B.Tech

Mechatronics Engineering

in

Robotics & AI, Drones, Automation & IoT Systems

DESIGN Your Own
Degree & Career

Admission 2024-25
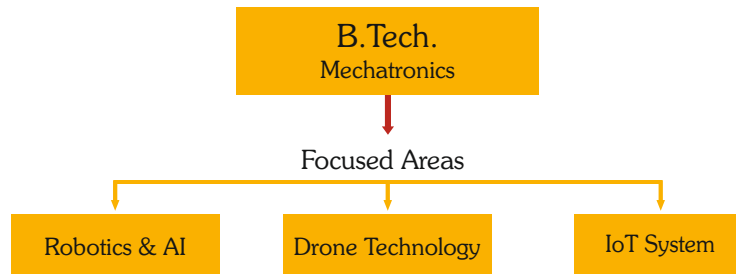### About the Department

- Mechatronics at MUJ is a synergy of expertise in mechanical, electrical, computer, and mechatronics to prepare industry-ready graduates.

- B. Tech in Mechatronics Engineering is an interdisciplinary program that involves integrated understanding and learning of engineering domains viz. Mechanical, Electrical, Electronics & Computing.

- The courses of Mechatronics at MUJ are designed to adapt the futuristics trends and industry demands.

- Mechatronics domain finds applications in Robotics Systems, Industrial Automation, Cybernetics, UAV, Smart Systems, Medical Robotics, Autonomous Vehicle, Space Research and many more.

IoT Systems

Industrial Automation

Robotics & AI

Specialization

Cyber Physical Systems

Artificial Intelligence

Programs Offered

B.Tech.
Mechatronics

Focused Areas

- Robotics & AI
- Drone Technology
- IoT System

Key Highlights of the Program

- NBA Accreditated B. Tech Program
- Implementation of National Education Policy (NEP)
- Government funded research projects
- Updated curriculum according to recent industry trends as per industry feedback.
- Focus on imparting project-based education
- Advance Robotics and Industrial Automation Laboratory
- Student Clubs and Chapters to enhance soft & technical skills
- Opportunities for Innovation and Start-ups
- Industry and International Universities Collaborations
- Continuous Mentoring and Monitoring of the Students
- Excellent Placement record in Diverse Domain Industires

Salient Feature of the Department

14 Teaching Staff	**110+** Abroad Higher Studies	**230+** Research Publications
500+ Alumni	**7** International & National MoU	**3** Student Club /Chapter

10+ Start-ups

Current Research Scenario in Robotics Lab

Equipments available for advanced research in Robotics Lab

Prominent Recruiters

LARSEN & TOUBRO · TATA CONSULTANCY SERVICES · DXC TECHNOLOGY · UNO MINDA · Cipla · BOSCH · SECURE · OMAX · Mahindra · accenture · AVL · JSW Steel · IntelliPaat · Deloitte. · Cognizant · BRISTLECONE Mahindra · Addverb Technologies

Unique Research Facilities

- UR 5-6 axis manipulator arm
- JANATICS-based electro-pneumatic system
- Bosch Rexroth-based Electro-Hydraulic System
- Bosch Rexroth based industrial sensor kit
- SIEMENS PLCs and VFD
- PLC-based trainer systems such as Lift control, Bottle filling, traffic light control etc.
- SMC-based vertical revolving handling system with internal gripper
- PIC Microcontroller and ARM Devlopment Board
- Raspberry Pi, Jetson nano and its interfacing modules
- National Instruments DAQ system (my RIO, ELVIS II+ etc.)
- Quanser based systems such as Qube-Servo and Myoelectric Board etc.
- MATLAB based 3-axis robotic trainer kit
- Interbotix Turtlebot 2i Mobile ROS Platform
- Khepera mobile robot
- Hexacopter Robot (Drones)
- Intel Real sense camera
- OCULUS RIFT, QUEST, HCT VIVE, HOLOLENS

National and International Collaborations

- University of Malta
- University of Johannesburg
- Rajiv Gandhi Center for Advanced Technology, Jaipur (SDC)
- Infosuccess 3D, Greece (Industry)
- Swayyatt Robots, Indore (Industry)
- Vision Automation, Agra (Industry)
- Smarden Automation, Haryana (Industry)

National and International Collaboration for Collaborative Research

L-Università ta' Malta · IS3D · UNIVERSITY OF JOHANNESBURG · VAS Deciphering Unfeasibility · SmarDen

Students Club & Chapter

ISA International Society of Automation — Manipal University Jaipur Student Section · AUTONOMOUS INITIATIVE THE ROBOTICS CLUB

