JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY

(Deemed to be University under section 3 of UGC Act 1956)

A-10, SECTOR-62, NOIDA-201 309

UTTAR PRADESH, INDIA

Website: https://www.jiit.ac.in

DECADE OF INNOVATION: 2021-2031

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DEPARTMENT OF MECHANICAL ENGINEERING AND DESIGN (MED)

BROCHURE: 2025-26

A representative image related to MED Department

DRIVING ADVANCEMENT WITH ACCURACY AND PASSION - JIIT MECHANICAL

DEPARTMENT OF MECHANICAL ENGINEERING AND DESIGN

JIIT NOIDA

The Department of **Mechanical Engineering & Design (MED)** emphasizes creativity, innovation, and problem-solving in product development and industrial design. It combines engineering principles with aesthetics, ergonomics, and sustainability to create efficient and user-friendly designs. Design and innovation are crucial for industries and organizations to go beyond their conventional functions and boundaries. The MED department fosters professionals with an ability to produce products that are adaptive, aesthetically enticing, sustainable and user friendly.

At JIIT Noida, the MED department is offering driving and interdisciplinary learning ambience to nurtures creativity and technological expertise. Graduates will gain significant exposure to basic design concepts, development of prototypes, critical design thinking, visual design, form studies, CAD, product developments, materials, manufacturing, and sustainable design of energy systems.

The MED department is also established at JIIT Noida with an aim to integrate the emerging fields of Robotics, AI and Automation to equip students with critical knowledge of mechatronics, intelligent systems and industrial automation. This amalgamation fosters innovation in automated explanations for real-world industrial and societal challenges.

The curriculum is designed to promote a strong foundation on innovation and industry-based application, addressing anticipated challenges while sustaining congruence with the most recent technology breakthroughs. Graduates, postgraduates and research scholars are going to have an assortment of possibilities for employment in the sectors such as robotics, AI, automation, the design business, or as independent designers, and various other sectors of interdisciplinary and emerging sectors of engineering.

MESSAGE BY HOD

Welcome to the Department of Mechanical Engineering and Design (MED) at Jaypee Institute of Information Technology, Noida. The department is built on a strong foundation of academic excellence, research-driven innovation, and a commitment to creating an inclusive and inspiring learning environment.

MED department offers academic programs that reflect the evolving needs of modern industry: B.Tech in Robotics & AI, M.Des (Master's in Design), and Ph.D. programs across various specialisations of Mechanical Engineering. These programs are supported by a highly qualified faculty whose expertise spans robotics, automation, materials science, manufacturing, energy systems, and design

At MED, we aim to advance transformative teaching and research that shape the future of our students. The curriculum emphasises robotics, automation, materials science, manufacturing, green energy, and design. Graduates of JIIT will be equipped with the skills required to support "Make in India," Industry 4.0, green manufacturing, and the growing aerospace sector.

Advanced facilities and vibrant research ecosystem at the MED department equip students to excel academically and stand out in their professional careers.

PROGRAMS OFFERED

❖ UNDERGRADUATE

- B. Tech in Robotics and AI

❖ POST-GRADUATE

- M. Tech in Robotics and AI

- Master's in Design (M.Des)

❖ DOCTOR OF PHILOSOPHY (Ph.D.)

- Thermal Engineering

- Advanced Manufacturing

- Welding Technology

- Renewable Energy Systems

- Mechatronics and Advanced Robotics

- Computer Aided Design and Manufacturing

- Numerical Computation and Modelling

- Mechanical System Design

- Product Design and Development

- Material Science

VISION

To be a center of excellence in education, training and research in Mechanical Engineering and Design to foster technically competent professionals to address the complex challenges across industries, academia, and society.

MISSION

Mission 1: To impart education through contemporary, future-focused, and flexible curricula, integrating innovative teaching methods and hands-on training in state-of-the-art labs.

Mission 2: To conduct cutting-edge research in emerging areas of Mechanical Engineering and Design.

