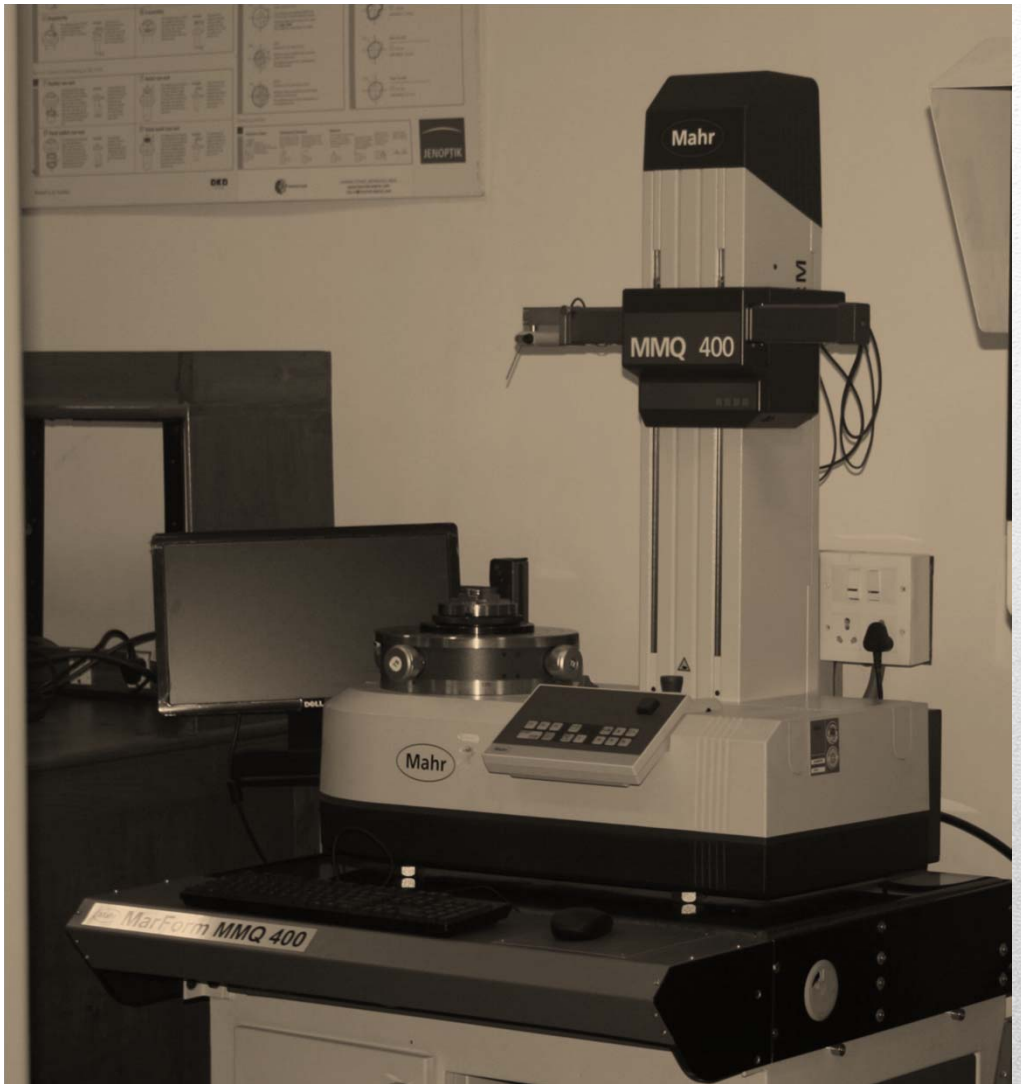

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

PhD Admissions - 2015

Department of Mechanical & Aerospace Engineering

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 14 departments covering all the major engineering, science and humanities disciplines, offering B.Tech., M.Tech., M.Sc., MPhil and PhD with a total strength of more than 1350 including. IIT Hyderabad started functioning from August 2008 from its temporary campus located in Ordnance Factory, Medak District (Andhra Pradesh). Construction work for the permanent is going on at quick pace at Kandi. It is expected to be ready for occupation by the summer of 2014.

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, and in future some infrastructure development on the main campus.

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, Honâble President of India on April 9, 2009

The Department

- The Department of Mechanical & Aerospace 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 90 postgraduates, who are trained in the nuances of the field by highly qualified faculty

- The department presently offers MTech in (a) Mechanics & Design (b) Integrated Design & Manufacturing (c) Fluids & Energy Systems in addition to BTech in Mechanical and a Ph.D. program.

- The faculty is 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 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
- Hydraulic and Pneumatic Lab
- IC Engine
- Machining & Metrology Lab
- Manufacturing Lab
- Mechatronics Lab
- Rapid Prototyping & Manufacturing Lab
- Solid Mechanics Lab

Computing Facilities:

- High end workstations equipped with extensive scientific and engineering softwares such as ANSYS, MATLAB, FLUENT, MAPLE, 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

Faculty & Research Areas

Vinayak Eswaran
Specialization: Thermo-fluids
Areas of Interest: Computational Fluid Mechanics and Heat transfer.