Sports & Extra Curriculum Activity

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Career Opportunities/Fields in various sector

- Industry 4.0
- AI enabled designing
- IoT Systems
- Cyber physical systems
- Unmanned Vehicle Technology (UAV, Drone Technology)
- Automation Computing (Hardware & Software)

The MUJ EDGE (Why MUJ)

- NAAC A+, AICTE, and UGC Accredited Institution
- Enhances Interdisciplinary Research
- Highly Qualified Faculties
- State-in-Art Laboratories
- Individual Attention to Students
- PRAISE incentive policy for research publication
- Excellent Infrastructure
- Scholarship for Students
- Student Travel Grant for International Internships
- Industry and International Collaborations

Placements Statistics

- Highest Package: 12 LPA
- Average Package: 4.2 LPA
- Dream Companies Visited: 13

Eligibility

The candidate must have passed 10+2 or A Level or IB or American 12th grade or equivalent examination with Physics, Mathematics and English as Compulsory subjects, along with any one of Chemistry or Computer Science or Biotechnology or Biology or Statistics or Engineering Drawing as optional subject for admission to B Tech, with minimum of 50% marks in Physics, Mathematics, and the optional subject, put together.

Students Placement, Higher Studies and Entrepreneur

67
Placements (%)

37
Higher Studies (%)

17
Entrepreneurship (%)
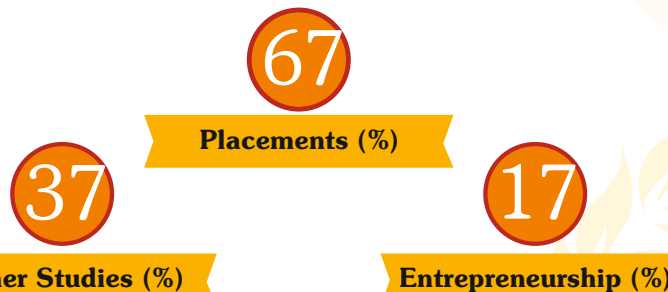
Scholarships

B.Tech. Upto 100% Fee Waiver
- TMA Pai Engineering Scholarships
- Scholarships for Lateral Entry (B. Tech.)
- TMA Pai Merit Scholarships
- Rajasthan Merit Scholarships
- Scholarships for Local Region Students
- Financial Assistance for Sibling(s)
- Scholarship for "Differently- abled" Students
- Scholarships for wards of Martyrs of Defence Personnel / Para Military Forces
- Scholarships for the wards of Single Mother & Orphan Child
- Sir M Visvesvaraya Scholarships in core programs of engineering up to 50% of annual tuition fee
- Scholarships for B Tech lateral Entry students in core programs of engineering up to 50% of annual tuition fee

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Research Contribution

- Science & Engineering research board funded project, (SERB) Govt. of India
- Research papers in reputed international journal (SCI, SCOPUS) and International National Conferences
- Regular Patent filing grant
- Consultancy projects
- Research projects funded by govt. organization
- Books/Book Chapter- published in WoS/Scopus/Springer

