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About IIT Mandi

The Indian Institute of Technology Mandi (IIT Mandi), one of the premier technical institutes in India. IIT Mandi was established in 2009 with the aim of providing world-class education and cutting-edge research in engineering, science, and technology. Since its inception, the institute has strived to achieve excellence in education, research, and innovation.

Located in the scenic town of Mandi in the Himalayan foothills, the institute offers a unique learning experience to its students. With state-of-the-art facilities and world-class faculty members, IIT Mandi provides a conducive environment for research and learning. The institute offers undergraduate, postgraduate, and doctoral programs in various disciplines of engineering, sciences, and humanities.

At IIT Mandi, we believe in fostering an environment of innovation and creativity. Our faculty members are renowned experts in their fields and are committed to providing their students with the best possible education. With our multidisciplinary approach to education, we aim to produce graduates who are well-rounded and equipped to solve real-world problems.

We take pride in our research culture and encourage our students to engage in cutting-edge research in various fields. Our research facilities are equipped with state-of-the-art equipment and resources, providing our students with ample opportunities to explore their interests and pursue their passions.

Institute Webpage: www.iitmandi.ac.in

About IIT Ropar

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.

Indian Institute of Technology Ropar, an educational institution created by an Act of Parliament and having its principal address at The Indian Institute of Technology Ropar, Rupnagar, Punjab, 140001, India ("IIT Ropar"). 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 11 specializations/ areas under Departments/ School and offers the MSc degree in 3 Departments. It also offers M.Sc. in Data Science and Management under Joint degree programme with IIM Amritsar. It also offers the degree of Master of Technology in 7 Departments. From the January session 2024, the MS in Data Science programme for IIT Madras BS students is started at IIT Ropar. The institute also offers doctoral programmes in Engineering, Science, Humanities and Social Sciences.

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.

Institute Webpage: <https://www.iitrpr.ac.in/>

About PhD JDP

The Joint Degree Program (JDP) offers PhD students enrolled in both institutions the chance to collaborate on a multidisciplinary research project with faculty members and research teams from IIT Mandi and IIT Ropar, as well as to take advantage of the facilities and professional development opportunities offered by both institutions.

Important Guidelines for PhD Application

1. Please read the instructions given in the brochure carefully before filling up the applications.
2. **Online** Application form & Information brochure (Including the admission schedule along with the important dates) is available on the institute website at the following link : <https://alliance.iitmandi.ac.in/JDP/iitrpr/>
3. You are required to submit the application form ONLINE. No Downloadable Forms will be available after filling the form, you are advised to take a print of your application for your records.
4. For each project, candidate should submit a separate application with the application fee.
5. The application fee is as follows:

Category	Amount in ₹
General/EWS/OBC/OBC(NCL)/Transgender/Foreign Nationals	200
Women/SC/ST/PD	100

- One application fee is valid for the single application. The application fee is **NON-REFUNDABLE**.
6. OBC candidates may note that the limit for annual income is Rs. 8 Lakhs for determining the creamy layer among Other Backward Classes (OBCs) candidates. The OBC (NCL) certificate



issued for the financial year 2026-2027 by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form.

7. Economically Weaker Sections (EWS) candidates may note that the limit for annual income is Rs. 8 Lakhs for determining the eligibility for benefit under Economically Weaker Sections (EWS) reservation. The EWS certificate issued by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form and submitted at the time of admission.
8. Seats are reserved for Economically Weaker Sections (EWS)/Other Backward Class Non-Creamy Layer (OBC-NCL)/Schedules Caste (SC)/Scheduled Tribe (ST) and Person with Benchmark Disability (PwD) categories as per Government of India norms.
9. You should check Institute website for results/important announcements.
10. You should check emails sent to your email address provided in your application for all important communications and announcements if any.
11. Merely fulfilling eligibility criteria does 'not entitle a candidate to be called for the written test/interview. Decision of Institute authorities will be final. Admission is based on GATE/Written test/Interview performance in addition to general eligibility criterion, the applicants must also satisfy the eligibility criteria specified for the respective Departments / Centres / Schools / Interdisciplinary Groups.
12. Candidates, if called for written test/interview should show/bring with them (i) Photo ID Card, (ii) Printed copy of the application submitted online, (iii) Thesis/dissertation/report/publications (iv) copy of certificates and mark-sheets.