Abhay Sharma
Specialization: Manufacturing
Areas of Interest: Manufacturing, Process Modeling and Optimization, Welding.

Ashok Kumar Pandey
Specialization: Design
Areas of Interest: Linear and Nonlinear Vibration, MEMS, NEMS, BIOMEMS,QNEMS, Microfluidics and Nanofluidics .

Chandrika Prakash V.
Specialization: Design
Areas of Interest: Structural Dynamics, MEMS, Delay Differential Equations, Parameter Identification, and Optimization

Harish Nagaraj Dixit
Specialization: Thermo-fluids
Areas of Interest: Interfacial fluid mechanics, Vortex dynamics, Hydrodynamic stability theory, Geophysical flows.

Nishanth Dongari
Specialization: Thermo-fluids
Areas of Interest: Microfluidics, Rarefied Gas Dynamics, Compressible Gas Flows, Thin Film Coatings, Molecular Dynamics, Direct Simulation Monte Carlo and Extended Hydrodynamics.

Prasanth Kumar R.
Specialization: Design
Areas of Interest: Multibody Dynamics, Legged Robotics, Control Theory, and Mechatronics.

Karri Badarinath
Specialization: Thermal
Areas of Interest: Experimental fluid mechanics, high-speed imaging, bubble dynamics and cavitation.

Raja Banerjee
Specialization: Thermo-fluids
Areas of Interest: Multiphase Flow, Heat and Mass Transfer, Thermodynamics, CFD.

Ramji M.
Specialization: Design
Areas of Interest: Optical Methods in engineering, Finite Element Analysis and Boundary Element Methods, Fracture Mechanics, Inverse problem in solid mechanics.

Suryakumar S.
Specialization: Manufacturing
Areas of Interest: Rapid Prototyping, CNC machining, Manufacturing.

Venkat Reddy N.
Specialization: Manufacturing
Areas of Interest: Analysis of Manufacturing Processes (emphasis on Metal Forming and Generative Manufacturing) at Multi-scales; Development of Integrated Product and Process Design Systems (IPPDS); Manufacturing processes for Mass Customization; CAD/CAM

Venkatasubbaiah K.
Specialization: Thermo-fluids
Areas of Interest: Computational Fluid Dynamics (CFD) and Heat transfer, Stability Analysis of Flows with and without heat transfer, Cooling of Electronic Devices and Aerodynamics.

Venkatesham B.
Specialization: Design
Areas of Interest: Vibrations, Technical acoustics, Industrial Noise control, Acoustic-Structural Coupled Systems, Dynamics, and Plastic Gear Design

Venkatesham B.
Specialization: Design
Areas of Interest: Vibrations, Technical acoustics, Industrial Noise control, Acoustic-Structural Coupled Systems, Dynamics, and Plastic Gear Design

Pankaj Kolhe
Specialization: Thermal
Areas of Interest: Alternative fuels, combustion, and optical diagnostics in dynamic flows.

Structure of the PhD Program

Courses work

The Ph.D. candidate is required to undergo course work during the first two semesters. The minimum course requirement in the department is 6 courses with good academic performance. 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 end of the first semester. During the first semester, Ph.D. candidates are encourages to speak with faculty members working in research areas of interest. Towards the end of the first semester, 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.

Thesis Proposal & Research Progress

All Ph.D. candidates are required to defend a thesis proposal within 13 months of the date of joining the department. The thesis proposal consists of a written document outlining the research plan, and a presentation before the doctoral committee. 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 committee.

Financial Support

Students admitted to the Ph.D. program under the regular scheme (full-time) are eligible for financial assistance. Students having Masters degree will be considered for monthly assistantships of Rs. 18,000 for first 2 years and on enhanced rate of Rs. 20,000 for remaining two years. Those students with bachelors degree will be considered for monthly assistantship of Rs. 16,000 for first 2 years and on enhanced rate of Rs. 18,000 for remaining 3 years. 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.

Admission Process

Who can apply?

Candidates with a MTech/ME degree in Mechanical 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 IIT BTech student with a CGPA of 8.0 or above). Candidates working in reputed research organizations may also apply under external Ph.D. program (candidates from external program are not eligible for any stipend).

How to apply?

Interested candidates can apply for Ph.D. through the online portal of IITH: http://www.iith.ac.in/phdadmissions/

Selection Process

The shortlisted candidates from the applications will be invited for a two stage selection process. The first stage is a written test. The purpose of this test is to gauge the fundamental knowledge of the candidate in Mechanical Engineering. 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.

Contact Details:
Ph.D Admissions
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