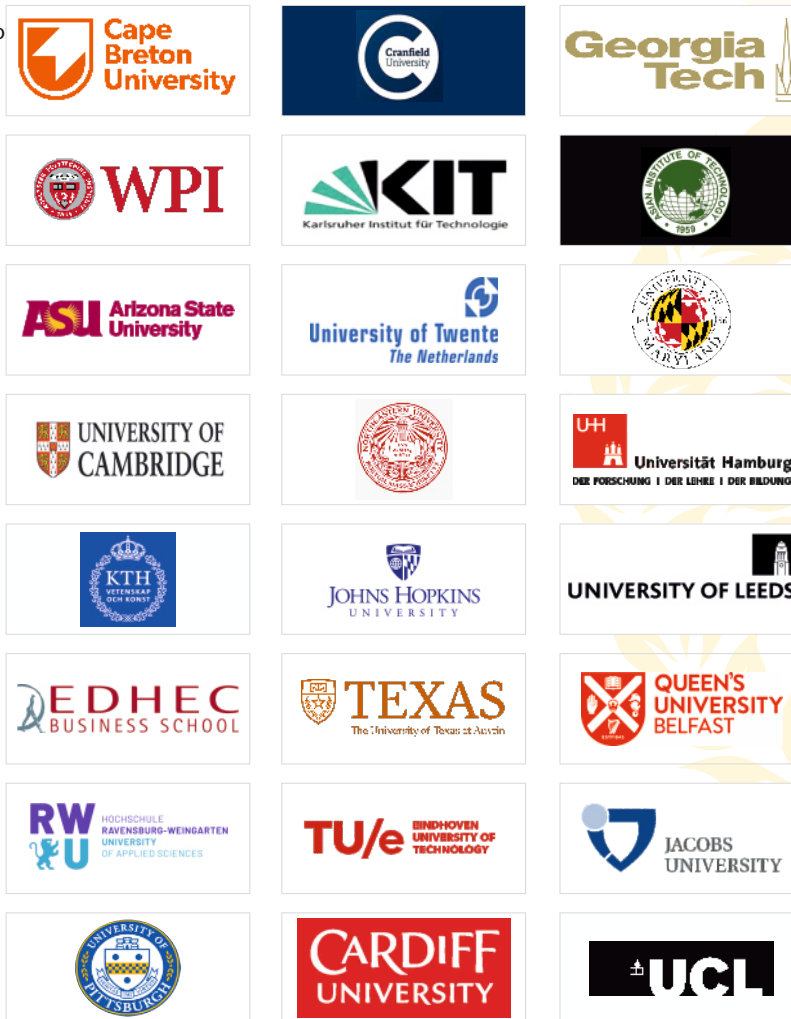

Development of Soccer Bot & Drone Race

Hands in Robotics Lab
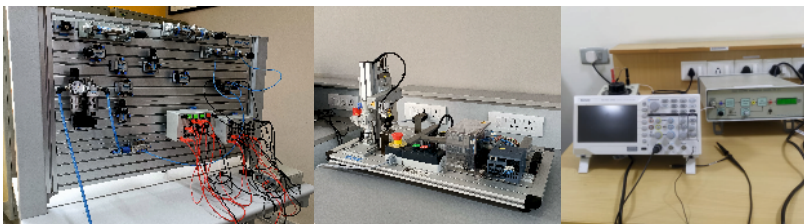
Available equipments for advanced research in Pneumatic Lab

Students Abroad for Higher Studies

Major Universities associated with Alumni

Proposed Courses (2024-25)

Core Courses

1. Linear Integrated Circuits
2. Kinematics and Dynamics of Machines
3. Sensors, Actuators and Control
4. Design of Machine Elements
5. Digital System Design
6. Robotics
7. Microcontrollers and applications
8. Drives, Control and Automation

Flexi- Courses

1. FC1: IoT System
2. FC1: Intelligent System
3. FC2: Smart Manufacturing
4. FC2: Augmented Reality and Virtual Reality
5. FC3: Social Cyber- Physical System
6. FC3: MEMS and NEMS

Program Electives

1. Strength of Materials
2. Fluid Mechanics
3. Signal and System
4. Green Energy
5. Smart Building
6. Digital Signal Processing
7. Finite Element Methods
8. Image processing
9. Smart Materials
10. Data Science for Managerial Decisions
11. Farming Automation
12. Modeling of Cyber-physical systems
13. Computer Networks and Protocols
14. Control of Cyber-physical systems
15. Financial reporting and analysis
16. Smart Agriculture
17. Optimal control
18. Business Applications of AI and ML techniques

Focus Areas

FA 1: ROBOTICS and DRONE

1. Aerial Robot Kinematics (PE 1)
2. Collaborative Robots (PE 2)
3. Robot Path Planning and Control (PE 3)
4. Unmanned Aerial Vehicle (PE 4)
5. Vision Intelligence in Robotics (PE 5)
6. Biomedical Robots (PE 6)
7. Control of Drones (PE7)

FA 2: IoT SYSTEM

1. Wireless Sensor Networks (PE 1)
2. Automated Manufacturing Systems (PE 2)
3. Project Planning and Machine Learning (PE 3)
4. IoT Security (PE 4)
5. Digital Twin (PE 5)
6. Ambient Intelligence (PE 6)

University Electives

1. Fundamentals of Robotics
2. Automation in Industry
3. Fundamentals of Cyber- Physical Systems
4. Project Planning and Control
5. Building Automation
6. Smart Farming
7. Optimization and decision techniques
8. Sensor Technologies
9. Predictive maintenance
10. Drone Technology
11. Inventory and Quality Control
12. Biomedical Instrumentation
13. Emotional Intelligence
14. System Analysis and Management

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Admission Process

Application form initiated through our website
admissions.jaipur.manipal.edu

Applicants must submit a completed application
form with relevant documents within the due date.

Our counsellors will guide candidates through the
admission process, which is as per regulatory requirements.

FAQ

Please visit the FAQ section on our website to
know more about the admission process.

More about the Department
Scan the QR Code

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Department Social Media Connect

Hostel Details

goodhostspaces.com   08069122800
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Counsellor Contact Details

Ms Meenakshi
8690987137

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