



Department of Mechanical Engineering Indian Institute of Technology Indore

Khandwa Road, Simrol Indore 453 552

Madhya Pradesh, India

Ph.D. Program in Department of Mechanical Engineering

The Department of Mechanical Engineering, IIT Indore invites applications from high caliber, sincere and research-oriented students for admission to the Ph.D. program for the Academic Year 2022-2023 as per the below-mentioned categories of admission, research areas, and time schedule. Candidates are strongly advised to visit the profiles of the faculty members at <http://people.iiti.ac.in/~meiiti/index.php/about/> before applying for the Ph.D. Program.

A. Categories of Admission: TA (Teaching Assistantship)/FA (Fellowship Awardee)/ SW (Sponsored without Institute scholarship)/ IS (Institute Staff)/DF (Defense Forces) and CT (College Teacher). Kindly refer to the main Ph.D. Advertisement of the Institute is available at <http://academic.iiti.ac.in/phdadvt.php> for more details.

B. Eligibility for Indian Students: GATE qualification is not compulsory for DF/IS/CT/SW category

Minimum Educational Qualifications (MEQs) and Qualifying Examination (QE) for Indian applicants	Minimum Educational Qualifications (MEQs) and Qualifying Examination (QE) for International applicants
<p>B. Tech. in Mechanical Engineering, Metallurgy, Automobile Engg; Marine Engineering; Ceramic Engineering; Materials Engineering, Manufacturing Engineering, Industrial Engineering, Reliability Engineering Production Engineering, Materials Science Engineering, Aerospace Engineering, Chemical Engineering, Biotechnology, Bioengineering, Biomedical Engineering or any other related field of Engineering</p> <p>and</p> <p>Masters' degree in the Mechanical Engineering/ Technology/ Metallurgy Engineering/ Energy Systems Engineering; Energy and Environment; Energy Engineering; Automobile Engineering; Thermal Engineering; Heat Power; Energy Materials, Fluids & Thermal Engineering, Cryogenics & Vacuum Technology, Hydraulic Engineering, Material Science and Engineering, Manufacturing Engineering, Industrial Engineering, Production Engineering, Reliability Engineering, Machine</p>	<p>☐ MEQ: Masters' degree in the Mechanical Engineering (with first division as defined by the awarding Institute/ University)</p> <p>☐ QE: Valid TOEFL/IELTS OR equivalent qualification OR Valid GATE qualification</p>

Design, Biotechnology, Bioengineering, Biomedical Engineering. CAD/CAM with first division as defined by the awarding Institute/ University) or other related fields of engineering **AND GATE qualification**

OR

Four-year Bachelors' degree **OR** five-year integrated degree in the **Mechanical Engineering** (with first division as defined by the awarding Institute/ University) **AND valid GATE qualification**

C. Eligibility for International Students: Please refer to the main Ph.D. Advertisement of the Institute (<http://academic.iiti.ac.in/phdadvt.php>)

After submitting the application online, the eligible International candidate needs to send the signed hard and soft - copy of the application along with a recent photograph, self-attested relevant certificates and Statement of Purpose (SOP) to the DPGC Convener of ME Department latest by **25 November 2022**.

D. Last date of online application (for Indian as well as International Students): 25 November 2022

Last date of Online Application through http://academic.iiti.ac.in:8080/nregistration.jsp (for both Indian and International Applicants)	25 November 2022
Shortlisted candidate intimated	Last week of November 2022
Last date of receiving recommendations of two referees (to be sent by referees to admission-me@iiti.ac.in) (for both Indian and International Applicants)	Last week of November 2022
Date of Interview (both Indian and International Applicants)	First week of December 2022
Interview Schedule & Mode	
Interviews for the Ph.D. admission would be conducted in the First week of December 2022 through the Google Meet platform or offline. A detailed schedule regarding the interview will be intimated to the eligible/shortlisted candidates later.	

E. Application Procedure and General Information for Indian Students:

[1] Candidates must apply ONLINE through the website (<http://academic.iiti.ac.in:8080/nregistration.jsp>). This will generate a unique application number for each applicant.

[2] Application Fee:

- Indian Applicants: 100/- Indian Rupees (non-refundable) to be paid through State Bank Collect.

