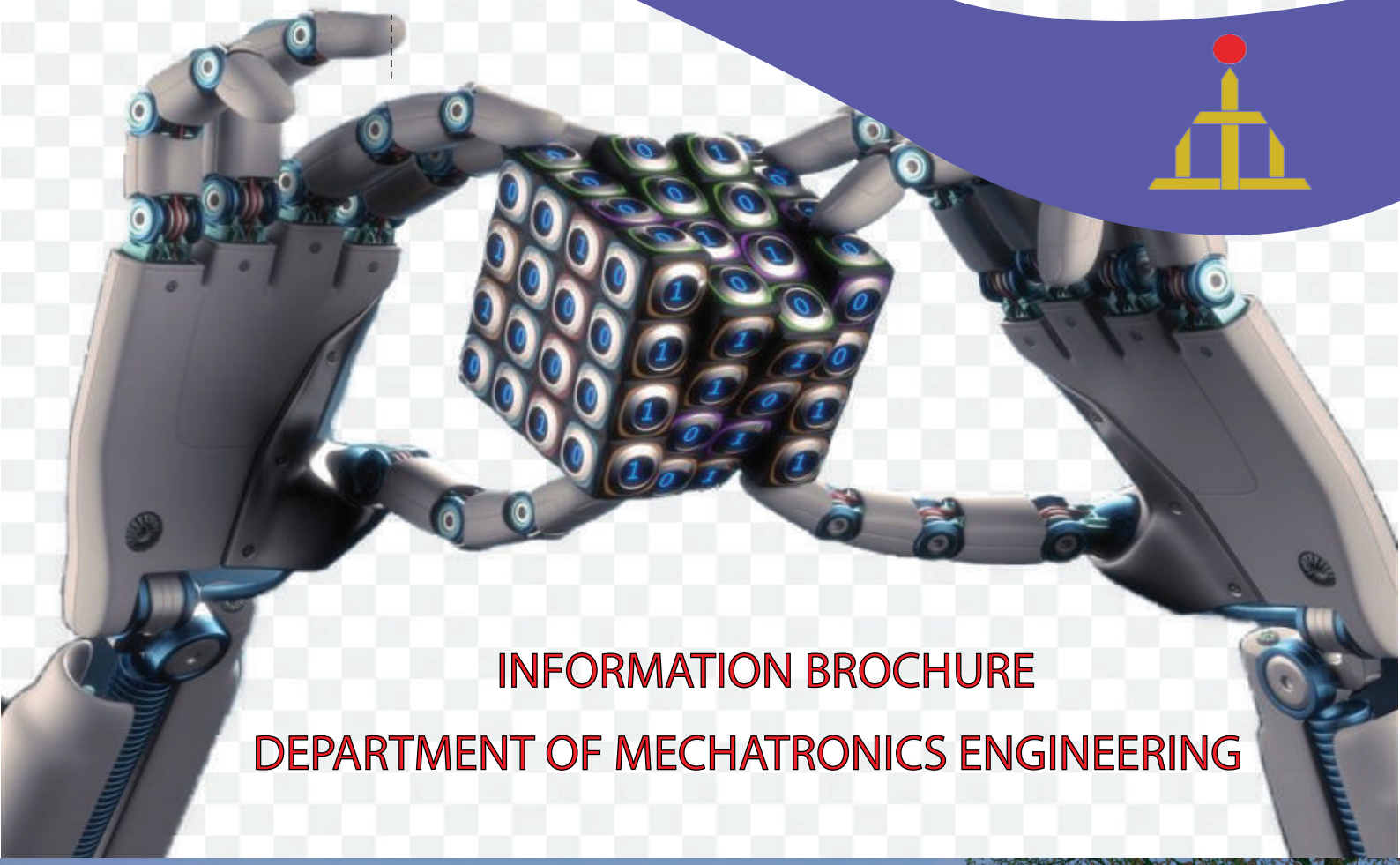
IIIT BHAGALPUR



INFORMATION BROCHURE

DEPARTMENT OF MECHATRONICS ENGINEERING

CONTENT

Overview of Department of Mechatronics Engineering

Indian Institute of Information Technology Bhagalpur started functioning from August, 2017 with two departments, namely, Computer Science Engineering and Electronics and Communication Engineering. However, a synergetic integration of electronics with mechanical engineering along with intelligent computer control is required for improving the functionality, productivity and efficiency in design and manufacturing of products. This calls for the introduction of Mechatronics Engineering branch at IIIT Bhagalpur.

