

M. Tech. in Design and Manufacturing

This course aims to bring together the principles of design and manufacturing to a single platform. Product perspective demands an in depth understanding of design evolution and manufacturing practices to transform the raw material into the final product. In this post-graduate course, the principles of both the philosophies are aligned in order to meet the industry requirements. Here, a student is not only exposed to the theoretical knowledge but also gets acclimatized with the practical requirements that are followed in the leading industries. The course is designed in consultation with the leading industry experts and their feedback has also been implemented in finalizing the course material. The graduates under this course can lead a designing as well as a manufacturing facility with sound expertise. Major highlights of this course include design and optimization, product conceptualization, manufacturing theories and practices, modelling and simulation of real time processes.



The detailed revised syllabus is available in the following link.

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



The objectives of the post-graduate programme of the M. Tech. Degree in Design and Manufacturing at National Institute of Technology Silchar are as follows.

- To enhance the foundation and the knowledgebase of students in Design and Manufacturing and to make them capable for effectively analyzing and solving the problems associated in this field.
- To deliver comprehensive education in Design and Manufacturing to ensure that the students have core competency to be successful in industry or research laboratory and motivate them to pursue higher studies and research in interrelated areas.
- To encourage the students to take up real life and/or research related problems and to create innovative solutions of these problems through comprehensive analysis and designing.
- To inculcate a sense of ethics, professionalism and effective communication skills amongst graduates for their successful careers.
- To provide an academic environment that gives adequate opportunity to the students to cultivate lifelong skills needed for their successful professional career.



- Product design firms and organizations

- Design analysis organizations
- Core manufacturing facilities
- Research and Development organizations
- Innovation and Entrepreneurship



Eligibility Criteria

As per CCMT (Centralized Counselling For M.Tech./M.Arch./M.Plan. Admissions) guidelines. In addition, under sponsored category also, admission may also be taken.



Course Duration

The duration of the course is 2 years comprising of 4 semesters

- First two semesters contains class work and laboratory works.
- Third and fourth semesters have in-house R & D project work.



Facilities

The Department of Mechanical Engineering is equipped with cutting edge teaching learning facilities including classrooms, laboratories, faculties and support staff. The course graduates will get the following facilities during the course period.

- High end computational facility available for research and laboratory purpose.
- Hands-on training on sophisticated and modern equipment like, CNC controlled EDM, USM, Multi-tribometer, Servo Hydraulic UTM etc.
- Machinery and equipment to carry out research works.
- Financial support for project/research work through institute, department, TEQIP III funds.
- Central Training & Placement cell enabled opportunities for job placement dedicated to PG courses.
- Dynamic and experienced faculty members.
- Departmental library.
- All other institute level facilities.



Laboratories

- Machine Dynamics Laboratory
- Advanced Manufacturing Laboratory
- Computational Laboratory

- Mechatronics Laboratory
- Instrumentation Laboratory
- Welding Laboratory
- Central Workshop
- Machine Element Laboratory

Thrust Area of M.Tech in Design and Manufacturing

1. Advanced and Non Traditional Machining and Manufacturing Processes
2. Advanced Material Science
3. Stress and Deformation analysis
4. Fracture Mechanics
5. Advanced Optimization Techniques
6. Tribology
7. Robotic and Automation
8. Stochastic Analysis
9. Mechatronics
10. Dynamics, Vibration and Control Engineering
11. Molecular Dynamics
12. Continuum Mechanics – Elasticity and Plasticity
13. Computational Modelling and Simulation



Majority of the students have opted for their higher study in some of the premier institutes across India and abroad. Few of them are also placed in leading industries.



The faculty members of Design and Manufacturing discipline have undertaken various externally funded research projects and some of which have already reached their successful completion. These are funded by various Govt. agencies, for e.g. CPRI, DST-FIST, DST, AR&DB, etc. A number of research scholars after completing their research work in the field of Design and Manufacturing are presently working in different reputed organizations, as well.

Students and faculty members of the department have published more than 100 research papers, 2 books and also a number of book chapters from reputed publishing houses in the last few years. A few patents are also in the publication stage.

For further information, contact

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