Electrical and Electronic Engineering

Module Information

2022.01, Approved

Summary Information

Module Code	4006MEQR
Formal Module Title	Electrical and Electronic Engineering
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Oryx Universal College WLL

Learning Methods

Learning Method Type	Hours
Lecture	22
Online	22
Tutorial	22

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

Aims and Outcomes

Aims	To enable students to develop an understanding of the physical principles of electrical and electronic systems, and to analyse simple circuits which incorporate passive and active components.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Describe and model the physical principles of electrical and electronic systems.
MLO2	2	Analyse circuits which include passive electrical components.
MLO3	3	Analyse circuits which include active electronic components.

Module Content

Outline Syllabus	Physical Principles of Electrical & Electronic Systems• Charge, Current and Voltageo Ohms Law• Conductivity & Resistance• Power & Dissipation of Losses• Capacitance• Magnetism & Inductance• Motor and generator effects• Electrochemical & Batteries (increasingly important given hybrid systems)• Semi-conductorso P-type, N-typeo Diodes and Transistors• Basic Operational Amplifiers• Fundamentals of A.C. (Sinusoids, Phasors etc)Electrical Circuits• Kirchhoff's Voltage and Current Laws (LO1 & LO2)• Resistive circuits in series and parallel (LO2)• Simple inductive and capacitive circuits (LO2)o RC, RL and RLC circuitso Complex representation• Active Electrical Circuits (LO3)o Transistor and diode circuits.o Inverting & Non-Inverting Amplifierso Summing, Integrating and Differentiating Circuits.• Useful engineering circuits (LO2 & LO3)• Instrumentation, sensors and measurement (LO1, LO2 & LO3)
Module Overview	
Additional Information	This module is designed to provide an introduction to Electrical and Electronic Engineering relevant to the fields of Mechanical, Automotive and Marine Engineering. The module covers the essential concepts associated with DC and AC circuits, electromechanical systems and instrumentation

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO1, MLO2, MLO3
Test	V.L.E. based test	40	0	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Mike Shaw	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings