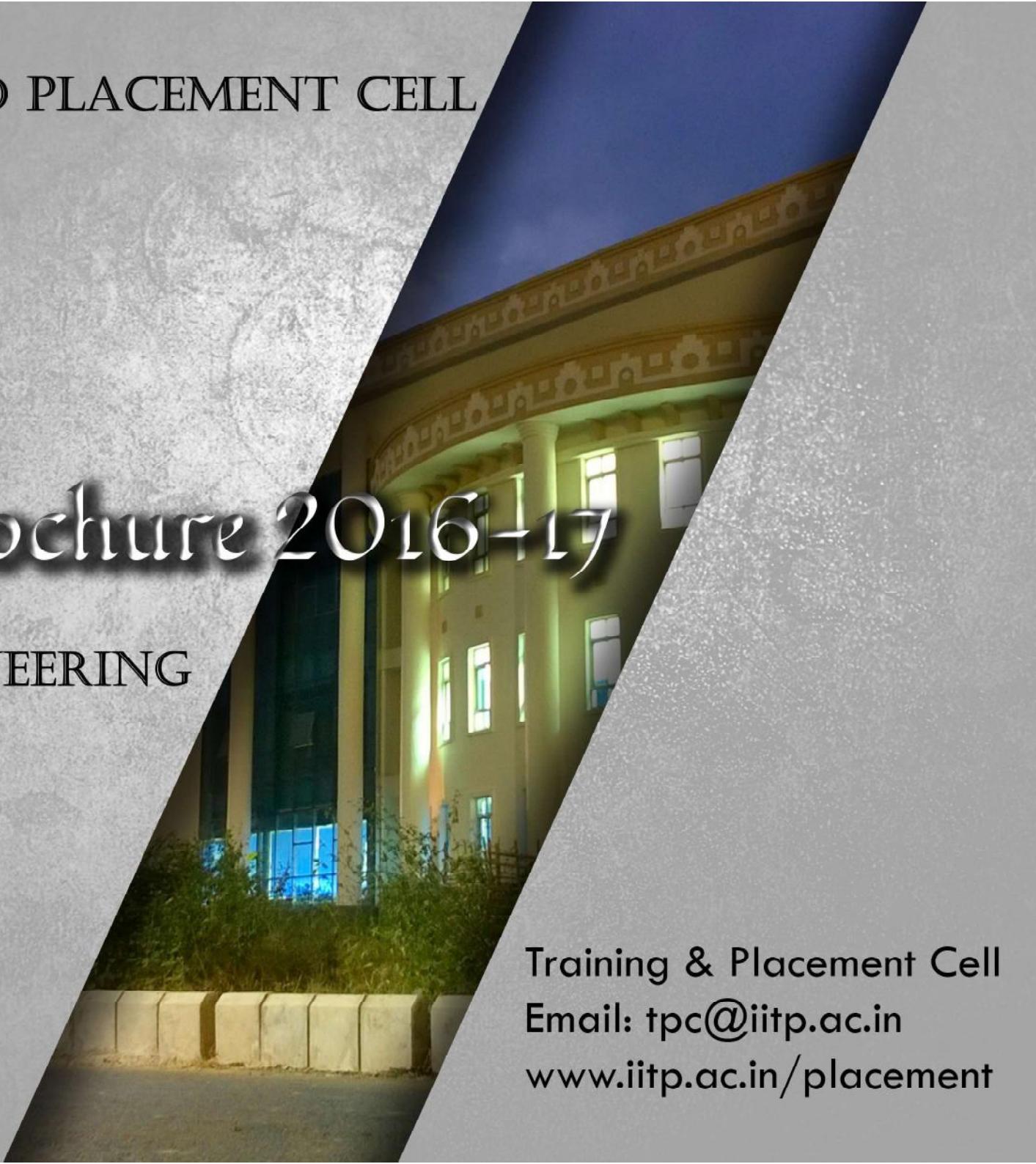




# TRAINING AND PLACEMENT CELL IIT PATNA

## Placement Brochure 2016-17

DEPARTMENT OF  
MECHANICAL ENGINEERING



Training & Placement Cell  
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# Department of Mechanical Engineering



Commenced from August 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, Boiling and Condensation, Two-phase flows, Refrigeration & Air-conditioning, Computational Fluid Dynamics, Turbulent Flows, Interfacial flows in yield stress fluid, Laser material processing, Flow of granular materials, Non-traditional manufacturing, Biomedical Bone Drilling, Soft computing, Laser Forming etc.

