



MODULE SPECIFICATION

Part 1: Information			
Module Title	Wireless and Mobile Communications		
Module Code	UFMF9D-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
<p>Educational Aims: See Learning Outcomes</p> <p>In addition, the educational experience may explore, develop, and practise but not formally assess the following:</p> <p>Problem formulation and decision making. Self-management and project management skills.</p> <p>Outline Syllabus: The syllabus includes:</p> <p>INFORMATION THEORY: Transmission of information, Shannon's Law and its applications.</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,</p>

STUDENT AND ACADEMIC SERVICES

Short-term fading (fast fading).

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 system, Operation of the GSM system, Security in GSM, Others Cordless Communications systems. Universal Mobile Telecommunications System (UMTS), Comparison with GSM and others second generation systems, CDMA principle, WCDMA air interface-physical layer, Modulation techniques and spread spectrum, UMTS networks and network management. Transition from 3G to 4G networks, Features of 4G system, Data rates targets of 4G

Teaching and Learning Methods: Scheduled Learning in the form of lectures, tutorials, demonstrations and independent learning laboratory work.

Independent Learning will include directed reading, tutorial exercises, general reading of trade journals, academic papers and other texts.

Part 3: Assessment

The module will be assessed by two components as follows:

Component A: There will be a written examination to test understanding of underlying concepts and theory.

Component B: Will involve a mini-research-based/modelling simulation project to develop deeper understanding of the field and applications.

Formative feedback will be provided in laboratory sessions and tutorials.

First Sit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		50 %	Coursework assignment
Examination - Component A	✓	50 %	Examination
Resit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		50 %	Coursework assignment
Examination - Component A	✓	50 %	Examination

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: 20%;">MO1</td> <td>Design principles, operations, management, network hierarchies and planning of 2.5G, 3G and 4G cellular mobile communications systems</td> </tr> <tr> <td>MO2</td> <td>Designing a cell in cellular system under technical constraints</td> </tr> <tr> <td>MO3</td> <td>Evaluating a mobile/wireless communication system performance</td> </tr> <tr> <td>MO4</td> <td>Applying the design principles for developing 2.5G, 3G and 4G mobile systems</td> </tr> <tr> <td>MO5</td> <td>Appropriate system components and cell coverage areas in particular circumstances</td> </tr> <tr> <td>MO6</td> <td>Research and presentation skills</td> </tr> <tr> <td>MO7</td> <td>Awareness of professional literature</td> </tr> <tr> <td>MO8</td> <td>Communication skills</td> </tr> </tbody> </table>	Module Learning Outcomes		MO1	Design principles, operations, management, network hierarchies and planning of 2.5G, 3G and 4G cellular mobile communications systems	MO2	Designing a cell in cellular system under technical constraints	MO3	Evaluating a mobile/wireless communication system performance	MO4	Applying the design principles for developing 2.5G, 3G and 4G mobile systems	MO5	Appropriate system components and cell coverage areas in particular circumstances	MO6	Research and presentation skills	MO7	Awareness of professional literature	MO8	Communication skills
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Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/modules/ufmf9d-15-m.html</p>																		