



MODULE SPECIFICATION

Part 1: Information			
Module Title	Communications, Signals and Filters		
Module Code	UFMFR7-15-2	Level	Level 5
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, Introduction to Robotics and Electronics 2018-19		
Excluded Combinations	None		
Co- requisites	Mathematics for Signals and Control 2018-19		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: In addition to the learning outcomes the module will explore, but not formally assess:</p> <p>IT skills in context</p> <p>Progression to independent learning</p> <p>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.</p>

STUDENT AND ACADEMIC SERVICES

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)

STUDENT AND ACADEMIC SERVICES

Part 4: Teaching and Learning Methods																					
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Module Learning Outcomes</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">MO1</td> <td>Principle associated with signal analysis techniques</td> </tr> <tr> <td>MO2</td> <td>Ability to design simple amplifiers and active filters circuits</td> </tr> <tr> <td>MO3</td> <td>Principles of operation and application of communications systems</td> </tr> <tr> <td>MO4</td> <td>Basic communications system design</td> </tr> <tr> <td>MO5</td> <td>Use of simulation tools to model simple transmissions systems and circuits</td> </tr> <tr> <td>MO6</td> <td>The design, build and test elements of data communication systems</td> </tr> <tr> <td>MO7</td> <td>Ability to apply the principles covered in this module elsewhere</td> </tr> </tbody> </table>	Module Learning Outcomes		MO1	Principle associated with signal analysis techniques	MO2	Ability to design simple amplifiers and active filters circuits	MO3	Principles of operation and application of communications systems	MO4	Basic communications system design	MO5	Use of simulation tools to model simple transmissions systems and circuits	MO6	The design, build and test elements of data communication systems	MO7	Ability to apply the principles covered in this module elsewhere				
Module Learning Outcomes																					
MO1	Principle associated with signal analysis techniques																				
MO2	Ability to design simple amplifiers and active filters circuits																				
MO3	Principles of operation and application of communications systems																				
MO4	Basic communications system design																				
MO5	Use of simulation tools to model simple transmissions systems and circuits																				
MO6	The design, build and test elements of data communication systems																				
MO7	Ability to apply the principles covered in this module elsewhere																				
Contact Hours	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Contact Hours</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="height: 20px;"> </td> </tr> <tr> <td colspan="2">Independent Study Hours:</td> </tr> <tr> <td style="text-align: center;">Independent study/self-guided study</td> <td style="text-align: center;">114</td> </tr> <tr> <td style="text-align: center;">Total Independent Study Hours:</td> <td style="text-align: center;">114</td> </tr> <tr> <td colspan="2">Scheduled Learning and Teaching Hours:</td> </tr> <tr> <td style="text-align: center;">Face-to-face learning</td> <td style="text-align: center;">36</td> </tr> <tr> <td style="text-align: center;">Total Scheduled Learning and Teaching Hours:</td> <td style="text-align: center;">36</td> </tr> <tr> <td>Hours to be allocated</td> <td style="text-align: center;">150</td> </tr> <tr> <td>Allocated Hours</td> <td style="text-align: center;">150</td> </tr> </tbody> </table>	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
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	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfr7-15-2.html</p>																				