Mission 3: To nurture technical and entrepreneurial skills in professionals, enabling them to create socially responsible and sustainable solutions.

CORE STRENGTHS & SALIENT FEATURES OF THE DEPARTMENT

The MED department at JIIT Noida is developing itself as an extensive research and instructional platform that combines the principles of mechanical engineering with creative design thinking and automation. The department has laid down the following noteworthy core strengths & salient features of the department:

Comprehensive Course Structure: The core team at JIIT Noida has developed a comprehensive curriculum that blends fundamentals of mechanical engineering with deep-rooted cutting-edge technology and critical design thinking.

Interdisciplinary Approach: The department has blended the interdisciplinary approach by integrating mechanical engineering with the field of Robotics, AI and Automation and fundamentals of design principles to solve complex challenges.

Drive Originality and Innovation: To drive originality and innovation we adopt a concept of project-based learning to develop unique solutions to existing problems.

Sustainability Focus: To prepare students to create environmentally friendly solutions by integrating environmental values with research and instruction.

Emerging Research Horizons: Offers substantial opportunity for both theoretical and computational platform to carry out research in the emerging fields such as fluid dynamics, energy, material and manufacturing, design, applied mechanics, product design, rapid prototyping and many more.

State of the Arts Lab: Presently equipped with modern design labs and prototyping facilities such as 3D printer, 2D/3D modelling software's and advanced robotics lab.

Master of Design (M.Des) Program: This interdisciplinary program housed within the MED department, designed to produce masters in the field of digital design, UI/UX, AI-driven design, and product creation**.**

Solving Real-World Issues: The course structure is designed to address and solve real world issues in the sectors like energy, manufacturing, robotics, AI, and consumer-based products.

Curriculum-Integrated Industrial Training: The department has integrated a mandatory industrial training model for its graduates and post graduates students to gain hands-on exposure in R&D labs, industrial and manufacturing environment.

Flexible Electives: Offers flexible electives that permit students to specialize in emergent field based on market need and personal benefits.

Project Based Learning/Final Year Projects: Focuses on final projects and project-based learning that foster design, research, and creativity, frequently resulting in publications**.**

Structured Placement Guidance: JIIT Noida has a well-structured centralized Training and Placement Cell which collaborates with recruiters from top enterprises of the world resulting in competitive packages.

Experienced Faculty: The faculty members in the department are highly experienced and qualified with degrees from institutes of national importance. Students are constantly mentored by these faculties resulting in cutting-edge research.

RESEARCH AREAS

The MED department at JIIT Noida places an extreme priority on industry-relevant invention and research-driven teaching. To promote the vision of the department, the department has established important research areas to meet national priorities and develop new technology. This fosters interdisciplinary education, cutting-edge research, and hands-on skill development among scholars and educators.

The given are the research areas of the department:

- Thermal Engineering

- Advanced Manufacturing

- Welding Technology

- Renewable Energy Systems

- Robotics and Automation

- Mechatronics and Advanced Robotics

- Computer Aided Design and Manufacturing

- Numerical Computation and Modelling

- Mechanical System Design

- Product Design and Development

- Material Science

RESEARCH FACILITIES

The Department of Mechanical Engineering and Design is well-endowed with state-of-the-art laboratory and research facilities for supporting sophisticated learning and innovation. These facilities cross boundaries between theory and practice in major thrust areas. Right from manufacturing workshops to specialized laboratories in CAD/CAM, thermal engineering, and robotics, the department promotes hands-on learning. Such facilities support students and faculty in undertaking state-of-the-art research and industry-oriented projects.

CADD Centre:

The CADD Centre was established at JIIT Noida with an aim to provide a high class virtual environment to faculty and students to carry out sophisticated 3D modeling, simulation, and design optimization. It helps in quick prototyping via 3D printing and computer-based testing of mechanical devices. Researchers are advantageously exposed to hands-on use of industry-oriented tools for research and thesis projects. It also aids interdisciplinary and collaborative research with practical applications. The CADD Center is equipped with a multicolor projector, whiteboard, and computer systems with advanced configurations.

