



भारतीय प्रौद्योगिकी संस्थान मण्डी

Indian Institute of Technology Mandi



सरदार वल्लभभाई राष्ट्रीय प्रौद्योगिकी संस्थान, सूरत

Sardar Vallabhbhai National  
Institute of Technology, Surat

# IIT Mandi - SVNIT Surat PhD Joint Degree Program Information Brochure Admissions 2023-2024





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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](http://www.iitmandi.ac.in)

## About SVNIT Surat

Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat is to be a leading technical Institute not only at national level but also at International level for imparting training to manpower as per the needs of technology. It is also envisaged to provide the necessary infrastructure to take up research work and to provide the mechanism to interact with industries effectively.

The Institute has been granted the status of 'Institute of National Importance' w.e.f. Aug. 15, 2007. At present, the Institute is offering Six UG Programmes, Nineteen PG Programmes and Three M.Sc. Five Years Integrated Programme including doctoral programme in various disciplines of engineering and sciences.

Institute Webpage: [www.svnit.ac.in](http://www.svnit.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 SVNIT Surat, 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/svnit/>
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

- a. **Mode of Payment: SBI Collect Portal.**
  - b. Applicant should submit fee on SBI collect portal of the IIT Mandi and submit generated transaction number to the admission application portal Link:  
(<https://www.onlinesbi.sbi/sbicollect/icollecthome.htm> )
  - c. 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 2023-24 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	9 <sup>th</sup> November, 2023
Last date for filling Online Application	23 <sup>rd</sup> November, 2023
Declaration of shortlisted candidates list	Will be Published on IIT Mandi and SVNIT Surat 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

For Technical Problem Kindly contact:

	Email ID	Contact No.
Academic Section	<a href="mailto:sauravsaini@iitmandi.ac.in">sauravsaini@iitmandi.ac.in</a>	01905-267063 , 01905-267754



For School/Centre details Kindly contact:

Name of School/Centre	Email ID	Contact No.
Centre Artificial Intelligence and Robotics (CAIR)	<a href="mailto:cairoffice@iitmandi.ac.in">cairoffice@iitmandi.ac.in</a>	----
School of Biosciences & Bioengineering	<a href="mailto:sbboffice@iitmandi.ac.in">sbboffice@iitmandi.ac.in</a>	01905-267061
School of Chemical Sciences	<a href="mailto:scsoffice@iitmandi.ac.in">scsoffice@iitmandi.ac.in</a>	01905-267277
School of Civil & Environmental Engineering	<a href="mailto:scene_admissions@iitmandi.ac.in">scene_admissions@iitmandi.ac.in</a>	01905-267180
School of Computing and Electrical Engineering	<a href="mailto:sceoffice@iitmandi.ac.in">sceoffice@iitmandi.ac.in</a>	01905-267071
School of Humanities & Social Sciences	<a href="mailto:shssoffice@iitmandi.ac.in">shssoffice@iitmandi.ac.in</a>	01905-267719
India Knowledge System and Mental Health Application (IKSMHA)	<a href="mailto:iksmha@iitmandi.ac.in">iksmha@iitmandi.ac.in</a>	---
School of Management	<a href="mailto:somoffice@iitmandi.ac.in">somoffice@iitmandi.ac.in</a>	01905-267119
School of Mathematical & Statistical Sciences	<a href="mailto:smssoffice@iitmandi.ac.in">smssoffice@iitmandi.ac.in</a>	01905-267929
School of Mechanical and Materials Engineering	<a href="mailto:smmeadmissions@iitmandi.ac.in">smmeadmissions@iitmandi.ac.in</a>	01905-267138
School of Physical Sciences	<a href="mailto:spsoffice@iitmandi.ac.in">spsoffice@iitmandi.ac.in</a>	01905-267812

### SVNIT Surat

Name of School/Centre /Department	Email ID	Contact No.
Academic Section	acad_phd@svnit.ac.in	0261-220-1512

## 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 defense 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 – SVNIT Surat. Through enrolment at both institutions, candidates will have access to services and support provided at IIT Mandi and SVNIT Surat, 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

