MODULE DESCRIPTIONS

COMMUNICATION TECHNOLOGY II

This module provides a foundation in communication systems, including AM and FM, radio frequency systems, antennas, modulation schemes, multiplexing, wireless technologies, optical communication, and satellite systems.

CONTROL SYSTEMS III

This module develops knowledge and practical skills in control systems, including modelling, transfer functions, stability techniques, compensator design, and multivariable controller design.

DESIGN PROJECT III

As a capstone module, this project requires students to identify and solve an electrical engineering problem through proposal development, planning, design, implementation, testing, documentation, and presentation.

DIGITAL ELECTRONICS I

In this module, students engage with the principles of digital and analogue electronic systems, including combinational and sequential logic, electronic components, system testing, operational amplifiers, and signal generator circuits.

DIGITAL SYSTEMS II

Students are introduced to modern digital systems through the study of programmable logic, data storage, signal conversion, data transmission, processing systems, and integrated circuit technologies.

ELECTRICAL MACHINES III

Through this module, students explore electrical machinery and transformers, including DC machines, single- and three-phase transformers, induction motors, and synchronous machines used in power systems.

ELECTRICAL TECHNOLOGY II

This module focuses on electrical circuit theory and analysis, covering DC and AC networks, circuit theorems, power factor correction, and harmonics in electrical systems.

ELECTROMECHANIC TECHNOLOGY I

The focus of this module is on building a foundation in basic electrical and mechanical engineering concepts, including Boolean algebra, digital systems, circuits, mechanics, fluid mechanics, strength of materials, and thermodynamics.

ENERGY MANAGEMENT III

In this module, students engage with energy audits, energy systems management, energy efficiency opportunities, economic analysis, lighting, HVAC, maintenance, and energy information systems.

ENGINEERING MATHEMATICS I

This module builds the fundamental mathematics needed for engineering, including vectors, matrices, engineering functions, differentiation, integration, measurements, complex numbers, and introductory statistics. It lays the mathematical foundation for later science and engineering modules.

ENGINEERING MATHEMATICS II

Building on prior mathematical knowledge, this module extends students' understanding into advanced differentiation, partial differentiation, integration techniques, numerical integration, and first-order differential equations for engineering problem solving.

ENGINEERING MATHEMATICS III

This module extends students' mathematical understanding for signal processing and dynamic systems, including Fourier series, second-order differential equations, partial differential equations, and numerical methods.

ENGINEERING PHYSICS I

Students are introduced to the core concepts of mechanics, electricity, and magnetism needed in engineering. Topics include motion, forces, torque, energy, circuits, electric fields, magnetism, and induction, all of which support later engineering science modules.

ENGINEERING PROFESSIONAL SKILLS

In this module, students develop digital literacy, technical communication, report writing, programming basics, modelling, and engineering drawing skills to support work in engineering environments. Students engage with MS Office, Python, technical reporting, CAD, and professional themes such as ethics, sustainability, and innovation.

BACHELOR OF ENGINEERING TECHNOLOGY IN ELECTRICAL ENGINEERING - CL

ENGINEERING PROGRAMMING I

This module introduces engineering programming using C++ in Arduino hardware applications. Students explore IoT fundamentals, program structure, arithmetic operations, structured programming, control structures, and arrays.

ENGINEERING PROGRAMMING II

In this module, students build their programming knowledge for Raspberry Pi hardware applications, with a focus on memory, processing units, debugging, operating systems, GPIO interfacing, and the use of images and video in software solutions.

INDUSTRIAL ELECTRONICS II

The focus of this module is on the principles of electrical power conversion and control, covering rectifiers, converters, inverters, AC controllers, and the protection of electronic switches in industrial applications.

INDUSTRIAL PROCESS AUTOMATION III

The module introduces process automation systems, including automation design, PLCs, distributed control systems, SCADA, industrial communication, functional safety, cyber security, and system maintenance.

MACHINE LEARNING APPLICATIONS II

This module provides an introduction to machine learning, covering key principles, data representation, graphics, software tools, and engineering applications such as deep learning, adaptive control, and classification systems.

NETWORKS II

In this module, students explore the foundations of computer networking, including network architecture, IP addressing, communication protocols, routers, switches, network security, and troubleshooting in small network environments.

POWER MANAGEMENT AND PROTECTION TECHNOLOGY III

This module develops knowledge of power system reliability, hybrid energy systems, power management, MPPT, fault analysis, protection systems, relays, grounding, and current interrupting devices.

RENEWABLE ENERGY TECHNOLOGIES II

Students are introduced to renewable energy technologies and their applications, including solar energy, storage systems, hydrogen and fuel cells, hybrid systems, design modelling, and feasibility assessment.

RESEARCH AND TECHNOLOGY MANAGEMENT III

This module introduces students to research processes, methodologies, reporting, project management, innovation, engineering economics, and technology management in engineering contexts.