MODULE SPECIFICATION

Part 1: Information			
Module Title	Power Electronics		
Module Code	UFMFDE-15-3	Level	Level 6
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 A 2018-19, Electrical and Electronic Principles B 2018-19, Practical Electronics 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: Pre-requisites: Students take one of UFMFP8-15-1 Electrical and Electronic Principle A, UFMFVA-15-1 Electrical and Electronic Principle B, OR UFMFCA-15-1 Practical Electronics.

Educational Aims: See Learning Outcomes.

In addition to the learning outcomes, on successful completion of this module students will be able to show and demonstrate a detailed knowledge and understating of:

Problem formulation and decision making (not assessed formally)
Self-management: planning and undertaking learning activities based on module resources (not assessed formally)

Outline Syllabus: The syllabus includes:

Power Electronic Systems,
DC to DC Choppers,
AC to DC Converters,
DC to AC Inverters,
AC to AC Regulators,
Switched Mode Power Supplies,
Power Electronic Switches,
High Voltage DC Transmission,
FACTS (Flexible AC Transmission Systems),
Power Electronics for Wind, Solar and Hydro: Grid Interconnection.

Teaching and Learning Methods: The module delivers material on modern power electronics. Concepts and the Learning Methods scope of a topic will be introduced in lectures. These will be 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 power electronics circuits. Relevant ethical issues will be highlighted and students will be encouraged to consider these further through directed reading.

Contact Hours:

Activity:
Contact: 36 hours
Assimilation and skill development: 66 hours
Undertaking Coursework: 24 hours
Exam preparation: 24 hours
Total: 150 hours

Part 3: Assessment

There will be a final written exam of 3 hours duration set at the end of the term and a total of 50% marks will be contributed from this element (A). The coursework (element B) is numerical-type/mini-research-based work. In the resit run element B will be an individual work assignment and the remaining part of the module assessment will be same as set in the first run.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Coursework assignment
Examination - Component A	✓	50 %	Examination (3 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Coursework assignment
Examination - Component A	✓	50 %	Examination

Part 4: Teaching and Learning Methods

Learning Outcomes

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

	Module Learning Outcomes
MO1	The operating principles of power electronic converters such as DC/DC, AC/DC, DC/AC and AC/AC
MO2	Modern design of power electronics circuits
MO3	Analysis and performance of power electronics circuits
MO4	Modern power electronics usages in terms of FACTS (Flexible AC Transmission Systems), power conversion requirements etc.
MO5	Designing the simulation case study of Power Electronic systems
MO6	Research and presentation skills

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
Allocated Hours	150

Reading List

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

https://uwe.rl.talis.com/modules/ufmfde-15-3.html