

HIGHER NITEC IN MECHATRONICS ENGINEERING

Core Modules

CAD and Mechanical Applications

On completion of the module, students should be able to read, interpret and produce common geometrical and mechanical drawings using Computer-Aided Drafting (CAD) software; use common tools and equipment to fabricate and service simple mechanical elements and assemble aluminium profile structures.

Electrical and Electronics Applications

On completion of the module, students should be able to analyse circuit schematic and board layout; and perform in-circuit measurement. They should also be able to identify faulty components and replace them. Students should also be able to conduct performance test to ensure that the circuit is working as intended.

Pneumatics and Automation

On completion of the module, students should be able to apply electro-mechanical control systems, including common input / output devices, pneumatics and electro-pneumatics systems in industrial automation.

PLC and Motor Control

On completion of the module, students should be able to apply Programmable Logic Controller (PLC) programming to interface and control PLC-controlled applications and to use advanced PLC instructions to program PLC intelligent modules for industrial automation.

Cyber Physical Systems

On completion of the module, students should be able to troubleshoot and maintain sub-systems associated with Cyber Physical System / flexible manufacturing system, such as Conveyor, Automated Guided Vehicle, Automated Storage and Retrieval, Data Identification, Machine Vision, Human Machine Interface, Supervisory Control, Data Acquisition, Internet of Things, Communication Networking, Quality Assurance, Process Control and Maintenance Management.

Robotics Systems

On completion of the module, students should be able to set up, program, operate, troubleshoot and maintain robotic system, and solve engineering problems involving statics, dynamics, kinematics and kinetics. Students are also trained to apply microcontroller programming concepts used in control circuits of microcontroller-based equipment.

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 the occupation.