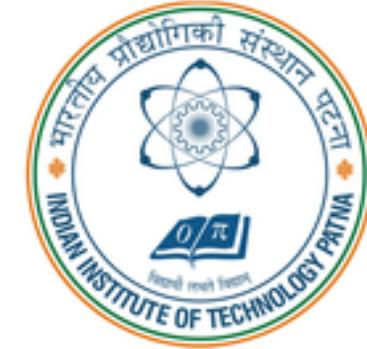


Mechanical Engineering

# Placement Brochure 2020-21



IIT PATNA

 [www.iitp.ac.in](http://www.iitp.ac.in)



Past  
Recruiters



Academics



Student  
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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. Mohd. Kaleem Khan  
Head, Department of Mechanical Engineering



**DR. MOHD. KALEEM KHAN**  
**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 2020-21)**

**B.TECH : 50  
M.TECH : 13**

RESPONSIBLE DISCOVER BUILD INNOVATE TEAMWORK

PASSIONATE CURIOUS

# COURSE STRUCTURE



## Compulsory Courses

- 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

## Core Elective Courses

## Open Elective Courses

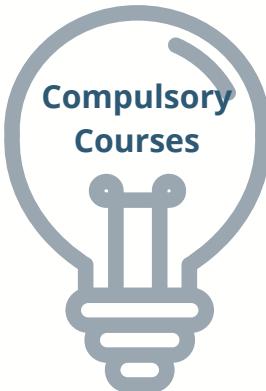
- Data Science
- Python
- Computational Topology
- Humanities and Social Sciences
  - Economics and Financial Analytics
  - Sociology
  - Linguistics
  - Entrepreneurship

B.TECH

# COURSE STRUCTURE

## Manufacturing

- Advanced Engineering Mathematics
- Advanced Engineering Software Lab
- Metal Cutting & Analysis
- Metal Forming & Analysis



## Thermo-fluids

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



- Finite Element Analysis
- Advanced Manufacturing Processes
- Surface Engineering
- Alloy Development and Heat Treatment

- Finite Element Analysis
- Computational Fluid Dynamics
- Refrigeration & Air Conditioning
- Aerodynamics

- Composite Materials : Mechanics, Processing and Testing

## Open Elective Courses

- Renewable and Non-Conventional Energy sources
- Science, Technology and Society



M.TECH

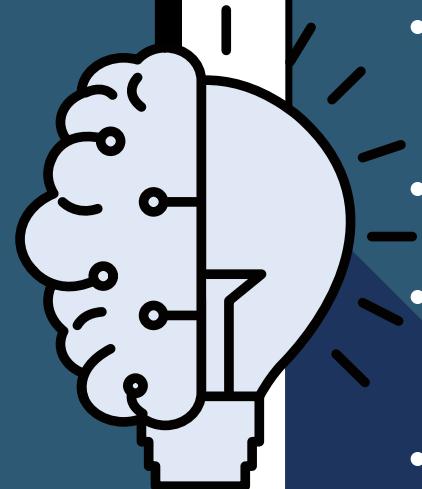
# Ongoing M.Tech Projects

## Manufacturing Stream

- Friction welding of two dissimilar steels.
- Selective laser melting (in collaboration with IIT Hyderabad and DRDO).
- Functionally graded composite structures using friction stir processing (in collaboration with Dr. Abhay Sharma, University of Leuven, Belgium).
- Development and performance analysis of micro-electro discharge grinding.

## Thermo-fluids Stream

- Thermal storage systems using solar air heaters- performance evaluation.
- Analysis of Wilson plot for shell and coil heat exchanger.
- Microchemical heat sink for high heat dissipation in electronic devices.
- Flow boiling with ionic liquids.
- Acoustic control of pool boiling.
- Numerical simulation of global and local instabilities in collapsible tube.



# LAB FACILITIES

Mechatronics,  
Instrumentation &  
Controls Laboratory  
Tribology Lab

Fire Research Laboratory  
Fluid Mechanics  
Laboratory  
Heat & Mass Transfer  
Laboratory

Advanced Manufacturing  
Laboratory  
CAD/CAM Laboratory  
Dynamics of Machine  
Laboratory

Robotics Laboratory  
Thermal Fluid &  
Transport  
Laboratory

IC Engine Laboratory  
Material Testing Laboratory  
Measurement & Process  
Analysis Laboratory

Mechanical Engineering  
Workshop  
Micro-fabrication Laboratory  
Metrology Laboratory



- Design Analysis of Composite Patch Repair of Structural Members by Meshfree Method
- ROBUST MOTION PLANNING OF BIO-INSPIRED AMPHIBIOUS ROBOTS
- DEVELOPMENT OF ROBOT FOR MUNICIPAL SOLID WASTE SORTING
- Studies on Maxwell Stress and Hysteresis Characteristics of Poly Acrylic and silicone-Based Elastomer
- A mechanistic model for prediction of cutting forces in the mechanical micro-drilling process
- Multi-sensor based intelligent tool condition monitoring in mechanical micromachining
- Soft active dielectric elastomers for human motion-based energy harvesting
- Modelling and analysis of high-speed hybrid micromachining
- Evaluation of Burst Criterion of Zircaloy Clad
- Influence of Hydrogen Content on Burst Characteristics of Zircaloy-4 Cladding
- Effect of burnup on ballooning and burst behaviour of Zircaloy-4 cladding tubes under simulated LOCA
- A self-adaptive electronic cooling system by enhanced pool boiling
- Mechanical and microstructural characterization of additive friction stirred (AFS) 3D structures made of Al6061 T6 aluminium powder.
- Design and fabrication of micro pin fins for heat transfer in electronic equipment.
- Development of a real time tool wear monitoring and compensation method for reverse micro-EDM and micro-EDM drilling process.
- Inelastic Effects in Elastomers- Theoretical and Experimental Study



Department of Sciences  
& Technology  
Government of India



## TOPIC

- 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 valveless micropump 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 Application No.

- 985/KOL/2013
- 1026/KOL/2014
- 208/KOL/2015
- 201631041457
- 201731014654
- 201731023607
- 201831028588
- 201831011600
- 201931000706
- 201931001796
- 201931031533



WRIGHT STATE  
UNIVERSITY



UNIVERSITY OF  
SASKATCHEWAN



UNIVERSITY  
OF HARTFORD

UKIERI  
UK-India Education  
and Research Initiative



UNIVERSITY OF  
SURREY

## IITP MOTOSPORTS

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 2019:

Overall rank of 26 out of 126 participating teams. 1st among all the participating IIT's

## Team Invincible 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



IITP MOTOSPORTS  
INSTITUTE OF TECHNOLOGY PATNA, BIHAR



## 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.

## 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. The previous year, this team participated in the challenge named 'Terrace Farming Robot for Hilly Areas' and bagged the Bronze position. The challenge involved building an autonomous bot that can be employed to do tasks related to farming in a step-farming field.



## Team Alacrity

A team who designs and manufactures Human powered vehicle 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

