

Indian Institute of Technology Patna

Placement Brochure 2022-2023



Contact us:

www.iitp.ac.in/placement/

Email: tpc@iitp.ac.in

+91 96509 37854

**M.Tech
Mechanical
Engineering**

HOD's Message

Dear Recruiters ,

The Department of Mechanical Engineering facilitates not only the academic but the overall development of the student. Students are known throughout India for their enthusiastic participation in professional organizations and events such as BAJA, SUPRA SAEINDIA, ROBOCON.

Masters program in Fluids & Thermal and Manufacturing was started in 2014 & 2016 respectively with an aim to provide a platform for innovative research and quality education. Consequently, the program has gained popularity and has become one of the most successful masters' degree programs at IIT Patna.

We revise our curriculum according to the need of today's research and industry applications. The primary focus of our curriculum is to convey technical know-how to students, promote their problem-solving skills and innovation of new technologies. The department lays great emphasis on research and development. The department works in collaboration with well known research institutes, industry partners, and government agencies.

With best regards,
Dr. Probir Saha



Dr. Probir Saha
Head, Department of
Mechanical Engineering

About Us:

Since its inception in 2008, the department has been advancing towards the frontiers in the field of Mechanical Engineering. Presently the department is offering B.tech, M.Tech, and PhD. degrees. Such activities are aptly supported by 16 state-of-the-art research cum teaching laboratories. Significant no. of patents and publications in various top multidisciplinary journals is evidence of the flourishing research environment in the department.

Our aim is to engage in the frontiers of the field and channelize the state of art knowledge to train personnel who can solve problems of relevance to the society at large. The department lays great emphasis on research and development.

The department has close interaction with industry and research institute agencies including Aeronautics Research Development Board (ARDB), Defense Research Development Organization (DRDO), Board of Research in Nuclear Science (BRNS), Department of Science and Technology (DST), Indian Space Research Organization (ISRO) and research labs have been set up in the department in collaboration with industry and government agencies.

(Batch Strength: 2021-2023):

MTech: 10



Course Structure

Thermo-Fluids Stream:

Core Courses:

- Advanced Fluid Mechanics
- Advanced Heat Transfer
- Advanced Engineering Mathematics
- Advanced Engineering Software lab

Lab Courses:

- Thermo-Fluids Lab I
- Thermo-Fluids lab II

Elective Courses:

- Computational Fluid Dynamics
- Finite Element Analysis
- Turbulent Shear Flows
- Multi-phase Flow and Heat Transfer
- Refrigeration and air-conditioning
- Robotics: Advanced Concepts & Analysis
- Wear & Lubrication of Machine Components
- Renewable and Non-Conventional Energy sources
- Nano Material and Nanoscience
- Electro-Magnetism

Manufacturing Stream:

Core Courses:

- Advanced Engineering Mathematics
- Advanced Engineering Software lab
- Advanced manufacturing Processes
- Metal Cutting and analysis
- Metal Forming and analysis

Lab Courses:

- Manufacturing Lab I
- Manufacturing lab II

Technical Skills:



Ongoing M.Tech Projects:

- 1) Mitigation of flow boiling instabilities in microchannel heat sinks
- 2) Thermally mediated droplet in a microfluidic T-junction
- 3) Heat Transfer characteristics of stenosed Microchannel Fluid dynamics of the super-hydrophobic deformable microchannel
- 4) Interaction of vesicles with deformable boundary (Project funded by Science and Engineering Research Board, GOI)
- 5) Non-invasive Technique for temperature measurement inside a microchannel
- 6) Paper Microfluidics Device for emotion monitoring of humane being Magneto-electric Vesicles mimicking biological cells
- 7) Investigation of pulsating heat pipe: Experimental and Theoretical
- 8) Laser micro-machining to microfluidic device: Experimental
- 9) Development of a Robust Numerical Tool for the Simulation of Thermo-Chemical Non-Equilibrium Hypersonic Flows
- 10) Simulation of Flapping wings both for Aerodynamic and Hydrodynamic problems with application to robotics
- 11) DSMC Simulation of Nano/Micro Flows
- 12) Heat transfer and fluid flow in mini and microchannel
- 13) Heat transfer characteristics of Nano-fluids
- 14) Heat transfer in the wake of an oscillating airfoil
- 15) Mixing at an intersection of elbows
- 16) Mimicking Boiling Sound using CFD Simulations
- 17) Machine Learning based Control of Boiling Systems
- 18) Fabrication of Heat Spreader Payload for ISRO's Gaganyaan Experiment
- 19) Robot Swarm 3D Printing