- International Applicants: US \$ 30 (non-refundable) through RTGS. Kindly refer to the main Ph.D. Advertisement of the Institute at <http://academic.iiti.ac.in/phdadvt.php> for more details about the payment procedure and course fee structure.
Please refer to the main Ph.D. Advertisement of the Institute for more details.
- [3] The application must be submitted online on or before the date mentioned above.
- [4] There is no need to send hard copies of the application form and supporting documents through POST or COURIER.
- [5] Mere fulfillment of the eligibility criteria will not entitle any applicant to be called for a written test/interview. The Institute/department reserves its rights to set higher norms for short-listing and call a limited number of candidates for the written test/interview.
- [6] The shortlisted applicants will be called for a written test/interview via email only so mention your email id carefully.
- [7] The candidates must arrange recommendation letters (in the given format only) at least two referees well before appearing for a written test/interview. A sample of the recommendation letter is provided in Word format, which can be downloaded for further use. Candidate letters of recommendation must be sent by referees to admission-me@iiti.ac.in.
- [8] The shortlisted candidates must submit a statement of purpose explaining why they would like to pursue the Ph.D. in the specific area (200 to 300 words) well before appearing for a written test/interview.
- [9] Only shortlisted candidates will be asked to submit a PDF of the application form along with scanned copies of the fee payment receipt and self-attested copies of supporting documents (10th mark sheet, 12th mark sheet, B.Tech degree mark sheets and certificate, GATE score card, Master's degree mark sheets and certificate, Caste Certificate, if applicable and all other relevant certificates) in the mentioned order (all combined into a single PDF file) to admission-me@iiti.ac.in within the online application deadline.
- [10] SW category candidates must have NOC, experience certificate, last three months' salary slips, and Employer's PAN card and along with the above documents. If a candidate is shortlisted, he has to submit it immediately.
- [11] Candidates who are Fellowship Awardees (FA) should send a combined pdf with a letter of the fellowship award (i.e. from CSIR, UGC, DST, PMRF, etc.) along with the application form generated after applying online (form should be signed and past the photograph) to admission-me@iiti.ac.in within the online application deadline.
- [12] **GATE qualification is not compulsory for DF/IS/CT/SW category candidates.**
- [13] DF/IS/CT/SW candidates are advised to look for additional rules on <https://academic.iiti.ac.in/phdadvt.php>
- [14] No interim correspondence whatsoever will be entertained from applicants regarding conduct and result of the selection process and reasons for not being called for an interview or selection.
- [15] Mere fulfillment of the essential qualifications does not guarantee admission to PhD program in the Department of Mechanical Engineering. The selection will be based on the overall performance, which may include a written test, interview, academic background, suitability for research in the chosen field/area, research aptitude, communication skills, and others.

The candidates can contact the DPGC convener for further information at the following address:

admission-me@iiti.ac.in

For any further queries, please contact:	For queries specific to the Department, emails
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PhD Admission Cell,
Indian Institute of Technology Indore,
Indore-453552, Indore, Madhya Pradesh,
India.

Email: phdadmission@iiti.ac.in

can be sent to admission-me@iiti.ac.in

Annexure

Vacancies are available in the following areas:

Sr. No.	Specialization	Research Areas
1	Design Engineering (Dr. Krishna Mohan Kumar)*	<ul style="list-style-type: none">● Acoustics of Ducts and Mufflers● Industrial and Automotive Noise Control● Automotive Noise Control● Designing for Quietness
2	Design Engineering (Dr. Indrasen Singh)*	<ul style="list-style-type: none">● Deformation and fracture behaviour of cellular ceramics for defence applications.● Finite element simulations of deformation and fracture behaviour of BCC single crystals.● Finite element simulations of indentation response of Piezoelectric materials.
3	Design Engineering (Dr. Shailesh Kundalwal)*	<ul style="list-style-type: none">● Smart Materials and Structures● Flexoelectricity and Piezoelectricity● Modeling of Hydrogen Storage● Composite Materials and Structures● Multiscale Modeling of Nanocomposites● Nanomechanics and Micromechanics
4	Design Engineering (Dr. Sandeep Singh)*	<ul style="list-style-type: none">● Solid mechanics and design● Finite element method● Computational mechanics● Computational material science● Multiscale modelling of nanomaterials● Atomistic simulation● Finite element modelling of nanostructures
5	Design Engineering (Dr. Pavan Kumar Kankar)[§]	<ul style="list-style-type: none">● Vibration● Vibration and force analysis in biomechanical preparation of root canals● Fault diagnosis of mechanical components

