

# Mechanical Engineering



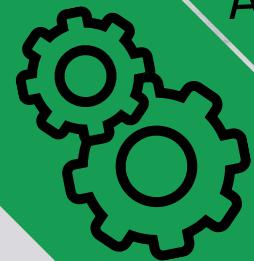
Indian Institute Of Technology  
Patna

**PLACEMENT BROCHURE  
2022-23**

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IIT PATNA

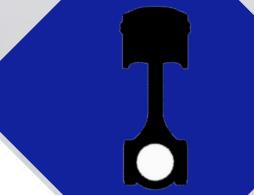
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# HOD's Message

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 programme 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.

Looking forward to seeing you at our campus.

Season's greetings and warm regards,

Dr. Probir Saha

Head, Department of Mechanical Engineering



**DR. PROBIR SAHA**

**HEAD OF DEPARTMENT**

**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.



**STRENGTH  
(Batch 2022-23)**

**B.TECH : 62**

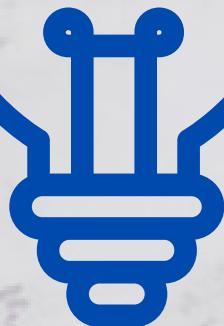
# Academics

- Computational Fluid Dynamics
- Finite Element Analysis
- Refrigeration & Air Conditioning
- Vehicle Dynamics
- Robotics and Robots Application
- Bio-Inspired Robotics
- Aerodynamics
- Composite Materials and Engineering



- Solid Mechanics
- Fluid Mechanics and Machinery
- Basic & Applied Thermodynamics
- Machine Design
- Material Science
- Manufacturing Technology
- Heat and Mass Transfer
- Kinematics of Machine
- System Dynamics & Control
- Systems
- Industrial Engineering & Operation Research

**Compulsory Courses**



- Data Science
- Python
- Computational Topology
- Humanities and Social Sciences
  - Economics and Financial Analytics
  - Sociology
  - Linguistics
  - Entrepreneurship

**Open Elective Courses**



# LAB FACILITIES

Robotics Laboratory  
Thermal Fluid &  
Transport Laboratory

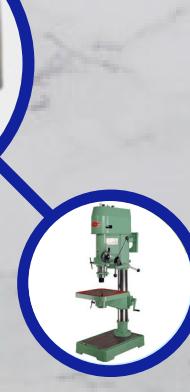
Advanced Manufacturing  
Laboratory  
CAD/CAM Laboratory  
Dynamics of Machine  
Laboratory

IC Engine Laboratory  
Material Testing Laboratory  
Measurement & Process  
Analysis Laboratory

Fire Research Laboratory  
Fluid Mechanics  
Laboratory  
Heat & Mass Transfer  
Laboratory

Mechanical Engineering  
Workshop  
Micro-fabrication Laboratory  
Metrology Laboratory

Mechatronics,  
Instrumentation &  
Controls Laboratory  
Tribology Lab



# Sponsored Projects

1. Controlling the vibrational dynamics of fluid-carrying flexible tubes via acoustic irradiation
2. Design of an Integral Squeeze Film Damper
3. Design of Asperity for Textured Metal Surfaces to Improve Tribological Characteristic in Sliding
4. Design of Novel SMA bearing Supports and Retrofit for Enhanced Performance of Rotating Machinery
5. Developing Interfacial Characterization Facilities
6. Development of an agricultural waste based off-the-grid climate control unit for storage and processing of agricultural produce
7. Development of an Ionic Liquid-based Ultra-High Heat Dissipation Module for Energy Efficient Boiling Systems
8. Development of cryogenic micromachining for fabrication of soft and stretchable polymer based artificial skin with multi-modal sensing capability
9. Development of Lizard-like Robotic Spy Surveillance System
10. Development of low friction rolling element bearings for enhanced Reliability and Efficiency
11. Development of novel SMA bearing performances and durability of rotating machinery
12. Direct Metal Laser Sintering of C103 Refractory Alloy
13. Effect of burnup and ballooning and burst behavior of Zircaloy-4 cladding tubes under simulated LOCA
14. Hybrid 3D printing with GMAW-twin wire-based additive layer enhanced by friction stir processing
15. Influence of hydrogen on fatigue and fracture performance of ferritic-martensitic steel (P91) both at room and elevated temperature
16. Interaction of vesicles with the deformable boundary mimicking cell-wall interaction in cardiovascular diseases

# Industry Partners



# Patents

- A cutting tool (Application No.: 202031032781)
- A hybrid tracking system for portable parabolic trough collector (Application No.: 202031022971 )
- A method of joining polymer rod through deformation technique; (Application No.: 201831007503)
- Cryogenic micromachining apparatus and method thereof(Application No.: 202031020431)
- Curved Serpentine Flow Inverter (Application No.: 201931031533)
- High Concentration Fresnel Lens with Spherical Facets(Application No.: 202031047971 )
- Stepped Microchannel Heat Sink for Cooling an Electronic Device; (Application No.: 201931000706 )
- Variable frequency driven biaxial testing device(Application No.: 202031020867 )

# Overseas Research Collaborators



# Student Activities

## ► IITP MOTORSPORTS

IITP Motorsports is a reputed team to design and manufacture one of the finest formula racing cars from India. This project puts forward the task of designing, manufacturing, raising funds, marketing, logistics, extensive testing and racing, on the shoulders of our dedicated, skilled and determined team members.