Lab Facilities

- 1) Heat & Mass Transfer Lab
- 2) Computational Fluid Dynamics Lab (CFD lab)
- 3) Sustainable Energy Research Lab (SERL)
- 4) Thermal and Fluid Transport Lab (TFTL)
- 5) Fluid Mechanics & Machinery Lab
- 6) Micro-Fluidics Lab
- 7) Robotics & Automation Lab
- 8) Materials Testing Lab
- 9) Flow Physics Lab
- 10) Dynamics & Vibrations Lab
- 11) Instrumentation & Control Lab
- 12) Advanced Manufacturing Lab
- 13) Metrology Lab
- 14) I.C. Engine Lab
- 15) Measurement and Process Analysis Lab



Lab Facilities



Sponsored Projects and Research Sponsors:

- Mechanical and micro-structural characterization of additive friction stirred (AFS) 3D structures made of AI 6061 t6 aluminium powder.
- Fist-2018 under DST
- Development of novel SMA bearing support and retrofit for enhanced performances and durability of rotating machinery (UAY)
- Improvement of fatigue and ductile fracture behaviour of steel and aluminium alloy specimens by application of pulsed electric current
- Establish correlation between specimen level fatigue and cornering fatigue test
- Design of asperity for textured metal surfaces to improve tribological characteristics in sliding : An in situ imaging approach
- Development of an agricultural waste based off-the-grid climate control unit for storage and agricultural produces
- Controlling the vibrational dynamics of fluid-carrying flexible tubes via acoustic irradiation.
- Development of Multi-Layered microstructure gradient functionally graded composite material using friction stir additive manufacturing.
- Particle scale modeling of the Ti alloy additively manufactured components using laser metal sintering technique- This project is i collaboration with the DRDL Lab (DRDO) Hyderabad



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY



MHRD'S
INNOVATION CELL
(GOVERNMENT OF INDIA)

Patents:

- A biaxial stretching device for simultaneously stretching of an elastomer sample
- Determination of whirl direction of shaft using modified full spectrum analysis of motor current signature
- Surfactant based boiling system for zero gravity
- An improved valve-less micro pump with dome shaped dielectric elastomer diaphragm, pumping chamber and nozzle diffuser as flow control element.
- Vibro Tactile feedback System using FSR
- An improved system of a passive exoskeleton to reduce manual effort in carrying load
- A system and method for controlling the buoyancy of an underwater submersible
- System and method for heat recovery in gasification process
- A stepped microchannel heat sink for cooling an electronic device
- An improved heat sink system for suppressing two-phase thermal and flow instabilities and a method thereof
- Curved Serpentine Flow Inverter

Indian Patent Reg. No:

985/KOL/2013

1026/KOL/2014

208/KOL/2015

201631041457

201731014654

201731023607

201831028588

201831011600

201931000706

201931001796

201931031533

Overseas Research Collaboration:



Wall of Fame: Notable Alumni

- **Vishal Yadav**
(IRSME)
- **BallabhInder Kishore**
Consultant NPIU , MHRD
- **Akshay Saxena**
Startup-RoboBionics
- **Luhana Prashant**
Educational Consultant MHRD
- **Abhishek Subhrant**
Founder, CareerSelf-start
- **Devanshu Ganatra**
Revenue Director, Treeb Hotels
- **Viththal Pandey**
Indian Railway Store Services
- **Chirag Jain**
Startup-Endure Air
- **Arpit Bansal**
Director, Toppesnotes

International Exposure:



Our Past Recruiters:

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The Learning App

 **MARUTI SUZUKI**

TATA MOTORS

 **flytbase**


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The Geoffrey Hinton Fellowship

