

HIGHER NITEC IN ELECTRICAL ENGINEERING

CERTIFICATION

Credits required for certification:

Core Modules	: 46
Life Skills Modules	: 9
Elective Modules	: 4
<u>Total</u>	<u>: 59</u>

COURSE STRUCTURE

Module Title	Credits
CORE MODULES	
Electrical Design and Installation	7
Electrical Power and Distribution	7
Motor Control and Drives	7
Predictive Maintenance and Servicing	6
Intelligent Building Systems	6
Solar Photovoltaic Systems	5
Industry Attachment	8
ELECTIVES (COURSE SPECIFIC)	
Sensor Technology	2
SCADA	2
Structured Cabling	2
Applied Pneumatic Control	2
Power Quality	2
Lighting Effects and Applications	2
Instrumentation and Control Systems	2
ELECTIVES (JOINT ITE-INDUSTRY)	
PLC Control Builder	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

Electrical Design and Installation

On completion of the module, students should be able to design, prepare electrical drawings of and maintain electrical installations in residential, industrial and commercial premises in compliance with relevant local standards, regulations and codes of practice.

Electrical Power and Distribution

On completion of the module, students should be able to maintain electrical power and distribution system including switchboards and electrical back up supply system, perform lockout and tag out procedures and remote energy monitoring system in compliance with relevant local standards, regulations and codes of practice.

Motor Control and Drives

On completion of the module, students should be able to maintain electrical motor installations including advanced motor drives and control systems and also implement predictive and condition-based maintenance in compliance with relevant local standards, regulations and codes of practice.

Predictive Maintenance and Servicing

On completion of the module, students should be able to maintain various electrical and industrial equipment and appliances, fire alarm system through the application of condition monitoring and data analysis in compliance with relevant local standards, regulations and codes of practice.

Intelligent Building Systems

On completion of the module, students should be able to program and implement smart, internet-linked control and automation solutions for residential and commercial buildings as well as maintain associated digital communication network and cabling system in compliance with relevant local standards, regulations and codes of practice.

Solar Photovoltaic Systems

On completion of the module, students should be able to maintain renewable solar energy systems and implement smart, internet-linked instrumentation and monitoring systems in compliance with relevant local standards, regulations and codes of practice.

Industry Attachment

Students will be attached to relevant companies to complement and reinforce the skills and knowledge acquired at ITE and to gain professional and working experience.

Electives (Course Specific)

Sensor Technology

On completion of the module, students should be able to explain the principles of operation, characteristics and applications of various sensors in industrial and electrical engineering works.

SCADA

On completion of the module, students should be able to explain the basic configuration and provide an overview of a SCADA system. They are also trained to explain the techniques and methods used on data acquisition, the control of the field devices, communication, applications and operation of the system.

Structured Cabling

On completion of the module, students should be able to explain the principles of structured cabling and install a standard cabling system accordingly to the relevant standard. They also should be able to perform testing and trouble-shooting and certify the quality of structured cabling installations with both copper and fibre-optic cables.

Applied Pneumatic Control

On completion of the module, students should be able to develop control circuits based on knowledge of the construction, principles of operation and application of the various components and equipment in electromechanical, pneumatic and electro-pneumatic control systems.

Power Quality

On completion of the module, students should be able to use monitoring tools to measure power quality (PQ) in an electrical power installation. They should also be able to explain the various sources of power quality problems and their mitigation techniques.

Lighting Effects and Applications

On completion of the module, students should be able to apply the principles of lighting effects to install and maintain lighting schemes for different client requirements.

Instrumentation and Control Systems

On completion of the module, students should be able to maintain instrumentation and control systems and associated remote, smart internet-linked monitoring systems in compliance with relevant local standards, regulations and codes of practice.

Electives (Joint ITE-Industry)

PLC Control Builder

On completion of the module, students should be able to use PLC engineering tool to configure projects based on IEC61131-3 standard with one or several applications running in PLC.

Electives (General) and Life Skills Modules

For details, click [here](#).