MODULE SPECIFICATION

Part 1: Information			
Module Title	Communications, Signals and Filters		
Module Code	UFMFR7-15-2	Level	Level 5
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	Electrical and Electronic Principles A 2019-20		
Excluded Combinations	None		
Co- requisites	Mathematics for Signals and Control 2019-20		
Module Entry requirements	None		

Part 2: Description

Educational Aims: In addition to the learning outcomes the module will explore, but not formally assess:

IT skills in context

Progression to independent learning

Outline Syllabus: Frequency spectra.
Bandwidth.
Discrete and continuous signals.
Sampling Review of operation of operational amplifiers, gain and phase shift.
Bode plots.
Types and operation of active filters in communication systems.
Use of simulation software (e.g., MATLAB).
PCM, encoding and decoding techniques, commercially available subsystems.
Use of simulation software (e.g., MATLAB).
Concepts of AM, PM and FM Systems, ASK, FSK and PSK.
Transmission of Data: Parallel and Serial; concepts, limitations of parallel transmission,

Asynchronous and Synchronous Transmission, Serial Data Transmission Standards, Data Link Layer Protocols, Commonly used Interfaces such as SPI, I2C and RS232, Error control concepts.

Teaching and Learning Methods: The module delivers material on signals types/analysis and their transmission. It also covers the use of filters, methods of data communication and commonly used interfaces. Concepts and the scope of a topic will be introduced in lectures. These will be supported by directed reading and experimental 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 simple communication systems. Relevant ethical issues will be highlighted and students will be encouraged to consider these further through directed reading.

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 exam 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 logbookbased work. Weekly tasks in the logbooks will be assessed and marked at the end of the term. Element B will contribute 50% marks to the final marks of the module. 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**
Portfolio - Component B		50 %	Logbook submission
Examination - Component A	✓	50 %	Exam (3 Hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Set Exercise - Component B		50 %	Coursework assignment
Examination - Component A	✓	50 %	Exam (3 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
Principle associated with signal analysis techniques	MO1
Ability to design simple amplifiers and active filters circuits	MO2
Principles of operation and application of communications systems	MO3
Basic communications system design	MO4
Use of simulation tools to model simple transmissions systems and circuits	MO5
The design, build and test elements of data communication systems	MO6
Ability to apply the principles covered in this module elsewhere	MO7

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/ufmfr7-15-2.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study:

Robotics [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19

Robotics [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19