MODULE SPECIFICATION

Part 1: Information			
Module Title	Electromechanical Systems Analysis		
Module Code	UFMFWP-30-2	Level	Level 5
For implementation from	2018-19		
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		
Contributes towards			
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: Learners will develop the theoretical understanding of electromechanical systems and how to use such systems for analysing and testing applications in the nuclear industry.

Outline Syllabus: The topics covered in this unit are:

Electronic Systems Analysis:
Nuclear Detection Electronics Systems.
Classification.
Microprocessing.
Control System Response.

Mechanical System Analysis:

Simple System Vibration.
Vibration Transmission.
Continuous System Vibration.

Non-Destructive Evaluation:
Visual.
Electrical.
Sonic.
Other NDE Techniques.
Condition Monitoring.

In this module the following mathematical topics will be introduced and developed:
Laplace Transforms.
Systems of Linear Differential Equations.
Z transforms.

Teaching and Learning Methods: The Electromechanical Systems and Design module introduces principles of electronic systems, vibration analysis and non-destructive evaluation methods in the nuclear industry. Learners will gain a through theoretical and practical basis to analyse electromechanical systems.

Part 3: Assessment

Component A – Multiple Choice Exam – 2 hours – This exam will assess the learners' understanding of advanced concepts of Electromechanical Systems analysis. It will also assess the learners' mathematical analysis skills of electromechanical systems calculations.

Component B – Student Led Seminar and Poster Presentation – The seminar will assess the learners' ability to evaluate non-destructive evaluation techniques. Learners will analyse electronic processing systems and mechanical vibration systems and present their findings during a poster presentation.

The resit assessment tasks for this module will involve an expanded poster presentation, to cover all learning outcomes of component B.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Set Exercise - Component B		30 %	Seminar
Poster - Component B		45 %	Poster presentation
Examination - Component A	✓	25 %	Multiple choice exam (2 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Poster - Component B		75 %	Poster presentation covering learning outcomes 2-4
Examination - Component A	✓	25 %	Multiple choice exam (2 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Conduct electromechanical systems analysis calculations
MO2	Analyse electronic processing systems for nuclear detection applications
MO3	Analyse mechanical vibration systems for equipment protection purposes
MO4	Evaluate electromechanical systems using non-destructive techniques

Contact Hours

Contact Hours	
Independent Study Hours:	
Independent study/self-guided study	228
Total Independent Study Hours:	228
Scheduled Learning and Teaching Hours:	
Face-to-face learning	72
Total Scheduled Learning and Teaching Hours:	72
Hours to be allocated	300
Allocated Hours	300

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/index.html