



## 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>B. Tech.</b> 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><b>and</b></p> <p><b>Masters' degree</b> in the Mechanical Engineering/ Technology/ Metallurgy Engineering/ Energy Systems Engineering; Energy and Environment; Energy Engineering; Automobile Engineering; Thermal Engineering; Heat Power; Energy Materials, Fluids &amp; Thermal Engineering, Cryogenics &amp; Vacuum Technology, Hydraulic Engineering, Material Science and Engineering, Manufacturing Engineering, Industrial Engineering, Production Engineering, Reliability Engineering, Machine Design, Biotechnology, Bioengineering, Biomedical Engineering. CAD/CAM with first division as defined by the awarding Institute/ University) or other related field of engineering and GATE</p>	<p><input type="checkbox"/> <b>MEQ:</b> Masters' degree in the <b>Mechanical Engineering</b> (with first division as defined by the awarding Institute/ University)</p> <p><input type="checkbox"/> <b>QE:</b> Valid TOEFL/IELTS OR equivalent qualification</p> <p><b>OR</b></p> <p>Valid GATE qualification</p>

qualification OR Four-year Bachelors' degree <b>OR</b> five-year integrated degree in the <b>Mechanical Engineering</b> (with first division as defined by the awarding Institute/University) <b>AND</b> valid GATE qualification	
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**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 **31 May, 2022**.

**D. Last date of online application (for Indian as well as International Students): 31 May, 2022**

Last date of Online Application through <a href="http://academic.iiti.ac.in:8080/nregistration.jsp">http://academic.iiti.ac.in:8080/nregistration.jsp</a> (for both Indian and International Applicants)	<b>31 May, 2022</b>
Shortlisted candidate intimated	<b>First week of June 2022</b>
Last date of receiving recommendations of two referees (to be sent by referees to <a href="mailto:admission-me@iiti.ac.in">admission-me@iiti.ac.in</a> ) (for both Indian and International Applicants)	<b>First week of June 2022</b>
Date of Interview (both Indian and International Applicants)	<b>Second week of June 2022</b>
<b>Interview Schedule &amp; Mode</b>	
Interviews for the Ph.D. admission would be conducted in the <b>Second week of June 2022</b> 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 for being 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](mailto: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 the scanned copies of the fee payment receipt and self-attested copies of supporting documents (10th marksheet, 12th marksheet, 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](mailto: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 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](mailto: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 additional rule on the <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 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](mailto:admission-me@iiti.ac.in)

<p>For any further queries, please contact:</p> <p>PhD Admission Cell,</p> <p>Indian Institute of Technology Indore, Indore-453552, Indore, Madhya Pradesh, India.</p> <p>Email: <a href="mailto:phdadmission@iiti.ac.in">phdadmission@iiti.ac.in</a></p>	<p>For queries specific to the Department, emails can be sent to <a href="mailto:admission-me@iiti.ac.in">admission-me@iiti.ac.in</a></p>
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## Annexure

Vacancies are available in the following areas:

Sr. No	Specialization	Research Areas
1	<p><b>Design Engineering</b> (Dr. Krishna Mohan Kumar)</p> <p>Non-TA Category like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Acoustics of Ducts and Mufflers</li> <li>• Industrial and Automotive Noise Control</li> <li>• Automotive Noise Control</li> <li>• Designing for Quietness</li> </ul>
2	<p><b>Design Engineering</b> (Dr. Indrasen Singh)</p> <p>Non-TA Category like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Deformation and fracture behaviour of cellular ceramics for defence applications.</li> <li>• Finite element simulations of deformation and fracture behaviour of BCC single crystals.</li> <li>• Finite element simulations of indentation response of Piezoelectric materials.</li> </ul>
3	<p><b>Design Engineering</b> (Dr. Shailesh Kundalwal)</p> <p>TA (Teaching Assistantship) Category (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p>Non-TA Category like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Modeling of Hydrogen Storage</li> <li>• Composite Materials and Structures</li> <li>• Nanomechanics &amp; Micromechanics</li> </ul>
4	<p><b>Design Engineering</b> (Dr. Sandeep Singh)</p> <p>Non-TA Category like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Solid mechanics and design</li> <li>• Finite element method</li> <li>• Computational mechanics</li> <li>• Computational material science</li> <li>• Multiscale modelling of nanomaterials</li> <li>• Atomistic simulation</li> <li>• Finite element modelling of nanostructures</li> </ul>
5	<p><b>Design Engineering</b> (Dr. Pavan Kumar Kankar)</p> <p>Non-TA Category like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Vibration</li> <li>• Vibration and force analysis in biomechanical preparation of root canals</li> <li>• Fault diagnosis of mechanical components</li> <li>• Condition based maintenance</li> </ul>

		<ul style="list-style-type: none"> <li>• Machine learning</li> <li>• Signal processing</li> </ul>
6	<p><b>Production/Manufacturing/Materials/Metallurgy</b>  <b>(Prof. Suhas S. Joshi)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc</p>	<ul style="list-style-type: none"> <li>• Modeling machining of ‘difficult-to-machine’ materials (MMCs, Inconel, Titanium)</li> <li>• Modeling and development of micro-machining processes.</li> <li>• Laser micro-machining, LIGA and Nanopolishing</li> </ul>
7.	<p><b>Production/Manufacturing/Materials/Metallurgy</b>  <b>(Prof. I. A. Palani)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc</p>	<ul style="list-style-type: none"> <li>• Laser Based Micro/Nano Additive manufacturing and surface processing</li> <li>• Mechatronics system Design</li> <li>• Machining of Hard and High temperature materials</li> </ul>
8	<p><b>Production/Manufacturing/Materials/Metallurgy</b>  <b>(Dr. Kazi Sabiruddin)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Surface Engineering</li> <li>• Thermally sprayed ceramic coatings</li> <li>• Tribo-mechanical applications</li> </ul>
9	<p><b>Production/Manufacturing/Materials</b></p>	<ul style="list-style-type: none"> <li>• Additive Manufacturing</li> </ul>

