



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Power Electronics		
Module Code	UFMFDE-15-3	Level	Level 6
For implementation from	2019-20		
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		
Module type:	Standard		
Pre-requisites	Practical Electronics 2019-20		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Overview:</b> 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.</p> <p><b>Educational Aims:</b> See Learning Outcomes.</p> <p>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:</p> <p>Problem formulation and decision making (not assessed formally)            Self-management: planning and undertaking learning activities based on module resources (not assessed formally)</p> <p><b>Outline Syllabus:</b> The syllabus includes:</p> <p>Power Electronic Systems,            DC to DC Choppers,            AC to DC Converters,            DC to AC Inverters,            AC to AC Regulators,</p>

## STUDENT AND ACADEMIC SERVICES

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 achieve the following learning outcomes:

Module Learning Outcomes	Reference
The operating principles of power electronic converters such as DC/DC, AC/DC, DC/AC and AC/AC	MO1
Modern design of power electronics circuits	MO2
Analysis and performance of power electronics circuits	MO3
Modern power electronics usages in terms of FACTS (Flexible AC Transmission Systems), power conversion requirements etc.	MO4

## STUDENT AND ACADEMIC SERVICES

	Designing the simulation case study of Power Electronic systems	MO5
	Research and presentation skills	MO6
Contact Hours	<b>Independent Study Hours:</b>	
	Independent study/self-guided study	114
	<b>Total Independent Study Hours:</b>	114
	<b>Scheduled Learning and Teaching Hours:</b>	
	Face-to-face learning	36
	<b>Total Scheduled Learning and Teaching Hours:</b>	36
	<b>Hours to be allocated</b>	150
	<b>Allocated Hours</b>	150
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p><a href="https://uwe.rl.talis.com/modules/ufmfde-15-3.html">https://uwe.rl.talis.com/modules/ufmfde-15-3.html</a></p>	

### Part 5: Contributes Towards

This module contributes towards the following programmes of study:

Electrical and Electronic Engineering {Top-Up} [May][FT][AustonSingapore][1yr] BEng (Hons) 2019-20  
 Electrical and Electronic Engineering {Top-Up} [Feb][FT][AustonSingapore][1yr] BEng (Hons) 2019-20  
 Electrical and Electronic Engineering {Top-Up} [Oct][FT][AustonSingapore][1yr] BEng (Hons) 2019-20  
 Electrical and Electronic Engineering {Top-Up} [Oct][FT][AustonSriLanka][1yr] BEng (Hons) 2019-20  
 Electrical and Electronic Engineering {Top-Up} [Feb][FT][AustonSriLanka][1yr] BEng (Hons) 2019-20  
 Electrical and Electronic Engineering {Top-Up} [May][FT][AustonSriLanka][1yr] BEng (Hons) 2019-20