Integrated Circuits in 6G Environment for Robust Front-End Design	Dr. Devarshi Das
8	MeitY(C2S) Project - ASIC and Package Design for Ultra Small Atomic Clock	Dr. Devarshi Das
9.	ASIC and Package Design for Atomic Clock	Prof. Rohit Sharma
10.	Equipment Development for Fault location (CPRI)	Prof. C C Reddy
11	Secure Ubiquitous Connectivity for 6G V2X using Rate Splitting Multiple Access Enabled Joint Sensing and Communication	Dr. Sam Darshi
12.	Design and Development of Low Cost and High Power Density Multi-Phase Interior Permanent Magnet Motor drive with Integrated Charger for Electric Vehicle Applications	Dr. S. Payami
13.	Fault Investigation and Early-Detection of High-Frequency Transformer Inter Turn Faults in Dual Isolated Output PV Integrated Dual Active Bridge Converter for DC Microgrids	Dr. Kalaiselvi J

7. Humanities and Social Sciences

i) Psychology

Applied Experimental Psychology: Emotion Regulation & Behaviour Change; Positive Psychology; Counselling Psychology; Cognitive Psychology

ii) English Literature
Speculative Fiction; Ecocriticism; Urban Studies; Folk Studies; Gothic Literature

iii) Interdisciplinary
Marketing & Consumer Behavior in Indian Yogic Systems

iv) Management
Operations & Supply Chain Management; Decision Sciences; Renewable Energy; Sustainability; Business Analytics

v) Economics
Macroeconomics; Financial Economics; International Economics; Applied Econometrics; Economics of Climate Change; Microeconometrics; Spatial Econometrics; Economic Geography and Urban Economics

vi) Philosophy
Philosophy of Technology, Ethics

vii) Linguistics
Experimental Linguistics; Language Comprehension; Phonology; Evolutionary Linguistics

8. Mathematics

i) Mathematics and Theoretical Computer Science

Further Details:

Numerical Analysis, Modelling & Simulations, Low-dimensional Topology: Knot Theory, Computational Fluid Dynamics, Scientific computing, Water Wave Mechanics, Group Theory, Ring Theory, Coding Theory, Dynamical Systems, Evolutionary Game Theory, Functional Analysis, Operator Theory, Number Theory, Cryptography, Modular forms, Algorithmic Graph Theory, Probability Theory, Time Series Analysis, Stochastic Process, Data Science, Mathematical Finance, Statistical Inference, Complex Analysis: Harmonic Mappings, Function Spaces, Homogenization and Optimal Control of Partial Differential Equations, Distributed Algorithms, Theoretical Computer Science, Inverse Problems and Partial Differential Equations.

9. Mechanical Engineering

i). Mechanics & Design (MD)

Mechanical Vibrations, Condition Monitoring, Fault Diagnosis, Biomechanics, Computational Materials Science, Hydrogen Embrittlement, Biomedical Devices Development, Polymers for Energy and Biomedical Applications, Computational Biomechanics, Computational and Experimental Mechanics, Fracture Mechanics, Damage Mechanics, Numerical Analysis,

Variational Principle, Impact Mechanics, Composites, Functionally Graded Material, Metamaterials, Nonlinear Vibration, Aero-engine Vibration, Vibration under Viscoelastic Damping, Multifunctional Composite Materials, Electric Vehicles, Additive Manufacturing & Machine Learning Based Development of Indigenous Hydrogen Fuel Cell Stack, Robotics.

ii). Manufacturing Engineering (MF)

Sustainable Manufacturing, Surface Engineering, Additive Manufacturing, Incremental Forming at Micro/Macro Scale, Product Design (Design Research, Creativity, Engineering Aesthetics), Biomimicry, Conventional and non-conventional machining at macro and micro scales, Automation in Agriculture, Indoor Farming, Sustainable Design and Sustainable Manufacturing, Constitutive Modeling of Mechanical Behavior of Materials: Fatigue, Creep-Fatigue Interaction, and Fracture, Laser Material Processing, Laser Resistant Coatings.

iii). Thermal & Fluids Engineering (TF)

Thermodynamics, Fluid Mechanics, Heat and Mass Transfer, Computational Fluid Dynamics, Energy, Thermal Systems, Condensation, Thin-Film Evaporation, Microfluidics, Microscale Heat Transfer, Surface Micro and Nano Engineering for Enhanced Phase Change Heat Transfer, Microdroplet Dynamics, Thermal Management of Electronics-Mobile Devices and Data Centers, Internal Combustion Engine, Combustion and Soot Modeling.