Important Dates for Admission

Starting date for filling Online Application	11 th October, 2026
Last date for filling Online Application	30 th October, 2026 (05:00PM)
Declaration of shortlisted candidates list	Will be Published on IIT Mandi and IIT Ropar website
Shortlisted candidates will be informed by email	

Contact Details

In case of any query related to the Ph.D. Programme admission process you may contact respective school/Centre, the contact details are:



IIT Mandi

Name of School/Centre	Email ID	Contact No.
School of Biosciences & Bioengineering	sbboffice@iitmandi.ac.in	01905-267061
School of Chemical Sciences	scsoffice@iitmandi.ac.in	01905-267277
School of Civil & Environmental Engineering	scene_admissions@iitmandi.ac.in	01905-267180
School of Computing and Electrical Engineering	sceeooffice@iitmandi.ac.in	01905-267071
School of Humanities & Social Sciences	shssoffice@iitmandi.ac.in	01905-267719
School of Management	somoffice@iitmandi.ac.in	01905-267119
School of Mathematical & Statistical Sciences	smssoffice@iitmandi.ac.in	01905-267929
School of Mechanical and Materials Engineering	smmeadmissions@iitmandi.ac.in	01905-267138
School of Physical Sciences	spsoffice@iitmandi.ac.in	01905-267812
Indian Knowledge System and Mental Health Application (IKSMHA)	iksmha@iitmandi.ac.in	01905-267786
Centre Artificial Intelligence and Robotics (CAIR)	cairoffice@iitmandi.ac.in	----
Centre for Quantum Science and Technologies (CQST)	arvindthapliyal@iitmandi.ac.in	01905-267899
Centre for Human Computer Interaction (CHCI)	chcioffice@iitmandi.ac.in	01905- 267187
Centre for Climate Change and Disaster management	c3dar-office@iitmandi.ac.in	-

IIT Ropar

Name of School/Centre /Department	Email ID	Contact No.
Academics Section	phdadmissions@iitrpr.ac.in	01881-231167, 01881-231168, 01881-231169, 01881-231120, 01881-231115 (from 9 am to 5 pm)

Academic Structure

Program management

A Doctoral Advisory Committee (DC) shall be set up for each JDP Scholar to support and monitor progress of the JDP Scholar throughout the candidature until the thesis has been submitted. The DC shall consist of the following members.

Chair/Head of the School/Department of the Home Institute or his/her nominee	Chairperson
Supervisor from the Home institute	Member

Supervisor from the Host institute	Member
Co-supervisor (s), if any with justification	Member (s)
Subject Expert from the Home Institution	Member
Additional members may be appointed to meet the requirements	Members

Coursework Requirements

The JDP Scholar shall satisfy the minimum academic coursework requirements of the Home Institution. Additional courses may be taken when recommended by the DC. If a JDP scholar credits a course in one institution, the credits will be automatically transferred to the other institution and will be counted towards the degree requirement.

Joint Degree Program Structure

- Candidates have a **“Home Institution”** where they begin their studies and spend the majority of time. The expectation is that candidates will spend a minimum of 12 months at the other, **“Host Institution”** the timing and duration of this will depend on the program of research but in general will be in the second or third year of the degree. Travel to and study at the Host Institution will be subject to the usual requirements of the institute.
- As a condition of enrolment on the PhD JDP, candidates are required to:
 - Spend a minimum of one year* (two semesters) enrolled at each institution.
*Candidates registered as part-time PhD or under External Registration program need to spend the minimum residential requirement criteria of both the institute as mentioned in their ordinances and regulations.
 - Undertake a program of progress monitoring and examination that meets the requirements of both institutions.
 - Comply with the rules, regulations, policies, codes and procedures of both institutions.
 - Write and submit a thesis for Défense by oral examination at the home Institution.
- Candidates for the PhD JDP will be enrolled in a PhD program in parallel at both institutions. The supervisory team will comprise academics from both institutions who will provide guidance and support throughout the doctoral program. Candidates will benefit from the research community, networking, and collaborations of the IIT



Mandi – IIT Ropar. Through enrolment at both institutions, candidates will have access to services and support provided at IIT Mandi and IIT Ropar, including a variety of professional and personal development opportunities for researchers.

- The primary supervisor shall be from the Home Institution. There must be a Joint supervisor from the Host Institution.
- The PhD JDP includes a tailored program of progress monitoring to fulfil the requirements of both institutions. On successful completion of the program requirements, candidates will be awarded a PhD degree jointly by both the Institutions.