IDEA Lab:

Representative image of IDEA LAB

IDEA Lab is being established at JIIT, Noida under the supervision of AICTE. This lab is a cutting-edge facility to expertise young engineers in design, innovation, product development, and prototyping. This laboratory shall expose students to practical experience in state-of-the-art design tools, rapid prototyping, and fabrication methods, encouraging a culture of innovation and technology development. It will be contributory in empowering M.Des scholars with the skills obligatory for industrial design and research-based innovation. The lab is expected to promote interdisciplinary learning and enhance JIIT's emphasis on entrepreneurship and industry-academia partnerships.

Robotics and AI Lab:

Representative image of Robotics and AI Lab.

The Robotics and AI Lab is established at JIIT Noida as high-tech laboratories for hands-on skills and research. Various robotics platforms and supporting components such as Arduino kits, sensor-actuator systems, and embedded controllers are installed. Students and researchers can pursue applications in machine learning, deep learning, autonomous systems, robotic arms and intelligent control. The

laboratory promotes cross-disciplinary research in mechatronics, automation, and intelligent manufacturing. The facility promotes developing practical skills as well as innovation-led research for faculty and students.

Manufacturing/ Workshop Lab:

The manufacturing/workshop lab enables students to carry out fabrication of prototypes and experimental validation. It delivers hands-on skill with various shops such as machining, fitting, welding, carpentry, and fitting to train in assembling tools and raw material for mechanical research. Researchers have the option to validate their CAD model by creating the corresponding physical model for analysis and performance testing. This lab encourages invention in product design and aids in material and process research. It also facilitates multidisciplinary projects including automation, robotics, and mechanical systems.

HARDWARE- SOFTWARE FACILITIES

HARDWARE FACILITIES

Name of the Lab	Description	Location	In-charge
Workshop-I, II III &IV	This facility has five shops namely Fitting Shop, Carpentry Shop, Sheet Metal Shop, Welding Shop and Machine shop. It is equipped with different machines such as Centre Lathe, Pillar Drilling Machine, Shaper Machine, Vertical Milling Machine, Surface Grinder with magnetic chuck, Tool Grinder, Wood Working Lathe, Hand Drilling Machine, Portable Hand Grinder, Portable Metal Cutting Machine, Plastic Molding Machine with Die, Muffle Furnace and Portable Welding Machine.	**Workshop Lab I & II** OAT-Basement, JIIT, Sector-62, Main Campus / **Workshop Lab III & IV** A-Block-Basement, JIIT, Sector-128, Wish Town Campus	**Lab In-Charge:** Mr. Dwarka Prasad Saini **Lab OC:** Mr. Nitesh Singh / **Lab In-Charge:** Mr. Bhupendra Kumar Lab OC: Dr. Prabhakar Jha
M.Des	Design Studio, Photography Lab		
Robotics & AI	Advanced Robotics and AI Lab		

SOFTWARE FACILITIES

Name of the Lab	Description	Location	In-charge
CADD Centre I, II, III &IV	The CADD Center is equipped with a Multicolor Projector, Whiteboard, and Computer Systems with Autodesk's latest Auto-CAD software.	**CADD Centre I & II**	
		ABB-III, 6th Floor, JIIT, Sector-62, Main Campus	**Lab In-Charge:** Mr. Sumit Kumar **Lab OC:** Mr. Chandan Kumar
		CADD Centre III & IV	
		A Block, 1st Floor, JIIT, Sector-128, Wish Town Campus	**Lab In-Charge:** Mr. Arjun **Lab OC:** Mr. Rahul Kumar
M.Des	Design and Photography Softwares		
Robotics & AI	Advanced Robotics Programming and AI Tools		

RESEARCH PROJECT

S. No.	Funding Agency	Project Title	PI/Co-PI	Grant Amount	Status
1	DRID, JIIT, Noida	Self-Navigating vehicle for Specially-abled people (Divyang/Elderly E-Vehicle)	Co-PI: Dr. Satya Narayan Patel, Mr. Shwetabh Singh	Rs. 13 Lacs.	Ongoing

PHOTO GALLERY

Valedictory Photo of the Inaugural FDP on Product Design and 3D Printing using Autodesk Fusion in collaboration with Autodesk.

