



MODULE SPECIFICATION

Part 1: Information			
Module Title	Mobile and Wireless Communication		
Module Code	UFMFKN-15-3	Level	Level 6
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
<p>Overview: This module is designed to provide broad knowledge on Mobile and Wireless Communication Systems.</p> <p>Educational Aims: The main aim of this module is to provide: a broad understanding of the principles of mobile and wireless communications.</p> <p>Outline Syllabus: The syllabus outline includes:</p> <p>CELLULAR PRINCIPLES: The cellular concept, Typical cell operation, System capacity, Frequency re-use distance, Determination of cell radius, Sectoring, Properties of the radio channel, Space wave propagation, Short-term fading (fast fading).</p> <p>MOBILE COMMUNICATION SYSTEMS: Global System Mobile Communication (GSM), GSM radio interface, Mapping of logical channels in GSM, GSM modulation, coding and error protection, Handoff in GSM, GSM handoff measurements, Features of the GSM 2.5G system, Operation of the GSM system, Security in</p>

STUDENT AND ACADEMIC SERVICES

GSM, Others Cordless Communications systems.

Universal Mobile Telecommunications System (UMTS), Comparison with GSM and others.
Fourth Generation Mobile Communications: Long Term Evolution (LTE).
Wireless communications; WiMAX (IEEE 802.16) and Wi Fi (IEEE 802.11).

Teaching and Learning Methods: After having a detailed historical plus functional architectural preview of the many existing wireless and mobile cellular communication systems, this module teaches the design concepts, operations and managements of these systems. Some of the systems covered in the module are GSM 2.5G, UMTS 3G, 4G and Wi Fi Wireless and many other short-range wireless systems. Full details of these systems such as standards (GMSK, FDMA, TDMA, and WCDMA), network structures, protocol architectures, operational problems (interferences, channel fading and maintaining QoS) and design constraints are taught. Simulation packages are used to implement the design concepts and evaluate the performance aspects of the above systems.

Part 3: Assessment

The assessment consists of an end of module examination and an individual assignment.

The strategy has been chosen to ensure that the mobile and wireless communication principles are assessed under controlled conditions, while a more open ended research based assignment is used to encourage wider engagement and reflection on this topic. In component B, the students will model and implement a mobile/wireless communication link using a given simulation package.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component B		50 %	Report: maximum words limit 4000 words (excluding appendices, references and any additional material)
Examination - Component A	✓	50 %	Examination (2 hours)
Resit Components	Final Assessment	Element weighting	Description
Report - Component B		50 %	Report: maximum words limit 4000 words (excluding appendices, references and any additional material)
Examination - Component A	✓	50 %	Examination (2 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes	On successful completion of this module students will be able to:	
		Module Learning Outcomes
	MO1	Apply concepts of designing, managing and planning of 2.5G, 3G and 4G cellular mobile communications systems
	MO2	Design a cell in cellular system under technical constraints
	MO3	Evaluate a mobile/wireless communication system performance
	MO4	Apply knowledge to analyse performance of system components and cell coverage areas in particular circumstances
	MO5	Apply quality standards to the design of cellular and wireless systems
	MO6	Understand the commercial, economic, ethical, security and risk issues

STUDENT AND ACADEMIC SERVICES

Contact Hours	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/ufmfkn-15-3.html</p>	