Admissions are currently open under the following research projects

1.	Project Title.	
	Investigation of Thermo-Acoustic Instabilities with Radiative Effects	
	Thermo-acoustic instabilities, which arise due to the interaction between unsteady heat release and acoustic waves in combustion systems, pose a significant challenge to the performance and safety of engineering devices. Recent studies suggest that radiative heat transfer can influence these instabilities by altering the thermal gradient and energy distribution. This project aims to investigate the role of radiation in thermo-acoustic phenomena, with a focus on understanding its impact on instability onset and amplitude.	
	Home Institute: Indian Institute of Technology Mandi Supervisor: Dr. Pradeep Kumar School/Dept.: SMME	Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Lipika Kabiraj School/Dept.: Department of Mechanical Engineering

2.	Monetary Policy under Climate Change in India		
	Climate change has emerged as a macro-critical issue that increasingly shapes inflation dynamics, growth stability, and financial fragility. Recent empirical evidence demonstrates that climate shocks—through channels such as agricultural disruption, energy volatility, and migration—can amplify supply-side inflation and constrain monetary policy transmission (NGFS, 2024). Central banks globally, including the European Central Bank and the Bank of England, have begun to internalize climate risk within their policy frameworks. However, in emerging economies such as India, the monetary transmission mechanism faces unique challenges, that is, a high dependence on monsoon-linked output, shallow bond markets, and limited green-finance penetration (RBI, 2023). Studies by McKibbin et al. (2017) and Krogstrup and Oman (2019) emphasize that climate-induced inflation persistence complicates the traditional inflation–output trade-off embedded in the Taylor Rule. Furthermore, Dell et al. (2014) and Kotz et al. (2022) show that heat shocks and extreme weather alter both the neutral real interest rate and the Phillips curve slope. For India, where agriculture contributes around 17 per cent to GDP and nearly 45 per cent to employment, such climate–monetary interactions are economically significant yet underexplored. Hence, there is a pressing need to systematically evaluate how climate change and related policy actions reshape the effectiveness, calibration, and transmission of India’s monetary policy.		
	<table border="1"> <tr> <td data-bbox="312 1043 900 1274"> Home Institute: Indian Institute of Technology Mandi Supervisor: Dr. Masudul Hasan Adil School/Dept.: SHSS </td><td data-bbox="900 1043 1522 1274"> Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Bhavesh Garg School/Dept.: HSS </td></tr> </table>	Home Institute: Indian Institute of Technology Mandi Supervisor: Dr. Masudul Hasan Adil School/Dept.: SHSS	Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Bhavesh Garg School/Dept.: HSS
Home Institute: Indian Institute of Technology Mandi Supervisor: Dr. Masudul Hasan Adil School/Dept.: SHSS	Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Bhavesh Garg School/Dept.: HSS		
3.	ASIC and Design and Characterization of On-chip Atomic Clock for Defence Applications in 65nm CMOS Technology		
	This project targets the design and detailed characterisation of a dedicated ASIC in 65 nm CMOS technology to realise a compact, low-power, and high-stability on-chip atomic clock suitable for defence and aerospace platforms. The proposed chip will integrate low-noise analogue front-end circuits, frequency synthesis and locking loops, optical drive and detection interfaces, and digital calibration and compensation blocks required to sustain atomic resonance with minimal drift. Design emphasis will be placed on phase-noise optimisation, temperature and supply-variation immunity, ageing tolerance, and robustness against electromagnetic and radiation-induced perturbations encountered in field environments. Fabricated prototypes will be evaluated in conjunction with chip-scale atomic cells to quantify frequency stability, phase noise, power consumption, and long-term accuracy across temperature, vibration, and radiation stress conditions representative of defence use. The outcome will be a validated 65 nm CMOS ASIC architecture and measurement methodology enabling reliable, miniaturised atomic timing modules for secure synchronisation, navigation, and communication in mission-critical defence systems.		