# Course Curriculum

## Major Core Courses:

- Solid Mechanics
- Fluid Mechanics
- Thermodynamics
- Machine Drawing
- Engineering Materials
- Manufacturing Technology
- Mechanical Measurements
- Advanced Solid Mechanics
- Mechanical Workshop
- Design of Machine Elements
- Kinematics of Machinery
- Heat and Mass Transfer
- Mechanical Engineering Laboratory
- Applied Thermodynamics
- Machine Design
- Dynamics of Machinery
- Control System
- Industrial Engineering and Operations Research

## Major Elective Courses:

- Computational Fluid Dynamics
- Dynamics of Structural Members
- Finite Element Method
- Laser Material Processing
- Refrigeration and Air Conditioning
- Robotics and Robot Applications
- Robotics: Advanced Concepts and Analysis
- Turbulent Shear Flows
- Aerodynamics
- Composite Materials and Engineering
- Rotor Dynamics
- Mobile Robotics

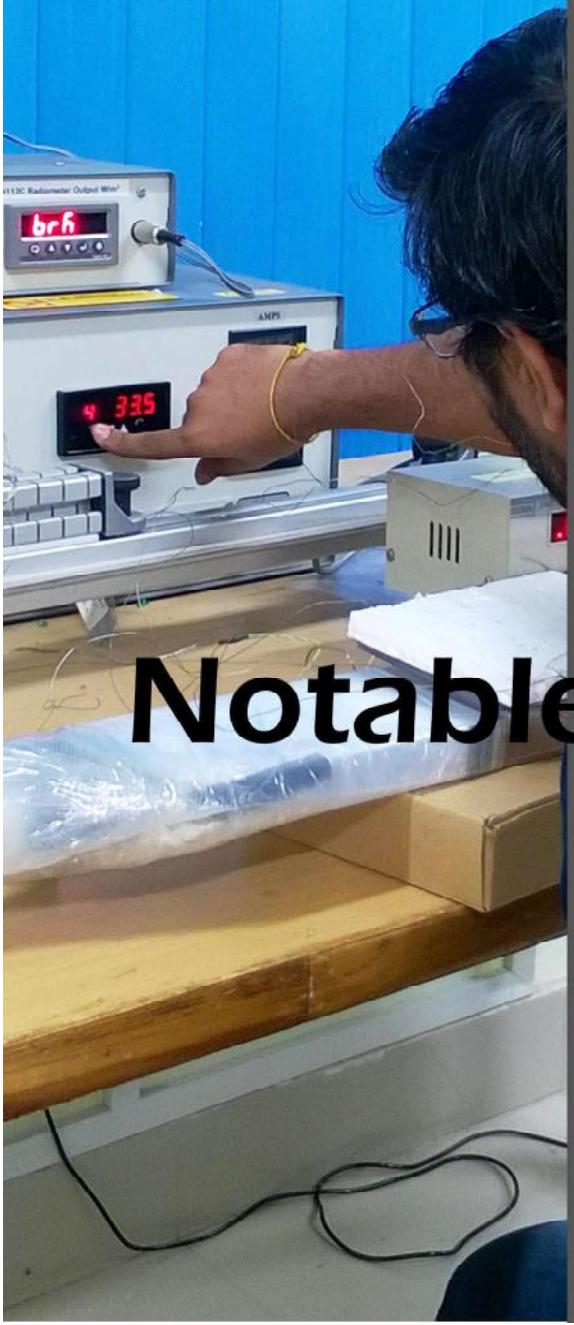
# Research Activities

List of recent student projects :-

- Design of Magnetic Microbot
- Development of Robot for Municipal Waste Sorting
- Robust Motion Planning of Bio-inspired Amphibious Robots
- Mechanistic model for prediction of cutting forces in mechanical micro-drilling process
- Multi-sensor based intelligent tool condition monitoring in mechanical micromachining
- Evaluation of Burst Criterion of Zircaloy Clad
- Studies on Maxwell stress and Hysteresis Characteristics of Poly-acrylic and Silicone based Elastomers
- Design Analysis of Composite Patch Repair of Structural Members by Meshfree Method

## Notable Patents

Title of Patent	Application No.
● Biaxial stretching device	985/KOL/2013
● Whirl Detection of shaft coupled with an induction motor using full spectrum analysis of motor current signature	1026/KOL/2014
● Manual Wheat Harvester	261817
● New design application - Handle operated garbage & soil Collector	272013/D/NF/SKM



# Laboratory Facilities

- Fluid Mechanics and Machinery Laboratory
- Computational Fluid Dynamics Laboratory
- Heat and Mass Transfer Laboratory
- I.C. Engine Laboratory
- CAD/CAM Laboratory
- Mechanical Workshop
- Advanced Manufacturing Laboratory
- Metrology Laboratory
- Robotics and Automation Laboratory
- Materials Testing Laboratory
- Dynamics and Vibrations Laboratory
- Instrumentation and Control Laboratory

## Incubation Centre

Incubation Centre at IIT Patna has been established to set up state-of-the-art infrastructure for nurturing technology, ideas and innovations in the areas of Electronic System Design and Manufacturing (ESDM) with a focus in Medical Electronics.