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	Design and development of medical device for biomedical application	Prof. Navin Kumar
2.	Interface engineering to improve the quasi-static and dynamic transverse mechanical properties of carbon fiber/epoxy composites	Dr Prabhat Kumar Agnihotri
3.	Design and development of lightweight sandwich composite panels with auxetic core for impact applications	Dr Sachin Kumar
4.	Enhancing Micro-EDM Precision with ML-Based Prediction and High-Fidelity Plasma Modeling	Dr Chandrakant K Nirala

10. Metallurgical and materials Engineering

i. Computational Modelling and Informatics

Computational Thermodynamics, Crystal Plasticity, Density Functional Theory (DFT), First-principles Calculations, Molecular Dynamics (MD), Monte Carlo Methods, Cellular Automata, Phase Field Methods, Finite Element (FEM) and Finite Volume Methods, Configurational force, Computational Fluid Dynamics, and Materials Informatics (Machine Learning applied to Materials).

ii. Extraction, Recycling & Sustainability and Degradation

Iron and Steel Making, Recovery of Mechanical and Physical Properties, Battery Materials Recycling, Recycling of Metallic Alloys and Polymers. Sustainability, Process Optimization for Carbon Footprint Reduction, Renewable Energy Materials, Green Materials Processing, Environmental Degradation of Materials, Oxidation and Corrosion in Extreme Environment, Thermal Degradation, Tribology, Erosion.

iii. Materials Chemistry and Corrosion

Surface Chemistry, Catalysis, Crystallography, Inorganic Materials, Electrochemistry, Polymer Chemistry, Solid-State Chemistry, Materials Design, Thin Films, Chemical Vapor Deposition, Nanochemistry, Corrosion and Protection, High-Temperature Corrosion, Erosion-Corrosion, Biocorrosion.

iv. Mechanical Behaviour of Materials

Stress and Strain Behaviour, Elasticity and Plasticity, Dislocation Theory, Twinning, Hardening, Materials Deformation, Fracture Mechanics, Damage Mechanics, Nanomechanics, Charpy Impact Test, Fatigue, Thermal Fatigue, Crack Propagation, Creep, Superplasticity, Anisotropy and Properties Co-relation, Nanoindentation, Dynamic Mechanical Analysis (DMA).

v. Nano, Functional & Energy Materials and Devices

Nanomaterials, Nanofabrication, Nanomechanics, Nanosensors, Nanomaterials Synthesis, Biofunctional Materials, Shape Memory Alloys, Battery Materials, Fuel Cells, Electroactive Polymers, Conducting Polymers, Hydrogen Storage, Electrochemical Energy Storage, Catalysts for Energy Applications, Thin-Film Devices, Optoelectronic Devices, Energy Storage Devices.

vi. Processing and Manufacturing of Materials

Additive Manufacturing, Forging, Rolling, Extrusion, Powder Metallurgy, Sintering, Welding, Heat-treatment, Machining, Metal Forming, Surface Treatment, Severe Plastic Deformation (SPD), Ceramics Manufacturing, High-Temperature Processing, Crystal Growth, Electroplating, Solidification Processing, Thin Film Deposition, Microfabrication, Cold Spray Coating, Magnetic Materials Design and Fabrication

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	Enhancement of corrosion and cavitation-erosion behaviour of Nickel-Aluminium-Bronze alloy with Ti6Al4V cold spray coating for naval applications (Project No. - ANRF/ECRG/2024/004133/ENS "to be sanctioned")	Dr. Rajiv Kumar
2.	Damage modelling and Creep Fatigue Crack growth behavior of Gas Turbine disk fir tree using finite element analysis and material coupon test data (4333 "to be sanctioned")	Dr. Abhishek Tiwari

11. Physics

i). Condensed matter physics and material science

Insulating spintronics, spin-orbit torque in magnetic heterostructures, quantum materials and devices, Heusler alloys, magnetic tunnel junctions and spin hall nano oscillators, functional and renewable energy materials, TMDC and sensor, broadband photodetector, computational material science, Hydrogen storage and production, sensors, high pressure Physics, Topological materials, Two-dimensional materials, Magnetic and superconducting materials, quantum degenerate gases, ultracold gases at finite temperatures, quantum droplet physics, ion beam nanostructuring and applications, self-assembly and applications, spatio-temporal dynamics of pattern formation in physical systems, crystal growth and design of quantum materials, Vander Waals systems, density functional theory development, materials modeling, and molecular electronics.

