



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Electrical and Electronic Principles B		
Module Code	UFMFVA-15-1	Level	Level 4
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Contributes towards	<p>Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19</p> <p>Electrical and Electronic Engineering [Sep][SW][Northshore][5yrs] MEng 2018-19</p> <p>Electronic and Computer Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19</p> <p>Electronic Engineering (Nuclear) [Sep][FT][Frenchay][5yrs] BEng (Hons) 2018-19</p> <p>Mechatronics {Apprenticeship} [Sep][PT][UCW][3yrs] FdSc 2018-19</p> <p>Electrical and Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19</p> <p>Electronic and Computer Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19</p> <p>Electronic and Computer Engineering {Top Up} [Aug][FT][SHAPE][1yr] BEng (Hons) 2018-19</p> <p>Electronic and Computer Engineering {Top Up} [Aug][PT][SHAPE][2yrs] BEng (Hons) 2018-19</p> <p>Electronic and Computer Engineering [Sep][PT][GlosColl][5yrs] BEng (Hons) 2018-19</p> <p>Electronic and Computer Engineering {Apprenticeship} [Sep][PT][GlosColl][5yrs] BEng (Hons) 2018-19</p> <p>Mechatronics [Sep][PT][BTC][3yrs] FdSc 2018-19</p> <p>Mechatronics [Sep][PT][GlosColl][3yrs] FdSc 2018-19</p>		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

**Part 2: Description**

**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

**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)

**Part 3: Assessment**

Your achievements in the module will be assessed in two components. The first component consists of an exam and the second component comprises of logbooks submission/group assignment. You will have to pass both Component A and Component B to pass the module.

Component A consists of only one assessment, worth 50% overall. There will be an examination of two hours' duration in controlled conditions at the end of the first term.

## STUDENT AND ACADEMIC SERVICES

Component B consists of two assessments, each worth 25% overall. The coursework (referred as CW1) is in two parts; (a) a lab-based logbooks submission and (b) a group assignment. Both will carry equal marks.

Additionally, there will be opportunities for formative assessment (which does not contribute to the module mark. For example, you may be asked to give a presentation, or to compete against other group's work to assess its relative performance.

Feedback will be given on your work each week in the lab sessions.

Second Assessment Opportunity.

There will be an exam for component A. In component B, there will be an individual work assignment submission. No further attendance at classes is required.

First Sit Components	Final Assessment	Element weighting	Description
Laboratory Report - Component B		25 %	Lab based logbooks submission
Group work - Component B		25 %	Group assignment
Examination - Component A	✓	50 %	Examination (2 hours)
Resit Components	Final Assessment	Element weighting	Description
Laboratory Report - Component B		50 %	Individual assignment (based on labwork) submissions
Examination - Component A	✓	50 %	Examination (2 hours)

STUDENT AND ACADEMIC SERVICES

<b>Part 4: Teaching and Learning Methods</b>																					
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;"><b>Module Learning Outcomes</b></th> </tr> </thead> <tbody> <tr> <td style="width: 20%;">MO1</td> <td>Demonstrate engineering principles of communication</td> </tr> <tr> <td>MO2</td> <td>Analyse magnetic and electromagnetic systems</td> </tr> <tr> <td>MO3</td> <td>Demonstrate the working principles of transducers, actuator and sensors</td> </tr> <tr> <td>MO4</td> <td>Progression to independent learning</td> </tr> <tr> <td>MO5</td> <td>Presentation and documentation writing skills</td> </tr> <tr> <td>MO6</td> <td>Team working skills whilst tackling a significant integrated problem</td> </tr> </tbody> </table>	<b>Module Learning Outcomes</b>		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	MO6	Team working skills whilst tackling a significant integrated problem						
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p><a href="https://uwe.rl.talis.com/modules/ufmfva-15-1.html">https://uwe.rl.talis.com/modules/ufmfva-15-1.html</a></p>																				