MODULE SPECIFICATION

Part 1: Information			
Module Title	Digital Signal Processing		
Module Code	UFMFH8-15-3	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	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes.

In addition, the educational experience may explore, develop, and practise but not formally discretely assess the following:

Develop competence in problem identification, analysis, design and implementation

Understanding of the need for a high level of professional and ethical conduct

Outline Syllabus: The syllabus includes:

Theory:
Introduction and basic definitions.
Time domain analysis: Digital convolution (definition, signal shifting, basic methods).
Frequency domain analysis.
Fourier Theory: Definition, discrete Fourier series, discrete Fourier transform, properties.
Z-transform: Definition, properties, z-transform vs Fourier transform, graphical approach.
Filter design: FIR filter design (inverse Fourier transform and windowing), IIR design (Butterworth, Chebychev, impulse method etc.).

DSP chips.

Practical:
Consists of a series of lab-based exercises using appropriate software and hardware. The programming language adopted is C/C++. Aspects of Matlab programming are also introduced.

Teaching and Learning Methods: The module is presented as a combination of contact, which will include lectures and laboratories, and student directed learning. A study-guide is provided for the student, directing their reading and work. 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: 70 hours
Undertaking coursework: 20 hours
Exam preparation: 24 hours
Total: 150 hours

Part 3: Assessment

A formal exam that contributes 50% towards the final mark of the module. The examination is summative and assesses the students' understanding of concepts and techniques, and their ability to apply them in relatively straightforward problems.

A lab based coursework that contributes 50% towards the final mark of the module.

Formative assessment will be provided as oral feedback throughout the laboratory sessions particularly with respect to the lab exercises.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component B		50 %	Small scale project
Examination - Component A	✓	50 %	Exam (2 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Coursework
Examination - Component A	✓	50 %	Exam (2 hours)

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
An understanding of engineering principles as applied to digital systems and the ability to assess their performances	MO1
The ability to use integrated development environments to describe, simulate, implement and verify the correctness of digital designs	MO2
Competence in using specific Electronic Design Automation tools	MO3
Competence in using technical literature and the ability to obtain documentation from various sources	MO4

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/ufmfh8-15-3.html

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