ii). Gravity and Strings

Quantum properties of black holes, ultra-relativisitc and non-relativistic limits of string theory, strong coupling dynamics of quantum field theories, conformal field theory, statistical field theory, finite temperature quantum field theory, carrollian conformal field theory, flat holography, holographic entanglement and complexity, holographic chaos.

iii). Light-Matter Interactions and Quantum information

Quantum computation and information, quantum thermodynamics, cavity optomechanics, semiconductor and plasmonic meta-optics, nanophotonics, cavity quantum electrodynamics, optical instrumentation, quantum materials and devices, single photon generation and characterization, quantum sensing with diamond and 2d materials, quantum optics, orbital angular momentum states of light, quantum entanglement, optical coherence theory, foundations of quantum theory, Nonlinear laser vibrational spectroscopy, surfaces and interfaces, bio-photonics, laser induced liquid microjet, quantum materials, devices and applications, quantum photonics and technologies, meta-materials, laser spectroscopy, photonics, quantum plasmonic, quantum biology, high-power lasers, quantum-inspired computing with lasers (analogue computing & neuromorphic computing), structured light, topological photonics,multimode fiber lasers.

iv). Experimental Nuclear Physics

- Sub-barrier fusion for astrophysical interest,
- Accelerator-based-low-energy nuclear reactions,
- Instrumentation for rare-decay studies,
- Cyber-physical systems for quantum sensing,
- Environmental radioactivity,
- Nuclear instrumentation for societal applications,
- High-spin nuclear structure physics,
- Lifetime measurements, and spectroscopy of isomers.

Projects (under which project seats will be offered)

Sr. no	Project Title	Principal Investigator
1.	Some aspects of non-relativistic conformal field theory.	De. Rajesh K. Gupta
2.	Design and Development of Quantum Entanglement-Enhanced Imaging Systems	Dr. Vishwa Pal
3.	Design and development of quantum entanglement-enhanced imaging systems	Dr. Girish Kulkarni

12. School of Artificial Intelligence and Data Engineering (AIDE)

Research Areas: Machine Learning, Deep Learning, Big Data Analytics, Natural Language Processing, Computer vision, Data mining, Data Engineering, Ethics in AI, Cloud Computing, Edge AI, IoT, Reinforcement Learning, Robotics, Multiagent Systems, Neuromorphic Hardware for AI, Quantum Machine Learning (QML), QML for Computer Vision, AI in Healthcare, Integrated Circuits and Systems for AI, AI-enabled wireless systems, Systems for ML/AI, AI in Healthcare, Electronic packaging and system integration using AI/ML

Sr. no	Project Title	Principal Investigator

1.	Development of quantum machine learning use cases and applications	Dr.Santosh Kumar Vipparthi
2	ARISE ML: ML driven SixG AR optimization for Advanced Self sustainable IoT devices	Dr.Ashwani Sharma

13. Center of Research for Energy Efficiency and Decarbonization (CREED)

Research Areas for External Fellowship: Materials for battery and hydrogen; hydrogen production from renewable sources, energy efficiency, and decarbonization, optimization of energy systems, thermal management, CO_2 sequestration, and carbon capture and utilization.

Research Areas for Part time/ERP candidates: Materials for battery and hydrogen; hydrogen production from renewable sources, energy efficiency, and decarbonization, optimization of energy systems, thermal management, CO_2 sequestration, and carbon capture and utilization, conversion of biomass into biofuel, conversion of CO_2 to useful products, and renewable energy.

14. Center for Applied Research in Data Science (CARDS)

Research Areas: Theoretical Foundations of Machine Learning, Algorithmic Advances like Supervised learning, Unsupervised learning, Deep learning, Reinforcement learning, Semi-supervised learning and active learning. Statistical Methods and Approaches: Statistical inference in machine learning, including confidence intervals, hypothesis testing, and Bayesian methods. Resampling methods (e.g., bootstrap, cross-validation) for model evaluation and selection. Handling of high-dimensional data, sparse models, and multivariate statistics. Bayesian machine learning and probabilistic graphical models. Regularization techniques. Applications and Case Studies: Applications of statistical learning in fields like healthcare, finance, marketing, social networks, computer vision, and natural language processing (NLP). Big Data and Computational Efficiency: Approaches for dealing with large-scale data (big data) and high-dimensional feature spaces, Scalable algorithms for large datasets, including distributed machine learning techniques. Optimization methods, including stochastic gradient descent and parallel computing. Deep learning frameworks and their computational demands.

