



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Electromechanical Systems Engineering		
Module Code	UFMFQP-30-1	Level	Level 4
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Educational Aims:</b> This module will enable learners to understand and implement strategies for maintaining and integrating electromechanical sub-systems. This module will develop learners' theoretical knowledge of electromechanical systems and will give them an appreciation of the practical applications of components.</p> <p>Electromechanical Systems will cover the mathematical analytical skill to solve electromechanical problems. A comprehensive review of fundamental principles of electrics and electronics and measurement &amp; instrumentation. Learners will experience different methods of system managements.</p> <p><b>Outline Syllabus:</b> This module will cover:</p> <ul style="list-style-type: none"> <li>Electrics and Electronics</li> <li>-Circuit Components</li> <li>-Kirchhoff's Laws</li> <li>-Thevenin's and Norton's Theories</li> <li>-Inductive Circuits</li> </ul> <p>Electromechanical Systems</p>

## STUDENT AND ACADEMIC SERVICES

- Systems Engineering
- Systems Management
- Systems Modelling

### Measurement & Instrumentation

- Measurement
- Temperature Instruments
- Pressure & Flow Instruments
- Electromechanical
- Dynamic Response

In this module the following mathematical topics will be introduced and developed:

- Complex Numbers
- Matrix and Vector Algebra
- Differential Calculus
- Laplace Transform
- Using Matlab
- Programming Structures

**Teaching and Learning Methods:** See Outline Syllabus and Assessment

### Part 3: Assessment

Component A – Multiple Choice Examination – 90 minutes – This will assess the learners' ability to solve electromechanical problems involving fundamental principles of electrical and mechanical components.

Component B – Written Review – Learners are required to produce a literature review of electrical components and control instrumentation and system management policies. Learners will also comment on the practical experience and whether it supports evidence found in their literature review.

The resit assessment tasks for this module will involve a rework and reflective evaluation (of 500 words on element B1) of the work carried out in the original task.

First Sit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		75 %	Written review (2500 words)
Examination - Component A	✓	25 %	Multiple Choice Exam (90 Minutes)
Resit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		75 %	Written review (3000 words)
Examination - Component A	✓	25 %	Multiple Choice Exam (90 Minutes)

STUDENT AND ACADEMIC SERVICES

<b>Part 4: Teaching and Learning Methods</b>																	
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;"><b>Module Learning Outcomes</b></th> <th style="text-align: left;"><b>Reference</b></th> </tr> </thead> <tbody> <tr> <td>Conduct basic mathematical electromechanical engineering calculations.</td> <td>MO1</td> </tr> <tr> <td>Analyse the behaviour of common electrical components.</td> <td>MO2</td> </tr> <tr> <td>Explain the operation of common industrial instrumentation.</td> <td>MO3</td> </tr> <tr> <td>Describe systems management policies.</td> <td>MO4</td> </tr> </tbody> </table>	<b>Module Learning Outcomes</b>	<b>Reference</b>	Conduct basic mathematical electromechanical engineering calculations.	MO1	Analyse the behaviour of common electrical components.	MO2	Explain the operation of common industrial instrumentation.	MO3	Describe systems management policies.	MO4						
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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/index.html">https://uwe.rl.talis.com/index.html</a></p>																

<b>Part 5: Contributes Towards</b>	
<p>This module contributes towards the following programmes of study:</p> <p>Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship} [Sep][PT][BTC][5yrs] BEng (Hons) 2018-19</p> <p>Mechanical Engineering with Nuclear {Apprenticeship}[Sep][PT][BTC][5yrs] BEng (Hons) 2018-19</p>	