HIGHER NITEC IN MECHANICAL ENGINEERING

CERTIFICATION

Credits required for certification:

Core Modules	:	48
Life Skills Modules	:	9
Elective Modules	:	4
Total	:	61

COURSE STRUCTURE

Module Title	Credits
CORE MODULES	
Mathematics and Engineering Systems	7
CAD and Engineering Design	6
Quality Engineering	7
Engineering Materials and Mechanics	7
System Integration and Controls	7
Engineering Development and Applications	6
Industry Attachment	8
ELECTIVES (COURSE SPECIFIC)	
Conventional Machining	2
Jig and Fixture Design	2
Product Prototyping	2
Cobot Automation in Manufacturing	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

Mathematics and Engineering Systems

On completion of the module, students should be able to solve engineering problems involving algebra, indices, graphs, trigonometry and statistics, and to perform electric installations as well as connect pneumatic and hydraulic systems.

CAD and Engineering Design

On completion of the module, students should be able to create 2D drawings of engineering components using a CAD system as well as produce 3D solid models and also to design a mechanical system comprising various machine elements.

Quality Engineering

On completion of the module, students should be able to interpret the Workshop Safety and Health (WSH) regulations, the requirements of ISO 9001 and 14001 under Quality Management System, Lean Six Sigma, and apply fundamental quality tools and techniques for problem solving and quality inspection, and also the use of precision measuring tools with statistical process control capabilities.

Engineering Materials and Mechanics
On completion of the module, students should be able to classify engineering materials, conduct destructive and non-destructive testing and also able to apply the laws and principles of statics and dynamics to design engineering systems.

System Integration and Controls
On completion of the module, students should be able to perform testing, calibration, fault diagnosis and maintenance of instrumentation and control equipment, program PLC system, interface engineering components and sub-systems, as well as install part feeding system and electrical drive system.

Engineering Development and Applications
On completion of the module, students should be able to carry out design and development activities including application of design concepts for a sustainable environment, verify product design, perform rapid prototyping, as well as carry out product design change process and enhancement of product design.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in their occupation.

Electives (Course Specific)

Conventional Machining
On completion of the module, students should be able to perform machining operations on conventional lathe and milling machines.

Jig and Fixture Design
On completion of the module, students should be able to design and draw a drill jig, turning and milling fixture using CAD software.

Product Prototyping
On completion of the module, students should be able to create simple design of a product using 3-D CAD software and produce a 3-D model of it using basic prototyping devices.

Cobot Automation in Manufacturing
On completion of this module, students should be able to set up the cobot system and program the cobot to perform basic manufacturing operations like pick and place and packaging task.

Electives (General) and Life Skills Modules
For details, click here.