## ► Achievements :

- 22 out of 126 participating teams.  
1st among all the participating IITs in 2019
- 2018 Rank 26.
- 2017 Rank 47



## ► Team Invincibles IITP

A team of 30 members who create an All-Terrain Vehicle(ATV) from ground zero, starting with only basic technical knowledge but unfathomable passion and dedication.



## ► Achievements 2019:

1st in Design Validation  
Overall 4th in Static Events

# Student Activities

## ► Team Alacrity

A team who designs and manufactures Human powered vehicles every year. We have been participating in HPVC since last 6 years.

Team Alacrity is growing and looking forward for new achievements in near future .

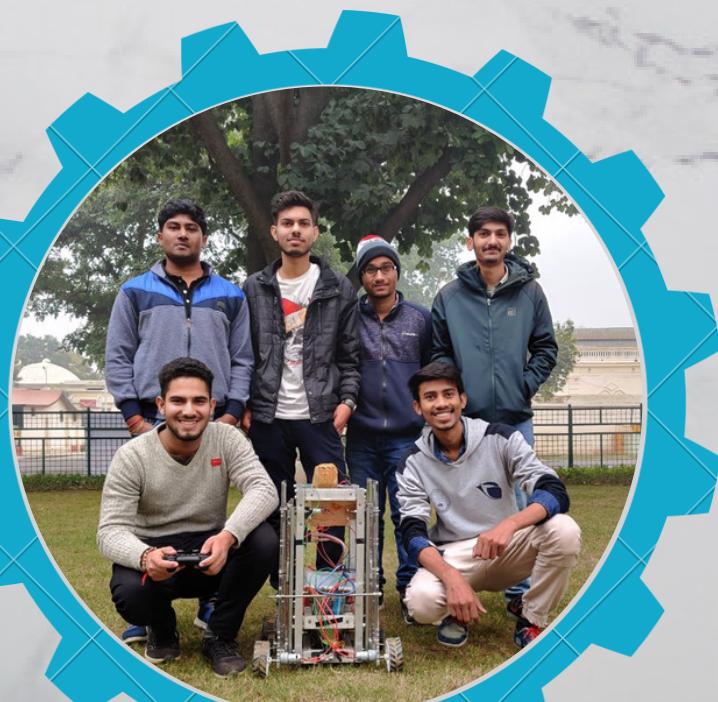
## ► Achievements:

- 3rd rank in Male sprint event 2020.
- 2nd position in Design event 2018.
- Overall 3rd position in 2017



## ► Inter IIT TechMeet

Every year, the department sends members to form an interdisciplinary team that works on a problem statement related to mechanics and automation. In 2019 team participated in the challenge named 'Terrace Farming Robot for Hilly Areas' and bagged the Bronze medal. And in 2021 won Bronze medal in 'DRDO DRGE'S Vision Based obstacle Avoidance DRONE'



## ► Team Phoenix

In Robocon 2019 we built a quadruped robot that is capable of walking, crossing the rope, and can climb a hill. And another omnidirectional manually controlled robot capable of picking cuboids from the game field and throwing them to cross a certain line. For Robocon 2020 we are building a Rugby ball-kicking robot.

# Alumni



**Ram Agarwal**  
CFO, Raspa Pharma



**Luhana Prashant**  
*Educational Consultant at MHRD*



**Vishal Yadav**  
Deputy Director, Indian Railways



**Arpit Bansal**  
Co-founder, TopperNotes



**Abhijeet Agnihotri**  
Toyota Research Institute



**Raghavendra Mohan**  
Vice President, Goldman Sachs



**Bhavesh Mendhekar**  
Scientist, ISRO



**Chirag Jain**  
Startup - EndureAir

# Past Recruiters



Futures  
First



**ADDVERB**  
adding intelligence to action



**SIEMENS**



**MARUTI  
SUZUKI**



**Cognizant**

**Deloitte**



**Capgemini**

# Placement Procedure



The companies/organizations are contacted by the placement cell(which includes the authorized student representatives); after which the invitations are extended which include the relevant information and also the placement brochure.



Companies are given an exclusive login id in the website after they submit the filled-in job announcement forms (JAF) via email or fax.



A detailed schedule is then prepared by the placement cell for the interview rounds as required by that company. Also, the company is evaluated based on the job offer, prospects, student intake, and the like. The Placement Cell and the respective Company could also finalize and corroborate the date for the pre-placement talks if they are necessary.



The companies visiting the campus would then conduct the rounds of the recruitment process which would include but not limited to an Online Test, Interview Round, Group Discussion and so; following the schedule as confirmed before.



After that, each student who has registered for a particular company submits his/ her resume and their relevant details so that the company could shortlist the students accordingly.



The JAFs and the entire schedule of that particular company are then made available to the students via mail, which helps the willing and eligible students to register for the same.



The companies are required to prepare and submit, with a written confirmation letter the list of students who are selected after the interview process, on the day of the interview itself.



The placement cell then receives the offer letters for the jobs of the selected students. In case a student gets a job offer, he/ she would be subject to regulations by the placement cell to be entitled to appear for further companies.

# Contact Us

## TPC Officials



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( Professor In-Charge )

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## STUDENT REPRESENTATIVES

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