



MODULE SPECIFICATION

Part 1: Information			
Module Title	Electrical Supply and Machines		
Module Code	UFMFUP-30-2	Level	Level 5
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>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.</p> <p>Educational Aims: See Learning Outcomes.</p> <p>Outline Syllabus: The topics covered in this unit are:</p> <p>Electrical Supply: Electrical Supply Systems Electrical Distribution Energy System Management</p> <p>Motors and Generators: Induction Motors Systems Stability and Response Machine Response Infinite Busbar Model</p>

STUDENT AND ACADEMIC SERVICES

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)

STUDENT AND ACADEMIC SERVICES

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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Conduct electrical machine analysis calculations</td> <td>MO1</td> </tr> <tr> <td>Analyse the principles of electrical machines and protection</td> <td>MO2</td> </tr> <tr> <td>Evaluate the efficiency of transmission and distribution systems</td> <td>MO3</td> </tr> <tr> <td>Evaluate cost drivers, risks and health and safety in electrical supply schemes</td> <td>MO4</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Conduct electrical machine analysis calculations	MO1	Analyse the principles of electrical machines and protection	MO2	Evaluate the efficiency of transmission and distribution systems	MO3	Evaluate cost drivers, risks and health and safety in electrical supply schemes	MO4						
Module Learning Outcomes	Reference																
Conduct electrical machine analysis calculations	MO1																
Analyse the principles of electrical machines and protection	MO2																
Evaluate the efficiency of transmission and distribution systems	MO3																
Evaluate cost drivers, risks and health and safety in electrical supply schemes	MO4																
Contact Hours	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">Independent Study Hours:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Independent study/self-guided study</td> <td style="text-align: center;">228</td> </tr> <tr> <td style="text-align: right;">Total Independent Study Hours:</td> <td style="text-align: center;">228</td> </tr> <tr> <th colspan="2" style="text-align: left;">Scheduled Learning and Teaching Hours:</th> </tr> <tr> <td style="text-align: center;">Face-to-face learning</td> <td style="text-align: center;">72</td> </tr> <tr> <td style="text-align: right;">Total Scheduled Learning and Teaching Hours:</td> <td style="text-align: center;">72</td> </tr> <tr> <td style="text-align: left;">Hours to be allocated</td> <td style="text-align: center;">300</td> </tr> <tr> <td style="text-align: left;">Allocated Hours</td> <td style="text-align: center;">300</td> </tr> </tbody> </table>	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
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	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/index.html</p>																

Part 5: Contributes Towards
<p>This module contributes towards the following programmes of study:</p> <p>Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship} [Sep][FT][BTC][4yrs] BEng (Hons) 2018-19 Electromechanical Engineering (Nuclear){Apprenticeship}(Sep)[PT][BTC][3yrs] FdSc 2018-19</p>