



Module Specification

Electrical and Electronic Principles B

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Part 1: Information

Module title: Electrical and Electronic Principles B

Module code: UFMFVA-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

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: The module extends material on basic electrical and electronic engineering UFMFP8-15-1 Electrical and Electronic Engineering Principles (A) in terms of analysis techniques.

In addition the educational experience may explore, develop, and practise but not formally discretely assess the following:

Ethics related issues [not assessed formally]

IT skills in context [not assessed formally]

Awareness of professional learning [not assessed formally]

Outline syllabus: Basic concepts of communication engineering

Basic concepts of communication networks

Transducers: Basic concepts of electrical, electronic, temperature and motion transducers

Basic understanding of open- and closed-loop controllers and systems

Simple analysis of linear systems using time and frequency domains

Electricity, Magnetism and Electromagnetic Theory: Analysis of simple electric and magnetic fields, Electric and magnetic fields, Basic concepts of electromagnetic propagation and antennas

Basic quantum theory

Basic concepts of electrical machines and supply systems

A/D and D/A

Part 3: Teaching and learning methods

Teaching and learning methods: Concepts and the scope of a topic will be introduced in lectures. These will be supported by directed reading and simulation lab based work. Tutorial exercises will provide students confidence in applying the concepts and analysing and designing the electrical and electronic circuits. The simulation 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 (such as Matlab, MultiSIM) to electromagnetic and electrical

systems. Relevant ethical issues will be highlighted and students will be encouraged to consider these further through directed reading.

Activity (Approximate time, h)

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 Demonstrate engineering principles of communication

MO2 Analyse magnetic and electromagnetic systems

MO3 Demonstrate the working principles of transducers, actuator and sensors

MO4 Progression to independent learning

MO5 Presentation and documentation writing 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/ufmfva-15-1.html) via the following link <https://uwe.rl.talis.com/modules/ufmfva-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. You will have to pass both tasks to pass the module.

Resit repeat the same as the sit exam. 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 tasks:

Examination (Online) (First Sit)

Description: Online Examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Laboratory Report (First Sit)

Description: Lab based logbooks submission

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5

Examination (Online) (Resit)

Description: Online Examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Laboratory Report (Resit)

Description: Lab based logbooks submission

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechatronics [UCS] FdSc 2023-24

Mechatronics [GlosColl] FdSc 2023-24

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) 2020-21

Instrumentation and Control Engineering {Foundation} [Oct][PT][GCET][8yrs] BEng
(Hons) 2020-21