STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Wireless Sensor Networks		
Module Code	UFMF3E-15-M	Level	Level 7
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	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus: The module provides an overview on wireless sensor networks (WSN). It includes topics such as:

Fields of Application of WSN (environmental, healthcare, military etc.)

Enabling Technologies.

Networking, protocols and routing in WSN.

Deployment and practical implementation issues in WSN.

Data Processing in WSN (e.g. data aggregation).

Sensors and sensors technology.

Real time, low power operating systems (tinyOS open source operating system)

Programming, debugging real time implementations in both software and hardware.

Teaching and Learning Methods: See Learning Outcomes and Assessment.

Part 3: Assessment

The module will be assessed in two components.

Component A: Research and Presentation. Consists of two assessments:

A1. Research: Students will have to research an application of WSN and submit a report describing their findings.

A2. Presentation (30 minutes): Students will have to present their findings during the assessment period.

Component B consists of one assessment:

B1. Lab-based project: students as members of a small group develop a real time WSN application and demonstrate it in the lab at the end of term.

The referred coursework will consist of an investigation and report.

Formative feedback will be provided during the laboratory sessions and tutorials.

First Sit Components	Final Assessment	Element weighting	Description
Project - Component B		50 %	Group based Laboratory Project
Project - Component A	✓	25 %	Research project
Presentation - Component A		25 %	Presentation (30 minutes)
Resit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		50 %	Coursework
Project - Component A	✓	25 %	Research project
Presentation - Component A		25 %	Presentation (30 minutes)

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	An understanding of mathematical and computer models as applied to WSN and any of their limitations
MO2	An understanding of the basic structure of a WSN node and the ability to use it (in combination with others) in real time applications
MO3	Knowledge and understanding of network architectures and protocols in wireless systems in general and in WSN in particular
MO4	The ability to use development tools to design, program, implement and test WSN systems
MO5	The competencies involved in problem identification, analysis, design development of a WSN based system
MO6	Competence in using technical (and non-technical) literature and the ability to obtain documentation from various sources
MO7	Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints

Contact Hours	**Contact Hours**	
	Independent Study Hours:	
	Independent study/self-guided study	126
	Total Independent Study Hours:	126
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	24
	Total Scheduled Learning and Teaching Hours:	24
	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/ufmf3e-15-m.html