The program combines mechanical design, manufacturing, automation and electrical/ electronics control within a foundational context of design and manufacturing. Degree holders under the discipline will have the opportunity to work in various sectors, viz., aviation, electronics, automobile, manufacturing, oil and gas, mining, transport, defence, robotics and aerospace industries from pursuing higher degree.

Vision & Mission of the Departmment

01 To find the requirement of industry and act as a bridge to develop academia - industry partnership

02 To find the requirement of the society so that the institute can lead the technical requirement of the public.

03 To produce graduates that are prepared for successful careers in the area associated with the analysis, applied design, development, implementation, and oversight of electro-mechanical, mechatronics, robotics and automation systems.

04 To prepare graduates that understand the overall human context in which engineering technology activities take place.

05 To prepare graduates that advance in their careers and continue their professional development.

Message from Head

Welcome to the Department of Mechatronics Engineering at IIIT Bhagalpur. Considering the need of multidisciplinary research, a new branch called Mechatronics Engineering has been started in the academic year 2018. Mechatronics Engineering is a unique branch of study that exists in very few universities in India and IIIT Bhagalpur is the only institute which has this under graduate course in Bihar.

The department is currently operating with four years undergraduate B. Tech program. The total sanctioned strength of the department is 30 and likely to be increased to 60 students per session. The M. Tech and PhD program is likely to be started soon in near future. The curriculum of the four years' undergraduate program has been designed in such a way that students should be able to design and automate a system. The syllabus of the department has been designed to provide knowledge in the areas of Mechanical design, Electrical design, Signal processing and Control, and Programming. The primary focus of our curriculum is to impart technical know-how to students, promote their problem solving skills and innovation of new technologies. The department also offers number of optional courses for providing wide spectrum of options to the students to pursue their interest and encourages students to have project based learning.

This brochure contains the details of academic programs and student activities carried by faculties and the students of the department of Mechatronics Engineering. Our department is determined to contribute in solving the challenges thrown by the industry as well as the society. If you have any query, please do not hesitate to contact us. I am sure that UG students of Department of Mechatronics will be an asset to a company if hired! Thank you!

Dr. Gaurav Kumar
Head, Department of Mechatronics Engineering
Email: gkumar.mea@iiitbh.ac.in
Contact No: 8638661359

Mechatronics Engineering Curriculum (B.Tech)

Mechanical Design

- Solid Mechanics (Theory and Lab)
- Manufacturing technology (Theory and Lab)
- Kinematics of machine
- Dynamics of machinery
- Fluid mechanics
- Thermodynamics
- Machine design

Electrical Design

- Basic electronic circuit
- Analog circuit (Theory and Lab)
- Digital design (Theory and Lab)
- Electrical Machines (Theory and Lab)

Computation

- C- Programming (Theory and Lab)
- Data Structure (Theory and Lab)
- OOPS (Theory and Lab)
- Artificial Intelligence (Theory and Lab)
- Machine Learning (Theory and Lab)

Mechatronic System

- Mechatronics and Automation (Theory and Lab)
- Robotics (Theory and Lab)
- Electric Vehicle

