Module Details

Module Code:	NETW C7026
Full Title:	Wireless Technologies APPROVED
Valid From::	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	1 Semester
Credits::	5
Module Owner::	Frances Byrne
Departments:	Unknown
Module Description:	Students completing this module will have an understanding of the issues and technologies pertaining to the design, installation, and support of wireless network systems. The practical application of this knowledge will be reinforced in the lab sessions.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Develop a comprehensive understanding of existing and emerging wireless LAN technologies and standards.
MLO2	Explain the basic principles of wireless transmission theory.
MLO3	Define the constraints of wireless networks.
MLO4	Discuss wireless security and QoS issues.
MLO5	Apply theories to design and implement a wireless network.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*
No recommendations listed

Module Indicative Content
Wireless Technology Fundamentals Wired v Wireless networks, wireless standards, regional regulations, WI-FI governance, wireless basics.
Transporting Data over Wireless RF transmission, signalling, interference, antenna theory.
Wireless LANs Topologies, IEEE 802.11, Site Survey, WLAN design and implementation. SSID to VLAN mapping.
Wireless Controllers Function, initial setup, and maintenance. Clustering controllers, Hardware controllers.
Securing Wireless Networks Challenges, threats, security policies, client authentication options, WPA2, IEEE 802.1x.

Module Assessment

Assessment Breakdown	%
Course Work	20.00%
Practical	20.00%
Final Examination	60.00%

Module Special Regulation

Assessments

Full Time On Campus

Course Work			
Assessment Type	Multiple Choice Questions	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 13	**Learning Outcome**	1,2,3,4
Duration in minutes	75		
Assessment Description Assess learning outcomes 1 to 4			

No Project

Practical			
Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	Every Week	**Learning Outcome**	5
Duration in minutes	120		
Assessment Description Weekly wireless practicals to be completed by the student.			

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	60
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4
Duration in minutes	120		
Assessment Description End-of-Semester Final Examination			

Part Time On Campus

Course Work			
Assessment Type	Multiple Choice Questions	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 13	**Learning Outcome**	1,2,3,4
Duration in minutes	75		
Assessment Description Assess learning outcomes 1 to 4			

No Project

Practical			
Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	Every Week	**Learning Outcome**	5
Duration in minutes	120		
Assessment Description Weekly wireless practicals to be completed by the student.			

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	60
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4
Duration in minutes	120		
Assessment Description End-of-Semester Final Examination			

Reassessment Requirement
A repeat examination *Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.*
Reassessment Description Formal final exam similar to the end of module formal exam. In some cases students may also be required to complete an project which demonstrates their ability to design and build wireless networks.

Module Workload

Workload: Full Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Present and evaluate wireless technologies	Every Week	1.00	1
Practical	Contact	Implement and evaluate wireless technologies	Every Week	3.00	3
Directed Reading	Non Contact		Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	4.00

Workload: Part Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	Implement and evaluate wireless technologies	Every Week	1.00	1
Lecture	Contact	Present and evaluate wireless technologies	Every Week	3.00	3
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

Cory Beard, William Stallings. (2015), Wireless Communication Networks and Systems, Global Edition. 16, Pearson, p.608, [ISBN: 9781292108711].

David D. Coleman, David A. Westcott. (2018), CWNA Certified Wireless Network Administrator Study Guide, 20, Wiley, p.1024, [ISBN: 978-1-119-477].

Supplementary Book Resources

Vivek Ramachandran, Cameron Buchanan. (2017), Kali Linux Wireless Penetration Testing Beginner's Guide, 3rd Edition. 11, Packt Publishing, p.210, [ISBN: 978-178883192].

This module does not have any article/paper resources

Other Resources

website, Cisco Systems,
https://www.cisco.com/c/en/us/products/w ireless/index.html

website, Network World,
https://www.networkworld.com/article/323 8664/wi-fi/80211-wi-fi-standards-and-spe eds-explained.html

website, Wi-Fi Alliance,
http://www.wi-fi.org/

website, Juniper Wireless,
https://www.juniper.net/uk/en/products-s ervices/wireless/