Funded by Department of Electronics and IT, Govt. of India and Government of Bihar to the tune of ₹471.20 Million





# **Student Clubs and Events**

## **SCME- HPVC (Human Powered Vehicle Challenge)**

Team of students design and fabricate a futuristic human powered vehicle using their innovative skills

## **SAE - SUPRA and BAJA**

Students of IIT Patna design and manufacture a vehicle based on set parameters and propose its marketing model

## **RTDC (Rural Technology Development Club)**

RTDC is working in alleviate the day to day problems by simple ingenious ideas

## **Robotics Club**

A club dedicated to development of autonomous machines

## **Celesta:**

Celesta, the three day technical festival, comprises of events that help the students nurture their practical engineering skills.

## **Anwesha:**

The annual techno-cultural festival organized as a three day extravaganza, included a wide spectrum of events ranging across technical, cultural, literary and management domains. The festival is organized in the last week of January and provides a stage for students to showcase their co-curricular and extra-curricular prowess.

# **Internships**

Students of IIT Patna are also encouraged industrial internships and student exchange programs. Students of sixth semester need to have a mandatory internship. These internship provide knowledge and experience much needed in today's practical world.

Students have done internships in:

## **Research Internships:**

Stanford University  
National Tsing Hua University (Taiwan)  
University of Paris-Saclay  
University of Manitoba, Canada  
IIT Bombay, Kanpur, Guwahati, Varanasi, etc.  
Bhabha Atomic Research Center, Mumbai  
National Aerospace Laboratories  
IISc Bangalore  
etc.

## **Industrial Internships:**

FINISAR (Malaysia)  
Mercedes India  
Bosch  
GE  
Maruti Suzuki  
Hero Moto Corp.  
TATA Motors  
Cummins  
etc.

# Achievements

- 
- IIT Patna has been ranked as the 10th Best Engineering college in India by National Institutional Ranking Framework (NIRF) accepted by MHRD for the year 2016
  - IIT Patna hosted India's first ever IEEE 5G Symposium
  - 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 India (BSI) 2017 rule quiz  
IIT Patna cleared the SAE India BAJA Virtual Round in 2014 and 2015
  - A four day workshop sponsored by DST SERB, New Delhi, on fluid mechanics: 'Modelling Analysis and Computation' was organised in IIT Patna from 14<sup>th</sup>-17<sup>th</sup> July 2016
  - Accenture ties up with IIT Patna for artificial intelligence research

# Outreach/Innovation/ Entrepreneurship



## Wheat Crop Cutting Quadricycle Based Model

A cutting mechanism is installed on quadricycle. Horizontal feed and cutting operation both will be simultaneously performed by pedal force. The design is complicated and applied for patent. Fabrication is in process.

## Handle Operated Garbage and Soil Collector

To avoid harmful and less efficient way of collection and transportation of waste and construction material, handle operated garbage and soil Collector is applied for patent. The machine has also been fabricated.

## Automatic Irrigation System

Farmer has to travel miles from his home just to switch on/off the water supply in the farms. Also there is uncertainty about availability of electricity. This task becomes very difficult especially during night time. Designing a system by which a farmer can just send SMS to regulate the water supply. The product developed at IITP aims to reduce the effort as well as helps to control the adequate water supply in the farms.

## Low Cost Automated Cell Manipulation Device Using Microbots in Magnetic Field

Designing fabrication and controlling of image guided automated non-prehensile magnetic micro-manipulation system applicable for targeted drug delivery.

## A Biaxial Stretching Device for Simultaneously Stretching of an Elastomer Sample

The developed device is applied for simultaneous stretching of elastomeric materials biaxially to improve electro mechanical responses. The device comprises square basement, supporting structure, top frame, sliding bars, power screw, and umbrella rod. Four sliding bars attached with the upper frame can move along the diagonal axes. The sliding bars are connected to the umbrella rods which are attached with a spline goes up and the umbrella rods deflect to outward direction and subsequently create a linear motion sliding bars. Four grips are provided for grabbing a test specimen at the free end of the sliding bars. With the rotation of the power screw the bars move away from each other and the sample is stretched bi directionally.

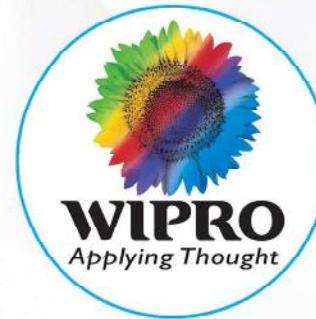
# Past Recruiters



**Mahindra**



# Past Recruiters



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