



Department of Mechanical Engineering

Indian Institute of Technology Patna

M. Tech. Placement Brochure 2016-17

Content

The background of the slide is a photograph of a large, modern building with a prominent glass roof structure supported by numerous columns. The building is light-colored, and the sky is clear. The image is used as a backdrop for the content menu.

1 ABOUT US

2 SPECIALIZATIONS OFFERED

3 COURSE STRUCTURE
(THERMAL AND FLUID
ENGINEERING)

4 LABORATORY FACILITIES

5 RESEARCH ACTIVITIES

6 ACHIEVEMENTS

7 CONTACT US

About us

Established in 2008, the department is advancing towards the frontiers in the field of Mechanical Engineering. Presently, the department is offering B.Tech., M.Tech and PhD degrees. Emphasis is being laid on taking up innovative research and quality education. Department encompasses expertise in Applied Mechanics and Engineering Design, Fluid and Thermal Sciences, and Manufacturing Processes and Systems. The areas of research include Vibration, Soft tissue mechanics, Manufacturing, Condition Monitoring, biomedical robotics, Computational Mechanics, Fracture, FEM, Composite, Heat transfer, Flow boiling and pool boiling, Condensation, Two-phase flows, Refrigeration and Air-conditioning, Computational Dynamics, turbulent Flows, Interfacial Stress in Yield Stress Fluids, Laser Material Processing, Flow of Granular Materials, Non-traditional Manufacturing, Biomedical Bone Drilling, Soft Computing, Laser Forming etc.

M.Tech Specializations Offered



```
graph TD; A[M.Tech Specializations Offered] --> B[Fluid and Thermal Engineering]; A --> C[Manufacturing Science];
```

Fluid and Thermal Engineering

- Specialization started in the year 2014 through GATE
- 2 years Program
- 4 Core Courses + 7 Specialized Electives + Laboratory & Research Work

Manufacturing Science

- Specialization offered for the first time through GATE in 2016
- 2 years Program
- 3 Core Courses + 5 Specialized Electives + Laboratory & Research Work

Course Structure

MTECH – Thermal & Fluid Engineering

FIRST SEMESTER

CORE COURSES

- ADVANCED FLUID DYNAMICS
- ADVANCED ENGINEERING MATHEMATICS
- TECHNICAL COMMUNICATION
- THERMO FLUID LAB I

ELECTIVES

- FINITE ELEMENT ANALYSIS
- COMPUTATIONAL FLUID DYNAMICS
- LARGE SCALE SCIENTIFIC COMPUTING

SECOND SEMESTER

CORE COURSES

- ADVANCED HEAT TRANSFER
- ENGINEERING SOFTWARE
- THERMOFLUID LAB II

ELECTIVES

- AERODYNAMICS
- MULTIPHASE FLOW AND HEAT TRANSFER
- REFRIGERATION AND AIR CONDITIONING

THE REMAINING TWO SEMESTERS INCORPORATE PRE-THESIS & THESIS WORK

Laboratory Facilities



- Thermal and Fluid Transport Laboratory
- Fluid Mechanics & Machinery Laboratory
- Computational Fluid Dynamics Laboratory
- Heat and Mass Transfer Laboratory
- Advanced Manufacturing Laboratory
- CAD/CAM Laboratory
- Material Testing Laboratory
- Tribology Laboratory
- Micro-fabrication Laboratory
- Dynamics and Vibrations Laboratory
- Fire Research Laboratory
- Measurement and Process Analysis Laboratory
- Mechanical Workshop
- Metrology Laboratory
- Robotics and Automation Laboratory
- Instrumentation and Control Laboratory
- I. C. Engine Laboratory

Research Activities

- Flow Boiling in Nanostructured Microchannels
- Numerical Simulation Flow Boiling in Microchannels
- Blood Flow Through a Stenosed Carotid Bifurcation Using CFD techniques
- Multiple Pool Fires: Experimental Study
- Microfluidic devices for bio-medical applications
- Effect of Residual stress in heating and cooling of Al alloy
- Numerical simulation of continuous casting with different mould shapes using immersed boundary method
- Investigation of transient natural convection in an enclosure with ventilation and transpiration port
- Numerical Study of Mixing in Microchannel

Achievements

- IIT Patna has been ranked as the 10th Best Engineering College in India by National
- IIT Patna hosted India's first ever IEEE 5G Symposium Institutional Ranking Framework (NIRF) accepted by MHRD for the year 2016
- Team ALACRITY represented IIT Patna in HPVC Event 2016 Organized by American Society of Mechanical Engineers (ASME) and won laurels with 4th rank in designing
- It was among the only institute from Bihar and one among the two IITs that qualified for the SAE BAJA MAIN EVENT 2015 held at NATRAX facility, Pithampur, M.P.
- Ranked 12th in Baja Student Idea (BSI) 2017 rule quiz
- IIT Patna cleared the SAE India BAJA Virtual Round in 2014 and 2015
- Raza, M. Q., Kumar, N., and Raj, R., 2016, "**Surfactants for Bubble Removal against Buoyancy**," **Scientific Reports**, 6, 19113

Contact us

Professor In-Charge :

Dr. Sumanta Gupta

Phone No.: +91-612-3028096

Email: sumanta@iitp.ac.in

Office Assistant :

Mr. Arvind Prakash

Phone No.: +91-612-3028083

Email: tpc@iitp.ac.in

Student representatives :

Himanshu Dwivedi

himanshu.mtme15@iitp.ac.in

+91-9454507437

Deepak Sharma

deepak.mtme15@iitp.ac.in

+91-7319928932

Nitesh Kumar

nitesh.mtme15@iitp.ac.in

+91-9931172272

Training and Placement Cell, IIT Patna, Bihta Campus, Bihta Kanpa Road, Bihta , Patna-801103.

Designed by: M. Tech Mechanical Batch 2015-17