

Course unit title:	Wireless and Mobile Networks
Course unit code:	CSC404
Type of course unit: (Compulsory/optional)	Optional
Level of course unit: (First, second or third cycle)	Bachelor (1st cycle)
Year of study:	4
Semester when the unit is delivered:	7 or 8
Number of ECTS credits allocated:	5
Name of lecturer(s):	TBA
Learning outcomes of the course unit:	
<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • Recall, classify and describe wireless technologies. • Analyse cellular wireless network topologies. • Analyse and compute physical property of wireless networks. • Recall and evaluate radio resource management techniques. • Compare and evaluate different wireless communication protocols. 	
Mode of delivery:	Face- to- face
Prerequisites and co-requisites:	CSC322
Recommended optional program components:	None
Course Contents:	
<p>Objective: The aim of the course is to examine the structure and architecture of wireless and mobile networks, systems and applications. The mobility of nodes and end-users has behavioral implications on all layers of the OSI protocol stack from the Data Link up to the Application Layer. Handling and adapting to mobility necessitates the introduction changes in the protocol stack. Emerging applications enabled due to mobility will be investigated too.</p> <p>Description: Introduction Wireless technology, transmission fundamentals, antennas and propagation, signal encoding techniques, coding and error control.</p>	

<p>Satellite Communications Classification of satellite orbits, GEO orbit, LEO orbit, MEO orbit, link performance factors, capacity allocation strategies</p> <p>Cellular wireless networks Cellular network organization, frequency reuse, hand-off strategies and metrics, power control, traffic engineering, traffic intensity, cellular wireless networks systems and services, GSM, GPRS, SMS, UMTS.</p> <p>Mobile IP Mobile IP uses and operation, registration, authentication, tunneling.</p> <p>Wireless LANs Wireless LANs technologies, WLANs applications, the IEEE 802.11 standards and operation, hand-offs, fast hand-offs. Ad-hoc networks, issues in ad-hoc networks, routing in ad-hoc networks, encryption in ad-hoc networks. Wireless Sensor Networks, architecture and network protocols.</p> <p>BlueTooth techniques BlueTooth Application Areas, BlueTooth Protocol Architecture, usage models, frequency hopping, BlueTooth audio, BlueTooth Link security.</p>					
<p>Recommended or required reading:</p>	<p>William Stallings, WIRELESS COMMUNICATIONS AND NETWORKS, Prentice Hall</p> <p>Yi-Bing Lin, Imrich Chlamtac, WIRELESS AND MOBILE NETWORK ARCHITECTURES, John Wiley & Sons; ISBN: 0471394920</p> <p>Ellen Kayata Wesel, WIRELESS MULTIMEDIA COMMUNICATION NETWORKING VIDEO, VOICE, AND DATA, Addison-Wesley</p> <p>Theodore S. Rappaport, WIRELESS COMMUNICATIONS PRINCIPLES & PRACTICES, Prentice Hall</p> <p>K. Pahlavan and P. Krishnamurthy, PRINCIPLES OF WIRELESS NETWORKS, Prentice Hall</p> <p>C. Siva Ram Murthy, B.S. Manoj: AD HOC WIRELESS NETWORKS : ARCHITECTURES AND PROTOCOLS Pearson Education</p>				
<p>Planned learning activities and teaching methods:</p>	<table border="1"> <tr> <td>Class Instruction</td> <td>42 Hours</td> </tr> <tr> <td>Consultation/Computer Lab</td> <td>30 Hours</td> </tr> </table>	Class Instruction	42 Hours	Consultation/Computer Lab	30 Hours
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Assessment methods and criteria:	<table border="1" style="width: 100%;"> <tr> <td style="width: 70%;">Examinations</td> <td style="width: 30%; text-align: center;">70%</td> </tr> <tr> <td>Assignments</td> <td style="text-align: center;">25%</td> </tr> <tr> <td>Class Participation</td> <td style="text-align: center;">5%</td> </tr> <tr> <td></td> <td style="text-align: center;">100%</td> </tr> </table>	Examinations	70%	Assignments	25%	Class Participation	5%		100%
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Assignments	25%								
Class Participation	5%								
	100%								
Language of instruction:	English								
Work placement(s):	No								
Place of Teaching:	<p>Theoretical Part: Regular Classroom European University Cyprus, Nicosia</p> <p>Practical Part: Computer Laboratory European University Cyprus, Nicosia</p>								