

Diploma in Electrical Engineering Technology

Module Outlines

Engineering Mathematics 1

This module covers the parts of algebra which are fundamental to all of mathematics and its applications in Science and Engineering. This module altogether with Engineering Mathematics 2 is designed to cover the range of basic and essential mathematical topics of importance to students studying Engineering at Diploma and year one undergraduate level.

Engineering Mathematics 2

This module continues on the knowledge gained in Engineering Mathematics 1 with the more advanced topics of differentiation, integration, differential equations and their applications in many areas of engineering. This module will provide a solid theoretical base for the more applied side of Engineering Mathematics to be seen in year two and beyond of undergraduate engineering studies.

Electrical and Electronic Principles 1

This is the first part of a two-part module providing a basic understanding of Electrical and Electronic Engineering at the Diploma level.

Electrical and Electronic Principles 2

This module is to provide an understanding of electrical fundamentals as well as analogue electronic devices and circuits in the scope of Electrical and Electronic Engineering at the Diploma level.

Circuit Theory and Analysis

This module is to provide an understanding of Circuit Analysis Theory in the scope of Electrical and Electronic Engineering at the Diploma level.

Fundamentals of Programming

The module introduces the techniques and concepts of programming using the high-level programming language C, that is indispensable for all engineering professionals. Participants are taught problem-solving skills using a top-down, structured approach. The disciplines learnt are generally applicable to any programming platform.

Research Project

This module requires students to work on a project, as a group, which is a culmination of the entire engineering programme by providing the opportunity to integrate and augment the student's total formal knowledge by means of its application to a real problem at the appropriate level. The students learn the MATLAB language, as an alternative way of creating a programme, and also in order to perform and display calculations. They can apply this knowledge in control, to produce results that will be assessed during their final presentation and report. A sample control project would be to implement a PID controller to regulate the speed control of a DC motor. Firstly, the transfer function of a DC motor must be obtained. Then, a Controller must be designed based on design techniques such as Time Response Specifications and Bode plot analysis. MATLAB will be used to simulate systems and results. Furthermore, the students learn how to programme an Arduino 101 to achieve a simple real-life example task, e.g. accepting data from sensors, using actuators, digital inputs/outputs, analog inputs/outputs, electronics (e.g. controlling a LED), etc. Finally, the students can choose to do a MATLAB project or Arduino project, or a mixture of both, as a group, and then the students must present their findings in a formal process involving writing a report and giving a presentation.

Academic Reading and Writing 2

There has been a need to continually improve the English quality of our students and provide them constant support at their diploma levels. This module is designed for students who are enrolled in diploma programmes to work intensively on their reading and writing skills.

This is a more intensive module that will develop better reading and writing skills as they are the keys to understanding their subjects and effectively engage in class activities. These classes will address a variety of key demands of writing and reading assignments on their courses, focusing on both academic and language skills and the ability to write. The module is taught in a blended learning environment where students will have the opportunity to experiment and learn in both online and face-to-face lessons.

Communication & Information Systems

Communication skills are as important in the globalised world as business knowledge and technical skills. Companies need to know how best to interact across national boundaries. This module encompasses an overview of intercultural communication, theories of communications and how information can be best managed. The topics outline the rules of good writing, effective techniques of oral communication and issues pertaining to business communication. Students will be introduced to management information systems, electronic commerce and business, and the benefits and challenges of business mobility. After completing the module, students should be able to appreciate how communication and information systems could serve as useful strategic tools to shape the competitive advantage of business organisations.