For further details, please visit the respective department website link as below:

Name of the Department	Website link
Biomedical Engineering	CBME | IIT Ropar (iitrpr.ac.in)
Chemical Engineering	Chemical Engineering | IIT ROPAR (iitrpr.ac.in)

Civil Engineering	Department of Civil Engineering - Indian Institute of Technology Ropar (iitrpr.ac.in)
Computer Science and Engineering	Department of Computer Science & Engineering (iitrpr.ac.in)
Electrical Engineering	Department of Electrical Engineering, IIT Ropar (iitrpr.ac.in)
Mechanical Engineering	https://mech.iitrpr.ac.in/
Metallurgical and Materials Engineering	IIT Ropar / Materials (iitrpr.ac.in)
Chemistry	Department of Chemistry, IIT Ropar (iitrpr.ac.in)
Physics	IIT Ropar (iitrpr.ac.in)
Mathematics	Home | Department of Mathematics (iitrpr.ac.in)
Humanities and Social Sciences	Humanities and Social Sciences Department IIT Ropar (iitrpr.ac.in)
Center for Applied Research in Data Science (CARDS)	Center for Applied Research and Data Science (CARDS), IIT Ropar
Artificial Intelligence & Data Engineering	https://www.iitrpr.ac.in/saide/
Centre of research for energy efficiency and decarbonization	Center Of Research For Energy Efficiency And Decarbonization

REGISTRATION FOR THE Ph.D. DEGREE

The selected candidates who have submitted the institute fee will be provided the Entry No. and institute email ID after the verification of all their testimonials.

Candidates joining Ph.D programmes are required to produce their original marks/grade sheets along with provisional certificates at the time of admission.

Original Documents to be submitted for verification at the time of interview/admission:

(a) Printed copy of the application form obtained after online registration.
(b) Mark sheets/Grade cards of all semesters & Course completion certificate / Provisional certificate / Degree certificate beginning from first degree towards proof of qualification.
(c) Copy of GATE score card or UGC - JRF/NET/CSIR-JRF/ DAE-JEST or other fellowship award letter.
(d) SC/ST/OBC-NCL community certificate for the candidates belonging to SC/ST/OBC-NCL category issued by the respective State Government. [OBC-NCL candidates should produce the latest valid OBC Non-creamy layer community certificate in the prescribed format obtained after 31/03/2024].

The candidates claiming for EWS (Economically Weaker sections) reservation should submit valid Income & Assets certificate in the prescribed format obtained after 31/03/2024.
(e) Authorised Doctor's Certificate with disability descriptions in the case of Person with Disability (PwD) candidates.
(g) For Part-time candidates, NOC from the present employer should be submitted as per the prescribed format.

International Candidates– Admission to Ph.D

Foreign Nationals are those with foreign passports including those who are Person of Indian Origin (PIO) / Overseas Citizen of India (OCI) card holders.

Foreign nationals can only register as full-time scholars. Foreign nationals with eligible degrees from Indian Universities will be treated on par with Indian nationals for admission purposes with prescribed fee for foreign nationals. Foreign nationals with foreign degrees must meet the minimum educational requirements as specified on the website/admission brochure.

Facility available at IIT Ropar

The institute is actively involved in collaborative programs with international organizations and universities. The institute has the following facilities other than the basic academic facilities. Virtual Classrooms (NKN) Two virtual classrooms have been set up at IIT Ropar. NKN interconnects the institutions engaged in research, higher education and scientific development in the country.

Library:

The Nalanda Library, IIT Ropar is an invaluable storehouse of knowledge and learning resources, which plays a fundamental and advanced role in support of various academic and research activities at the institute. The objective of the library is to provide users with the required information resources and support by offering latest services which are integrated with teaching, learning and research activities.

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 also possesses a substantial collection of theses, dissertations, and annual reports, standards in the field of science, engineering, technology, humanities and social sciences. The library facilitates access to electronic journals through its participation in consortia, such as E-ShodhSindhu (eSS). 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 25,000+ books (available on shelves) and thousands of electronic books, e-journals. The library provides online access to a range of specialized databases, including economic and political databases such as Prowess IQ and CMIE States of India, as well as scientometric databases like Scopus, MathSciNet, and Web of Science. To support researchers in enhancing scientific writing skills and ensuring the originality of their research work, the library provides online access to tools such as Overleaf, Grammarly and Turnitin.

The library circulation operations have been automated using RFID-based LMS-KOHA software. The Online Public Access Catalogue (OPAC) which is in the 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 that helps in self-servicing and enhanced security. A dedicated e-resources section is provided in the library to browse CDs and DVDs of books, theses, and dissertations. Additionally, the library has established an Institutional Digital Repository (IDR) using open source DSpace software to archive and provide online access to the intellectual output of the institute. IDR is available publicly which facilitates the dissemination of scholarly work while promoting institutional visibility. To further enhance resource accessibility, the library has developed a web-based Subject/Research Guide using the Subject plus tool. The guide enables users to explore comprehensive library resources based on subject areas or research interests, including e-journals, books/e-books, databases, and theses/dissertations.