	<p><b>(Dr. Yuvraj Kumar Madhukar)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc..</p>	<ul style="list-style-type: none"> <li>• WAAM-MIG, MAAM-TIG, LASER-AM</li> <li>• Automation and control</li> <li>• Laser Material Processing</li> </ul>
<b>10</b>	<p><b>Manufacturing Engineering</b></p> <p><b>(Dr. Ashish Rajak)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Metal Forming</li> <li>• Metal Welding</li> <li>• Finite Element Method</li> <li>• Powder Compaction</li> </ul>
<b>11</b>	<p><b>Manufacturing Engineering</b></p> <p><b>(Dr. Girish Verma)</b></p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Machining processes</li> <li>• Abrasive based super-finishing processes</li> <li>• Ultrasonic-assisted machining process</li> <li>• Additive manufacturing.</li> </ul>
<b>12</b>	<p><b>Manufacturing Engineering</b></p> <p><b>(Prof. Neelesh Kumar Jain)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Additive Manufacturing for biomedical applications</li> <li>• Advanced Machining and Finishing Processes</li> <li>• Sustainable Machining</li> <li>• Miniature gear manufacturing</li> </ul>
<b>13</b>	<b>Manufacturing/CAD/CAM/Metallur</b>	<ul style="list-style-type: none"> <li>• High Entropy Alloy</li> </ul>

	<p><b>gy/Production</b></p> <p><b>(Dr. Dan Sathiaraj)</b></p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Additive manufacturing</li> </ul>
<b>14</b>	<p><b>Industrial and Systems Engineering</b></p> <p><b>(Prof. Bhupesh Kumar Lad)</b></p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Smart manufacturing,</li> <li>• Reliability engineering, and prognostics</li> </ul>
<b>15</b>	<p><b>Thermal Engineering</b></p> <p><b>(Dr. Harekrishna Yadav)</b></p> <p><b>Fund Source:</b> Sponsored Project by SERB and</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Fluid Dynamics and Heat Transfer</li> <li>• Fluid-Structure Interaction</li> <li>• Shear Flow, Supersonic Flow, Flow and Turbulence Measurement using Optical Techniques</li> <li>• Heat Transfer Enhancement</li> <li>• Renewable and Sustainable Energy.</li> </ul>
<b>16</b>	<p><b>Thermal and Materials Engineering</b></p> <p><b>(Dr. Satyanarayan Patel)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Energy conversion, storage and harvesting materials</li> <li>• Solid-State Refrigeration</li> <li>• Piezoelectric, Pyroelectric and ferroelectric materials</li> <li>• Energy Engineering</li> </ul>
<b>17</b>	<p><b>Thermal Engineering</b></p> <p><b>(Dr. Ankur Miglani)</b></p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Combustion and Propulsion: Combustion of next-generation fuels (Gel and nanofluid fuels);</li> <li>• Heat Transfer, micro/nanofluidics: Thermal management of high-heat-flux electronics;</li> <li>• Soft matter: Instabilities in drying colloidal droplets</li> </ul>
<b>18</b>	<p><b>Thermal Engineering</b></p> <p><b>(Prof. Santosh Kumar Sahu)</b></p>	<ul style="list-style-type: none"> <li>• Fluid Dynamics</li> <li>• Heat Transfer</li> <li>• Thermal Science</li> </ul>



	<p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	
19	<p><b>Thermal Engineering</b> <b>(Prof. Shanmugam Dhinakaran)</b></p> <p><b>Fund Source:</b> Sponsored Project by SERB</p> <p>and</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• CFD</li> <li>• Biofluid Mechanics &amp; Bioheat Transfer</li> <li>• Biomedical Engineering/Biotechnology (Microfluidics)</li> </ul>
20	<p><b>Thermal and Materials Engineering</b> <b>(Dr. S Janakiraman)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Energy Storage Materials,</li> <li>• Lithium &amp; Sodium-ion Batteries,</li> <li>• Polymer Electrolytes, Composites, &amp; Thin Film Batteries.</li> </ul>
21	<p><b>Thermal Engineering</b> <b>(Prof. Ritunesh Kumar)</b></p> <p><b>TA (Teaching Assistantship) Category</b> (Institute Teaching Assistantship with scholarship as per Ministry of Education (MoE)* guidelines)</p> <p>And</p> <p><b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.</p>	<ul style="list-style-type: none"> <li>• Desiccant Cooling systems.</li> <li>• Heat transfer at microscale</li> <li>• Biofuels</li> </ul>
22	<p><b>Thermal Engineering</b> <b>(Dr. Devendra L Deshmukh)</b></p> <p><b>Fund Source:</b> Sponsored Project</p>	<ul style="list-style-type: none"> <li>• Laser diagnostics in combustion and multiphase flows.</li> </ul>



and	
<b>Non-TA Category</b> like DF/FA/IS/CT/SW/CSIR fellowship (i.e., FA Category) etc.	

Formerly known Ministry of Human Resource Development (MHRD)

**Faculty members and their research profiles: To gain more insight, interested applicants are encouraged to visit below Faculty Members' websites who are going to recruit Ph.D. candidates.**

**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>

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

**Prof. I. A. Palani:** <http://mechatronicsiiti.webs.com/>

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

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

**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/>

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

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

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

**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>

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

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

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

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