



MODULE SPECIFICATION

Part 1: Information			
Module Title	Drives and Motion		
Module Code	UFMFJ8-15-2	Level	Level 5
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			
Module type:	Standard		
Pre-requisites	Electrical and Electronic Principles B 2018-19, Practical Electronics 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: In addition to the learning outcomes the educational experience may develop through practise but not formally discretely assess self-management skills and working with others.</p> <p>Outline Syllabus: The syllabus includes:</p> <p>Concept of Electrical Drives,</p> <p>Dynamics of Electrical Drives</p> <p>Modern Electrical Drives</p> <p>Modulation Techniques for Power Electronic Converters</p>

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Current Control of Loads

Drive Principles

Characteristics of AC and DC Motors

Stepper Motors

Starting of AC and DC Motors

Electrical Braking

Commonly used concepts of Modelling and Control of AC and DC Motors

Control of Induction and Synchronous Machine Drives

Switched Reluctance Drive Systems

Teaching and Learning Methods: Concepts and the scope of a particular topic will be introduced in lectures, supported by directed reading and simulation laboratory based work. 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 design drive systems.

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

In addition to 36 hours of scheduled contact, students will be expected to spend (typically) 114 hours in independent study, preparation for classes, assimilation of knowledge, skills development and completion of assessments.

Scheduled learning includes lecture and practical classes.

Independent learning includes hours engaged with essential reading, assignment preparation and completion, etc. These sessions constitute an average time per level.

Contact Hours:

Scheduled contact = 36 hours

Scheduled contact will take the form of whole group lectures and lab-based practical sessions.

Part 3: Assessment

The assessment consists of an end of module examination and an individual assignment.

The strategy has been chosen to ensure that fundamental engineering principles are assessed under controlled conditions, while a more open ended research based assignment is used to encourage wider engagement and reflection on this topic.

The assignment task involves research, design and evaluation and so takes a student through the design process and integrates the skills of an electronic engineer. Students are required to test their designs and communicate the findings of their research in a written report.

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First Sit Components	Final Assessment	Element weighting	Description
Report - Component B		50 %	Report
Examination - Component A	✓	50 %	Examination (3 hours)
Resit Components	Final Assessment	Element weighting	Description
Report - Component B		50 %	Report
Examination - Component A	✓	50 %	Examination (3 hours)

Part 4: Teaching and Learning Methods		
Learning Outcomes	On successful completion of this module students will be able to:	
	Module Learning Outcomes	
	MO1 Apply engineering principles to design and control of electrical motors drives	
	MO2 Design principles of power conversion techniques in drive systems	
	MO3 Design of modern control using microprocessor in drive systems	
	MO4 Develop and implement a simulation model of electrical machines	
	MO5 Describe, analyse and critically evaluate the commonly used modulation techniques employed in drives systems	
	MO6 Evaluate the performance of electrical motors drives	
Contact Hours	Contact Hours	
	Independent Study Hours:	
	Independent study/self-guided study	114
	Total Independent Study Hours:	114
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	Hours to be allocated	150

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	Allocated Hours	150
Reading List	<i>The reading list for this module can be accessed via the following link:</i> https://uwe.rl.talis.com/index.html	