	Home Institute: Indian Institute of Technology Mandi Supervisor: Prof Hitesh Shrimali School/Dept.: School of Computing and Electrical Engineering	Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Mahendra Sakre School/Dept.: Department of Electrical Engineering
4.	ASIC and Package Design and Characterization of On-chip Atomic Clock This project focuses on the advanced package design and comprehensive characterisation of an on-chip atomic clock intended for high-reliability defence and aerospace systems, where precise timing must be maintained under harsh environmental and operational stresses. The work will develop a miniaturised, hermetic, and electromagnetically shielded package that preserves the stability of the atomic resonance element while accommodating optical, thermal, and electrical interfaces required for chip-scale operation. Emphasis will be placed on materials selection, vacuum integrity, thermal management, vibration tolerance, and mitigation of ageing and radiation effects that can degrade frequency accuracy over long deployments. Detailed modelling and experimental validation will assess frequency stability, phase noise, environmental sensitivity, and long-term drift across temperature, shock, and radiation conditions representative of defence platforms. The outcome will be a qualified packaging architecture and characterisation methodology enabling robust, compact atomic timing modules suitable for secure communication, navigation, and synchronisation in mission-critical defence applications.	
	Home Institute: Indian Institute of Technology Mandi Supervisor: Prof. Hitesh Shrimali School/Dept.: School of Computing and Electrical Engineering	Host Institute: Indian Institute of Technology Ropar Supervisor: Prof. Rohit Sharma School/Dept.: Department of Electronics and Communication Engineering
5.	Basin-Effect on seismic response of long period structures in Chandigarh The sedimentary basin underlying Chandigarh can significantly influence the seismic response of long-period structures by amplifying and prolonging ground motion. From a geotechnical perspective, local soil condition; such as stratification, stiffness contrast, damping properties, and basin geometry, govern wave propagation and resonance effects, often increasing displacement demands on high-rise and flexible structures. Conventional seismic assessments that rely on generic ground motions may therefore underestimate the actual demand in such environments. Moreover, soil-structure interaction (SSI) further modifies the response by coupling the dynamic behaviour of the structure, foundation, and supporting soil. Whereby, foundation flexibility, radiation damping, and soil nonlinearity can alter structural natural periods, redistribute forces, and increase deformation demands. In basin conditions, SSI may either amplify or attenuate the response depending on soil properties and structural configuration. Evaluation of soil dynamic properties through laboratory tests such as resonant column testing enables estimation of modulus reduction and damping characteristics across strain levels, which are critical inputs for SSI analysis. Thus, this work aim to develop an integrated framework incorporating basin effects, detailed geotechnical characterization, and SSI for realistic seismic performance evaluation of long-period structures in Chandigarh, supporting performance-based design, vulnerability assessment, and region-specific risk mitigation strategies.	



Home Institute: Indian Institute of Technology Mandi Supervisor: Dr. Dhanya J School/Dept.: School of Civil and Environmental Engineering	Host Institute: Indian Institute of Technology Ropar Supervisor: Dr. Resmi Sebastian School/Dept.: Department of Civil Engineering
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General Qualifications

In the present call, the students for the PhD JDP will be admitted only in the Regular category. An eligible student in this category works full-time and receives assistantship from the Institute.

The candidate should fulfil the minimum eligibility criteria of the Home institution of the respective projects as mentioned in the below link.

IIT Mandi : <https://cloud.iitmandi.ac.in/f/eb5e554e7294407399ce/>

IIT Ropar:

https://drive.google.com/file/d/1GPBLKbRPCiNHmNrGLklwxObFS2DbIRqF/view?usp=drive_link

In addition to general eligibility criterion, the applicants must also satisfy the eligibility criteria specified for the respective Projects/Departments / Centres / Schools / Interdisciplinary Groups. Over and above the general eligibility criteria for admission, candidates need to satisfy additional criteria for financial support / fellowship, as specified under specific admission categories.

The final selection process to Ph.D. JDP programme for any project will be through written test and /or interview.

Application and Admissions

The admissions process will be managed by the IIT Mandi - IIT Ropar Joint Admissions Subcommittee (JASC) constituted at the School/Department/Centre level and according to each Institution's admissions procedure. Candidates must meet the admissions requirements of both institutions. The eligibility criteria for enrolling in a joint PhD program will be same as that of a regular PhD program/ERP of the individual institute. The details of the same can be found in the PhD ordinance of the individual institute.

- [IIT Mandi](#)

- [IIT Ropar](#)

All applicants will be expected to apply through an online admissions portal.



Fees, Scholarships and Funding

- The JDP Scholar shall pay tuition fees only to their Home Institution throughout the duration of the JDP including the duration of study at the Partner Institution as per its fee structure.
- Unless otherwise indicated, candidates who wish to be admitted onto the PhD JDP are entitled to receive fellowship meeting the eligibility criteria. The cost of fellowship will be borne by the Home Institute even during the candidate's stay in the Host Institute. No tuition fee will be charged by the host institution. However, the student needs to bear the boarding and lodging charges. Scholarships are awarded based on merit, and the value and conditions of any scholarship awarded will be in accordance with the terms and conditions of the awarding institution.
- Regardless of the scholarship awarded, students on the joint PhD program will be personally responsible for the following expenses unless otherwise advised:
 - Incidental fees and charges at either institution
 - Accommodation and living expenses at either institution
 - All personal expenses and non-compulsory additional fees at the host institution
 - All debts incurred by candidates during their stay at either institution
 - Any other debts incurred by candidates during the Joint PhD Program
 - Further the grants in respect of attending conferences will be provided only by the home institute.

Fees details:

The selected candidate needs to pay the fee only to the Home institution and the details about the fee structure can be found below:

- **IIT Mandi** : <https://academics.iitmandi.ac.in/fees>
- **IIT Ropar** : <https://www.iitrpr.ac.in/fee-details>
