

PhD Admissions
Mechanical & Aerospace Engineering Department,
Indian Institute of Technology Hyderabad

The Institute

Started in 2008, IIT Hyderabad added another link to the chain of the premier institutions of the country - The IITs, known world over for extraordinary excellence in academics, research and technology. IIT Hyderabad aims to carry this tradition of excellence forward with its brilliant students, extraordinary faculty, state of the art facilities and cutting-edge research. In its first year, IIT Hyderabad had B.Tech. programs in Computer Science and Engineering, Electrical Engineering and Mechanical Engineering; with a total student strength of 111. Keeping its thrust on research, the PhD program was started in January 2009 and the M.Tech. program in August 2009. At present the institute has 11 departments covering all the major engineering, science and humanities disciplines, offering B.Tech., M.Tech., M.Sc. and PhD with a total strength of more than 500 including 351 undergraduates. IIT Hyderabad started functioning from August 2008 from its temporary campus located in Ordnance Factory, Medak District (Andhra Pradesh). On 27 February 2009, on its main campus in Kandi, the foundation stone of IIT Hyderabad was laid by Smt. Sonia Gandhi, Hon'ble Chairperson of UPA. The Master Plan for the main campus is ready and a panel of architects has been appointed for the first phase of the main campus development.

Inventions and innovations are keywords on which the foundation of IIT Hyderabad is based. These are also the key drivers for the vision of IIT Hyderabad. Our endeavor is to create an institution that will provide a space for free and uninhibited thinking, a space where faculty and students can experiment with novel ideas without the fear of failure.

In its endeavor to have global collaborations IIT Hyderabad has MoUs with University of Illinois at Urbana- Champaign, Georgia Institute of Technology

– Atlanta and University of Utah- Salt Lake City.

Indo Japan Collaboration:

IIT Hyderabad has active collaboration with Japan. This involves joint research projects, exchange of faculty and students.



National Knowledge Network:

IIT Hyderabad has been identified as one of the participating institution for National Knowledge Network (NKN), a MHRD initiative to bring together all the stakeholders in Science, Technology, Higher Education, Research and Development, and Governance with speeds of the order of gigabits per second coupled with extremely low latencies, and to help the country evolve as Knowledge Society. Six virtual classrooms over NKN have been established at six IITs including IIT Hyderabad, IIT Madras and IIT Bombay. The initial phase of National Knowledge Network (NKN) was inaugurated by

H.E. Smt. Pratibha Patil, Honorable President of India on April 9, 2009

The Department

- > The Department of Mechanical Engineering aims at pushing the frontiers of modern science and engineering through quality teaching and cutting edge research. In order to make the nation self-sufficient, it is highly motivated to invest in state-of-the-art manufacturing technology and address the issue of energy in the context of global energy environment.
- > Right from its inception in 2008, it has attracted a rich and diverse set of talented individuals, currently nurturing 120 undergraduates and 70 postgraduates, who are trained in the nuances of the field by highly qualified faculty
- > The department presently offers MTech in (a) Mechanics and Design (b) Integrated Design and Manufacturing (c) Thermofluids Engineering (d) Aerospace Engineering in addition to BTech in Mechanical and a Ph.D. program.



- > The faculties are well experienced and very enthusiastic about research and practical learning. All of them are at the foremost in their field of research. Major areas of faculty expertise includes CFD, Acoustics and Vibration, Dynamics and controls, Mechatronics, Thermodynamics, Multiphase flows, Process Modeling and Optimization, Manufacturing, Linear and Nonlinear Vibrations, FEM, Fracture Mechanics, Rapid Prototyping, MEMS, NEMS, Composites, Impact Mechanics and CNC

Machining. The faculty has been actively involved with industry and research organizations with work experience in DRDO, DST, BHEL, NRB, GM etc.

Facilities

The Department boasts of following state-of-the-art laboratories for undergraduate, graduate and doctoral students:

- ❖ Acoustics and Vibration lab
- ❖ Applied Micro & Nano Mechanics Lab
- ❖ Computer Aided Engineering Lab
- ❖ Dynamics of Machinery Lab
- ❖ Engineering optics lab
- ❖ Fluid Mechanics Lab
- ❖ Heat Transfer
- ❖ IC Engine
- ❖ Combustion and Flow Diagnostics
- ❖ Machining & Metrology Lab
- ❖ Manufacturing Lab
- ❖ Robotics and Intelligent Systems Lab
- ❖ Rapid Prototyping and Manufacturing lab
- ❖ Solid Mechanics Lab
- ❖ Composite Fabrication Lab
- ❖ Impact Mechanics Lab
- ❖ Micro-Mechanics Lab
- ❖ MEMS & NEMS Lab



- ❖ Vehicle Dynamics Lab
- ❖ NDT & E Lab

Computing Facilities:

- ❖ High end workstations equipped with extensive scientific and engineering softwares such as Rapid Prototyping & Manufacturing Lab ANSYS, MATLAB, FLUENT, Mathematica, Comsol, Abaqus, Solid Edge, Unigraphics, Hyperworks, ADAMS, LMS Virtual Lab, VA One etc.
- ❖ A state-of-the-art High Performance Computing cluster is also available to perform computationally intensive research



Structure of the PhD Program

Course work

The Ph.D. candidate is required to undergo course work during the first two semesters. The minimum course requirement in the department is 12 credits with good academic performance (CGPA ≥ 7). Candidates, in consultation with their supervisor, may also choose to take relevant courses from other departments.

