MULTIMEDIA UNIVERSITY®

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Mobile and Wireless Communications
2.	Course Code	TWC3231
3.	Status of Course [Applies to (cohort)]	Specialization Core for B.IT (Hons) Data Communications and Networking
4.	MQF Level/Stage	Bachelor Degree – MQF Level 6
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version : June 2012 Date of current version : June 2014
6.	Pre-Requisite	TDC1231 Data Communications and Networking
7.	Name(s) of academic/teaching staff	Wee Kuok Kwee
8.	Semester and Year offered	Trimester 2, Year 3
9.	**Objective of the course in the programme** : To introduce the knowledge of mobile and wireless communication technologies and its applications to the students.	
10.	**Justification for including the course in the programme :** This subject deals with the important aspects of wireless and mobile computing including wireless LAN, wireless WAN and cellular networks. Wireless technology protocols and standards are also studied. Mobile communications and wireless networking technology has seen a thriving development in recent years. Driven by technological advancements as well as application demands, various classes of communication networks emerged. This includes sensor networks, ad hoc networks, and cellular networks, wireless broadband technologies.	

11.

Course Learning Outcomes :	Domain	Level
Define the components of mobile and wireless communication	Cognitive	1
Explain the mobile and wireless technologies	Cognitive	5
Compare different types of mobile and wireless networks	Cognitive	6
Design a simple mobile and wireless application	Cognitive	7

12. Mapping of Learning Outcomes to Programme Outcomes :

Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1	X						X		
LO2	X						X		
LO3	X						X		

	LO4	X						X	x	x

13. Assessment Methods and Types :

Method and Type	Description/Details	Percentage
Final Exam	Written examination	60%
Test 1	Written examination	20%
Quiz	Written	5%
Assignment	Written report, implemented programs, individual project	15%

14. Mapping of assessment components to learning outcomes (LOs)

Assessment Components	%	LO1	LO2	LO3	LO4
Final Exam	60	70.5	70.5	70.5	
Test 1	20	23.5	23.5	23.5	
Quiz	5	6	6	6	
Assignment	15				100

15. Details of Course

Topics	Mode of Delivery	
	Lecture	Tutorial
1. Introduction - Mobile and wireless communications: - Applications, history, market vision, overview	2	1
2. Wireless Networking and Communication Technologies - Wireless connectivity - Definition of Wireless LANs and Wireless WANs - Types of Wireless WANs - Wireless LAN technologies. Media Access Control Technologies: FDMA, TDMA, CDMA - Different Generation of Wireless Technologies. GSM, GPRS.	2	1
3. Wireless LANs - Principles of Wireless LANs - Infrared, radio, IEEE 802.11 (a,b,g,h) - Mobile ad hoc Networks (MANET) - HiperLAN2	4	2

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	4. Wireless Personal Area Networks - Standards for WPAN - Principles and IEEE 802.15 standards - Wireless Home Networks and Home RF:Cordless Network and Home RF - Bluetooth Wireless LAN: Features, setting up a Bluetooth network, how does Bluetooth work, Bluetooth stack and protocols - Ultra Wideband: overview - Wireless Sensor Networks: Zigbees, components of a sensor, WSN applications and platforms, WSN design	4	2
	5. Cellular Networks - 1G – 5G networks - Global System for Mobile Communications (GSM) - GPRS - Wireless Application Protocol (WAP) - Propagation Effects and Handoff Performance	4	2
	6. Wireless Local Loops and Satellite Communications - WiMAX - GPS - Free Space Optics	4	2
	7. Mobile Application Framework - Mobile Application Framework and Design - Mobile Computing Platforms - Middleware, Server	4	2
	8. Wireless Security and Management - Wireless middleware security, wireless network security, cellular network security - Wireless application security: Mobile Client Security, Web Server Tier (Middle Tier) Security, Back-end System and Transaction Security Through SET - Monitoring and controlling wireless network, managing wireless networks.	4	2
	Total	28	14

Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
Lecture	28	28
Tutorials	14	14
Laboratory/Practical	-	-
Project	-	-
Assignment	-	10
Mid Term Test	1	5

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	Final Exam	2	16
	Quiz	2 times	2
	Sub Total	45	75
	Total SLT	120	
16.	Credit Value	3	
17.	Reading Materials :		
	Textbooks		
	1. William Stallings, (2005). Wireless Communications and Networks, Prentice Hall, New Jersey, 2nd Ed.		
	2. Amjad Umar, “Mobile Computing and Wireless Communications”, NGE Solutions, Publication, 2004.		
	Reference Material (including ‘Statutes’ for Law)		
	1. Vijay Garg, “Wireless network evolution: 2G to 3G”, Prentice Hall, 2002.		

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning 0utcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement