



MODULE SPECIFICATION

Part 1: Information			
Module Title	Electrical and Electronic Principles A		
Module Code	UFMFP8-15-1	Level	Level 4
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engineering Design & Mathematics		
Module Type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co-requisites	None		
Module Entry Requirements	None		
PSRB Requirements	None		

Part 2: Description
<p>Educational Aims: See Learning Outcomes.</p> <p>In addition, the educational experience may explore, develop, and practise but not formally discretely assess the following:</p> <p>Handling simulation software such as multiSIM and MATLAB</p> <p>Awareness of professional learning</p> <p>Outline Syllabus: Basic Components of Electronic Circuits</p> <p>Resistors, capacitors, capacitive, inductors, all semiconducting devices</p> <p>Resistive circuits: Kirchhoff's laws. Thevenins and Norton's theories, mesh analysis, Millman</p>

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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

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)

Part 3: Assessment

Your achievements in the module will be assessed in two components. The first component consists of a presentation and the second component comprises of logbooks submission and reflection.

Component A consists of only one assessment, worth 25% overall. There will be a 20 minute presentation including questions on the material submitted in the portfolio.

Component B consists of an individual reflective portfolio of key concepts covered during laboratory sessions, worth 75% overall.

First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	24 hour window, take home exam
Laboratory Report - Component B		50 %	Logbooks submission.
Resit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	24 hour, take home exam

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Laboratory Report - Component B		50 %	Individual assignment (based on lab work) submissions
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Part 4: Teaching and Learning Methods																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>A range of basic electrical/electronic components such as R, L, C, diodes, transistors, general amplifiers and op-amps</td> <td>MO1</td> </tr> <tr> <td>Basic principles of electrical and electromagnetic signals</td> <td>MO2</td> </tr> <tr> <td>Electrical and electronic circuits design</td> <td>MO3</td> </tr> <tr> <td>The techniques for analysing circuits and their behaviours</td> <td>MO4</td> </tr> <tr> <td>Ethics related issues</td> <td>MO5</td> </tr> <tr> <td>Writing and presentation skills</td> <td>MO6</td> </tr> <tr> <td>Team working skills whilst tackling an integrated problem</td> <td>MO7</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	A range of basic electrical/electronic components such as R, L, C, diodes, transistors, general amplifiers and op-amps	MO1	Basic principles of electrical and electromagnetic signals	MO2	Electrical and electronic circuits design	MO3	The techniques for analysing circuits and their behaviours	MO4	Ethics related issues	MO5	Writing and presentation skills	MO6	Team working skills whilst tackling an integrated problem	MO7
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfp8-15-1.html</p>																

Part 5: Contributes Towards
<p>This module contributes towards the following programmes of study:</p> <p>Instrumentation and Control Engineering {Foundation} [Feb][PT][GCET][8yrs] BEng (Hons) 2018-19</p> <p>Instrumentation and Control Engineering {Foundation} [Oct][PT][GCET][8yrs] BEng (Hons) 2018-19</p>