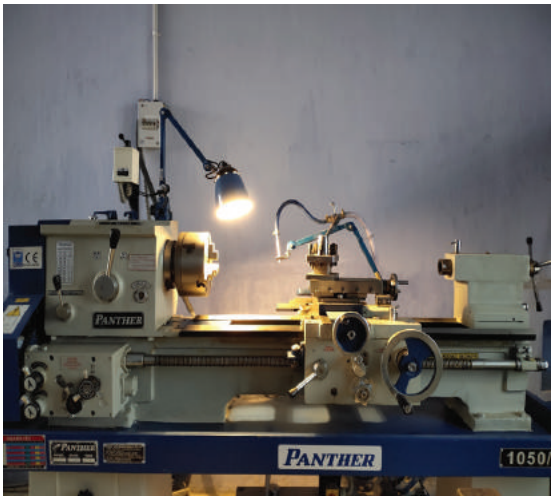
Signal Processing & Control

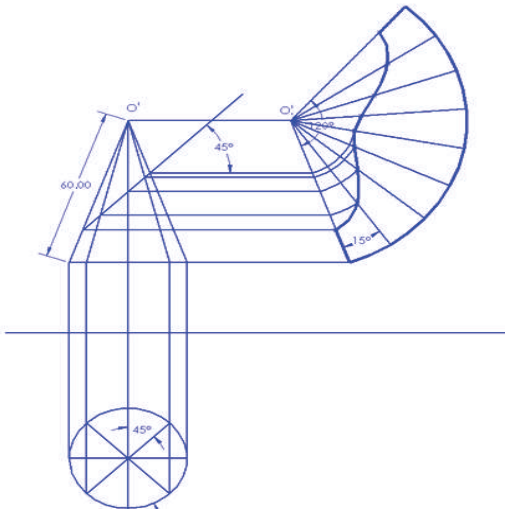
- Digital signal processing (Theory and Lab)
- Sensors and actuators (Theory and Lab)
- IoT and embedded system (Theory and Lab)
- Control systems (Theory and Lab)

Facilities & Resources

Mechanical Workshop

Mechanical Workshop provides basic skill sets required to obtain the know how of manufacturing. Students are exposed to basic operations involved in manufacturing. The aim is to equip the students competent in handling practical work in engineering environment





Engineering Graphics Lab

Engineering Graphics Lab provides students an opportunity to enhance their capability of imagination and lateral thinking. Students learn the importance of drawing in engineering. The lab isequipped with 60 perpetual license of Solid Works installed on 60 computers

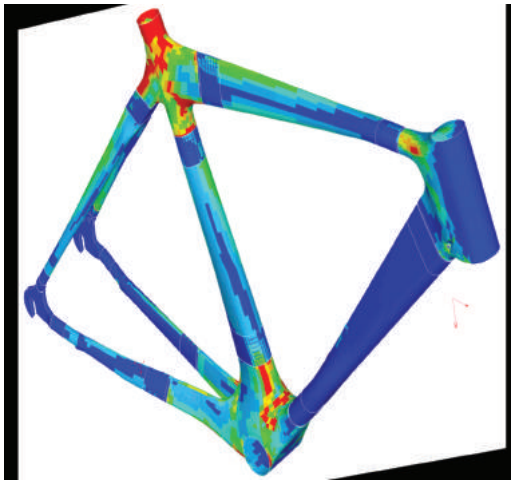
Manufacturing Lab

Manufacturing Lab provides in depth experence of various basic maching operations on lathe , milling machine, shaper, drilling machine etc. The laboratory is also equipped with non conventional machining euipments such as wire cut EDM. The students are well trained on these setups to make them understand the various parameters involved in manufacturing and machining.

Facilities & Resources

Strength of Material Lab

The Strength of Material Lab is equipped with all the essential equipments such as UTM, Hardness tester, Impact testing machine, Torsional testing machine etc. Students have been exposed to various experiments to understand the fundamentals of strength of material subject. The experimental demonstration has helped the students to understand the various properties of the material which in turn enables them as a better design engineer.



Simulation Lab

The aim of this lab is to expose the students to the various simulation tools such as Adams, Ansys, Maxwell, so that a student is able to , Design and Simulate a Mechanism, Perform Structural Analysis, Design and Simulate Elec tromagnetic Systems.

