

Electrical Engineering Practice 1

Module Information

2022.01, Approved

Summary Information

Module Code	4305ELE
Formal Module Title	Electrical Engineering Practice 1
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	12
Off Site	24
Practical	54
Seminar	4

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	28 Weeks

Aims and Outcomes

Aims	To enhance knowledge and understanding of electrical and electronic circuits by completing a set of practical experiments. To gain experience in practical design of electronic circuits including prototyping and PCB design and manufacture. To develop professional practical skills to undertake experimental laboratory work, to test design ideas in laboratories or through simulation, to analyse and critically evaluate technical issues, and to present and document ideas and results. To develop the ability in data manipulation and sorting. To develop a personal development plan and understand the impact engineering has on the environment.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Safely carry out a range of basic Laboratory procedures using standard processes.
MLO2	2	Process data collected during an experiment, use CAD tools for design and simulation, and produce a formal written report with conclusions.
MLO3	3	Demonstrate their commitment to undertake the on-going personal development required to become a professional engineer. Identify and reflect upon the following aspects of personal development: strengths and weaknesses, motivations and values, ability to work with others.
MLO4	4	Work as a team to gather data analyse the results and discuss the benefits and issues of various renewable energy systems.

Module Content

Outline Syllabus	Laboratory and Experimental Practice• Practical workshop skills• Health, safety and risk assessment• Reading schematic drawings• Use of Instruments and taking measurement• Experimental data presentation and analyses• Complete a series of experiments including Basic Electrical Principles; Kirchhoff's law, superposition and Thevenin's Theorem; Transients AC circuits; Proteus Simulation; PCB design and soldering; Diodes; Transistors; Operational Amplifiers; Sequential Logic Circuits; Digital Binary Counters • Keeping a logbook to record notes, measurements and observations. • Product prototyping• Analysis of results, and the formulation of conclusions• Report writingPersonal Development• World of Work: Bronze Award• Environmental & ethical responsibilities• Team working• Introduction to research skills• Professional body requirements
Module Overview	This module aims to enhance your knowledge and understanding of electrical and electronic circuits by completing a set of practical experiments. You will gain experience in the practical design of electronic circuits including prototyping and PCB design and you will develop professional practical skills to undertake experimental laboratory work. You will test design ideas in laboratories or through simulation, analyse and critically evaluate technical issues, and present and document ideas and results.
Additional Information	The personal development portion of the module is assessed on a pass/fail basis. Students must complete the assessment exercises to a satisfactory standard in order to achieve a pass grade in this module. Where this module is part of a Degree Apprenticeship programme, the knowledge learning outcomes are K7, the skills learning outcomes are S5, S10 and S11 and the behaviours learning outcomes are B2, B4, B7 and B13

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	Fieldwork and Lab Activities	50	0	MLO1, MLO3, MLO4
Future Focus e-learning task	Personal Development	10	0	MLO3

Artefacts	Prototype Product	40	0	MLO2
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Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Yongqiang Qiu	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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