		<ul style="list-style-type: none"> ● Condition based maintenance ● Machine learning ● Signal processing
6.	Design Engineering (Prof. Anand Parey)*	<ul style="list-style-type: none"> ● Machine design ● Condition monitoring ● Noise and vibration isolation ● Signal Processing of Mechanical Systems
7.	Production/Manufacturing/Materials/Metallurgy (Prof. Suhas S. Joshi)*	<ul style="list-style-type: none"> ● Modeling machining of ‘difficult-to-machine’ materials (MMCs, Inconel, Titanium) ● Modeling and development of micro-machining processes. ● Laser micro-machining, LIGA and Nanopolishing
8.	Manufacturing/Materials/Production (Prof. Neelesh Kumar Jain)*	<ul style="list-style-type: none"> ● Solid-State Additive Manufacturing ● Development of Biocompatible Materials (for Orthopaedic Implant applications), High/Medium Entropy Alloys, Functionally Graded Materials (FGM), Shape Memory Materials (SMM) by Micro-Plasma based Metal Additive Manufacturing Process ● Modeling and Optimization of Additive Manufacturing and Other Manufacturing Processes ● Finishing and Flank Modifications of Gears by Non-contact Advanced Finishing Processes ● Sustainable Machining of Gears ● Net-shape Machining of Non-Circular and Miniature Gears ● Analytical, Functional Performance, and Noise and Vibration Testing of Gears ● Advanced/Unconventional Machining and Finishing Processes ● Micro-joining of Dissimilar Materials
9	Production/Manufacturing/Materials/Metallurgy (Prof. I. A. Palani)*	<ul style="list-style-type: none"> ● Laser Based Micro/Nano Additive manufacturing and surface processing ● Mechatronics system Design

		Machining of Hard and High temperature materials
10	Production/Manufacturing/Materials/Metallurgy (Dr. Kazi Sabiruddin)^s	<ul style="list-style-type: none"> ● Surface Engineering ● Thermally sprayed ceramic coatings ● Tribo-mechanical applications
11	Production/Manufacturing/Materials (Dr. Yuvraj Kumar Madhukar)^{s,#} Sponsored project:	<ul style="list-style-type: none"> ● Additive Manufacturing ● WAAM-MIG, MAAM-TIG, LASER-AM ● Automation and control ● Laser Material Processing
12	Manufacturing Engineering (Dr. Ashish Rajak)^s	<ul style="list-style-type: none"> ● Metal Forming ● Metal Welding ● Finite Element Method ● Powder Compaction
13	Manufacturing Engineering (Dr. Girish Verma)[*]	<ul style="list-style-type: none"> ● Machining processes ● Abrasive based super-finishing processes ● Ultrasonic-assisted machining process ● Additive manufacturing.
14	Manufacturing/CAD/CAM/Metallurgy/Production (Dr. Dan Sathiaraj)^s	<ul style="list-style-type: none"> ● High Entropy Alloy ● Additive manufacturing
15	Industrial and Systems Engineering (Prof. Bhupesh Kumar Lad)^s	<ul style="list-style-type: none"> ● Smart manufacturing, ● Reliability engineering, and prognostics
16	Thermal Engineering (Dr. Harekrishna Yadav)^s	<ul style="list-style-type: none"> ● Fluid Dynamics and Heat Transfer ● Fluid-Structure Interaction ● Shear Flow, Supersonic Flow, Flow and Turbulence Measurement using Optical

		<p>Techniques</p> <ul style="list-style-type: none"> ● Heat Transfer Enhancement ● Renewable and Sustainable Energy.
17	<p>Thermal and Materials Engineering (Dr. Satyanarayan Patel)^S</p>	<ul style="list-style-type: none"> ● Energy conversion, storage and harvesting materials ● Solid-State Refrigeration ● Piezoelectric, Pyroelectric and ferroelectric materials ● Energy Engineering
18	<p>Thermal Engineering (Dr. Ankur Miglani)*</p>	<ul style="list-style-type: none"> ● Combustion and Propulsion: Combustion of next-generation fuels (Gel and nanofluid fuels); ● Heat Transfer, micro/nanofluidics: Thermal management of high-heat-flux electronics; ● Soft matter: Instabilities in drying colloidal droplets
19	<p>Thermal Engineering (Prof. Santosh Kumar Sahu)^S</p>	<ul style="list-style-type: none"> ● Fluid Dynamics ● Heat Transfer ● Thermal Science
20	<p>Thermal Engineering (Prof. S. Dhinakaran)^{*,S,#}</p>	<ul style="list-style-type: none"> ● CFD ● Biofluid Mechanics & Bioheat Transfer
21	<p>Thermal and Materials Engineering (Dr. S Janakiraman)^S</p>	<ul style="list-style-type: none"> ● Energy Storage Materials, ● Lithium & Sodium-ion Batteries, ● Polymer Electrolytes, Composites, & Thin Film Batteries.
22	<p>Thermal Engineering (Prof. Ritunesh Kumar)*</p>	<ul style="list-style-type: none"> ● Desiccant Cooling systems. ● Heat transfer at microscale ● Biofuels
23.	<p>Thermal Engineering (Dr. Devendra L Deshmukh)^S</p>	<ul style="list-style-type: none"> ● Laser diagnostics in combustion and multiphase flows.
24.	<p>Thermal Engineering (Dr. Vijai Laxmi)*</p>	<ul style="list-style-type: none"> ● Microfluidics ● Fluid mechanics

	<ul style="list-style-type: none"> ● Development of lab-on-a-chip/organ-on-a-chip models for healthcare purposes ● Low-cost and bio-inspired micro fabrication techniques
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***TA (Teaching Assistantship) Category:** With scholarship as per guidelines of Ministry of Education (MoE*) AND **Non-TA Categories** such as **DF:** Defense Forces (DF); **FA:** Fellowship Awardee and DST-INSPIRE Fellow having their own JRF and SRF funded from the external funding agencies such as CSIR, DST, DBT, etc; **CT:** College Teacher sponsored by their employee and fulfilling the prescribed requirements of IIT Indore for CT category; **SW:** Professional sponsored by the eminent Industries or R&D Organizations fulfilling the prescribed requirements of IIT Indore; **IS:** ONLY for regular staff members of IIT Indore on part-time basis only.

[§]**Non-TA Categories** such as **DF, FA, CT, SW, and IS** with the details as mentioned above.

[#]Funding is available via sponsored project under FA.

For IIT Indore prescribed requirements and additional forms for DF/SW/IS categories please visit

<https://academic.iiti.ac.in/phdforms/5022015Additional-Rules-for-IS+SW-Part-Time-PG+PhD-Programs.pdf>

For IIT Indore prescribed requirements and additional forms for CT category, please refer

<https://academic.iiti.ac.in/phdforms/Rules%20and%20Form%20for%20CT%20category.pdf>

Faculty members and their research profiles: To gain more insight, the interested applicants are encouraged to visit below-mentioned website of a faculty member.

Prof. Anand Parey: <http://people.iiti.ac.in/~meiiti/index.php/dr-anand-parey/>

Dr. Krishna Mohan Kumar: <https://scholar.google.co.in/citations?user=Fq0imOkAAAAJ&hl=en>

Dr. Indrasen Singh: <http://people.iiti.ac.in/~meiiti/index.php/dr-indrasen-singh/>

Dr. Pavan Kumar Kankar: <https://scholar.google.co.in/citations?hl=en&user=eN63O5AAAAAJ>

Dr. Shailesh I. Kundalwal: <https://www.sikundalwal.com/>

Dr. Sandeep Singh: <https://scholar.google.co.in/citations?user=nhQER2YAAAAJ&hl=en>

Prof. Bhupesh Kumar Lad: <http://bklad.webs.com/>

Prof. Suhas S. Joshi: <https://scholar.google.co.in/citations?user=9QQ4-RIAAAAJ&hl=en>

Prof. Neelesh Kumar Jain: <http://people.iiti.ac.in/~nkjain/>

<https://scholar.google.co.in/citations?user=NHW6zSQAAAAJ&hl=en>

Prof. I. A. Palani: <https://iiti.ac.in/people/~palaniia/>

Dr. Kazi Sabiruddin: <https://www.iiti.ac.in/people/~skazi/index.html>

Dr. Yuvraj Kumar Madhukar: <http://people.iiti.ac.in/~meiiti/index.php/dr-yuvraj-kumar-madhukar/>

Dr. Ashish Rajak: <https://scholar.google.com/citations?user=eHnsIccAAAAJ&hl=en&oi=ao>

Dr. Girish Verma: <http://people.iiti.ac.in/~meiiti/index.php/dr-girish-chandra-verma-2/>

Dr. Dan Sathiaraj: <https://sites.google.com/view/drdansathiaraj>

Prof. Santosh K. Sahu: <http://people.iiti.ac.in/~santosh/>

Prof. Dhinakaran Shanmugam: <http://people.iiti.ac.in/~sdhina>

Dr. Devendra L Deshmukh: <https://scholar.google.co.in/citations?user=KJsV7yQAAAAJ&hl=en>

Dr. Harekrishna Yadav: <http://people.iiti.ac.in/~meiiti/index.php/dr-harekrishna-yadav-2/>

Dr. Satyanarayan Patel: <https://sites.google.com/view/satyanarayan-patel>

Dr. Ankur Miglani: <https://scholar.google.co.in/citations?user=6ABZdEoAAAAJ&hl=en>

Dr. S Janakiraman: <https://scholar.google.co.in/citations?user=kL1lz88AAAAJ&hl=en>

Dr. Vijai Laxmi : https://scholar.google.co.in/citations?hl=en&user=dQhR86EAAAAJ&view_op=list_works&sortby=pubdate