Hostel Accommodation

The Institute campus has four boys hostels (Satluj, Beas, Chenab, Brahmaputra) and 3 girl hostels (Raavi, Brahmaputra, T6) with a total capacity of 2984 available at the main campus. All hostels are well furnished along with common rooms for recreational activities for each hostel. The campus also has an expansive and airy common dining area. All hostels are provided with excellent drinking water facilities. Each hostel has common facilities - indoor, recreation and games. The hostel complex also includes a few shops that cater to the basic needs of the residents. IIT Ropar also provides gymnasium facilities within its campus for its students. Lush green IIT campus add enormous fuel in the daily life of the students. We have lively and enchanting campus life wherein the students are provided with all the amenities for the recreational activities. Here at IIT Ropar, students rejuvenate their hidden talent and relive their hobbies. State of the art classrooms with Audio visual aids and state of the art laboratories with latest research facilities enhance the teaching learning process while high-tech library with tremendous books, journals, periodicals etc. help them to connect with the entire world of information and knowledge. We have also introduced drastic changes to the mess menu with detailed options given to students w.r.t. the food items they would like to have in the Mess by fixing the base menu and providing extra items in the menu which they student can opt for at an extra cost. At IIT Ropar, students relish research and extracurricular activities to grow as an aspiring engineer with moral and ethical integrity.

***Note: Hostel accommodation will be provided on a sharing basis only depending upon the availability.**

Health Care

Medical Centre (24x7)

The Institute Medical Centre is located in the Utility Block in Main Campus. The Medical Centre consists of dedicated full time Medical Officers, Visiting Specialists and Para-Medical staff (Pharmacists and Nursing Staff) which have been appointed to provide the medical services to Students, Faculty, Staff and their dependents. The Medical Centre provides Routine OPD, Day Care, First-Aid & 24x7 Emergency Services. There are two Ambulances with basic life support available 24x7 for medical emergencies and for referral services to the higher centres. In addition, the Institute empanelled various Multi and Super Speciality hospitals in the city of Ropar, Mohali and Chandigarh for providing the Secondary and Tertiary medical care to the clientele of IIT Ropar.

Medical Centre aims to enhance the healthcare experience of the IIT Ropar campus community by providing healthcare with respect, consideration and confidentiality

Student Activities

The Institute has a Society for Publication and Communication Skills Development. In addition, there are Music, Dance, Dramatics, Arturo Photography, Fine Arts clubs, Girl up Club, Electoral Club, Epicure-The Cooking Club, Literary, Music clubs and also Science & Technology, Robotic Societies, Monochrome, Computer Integrated Manufacturing, Astronomy, Quiz, Coding clubs, where the students can participate and develop a well– rounded personality. Apart from above all, an Outdoor Adventure and Social Activities Club and Fitness club are also there for the wellness of Students.

General Facilities

The Institute has a branch of SBI as well as a Post office to cater to the needs of the faculty members, staff and students.

Student Life at Institute

At present, the transit and main campuses have excellent facilities for several sports, including a cricket field, three lawn tennis courts, a football field, a hockey field, a gymnasium, a basketball 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.

Industry and Alumni Relations:

Industry relations

The Industrial & Corporate Relation Cell office works in the direction to strengthen the relations with industry and reputed international research institutes in order to develop strong research and academic collaborations. The institute is well connected to Industry and is a member of Confederation of Indian Industry (CII). Industry Institute Conclaves are conducted in the Institute to develop Industrial Associates of the institute. The Conclaves are focused on bringing together industry leaders and academia together on the same platform to discuss and brainstorm topics related to industrial expectations from institutions, curriculum structure and discuss issues and opportunities related to industrial projects & consultancy. Experts from the industries are invited regularly to deliver lectures under Industrial Lecture Series. Centre for Innovation and Business Incubation (CIBI) of the institute is already hosting six startups, which is a part of Technology Business Incubator (TBI).

Alumni relations

Our Institute has been actively working to sustain the bonding and to ensure greater participation of its Alumni in its academic and extra activities through various initiatives in association with the IIT Ropar Alumni Association (founded in Feb. 2013). Some of the initiatives are as follows:

1. Alumni Student Mentorship Program (ASMP):It's a platform for tapping in the multitude of experience and knowledge of the Alumni for the benefit of the students and Alumni alike. As distinguished IIT Ropar graduates, Alumni hold a wealth of information and knowledge that current students can benefit from. Their expertise and advice are more valuable to students wanting to sail a similar kind of boat ranging from MBA (India, Abroad), MS, various kinds of jobs, civil services, entrepreneurship, etc.

2. Hangout with Alumni: Conducting regular Alumni-Student interaction sessions including webinars, podcasts, and in-person meets, when feasible, to bridge the gap between them and allow the experiences, learnings, exam preparation strategies, and above all, their valuable college memories, to reach the existing students. In this, we have Alumni speak about various topics based on students' responses and needs.

3. Alumni Student Relationship Cell: The ASRC has been linked with the placement and internship team of IIT Ropar, for facilitating more and better opportunities to the students through alumni in the form of internships, live projects, and placements. The vast alumni network spread over hundreds of corporate giants brings home the opportunity to call them for hiring at our campus.

4. Recreational Activities: The Alumni office and ASRC plans to regularly engage with the Alumni via recreational activities like inter-year online games and championships, organized in collaboration with various clubs of IIT Ropar. These initiatives are meant to foster healthy and vibrant relationships with these much precious jewels of the institute.

5. Alumni Awards: To recognize, appreciate and encourage our emerging young alumni members for their leadership potential and professional and/or societal impactful contributions and accomplishments, to enhance the awareness of their achievements and contributions, and to strengthen our bonding with emerging alumni members, Emerging Young Alumni Awards are instituted.

The Alumni have shown a lot of enthusiasm in participating in these initiatives and to keep working towards building a brand for our young institute IIT Ropar.

Recreational/Extra Curricular activities

In order to take care of various students activities, we have a Student Affairs Section with the following functional units:

1. Board of Hostel Affairs (BOHA)
2. Board of Cultural Activities (BOCA)
3. Board of Science & Technology (BOST)
4. Board of Sports Activities (BOSA)
5. Board of Literary Activities (BOLA)
6. Board of Academic Affairs (BOAA)
7. Board of Wellness Affairs (BOWA)
8. Institute Student Mentorship Program (ISMP)
9. Outdoor Adventure and Social Activities Club (ODAC)
10. National Service Scheme (NSS)

Board of Hostel Affairs (BOHA)

The Board of Hostel Affairs (BOHA) oversees all hostels and mess facilities at the institute, ensuring a comfortable and well-managed residential experience for students. It monitors food quality, menu

planning, and overall mess operations through the Mess Committee. For hostel-related concerns, the Hostel Committee addresses student issues and works towards improving hostel life. BOHA also organizes cultural celebrations, special dinners, and various activities to enhance student engagement. A major highlight is the General Championship (GC), a prestigious inter-hostel competition that fosters camaraderie and competitive spirit. All these activities are managed under the leadership of the General Secretary, BOHA.

Board of Cultural Activities (BOCA)

The Board of Cultural Activities (BOCA) at IIT Ropar is the heart of the institute's cultural scene, fostering artistic expression and vibrant student engagement. It oversees a diverse array of clubs, including Alankar (Music Club), Arturo (Photography Club), D'Cypher (Dance Club), Epicure (Culinary Club), Undekha (Dramatics Club), Vibgyor (Fine Arts Club), and Panache (Fashion Club). Throughout the year, BOCA organizes exciting events like jamming nights, Bhangra sessions, ramp walks, and street plays, ensuring a lively campus atmosphere. The flagship event, Zeitgeist, is IIT Ropar's annual cultural fest, featuring renowned celebrities, musicians, and comedians, drawing immense participation. BOCA also proudly represents IIT Ropar at the Inter-IIT Cultural Meet, held every December, where students compete against peers from all 23 IITs in a prestigious display of talent and creativity. Through these initiatives, BOCA not only enriches the cultural landscape on campus but also fosters leadership, teamwork, and artistic excellence.

Board of Science and Technology (BOST)

The **Board of Science and Technology** at IIT Ropar is a vibrant hub of innovation, comprising **11 dynamic clubs**—Aeromodelling, Automotive, CIM, Coding, Fincom, Robotics, Softcom, Zenith, Esportz, Monochrome, and Softcom. We explore diverse domains, including **mechatronics, software development, cyber security, game development, and competitive coding**, fostering a culture of technical excellence. Our board extends its reach into **high-power model rocketry, astronomy, esports, computational simulations, and design**, pushing the boundaries of scientific exploration. We also focus on **case studies, quantitative finance, and advanced computational techniques**, providing students with real-world problem-solving skills. Engaging in **national and international competitions**, we showcase our expertise on global platforms. From cutting-edge **robotics and automation** to **financial modeling and digital art**, our clubs cater to every tech enthusiast. With hands-on projects, workshops, and mentorship, we empower students to innovate and lead in the evolving technological landscape.