# ALUMNI

## DISTINGUISHED ALUMNI

### Vishal Yadav

*Indian Railway Service of  
Mechanical Engineers (IRSME)*

### Luhana Prashant

*Educational Consultant at  
MHRD*

### Viththal Pandey

*Indian Railway Store Services*

### Ballabh Inder Kishore

*Consultant NPIU, MHRD*

### Abhishek Subhrant

*Founder, Career Self-start*

### Chirag Jain

*Startup - EndureAir*

### Akshay Saxena

*Startup - Robo Bionics*

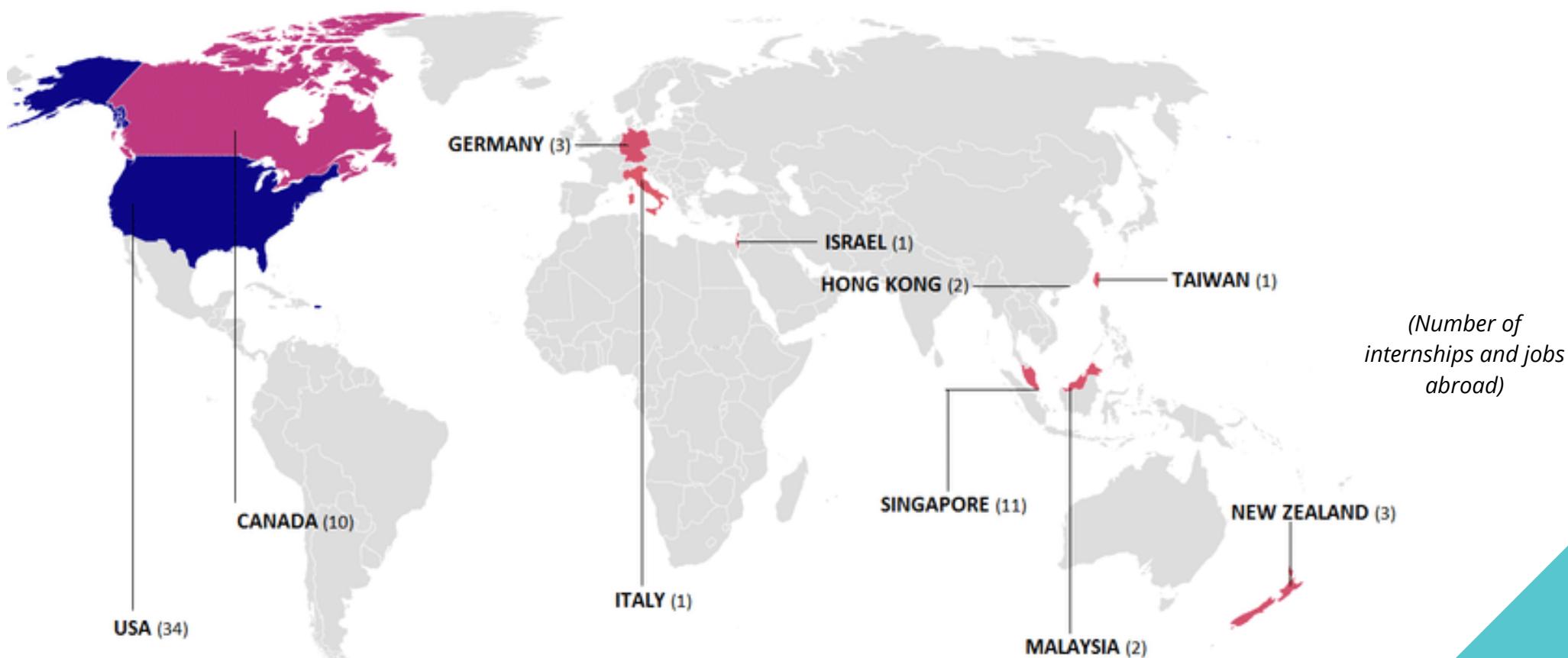
### Devanshu Ganatra

*Revenue Director, Treebo  
Hotels*

### Arpit Bansal

*Director, Toppersnotes*

## INTERNATIONAL EXPOSURE



# PAST RECURITERS



Coal India Ltd



SIEMENS



MARUTI  
SUZUKI



Cognizant



Deloitte.



# 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.



During the pre-placement talks, the speakers sent by the company would interact with the registered students and impart to them their requirements and an idea of what the companies do.

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.



### Reach Us :

Training and Placement Cell  
Administration Building  
IIT Patna Campus,  
Amhara Road, Bihta,  
Patna, Bihar- 801103

# Contact Us Coordinators

## **B.Tech**

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## **M.Tech**

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Ojas Pravin Rahate

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