<p><b>1.</b></p>	<p><b>Numerical investigations on tunnelling induced vibrations in hilly region</b></p> <p>Tunnel are lifeline structure has to pass through difficult hilly terrain. The tunnelling operations causes vibrations which may cause the liquefaction of susceptible soils. In hilly regions, the stability of slopes is of major concern. When tunnels are made through it, it causes a loss of soil called volume loss during tunnelling and may cause the instability of soil mass. Moreover, the vibrations caused during tunnelling operation may also results in instability of soil mass. Therefore, the numerical investigation on tunnelling induced vibrations in hilly regions is proposed to examine the concern of stability of tunnel heading and local and global slope stability of soil mass.</p>
<p><b>Home Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Prasanna Rousseau <b>School/Dept.:</b> Civil and Environmental Engineering</p>	<p><b>Host Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Jitesh Chavda <b>School/Dept.:</b> Civil Engineering</p>
<p><b>2.</b></p>	<p><b>Probabilistic modelling of sorptivity for the durability design of concrete</b></p> <p>The sorptivity of concrete serves as a significant parameter in the durability design of concrete structures. A probabilistic approach is needed to capture the influences of mortar, aggregates, and the ITZ on this parameter based on a rigorous nonlinear FEA conducted at the meso-scale level. A conceptual model can be subsequently developed to establish a correlation between the effective hydraulic sorptivity of concrete, the volume fraction of aggregates, and the hydraulic properties of the mortar and ITZ. The probabilistic methodology would offer a valuable tool for the design of concrete structures with enhanced durability.</p>
<p><b>Home Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Kaustav Sarkar <b>School/Dept.:</b> Civil and Environmental Engineering</p>	<p><b>Host Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Kashyap A. Patel <b>School/Dept.:</b> Civil Engineering</p>



<p><b>3.</b></p>	<p><b>Static and dynamic characterization of expansive soils</b></p> <p>Expansive soils are considered as problematic soil as they expand and shrink with addition and removal of water. Structures built on such soil are subjected to uneven static uplift forces resulting in differential settlements, development of stress and cracks in the structural members, and further distress with cycle of swelling and shrinking. During dynamic loading, such soils may also cause an amplification in the intensity of dynamic loads. Therefore, the static and dynamic characterization of expansive soil is proposed to mitigate the problems associated with expansive soils.</p>	
	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Jitesh Chavda <b>School/Dept.:</b> Civil Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Prasanna Rousseau <b>School/Dept.:</b> Civil and Environmental Engineering</p>
<p><b>4.</b></p>	<p><b>RF Energy harvesting Systems</b></p> <p>Radio frequency energy harvesting (RF-EH) is a potential technology via the generation of electromagnetic waves. This advanced technology offers the supply of wireless power that is applicable for battery-free devices, which makes it a prospective alternative energy source for future applications. In addition to the dynamic energy recharging of wireless devices and a wide range of environmentally friendly energy source options, the emergence of the RF-EH technology is advantageous in facilitating various applications that require quality of service. The abundant source of RF-EH from the surroundings sources, including nearby mobile phones, Wi-Fi, wireless local area network, broadcast television signal or DTS, and FM/AM radio signals can be used. Their radiation energy can be captured by a receiving antenna and rectified into a working direct current voltage.</p>	
	<p><b>Home Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Gopi Shrikanth Reddy <b>School/Dept.:</b> Computing and Electrical Engineering</p>	<p><b>Host Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Kirti Inamdar <b>School/Dept.:</b> Electronics Engineering</p>
<p><b>5.</b></p>	<p><b>Agricultural Waste based Solutions for EMI Shielding</b></p> <p>This project focuses on design, development and fabrication of Electromagnetic shields using agricultural waste or biomass as it's raw material. The biomass when undergo a pyrolysis process, it's carbon content increases. This property is useful for microwave absorption. The residue of pyrolysis can be mixed with appropriate polymer and can be converted into any shape which can be used for prevention of microwave pollution.</p>	
	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Kirti Inamdar <b>School/Dept.:</b> Electronics Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Gopi Shrikanth Reddy <b>School/Dept.:</b> Computing and Electrical Engineering</p>