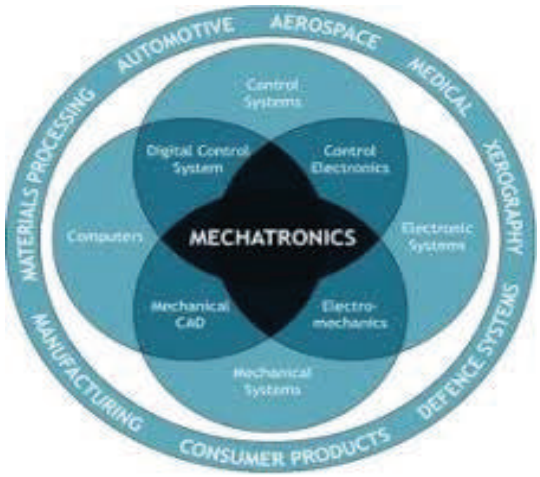
Electrical Machine Lab

Electrical Machine Lab is equipped with various experimental test rigs to strengthen the knowledge of students and their technical know how in the domain. The aim is to bridge the gap of knowledge for a design engineer such that these skilss can be used in the areas related to Electric Vehicle Technology or related fields.

Facilities & Resources

Sensors & Control Lab

The Sensors & Control lab is a unique lab which provides practical knowledge of sensor technology, features and characteristics of a sensor and its real time application in control. Students will be trained using various experimental desgin to gain the understanding of sensor and different aspects of control

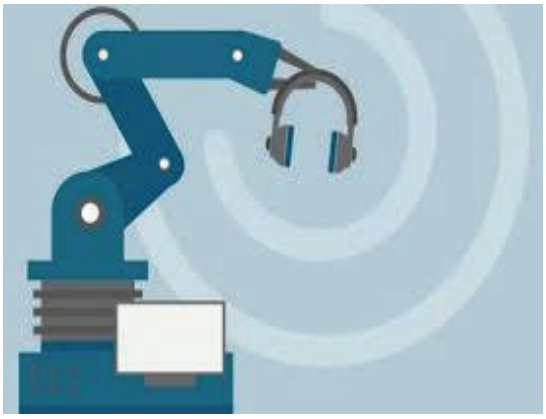


Mechatronics Lab

Mechatronics lab has been planned to provide the knowledge of complete set of automation. The students will be exposed to various skill set needed for automation as a whole particularly PLC programming and application of pneumatic and hydraulic actuators in the development of a mechatronics system.

Robotics Lab

Robotics lab has been planned to expose the students to the general functioning of a robot. Students will be trained on few general robots and they will be allowed to implement there skills learned in other labs such as AI and control lab to design special purpose robots.



Thrust Areas of the Department

The Department of Mechatronics Engineering, IIIT Bhagalpur is aiming to lead the state of Bihar and India as a whole in the following areas,

1. Mechatronic systems to support villagers

The aim is to understand the need of the villagers and design useful low cost instruments, which would be in affordable range.

2. Electric Vehicle and design

The pollution and limited gasoline source are one of the major problems of the society. Use of electric vehicle is a good way to reduce pollution. A lot of research is going on it across the world. IIIT Bhagalpur is also exploring the field and we are aiming to lead the area of electric vehicle design.