 **ERICSSON**


prithvi.AI

 **Capgemini**


ERC group
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HONDA

 **BOSCH**

 **cognizant®**



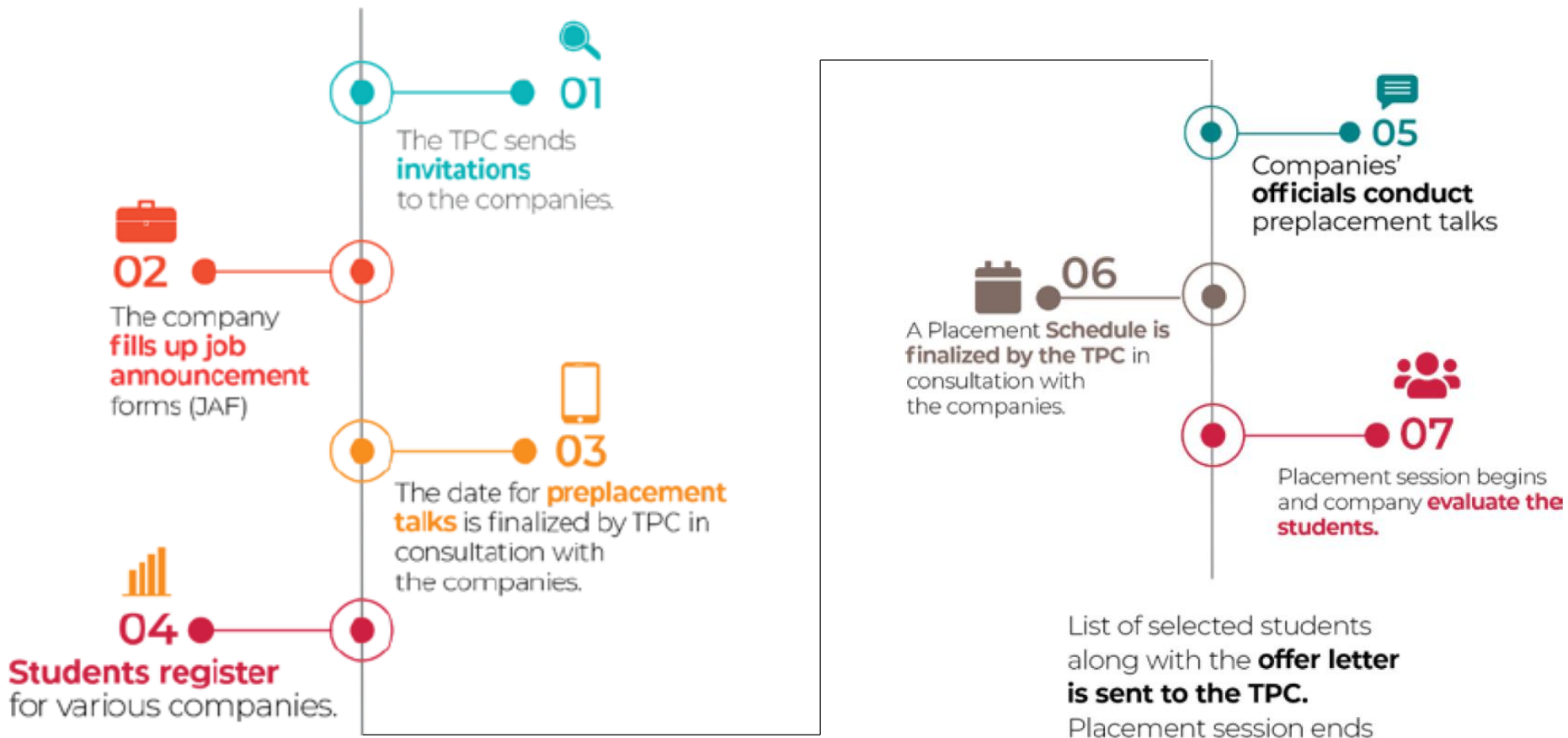
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INFORMATION - INSIGHT - IMPACT

TVS 

Placement Procedure





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