Choosing the Ph.D. Supervisor

The student is allocated a supervisor at the beginning of the first semester. After joining the first semester, Ph.D. candidates are encouraged to speak with faculty members working in research areas of interest. Within couple of Week, Ph.D. candidates are required to provide names of faculty members whom they wish to work with, listed in order of preference. Allocation of supervisors is done based on preferences received from all

Ph.D. candidates. *It may be noted that there is hard cap on number of Institute (MoE) sponsored students per faculty and some faculties may not be eligible in a certain year for taking Ph.D. students.*

Thesis Proposal & Research Progress

All Ph.D. candidates are required to take comprehensive exam within 12 months of joining. If student fails in the first attempt for comprehensive exam, he/she can take it after minimum of 1 month and within maximum of 3 months. Candidate has to defend a thesis proposal within 18 months of the date of joining the department. Subsequently, Ph.D. scholars are required to regularly apprise the doctoral committee of progress made in solving the research problem. Continued involvement in the Ph.D. program is subject to satisfactory progress, as deemed by the doctoral



Financial Support

Students admitted to the Ph.D. program under the regular scheme (full-time) are eligible for financial assistance. Students having Master's degree will be considered for monthly assistantships of Rs. 31,000 for first 2 years and on enhanced rate of Rs. 35,000 for JRF to SRF successful conversion. Renewal of assistantship every semester will be contingent on enrolment, satisfactory progress in research work in addition to assistance in teaching or research, as assigned by the Department, to the extent of 8 hours of work per week. Some additional positions are funded by the project but they are subjected to availability at the time of selection.

Admission Process

Who can apply?

Candidates with a MTech/ME degree in Mechanical, Aerospace or related disciplines are eligible to apply. A valid GATE score is not a pre-requisite for such candidates. Candidates without a Master's degree, but a valid GATE score and a BTech/BE in Mechanical, Aeronautical/Aerospace, Automobile Manufacturing, Machine Tool, Production, Production & Industrial Engineering, are also eligible to apply for the Ph.D. program (the GATE criterion is not mandatory for a CFTI BTech student with a CGPA of 8.0 or above). It may be noted that candidates applying under reserved categories need to have central government format certificate for the category they are applying, and no other format issued by any state government would be considered valid.

Candidates working in reputed research organizations with **minimum 2 years' experience** may also apply under external Ph.D. program (candidates from external program are not eligible for any stipend)

Candidates interested in applying for external Ph.D. has to identify Faculty willing to guide as mandatory Research proposal submission prior to initiation of selection process (written tests and interviews).

Direct External Ph.D.: At least 2 years of relevant experience with NOC can be eligible for admission with 12 credit course requirement and will be awarded PhD without M.Tech.

How to apply?

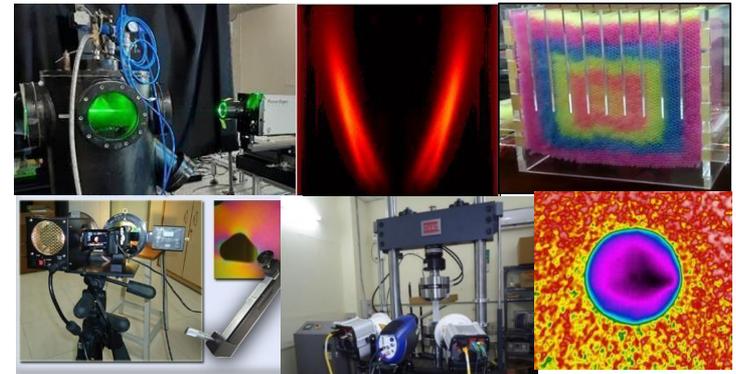
Interested candidates can apply for Ph.D. through the online portal of IITH: <https://iith.ac.in/academics/phd/>

Selection Process

Candidates are advised to regularly keep track of emails and department website for admissions related announcements.

The shortlisted candidates from the applications will be invited for subsequent stages of selection process. It may be noted that shortlisting/screening criterion may be higher than eligibility criterion for screening of applications to Ph.D. program and it depends on the number of applications received (e.g., if significant number of applications are received then applicants valid GATE score could be considered for screening of the applications. The number of screened applications typically vary any where between 20 to 50 times the vacancies for Ph.D. program for that semester admissions).

Typically, the first stage is a written test. The purpose of this test is to gauge the fundamental knowledge of the candidate in Mechanical Engineering. No TA-DA is given for appearing for the written test. Selected candidates in the written test will have to appear for an interview, where the candidates will be tested in their research areas of interest. In general, the candidates will be tested for clarity of thought, analyzing skills, research aptitude and passion for research. **The above may be revised due to unforeseen circumstances (COVID situation).**



Additional Links

Department Webpage

<https://mae.iith.ac.in/phd-admissions.html>

For research areas and faculty interests visit:

<https://mae.iith.ac.in/faculty-directory.html>

**For Queries Regarding Admission to Ph.D. program
in MAE Department**

<https://tinyurl.com/mjbk6634>

**Faculty project information would be shared in
screening phase of applications**

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