MODULE SPECIFICATION

Part 1: Information			
Module Title	Electrical Supply and Machines		
Module Code	UFMFUP-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

Overview: The Electrical Supply and Machines module covers electrical regulations, analysis and evaluation of electrical generation methods, electrical transmission and energy management. The module also covers mathematical and scientific principles of transformers, motors and generators, and introduces fault analysis and protection systems used on the transmission and distribution network.

Educational Aims: See Learning Outcomes.

Outline Syllabus: The topics covered in this unit are:

Electrical Supply:
Electrical Supply Systems
Electrical Distribution
Energy System Management

Motors and Generators:
Induction Motors
Systems Stability and Response
Machine Response
Infinite Busbar Model
Control
Motors in Practice

Transformers and Protection:
Transformers
Faults
Protection Systems

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

Teaching and Learning Methods: Learners will undertake analysis and evaluation of electrical machines and electrical distribution systems.

Part 3: Assessment

Component A: Written examination; 90 minute exam. The examination will assess the students' knowledge and skills of transformer, motors and generators through mathematical analysis. It will assess the students' knowledge and understanding of electrical machine analysis.

Component B: Group Presentation and Written Report – The learners will conduct a scoping and feasibility study on planned improvements to piece of workshop equipment within the electrical supply context. The presentation will discuss the scope of the project and the individual written component will support this discussion and include an explanation of electrical machine and protection principles.

The resit assessment tasks for this module will involve a reworked written report including an additional 500 words of critical reflection on the original submission (B1) and a rework of their individual contribution to the group presentation (B2).

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		30 %	Written report (1500 words)
Presentation - Component B		45 %	Group presentation
Examination - Component A	✓	25 %	Written Exam (90 minutes)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		30 %	Written report (2000 words)
Presentation - Component B		45 %	Individual presentation
Examination - Component A	✓	25 %	Written Exam (90 minutes)

Part 4: Teaching and Learning Methods

Learning Outcomes

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

	Module Learning Outcomes
MO1	Conduct electrical machine analysis calculations
MO2	Analyse the principles of electrical machines and protection
MO3	Evaluate the efficiency of transmission and distribution systems
MO4	Evaluate cost drivers, risks and health and safety in electrical supply schemes

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