

HIGHER NITEC IN MECHANICAL ENGINEERING (2 YEARS)

CERTIFICATION

Credits required for certification:

Sector Foundation Modules	:	6
Specialisation Modules	:	33
Internship Programme Modules	:	8
LifeSkills Modules	:	9
Cross-Disciplinary Core Modules	:	6
Electives Modules	:	6
Total	:	68

COURSE STRUCTURE

Module Title	Credits
SECTOR FOUNDATION MODULES	
Workplace Safety, Health & Environment	3
Electrical Fundamentals	3
SPECIALISATION MODULES	
Industrial Piping & Valve Systems	3
Plant Equipment Maintenance	3
Electro Pneumatics & Hydraulics	3
Machinery Maintenance	3
Engineering CAD	3
Quality Engineering	3
Engineering Materials	3
System Integration	3
Instrumentation & Control	3
Engineering Development & Prototyping	3
Engineering Modelling & Applications	3
INTERNSHIP PROGRAMME MODULES	
Internship Programme	8
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

SECTOR FOUNDATION MODULES

Workplace Safety, Health & Environment

On completion of the module, students should be able to apply Workplace Safety and Health (WSH) policies, Environmental Management System procedures and practices in the planning, preparation and execution of work activities to ensure a safe and reliable workplace environment.

Electrical Fundamentals

On completion of the module, students should be able to interpret circuit schematic and board layout, perform DC circuit connection and in-circuit measurement.

SPECIALISATION MODULES

Industrial Piping & Valve Systems

On completion of this module, students should be able to perform installation, repairs and replace fluid supply pipes and fittings. They should also be equipped to effectively maintain, troubleshoot, and repair industrial fluid valves.

Plant Equipment Maintenance

On completing of this module, students should be able to carry out a preventive maintenance programme, maintain, troubleshoot and repair air compressor systems and industrial fluid pumps.

Electro Pneumatics & Hydraulics

On completion of this module, students should be able to install, maintain and troubleshoot electro pneumatic and hydraulic systems.

Machinery Maintenance

On completion of the module, students should be able to maintain and service mechanical transmission systems; lift and move heavy loads safely and assist in troubleshoot and repair machinery.

Engineering CAD

On completion of this module, students should be able to interpret engineering drawings, create 3D models and convert 3D models to 2D drawings by using CAD system.

Quality Engineering

On completion of the module, students should be able to interpret the requirements of ISO 9001 and 14001, apply Lean Six Sigma tools, such as Statistical Process Control, in problem solving and quality inspection.

Engineering Materials

On completion of the module, students should be able to classify engineering materials, conduct destructive and non-destructive testing.

System Integration

On completion of the module, students should be able to program PLC systems, interface engineering components and sub-systems, as well as perform troubleshooting and testing.

Instrumentation & Control

On completion of the module, students should be able to perform testing, calibration, fault diagnosis and maintenance of instrumentation and control equipment.

Engineering Development & Prototyping

On completion of the module, students should be able to carry out design and development activities including applications of design concepts and verify product design. They should also be able to perform 3D printing and product design enhancements for manufacturability and sustainability.

Engineering Modelling & Applications

On completion of the module, students should be able to solve engineering problems, conduct stress and motion simulations; and perform product testing through engineering software. The students should also be able to model machine assembly by selecting standard component parts.

INTERSHIP PROGRAMME MODULES

Internship Programme

On completion of the module, students should be able to integrate and apply the skills and knowledge acquired at ITE College, and further develop competencies at the workplace.

ELECTIVES (GENERAL) AND LIFESKILLS MODULES

For details, click [here](#).