Group Photo of the inaugural FDP on Product Design and 3D Printing using Autodesk Fusion in collaboration with Autodesk.

Valedictory Photo of an Expert Talk on Industry-Academia Partnership.
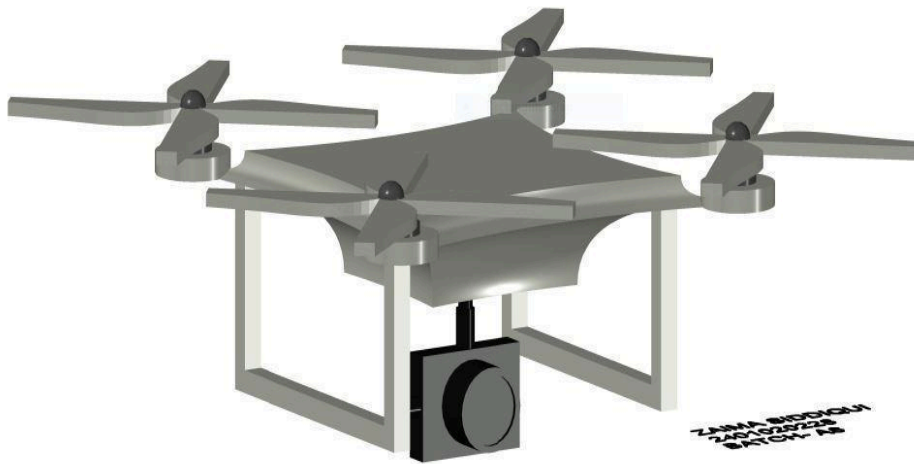
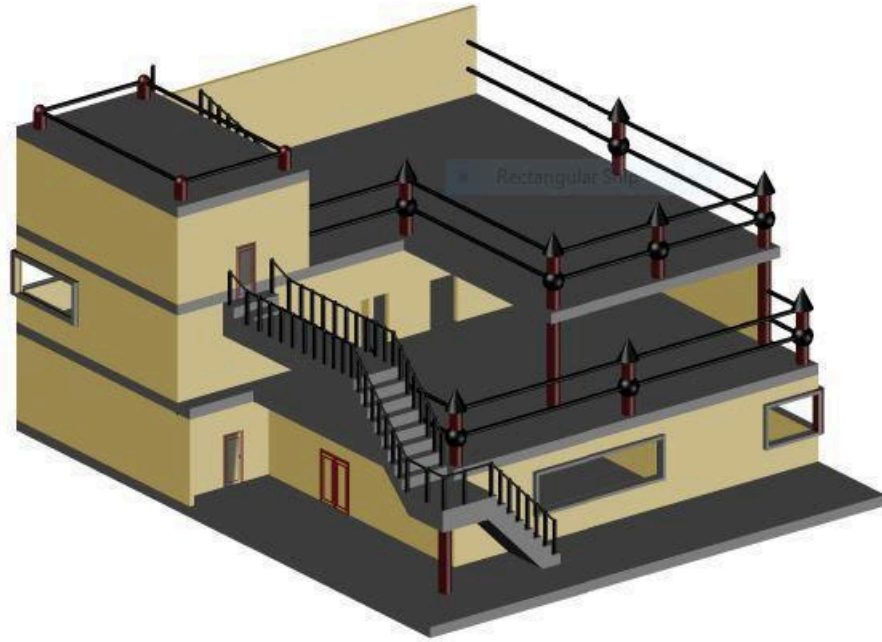One Day Hybrid Workshop on Robotics & AI.

One Day Workshop on M.Des Program.

Students Engaged in CAD Lab to Create a CAD Model.

CAD model of a drone created by a student.

CAD model created by a student.

CAD model of a JIIT Main Campus created by a student.