Board of Sports Activities (BOSA)

We have a Board of Sports Activities (BOSA) which encourages the students to participate in local / Inter- / Intra-college / Hostel Sports Activities to boost their performance in inter IIT Sports meet under the guidance of Sports Officer & professional coaches.

All sports facilities including gymnasium are being upgraded to enhance the quality of facilities at the Institute. There are international level modern sports fields / grounds with floodlights facilities. Since 2016, BOSA, IIT Ropar is organizing an Annual Sports Festival "AAROHAN" in which students of various Colleges, Institutes and Universities participate in more than 13 sports events.

Board of Literary Affairs (BOLA)

The Board of Literary Affairs at IIT Ropar is dedicated to nurturing and promoting literary excellence and creativity within the campus. It oversees and organizes all literary activities, providing a vibrant platform for students to explore and showcase their talents. Under its umbrella, the board hosts various clubs, including poetry, quizzing, debating, oratory, filmmaking, Model United Nations (MUN), and a movie club, catering to diverse literary and artistic interests. Additionally, it proudly organizes MALHAR, the annual literary fest of IIT Ropar, which celebrates the spirit of literature, culture, and expression through a

series of exciting events, competitions, and interactive sessions, fostering a dynamic and intellectually stimulating environment for the student community.

Board of Academic Affairs (BOAA)

The Board of Academic Affairs (BOAA) acts as a crucial link between students and the administration, focusing on addressing academic concerns effectively. With representatives from all branches of each year, BOAA ensures clear communication between students and professors. It advocates for student interests, influencing positive changes in academic policies. The board plays a vital role in improving the overall academic experience, aiming to create a supportive environment where every student's voice matters. Its efforts promote collaboration and address challenges to enhance learning throughout the college community.

Board of Wellness Affairs (BOWA)

The Boards caters the mental health and counseling needs of the students, faculties and staff. Our system is especially working towards addressing the psychological difficulties of the students and promoting wellness among the whole campus community. Our main focus is to create a proactive and preventative environment for mental health care for all. The objective of this cell is to increase the help seeking behavior among the community, and to remove the fear of stigma by close others and to make the counseling services more user friendly.

There is another unit working in coordination with the Board of Wellness Affairs i.e. a Counseling Cell named as “Snehita Wellbeing Cell”. This cell conducts various educational activities/sessions for student’s well-being like – Dealing with Academic Anxiety, Self Discipline & Wellbeing, Time Management, Power of Happiness, Relaxation Exercises & Mindfulness etc. Snehita Buddies have been constituted to address the stress related concerns of students under Snehita Wellbeing Cell.

Institute Student Mentorship Program (ISMP)

The Institute Student Mentorship Program (ISMP) at IIT Ropar is a student-driven initiative designed to help fresher’s adapt to college life. It provides guidance on academics, co-curricular activities, and maintaining a balanced lifestyle. Each fresher is assigned a mentor, a carefully selected senior student who offers support and advice throughout the year. ISMP ensures a smooth transition into IIT Ropar by organizing interactive sessions, activities, and events that introduce fresher’s to the campus culture. The program fosters a strong support system, encouraging personal and academic growth. Through mentorship, fresher’s gain insights, resources, and confidence to make the most of their college journey.

Outdoor Adventure and Social Activities Club (ODAC)

The Club organizes events specifically designed to help students, faculty, and staff members improve their fitness and overall well-being. Every year, on occasions such as National Unity Day, Yoga Day, and others, the club organizes events like the IIT Ropar Unity Run, Yoga Day in coordination with the Board of Sports Affairs, the celebration of Bicycling Day, and the Holy Run, among others.

NSS (National Service Scheme)

With the goal to work for the betterment of society and instill the spirit of social service among the young students, IIT Ropar established NSS at institute level, headed by Faculty in Charge, IIT Ropar. Currently, NSS, IIT Ropar has over 100 active members from different disciplines, working vigorously for community health care, literacy drives, and environmental protection. Blood donation camps, informative lectures on human values are organized regularly. The aim of the organization is to produce engineers, who are socially responsible, and work for the development of the nation.

