

Computer Aided Design- Computer Aided Manufacturing & Automation (CAD-CAM & Automation)

CAD-CAM & Automation programme integrates design and manufacturing to promote the present industrial requirement. The programme allows a compressive study in the advances in Computer Aided Design, Computer Aided Manufacturing technologies, Automation and Mechatronics. The programme deeply concerns with the aspects of design and analysis, simulation, planning and purchasing, cost accounting, scheduling, inventory control and distribution, product design, ergonomic design, product life cycle management, supply chain management, enterprise management. To achieve automated manufacturing CAD-CAM uses technologies like FMS, AGV, Robotics, Mechatronics, automated conveyor systems and computer aided techniques like CAD, CAM, CAE, CIM, a business system integrated by a common database.

Scheme & Syllabus

The detailed revised syllabus is available in the following link.

http://www.nits.ac.in/departments/mech/syllabus/Course_MTech_Design_and_Manufacturing.pdf

Objectives & Activities

- The students will study latest subjects in the area of CAD-CAM & Automation with the objective of producing designers and manufacturing professionals.
- To provide hands on experience to the students on the state of- the-art knowledge-oriented software tools for product design, rapid manufacturing, automation, quality assurance fit for the Industries.
- To develop the competency in the research activity to address the recent challenges in the industry and society.

Career Scope

- Core companies in design, manufacturing, assembly Aerospace Engineers, Agriculture, Biomedical, and Electrical/Electronics Engineers, Defence and automotive sectors.
- Software companies dealing in product design and development.
- Research and Development Organisations.

Eligibility Criteria

As per CCMT (Centralized Counselling For M.Tech./M.Arch./M.Plan. Admissions) guidelines.

Duration

- The duration of the course is 2 years comprising of 4 semesters
- First two semesters contains class work and labs.
- Third and fourth semesters have in house R & D project work.

Facilities

- High end computational facilities available for lab work and research purpose
- Hands on training are available on sophisticated manufacturing machinery (CNC controlled EDM, USM, 3D printer etc.)
- Financial support for project/research work through institute, department, TEQIP III funds.
- Central T&P cell Enable opportunities for job placement

List of laboratories and major equipment

- **CAD Lab:** Major software are available for computational analysis like ANSYS, Pro-E, CATIA etc. with latest Computer terminal.
- **Rapid Prototyping Lab:** Advanced ceramic based 3D printer (Projet 360) is available with adequate facility to convert computer aided model into 3D physical model. The equipment in lab are capable of manufacturing integrates machine elements, manufacturing components, bio models using reverse engineering technique.
- **Robotics lab:** Programmable manipulators are available for the students to simulate different real time movement.
- **Advanced Manufacturing Lab:** Advanced machines like CNC lathe, Die sinking EDM, Micro-EDM, Wire-EDM, USM, Chemical Machining, Optical Micro-scope, Surface profilometer, Scanning Electron Microscope (SEM).
- **Central Workshop:** Equipped with conventional machines like lathe, Milling, shaper, drilling, and hand tools for manufacturing/fabrication work.

Thrust Areas

1. Computer Aided Design and analysis of real life problems
2. Design and development of biomedical equipments.
3. Rapid prototyping
4. Advanced Manufacturing
5. Computational Modeling
6. Robotics
7. Laser Material Processing
8. Flexible manufacturing System
9. Additive Manufacturing

Placement details

Majority of the students have opted for higher study in premier institutes in India and abroad. Some of them are also placed in reputed industries after passing out from the institute.

Publication details

There are presently eight nos. of projects being handled by the faculty members from the domain area and a few of them have been completed successfully, so far.

A number of patents have been filed by faculty member of the domain area and one of these was granted till date so far. Others are in the publication stage.

Students and faculty members of the department have published more than 50 research papers and also a number of book chapters in reputed publishing house over the last few years.

For further information, contact

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