

NITEC IN DIGITAL & PRECISION ENGINEERING

CERTIFICATION

Credits required for certification:

Core Modules	: 44
Life Skills Modules	: 9
Elective Modules	: 4
<hr/> Total	<hr/> : 57

COURSE STRUCTURE

Module Title	Credits
CORE MODULES	
Engineering Drawing & Inspection Techniques	6
Engineering Process (Turning)	6
Engineering Process (Milling)	6
3D CAD/CAM Applications	6
Digital Manufacturing Processes	6
Machine Monitoring System	6
Internship Programme	8
ELECTIVES (COURSE SPECIFIC)	
Assembly Skills	2
Grinding	2
ELECTIVES (INTER-DISCIPLINARY)	
Design Conceptualization & Rapid Prototyping	2
ELECTIVES (GENERAL) AND LIFE SKILLS MODULES	
For details, click here	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Engineering Drawing & Inspection Techniques

On completion of the module, students should be able to interpret technical drawings and perform dimensional inspections for the machined components in accordance with ISO standards.

Engineering Process (Turning)

On completion of the module, students should be able to set up and operate conventional and CNC lathes to produce components in accordance with given specifications.

Engineering Process (Milling)

On completion of the module, students should be able to set up and operate conventional and CNC milling machines to produce components in accordance with given specifications.

3D CAD/CAM Applications

On completion of the module, students should be able to interpret engineering drawings, create 3D CAD models and, generate and verify CNC part programs using a CAD/CAM system for CNC lathes and CNC milling machines.

Digital Manufacturing Processes

On completion of the module, students should be able to use CAD/CAM systems to develop 3D digital models, set up and operate multi-axis CNC machines to produce precise components in accordance to given specifications. Student will also be able to review machining processes remotely with digital monitoring systems and interpret machine data to optimise cutting parameters and machine performance.

Machine Monitoring System

On completion of the module, students should be able to set up and operate CNC laser cutting machine to produce metal parts and injection moulding machine with pick & place robot to produce plastic parts. Student will also be able to use machine monitoring systems to monitor the overall efficiency of manufacturing processes and interpret production data to improve productivity.

Internship Programme

Students will undergo a six-month internship with companies to deepen skills and knowledge acquired in ITE, and further develop competencies in areas related to precision engineering.

Electives (Course Specific)

Assembly Skills

On completion of the module, students should be able to select and use the correct hand tools for assembly and dismantle of mechanical components.

Grinding

On completion of the module, students should be able to understand the fundamentals of co-ordinate measuring techniques. They will be able to operate and apply the application to perform mathematical alignment of various simple geometrical components and obtain the measured results as required.

Electives (Inter-disciplinary)

Design Conceptualization & Rapid Prototyping

On completion of the module, students should be able to create a 3D solid model using CAD software and to operate the rapid prototyping printing machine to generate the 3D model.

Electives (General) and Life Skills Modules

For details, click [here](#).