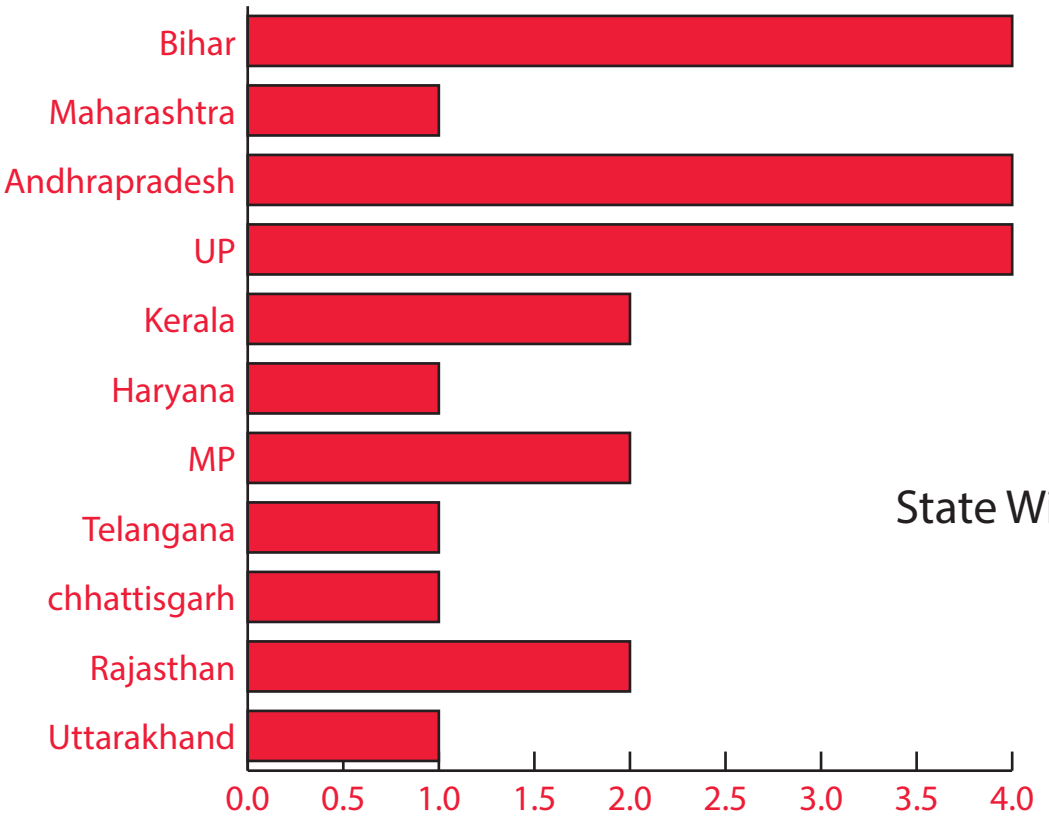
3. Robotics

Robotics has many applications from manufacturing to medical industry. However, the aim of the department is to equip students with all the tools such that they are capable of designing robotic equipment and bother products such as a Drone.

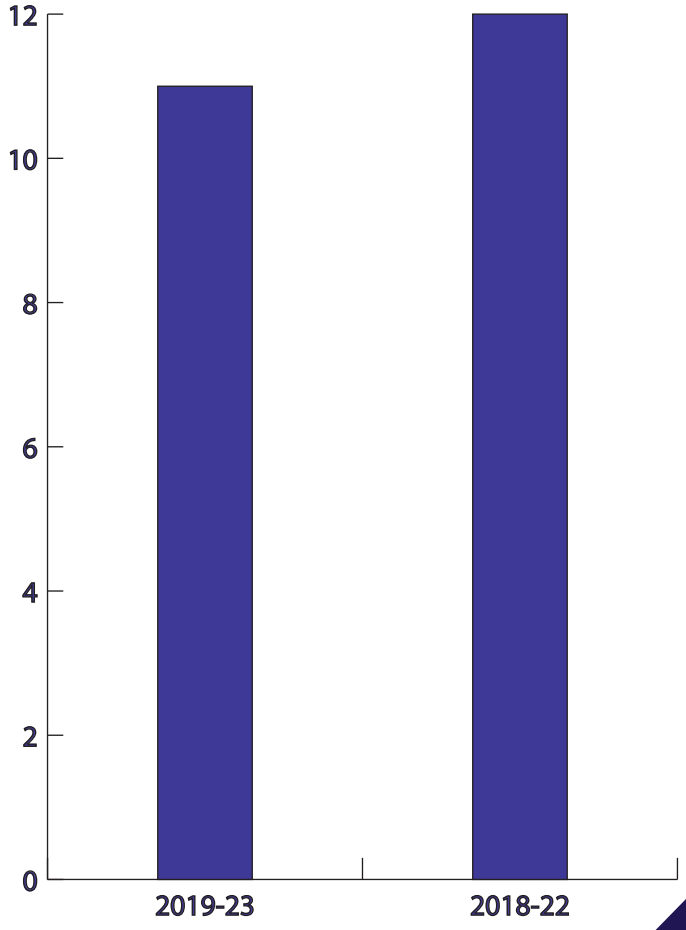
4. Actuator design

The focus is in development of electromagnetic design to provide solutions to rotating industry such as, electrical machines industry, Silk Industry etc.

Demography of the Department



State Wise Student Distribution



Batch Wise Student Distribution

CONTACT US

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