



Module Specification

Electrical and Electronic Principles A

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Part 1: Information

Module title: Electrical and Electronic Principles A

Module code: UFMFP8-15-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Delivery locations: Global College of Engineering and Technology (GCET)

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes.

In addition, the educational experience may explore, develop, and practise but not

formally discretely assess the following:

Handling simulation software such as multiSIM and MATLAB

Awareness of professional learning

Outline syllabus: Basic Components of Electronic Circuits

Resistors, capacitors, capacitive, inductors, all semiconducting devices

Resistive circuits: Kirchhoff's laws. Thevenins and Norton's theories, mesh analysis, Millman theorem, principle of superposition.

Signal parameters and their types

Class-A and class-B amplifier,

Operational Amplifiers

Active Filters: Op amps use in active filter, as an integrator and differentiator, as a comparator and as an oscillator.

Passive filters: RC, RL and RLC circuit response, analysis and use of RLC circuits, oscillators

The Cartesian and polar representation of voltage, current and impedance

Power supplies and measurement instruments

Part 3: Teaching and learning methods

Teaching and learning methods: The module delivers material on basic principles of electrical and electronic engineering. Concepts and the scope of a topic will be

introduced in lectures. These will be supported by directed reading and simulation laboratory based work. Tutorial exercises will provide students confidence in applying the concepts and analysing and designing the simple electrical and electronic circuits. The labs sessions will enhance the understanding of students of real-world applications of the material delivered in the module. The students will learn through applying a variety of analysis methods, mathematical and simulation tools to simple circuits and electromagnetic systems. Relevant ethical issues will be highlighted and students will be encouraged to consider these further through directed reading.

Activity (Hours)

Contact (36)

Assimilation and skill development (66)

Undertaking Coursework (24)

Exam preparation (24)

Total (150)

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 A range of basic electrical/electronic components such as R, L, C, diodes, transistors, general amplifiers and op-amps

MO2 Basic principles of electrical and electromagnetic signals

MO3 Electrical and electronic circuits design

MO4 The techniques for analysing circuits and their behaviours

MO5 Ethics related issues

MO6 Writing and presentation skills

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfp8-15-1.html) via the following link <https://uwe.rl.talis.com/modules/ufmfp8-15-1.html>

Part 4: Assessment

Assessment strategy: Your achievements in the module will be assessed in two tasks. The first task consists of an exam and the second task comprises of logbooks submission and reflection.

The resit assessment consists of the same tasks as described in the first sit. This meaning the first task consists of an exam and the second task comprises of logbooks resubmission and reflection. The students will improve the written record of the logbook sessions in light of the feedback to pass this task.

Assessment components:

Examination (Online) (First Sit)

Description: Online exam (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Laboratory Report (First Sit)

Description: Logbooks submission.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5, MO6

Examination (Online) (Resit)

Description: Online exam (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Laboratory Report (Resit)

Description: Logbook Submissions

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Instrumentation and Control Engineering {Foundation} [GCET] BEng (Hons) 2022-23

Electronics and Telecommunication Engineering {Foundation} [GCET] BEng (Hons)
2022-23

Instrumentation and Control Engineering {Foundation} [Feb][PT][GCET][8yrs] BEng
(Hons) 2021-22

Instrumentation and Control Engineering {Foundation} [Oct][PT][GCET][8yrs] BEng
(Hons) 2021-22