

Specialist Diploma in Electrical and Electronic Engineering

OVERVIEW

The Specialist Diploma in Electrical and Electronic Engineering provides the necessary knowledge and skills for students with or without experience to develop a broad knowledge of engineering to become professional practitioners in engineering sector.

PROGRAMME OBJECTIVES:

This course aims to equip students with applied knowledge, understanding and skills for success in employment in the Electrical and Electronic Engineering sector and develop a wide range of skills and techniques, personal qualities, and attributes essential for successful performance and immediate contribution to employment

ASSESSMENT METHODS:

Combination of 70% Coursework and 30% Examination OR 100% Coursework.

DURATION COMPONENTS:

Classroom Training Hours: 30 - 42 Hours Per Module

MODULE SYNOPSIS:

ENG401 Engineering Principles

The module aims to provide the knowledge, problem-solving skills and practical aspects of engineering sciences. This module encourages students to explore a broad range of engineering topics, including parameters within mechanical engineering systems, characteristics and properties of engineering materials, A.C./ D.C. circuit theorems, network analysis and electromagnetic principles properties

ENG402 Mathematical Modeling and Applications

Mathematical Modeling is becoming an increasingly important subject as computers expand our ability to translate mathematical equations and formulations into concrete conclusions concerning realistic engineering problems. Engineering students must understand the fundamental mathematical knowledge and techniques needed to use and apply mathematical techniques for the evaluation, analysis, modelling and solution of realistic engineering problems. The application of these data sets has to include their interpretation both to and from the mathematical language.

ENG 408 Integrated Engineering Project

This module's learning objective is to provide the practical and professional skills to develop practical professional engineering skills required for conceiving, designing, implementing, and operating engineering solutions. The project work involves developing, managing and achieving the objectives of an engineering project and applying professional and technical skills and knowledge in a real case scenario. The project encourages a holistic approach to managing an engineering project's technical and managerial aspects, using the multiple technologies and topics that the students have learned.

PROGRAMME OUTCOMES:

Upon completion of the course, the students will be:

- competent to design and validate/evaluate electrical equipment and systems, manage risk, estimate and manage projects and provide technical advice.
- understanding and skills for success in employment in the electrical/electronic engineering-based industry

AWARDING BODIES:

Global School of Technology and Management

NUMBER OF MODULES:

8

TOTAL CONTACT HOURS:

252 hours

ENG412 Electronic Devices and Material Technology

Electronic devices and materials technology plays a very important role in modern technology. It became a core component of many high value-added, cutting edge, and functional devices in the electronic industry. The applications include microprocessors, memory devices, displays, energy harvesting, storage, etc. The electronic industry forms an important part of Singapore's gross domestic product. For example, semiconductor devices are indispensable parts of systems, such as computers and biomedical equipment, which are important in our daily life and form the basis for the development of novel technology through their operational principles. Therefore, this module's learning objective is to equip the students with an understanding of the basic properties of electronic materials, the fundamental principle underlying their applications in devices, and the processing/operation of various electronic devices.

ENG410 Power System Analysis

Power systems are complex generators and loads interconnected via transmission lines and various equipment and apparatus (transformers, switchgear, etc.). An overview of modern power systems meeting present and future challenges involves understanding the fast-changing structure of this system, the behaviour of its components under steady-state, and dynamic and transient conditions. The module helps to understand the response of this complex system to the variation of loads and determine how this system can be controlled to supply the loads reliably. At the same time, it is economical and safe for the environment.

ENG411 Transformer and AC/DC Machines

This module focuses on single-phase transformer and AC/DC Machines widely used in operation, working, analysis testing, applications of single and three-phase motors, power systems, industries and commercial applications.

Effective Date: 15 July 2021

ENG403 Engineering Design and Practice

It is an aggressive race to continue earning the world's tallest building title. At the same time, cities are constructing higher buildings in greater numbers in cities as diverse as Shanghai, Shenzhen, Hong Kong, Dubai, Riyadh, Mumbai, London, to name only a few. The Marina Bay Sands Hotel is one of the most recognisable buildings in Singapore, and the three-column building is connected at the roof by the largest rooftop infinity pool. It is the most dominating symbol of the city and a human-made marvel that defies gravity by reaching the clouds. It embodies unrelenting human aspirations to build even higher.

Singapore is a small country. It is essential to expand horizontally to safeguard against their reaching an eventual breaking point; the tall building as a building type is a possible solution by way of conquering vertical space through agglomeration densification. Development of tall buildings, spectacular long suspension bridges, to very large floating structures, these structures must withstand both the forces of nature and the forces humankind has intended for them. The analytical tools that engineers use to create these structures are deceptively simple, and it is part of this module's intent to explain things in a clear, straightforward manner.

Students work in teams to engineer practical solutions to problems, including performing surveying that is incidental to the practice of engineering and reviewing construction or other design products for monitoring compliance with drawings and specifications related to engineered works. Students expect to use software to support project planning, communication and analysis. The module also focuses on developing practical professional engineering skills required for conceiving, designing, implementing and operating engineering solutions.

ENG409 Electronics and Electrical Principles

The modern world relies on electrical and electronic devices – from mobile telephones to jet aeroplanes; these devices have had an enormous impact on today's way we live. Without early engineers such as Faraday and Lenz, who studied the then-new Concept of electricity, many of the inventions we now take for granted would not have been developed.

The module develops and extends learners' understanding of fundamental electrical and electronic principles by analysing simple direct current (DC) circuits. Students are then taken through the various properties and parameters associated with capacitance and inductance before considering the application of single-phase alternating current (AC) theory.