Location and Accessibility

The Institute is located at Ropar, the headquarters of Rupnagar district, Punjab. This institute, with its establishment, joins a string of premier educational institutions in Punjab. The town of Ropar, the district headquarters, is 42 kms from Chandigarh, the capital of Punjab. Rupnagar is well connected by both road (National highway NH21 / NH205) and railways (the Delhi-Ambala-Una railway line passes through Rupnagar)

FORMAT – A: FORMAT OF SPONSORSHIP CERTIFICATE
(Part-time- ERP)

We understand that this sponsorship is covered by the following conditions:

i) The candidate will be continuing in the present place of work till he / she completes the research work.

ii) Necessary facilities will be provided for the proposed research work of the candidate.

iii) The Research Supervisor(s) from the Institute will be given access to the facilities necessary for the research work of the candidate in our organization.

iv) The Joint Research Supervisor/Coordinator will be identified by the candidate at the time of registration in the External Registration PhD programme.

v) The Joint Research Supervisor/Coordinator from the organization will ensure that half yearly reports are submitted through the Research Supervisor at the Institute to the PG office. Failure to comply with will result in cancellation of registration.

vi) The organization confirms that the Joint Research Supervisor has completed PhD in Govt. recognized Institution/University. The organization can nominate Coordinator for the candidate in case Joint Research Supervisor is not available in the organization.

vii) The organization will ensure that the candidate devotes sufficient time to his/her research work so that the submission of the thesis will be done within the time frame stipulated by the Institute.

viii) In the event of any intellectual property generated by the student during his/her proposed research, the Organization agrees to the sharing of IP rights as determined by a Committee constituted by IIT Ropar for this purpose.

ix) The thesis is a public document, and shall include all the work carried out by the student for the Ph.D. degree. The organization shall agree that sensitive/confidential information will not be included in the problem formulation or, subsequently, during the course of research.

x) All material in the thesis can be submitted for publication in peer-reviewed journals/ conferences; the organization waives the right to deny permission for publication, for reasons of confidentiality or for any other reason, for any material contained in the thesis.

xi) Publications: In the case of publications arising from the thesis, only those who have directly contributed to the research work can be listed as authors. In case of any difference of opinion, the decision of the internal committee of IIT Ropar shall be final.

NAME:

DESIGNATION:

ADDRESS:

Signature of the Head of the Organization with the official seal.

Place :
Date :

FORMAT B: FORMAT FOR NO OBJECTION CERTIFICATE

(Only for part-time)

Part-time candidates are required to submit a "No Objection Certificate" on a proper letterhead from the Head of the Institute/Competent authority in the organization clearly stating the following :

I. The candidate is permitted to pursue studies on a part-time basis.

II. That his/her official duties permit him/her to devote sufficient time for research.

III. Facilities for research in the candidate's field of research in the area in which admission is sought are available at the candidate's place of work

IV. He/she will be fully relieved from duty and permitted to reside at the Institute for the period required for course work.

Point No. (III) and (IV) stated above is not a requirement for candidates who are working within a distance of 100 km from the Institute).

NAME:
DESIGNATION:
ADDRESS:

Signature of the Head of the Organization with the official seal.
Place :
Date :

Contact us:

Email : phdadmissions@iitrpr.ac.in

Phone No.: 01881-231167, 231168, 231115, 231111 (from 9 am to 5 pm)

Website: www.iitrpr.ac.in

Contact details of Department Offices

Name of the Department	Email ID	Contact Number
Department of Biomedical Engineering	bme@iitrpr.ac.in	01881-232502
Department of Chemical Engineering	offchemengg@iitrpr.ac.in	01881-234021
Department of Chemistry	offchem@iitrpr.ac.in	01881-232052
Department of Civil Engineering	offce@iitrpr.ac.in	01881-242113
Department of Computer Science and Engineering	offcse@iitrpr.ac.in	01881-232152
Department of Electrical Engineering	eeoffice@iitrpr.ac.in	01881-232202
Department of Humanities & Social Sciences	offhss@iitrpr.ac.in	01881-242251
Department of Mathematics	mathoffice@iitrpr.ac.in	01881-232326
Department of Mechanical Engineering	office-me-1@iitrpr.ac.in	01881-232352
Department of Metallurgical and Materials Engineering	office-mme-1@iitrpr.ac.in	01881-232402
Department of Physics	physics@iitrpr.ac.in	01881-242477
Center for Applied Research in Data Science (CARDS)	office.cards@iitrpr.ac.in	01881-235115
School of Artificial Intelligence & Data Engineering	eeoffice2@iitrpr.ac.in , staff.saide@iitrpr.ac.in	01881-232202
Centre of research for energy efficiency and decarbonization	hod.creed@iitrpr.ac.in rishabh.semwal@iitrpr.ac.in	01881-242209