<p><b>6.</b></p>	<p><b>Crop management system</b></p> <p>Majority of Indian farmers are coming in Micro, Small and Medium economic status. They are not having huge fields, which makes difficult for them to adopt the costlier solution to manage the crop production and relevant timely farming activities. The complete low cost designing of the optimum number of sensors and minimal configuration drone based system along with the multi lingual software interface for the crop management system from sowing to harvesting along with the intermediate disease severity prediction and the network of the available economical drone services to help the illiterate farmer to improve his economical status for the sustainability.</p>	
	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr. Dipti P. Rana <b>School/Dept.:</b> Computer Science and Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Radhe Shyam Sharma <b>School/Dept.:</b> Centre for Artificial Intelligence and Robotics</p>
<p><b>7.</b></p>	<p><b>Industrial suitability and commercialization of novel SPIF process for DC04 steel materials</b></p> <p>Incremental Sheet forming (ISF) is an unconventional metal forming process that is extensively used to manufacture products with free form shapes without using any specialized dies. A computer numerical controlled tool follows a series of small increment steps and deforms the sheet into the desired shape. ISF presents exciting challenges which must be undertaken in order to bring it successfully on a shop floor. Technologists and engineers are focusing on rapid and flexible manufacturing process, which should entice modern industries for its shop floor use. Due to better formability and ease of manufacturing with SPIF process in comparison to conventional forming methods, many researchers worldwide have tried to clinch the feasibility of this process for real world applications.</p>	
	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Dr Amrut Mulay <b>School/Dept.:</b> Mechanical Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Dr Vishal Singh Chauhan <b>School/Dept.:</b> Mechanical and Materials Engineering</p>



<p><b>8. Lignocellulosic Degradation of Green Waste by Composting and Its Applicability in Soil Amendment</b></p> <p>The proposed project aims to biodegrade lignocellulosic waste, such as green waste, using the composting method with an optimized technique and microbial inoculum. The resulting nutrient-rich compost will be analyzed to determine its suitability as a soil amendment and its impact on micro and macro nutrients, including heavy metals. The composting technology used in this project has been developed in the Solid Waste Laboratory at SVNIT, Surat, by several research scholars under the guidance of Dr. K. D. Yadav, and is now state-of-the-art. The project will focus on the applicability of the green waste compost on contaminated soil and its impact on micro/macro nutrients, with collaboration from IIT Mandi under the supervision of Dr. Harshad Kulkarni.</p>	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Prof. Dr. Kunwar D. Yadav <b>School/Dept.:</b> Civil Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Dr. Harshad V. Kulkarni <b>School/Dept.:</b> Civil and Environmental Engineering</p>
<p><b>9. Applying Machine Learning for Security Issues and/or Adversarial Machine Learning</b></p> <p>The experimentation and analysis is focussing the machine learning techniques used for addressing the security concerns in the target applications of interest. The research work is also targeted at identifying the threats to the Machine Learning Models and working on the strategies to mitigate the threats. The applications of the interest could be anything from Email Spam Detection, Intrusion Detection, Network Traffic Analysis, Identifying Malicious Network and Port Scanning attempts, Using Deep Learning Model for Network Scanning Detection etc. - that are using Machine Learning Algorithms. The application may also include investigating adversarial samples for Time series classification models OR in general Adversarial attacks on time series prediction and Adversarial Machine Learning broadly.</p>	<p><b>Home Institute:</b> SVNIT, Surat <b>Supervisor:</b> Prof Devesh C Jinwala <b>School/Dept.:</b> Department of Computer Engineering</p>	<p><b>Host Institute:</b> IIT Mandi <b>Supervisor:</b> Dr Dinesh Singh <b>School/Dept.:</b> School of Computing and Electrical Engineering</p>

## 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/abee554e7294407399ce/>



- **SVNIT Surat** : <https://svnit.ac.in/Data/Notice/2021/April/Ph.D.%20-%20New%20-%20REGULATIONS%20FOR%20DOCTORAL%20PROGRAMMES.pdf>

*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 - SVNIT Surat Joint Admissions Sub-committee (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** : [https://www.iitmandi.ac.in/pdf/ordinances/Ordinances\\_phd\\_mtech.pdf](https://www.iitmandi.ac.in/pdf/ordinances/Ordinances_phd_mtech.pdf)
- **SVNIT Surat** : <https://svnit.ac.in/Data/Notice/2021/April/Ph.D.%20-%20New%20-%20REGULATIONS%20FOR%20DOCTORAL%20PROGRAMMES.pdf>

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 through out 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://cloud.iitmandi.ac.in/f/248b95f143c8484c9a83/>

**SVNIT Surat** <https://svnit.ac.in/Data/Notice/2022/July/Fee%20Structure%202022-23.pdf>