Module Details

Module Code:	PROG C7018
Full Title:	WAN Protocols APPROVED
Valid From::	Semester 1 - 2021/22 (September 2021)
Language of Instruction:	English

Duration:	1 Semester

Credits::	5

Module Owner::	- Amanda Clancy - Fiona Lawless - Amanda Clancy

Departments:	Computing Science & Mathematics

Module Description:	Students completing this module will evaluate why a WAN is necessary and how a WAN operates. They will develop skills in configuring and troubleshooting protocols such as NAT, PAT, HDLC, PPP.

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Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Comprehend & evaluate the structure and operation of the Internet.
MLO2	Identify modern WAN technologies.
MLO3	Compare and examine protocols used in a wide area network.
MLO4	Configure and troubleshoot PPP and HDLC protocols.
MLO5	Configure and troubleshoot specific protocols such as Network Address Translation and Port Address Translation.

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
Understand why a WAN is needed and how a WAN is setup Evaluate what a WAN is and how a company uses a WAN. Looking at WAN setup within a company and where WAN meets LAN. Identifying devices used in a WAN setup DCE,DTE, Local Loop, Demarcation Point.
Configure and troubleshoot PPP and HDLC protocols. High Level Data Link Control Protocol (HDLC) -HDLC Frame Format; HDLC Configuration. Point to Point Protocol: Point to Point Protocols (PPP) -PPP Frame Format; PPP LinkControl Protocol; Network Control Protocol; Authentication Protocols; PPP Configuration and troubleshooting.
Configure and troubleshoot specific protocols such as Network Address Network Address Translation (NAT) -Private and Public Addressing; Address Translation – Static and Dynamic; NAT configuration. Port Address Translation (PAT) -PATAddress Mapping; PAT Configuration and Troubleshooting.
Application Protocols Web (HTTP/DNS), Email(SMTP), Multimedia (RTP, RTCP, RTSP)

Module Assessment

Assessment Breakdown	%
Practical	30.00%
Final Examination	70.00%

Module Special Regulation

Assessments

Full Time On Campus

No Course Work

No Project

Practical			
Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	Week 12	**Learning Outcome**	3,4,5
Duration in minutes	0		
Assessment Description Examine students skills in setting up HDLC, PPP, NAT and PAT			

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	70
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4,5
Duration in minutes	0		
Assessment Description End of term exam			

Part Time On Campus

No Course Work

No Project

Practical			
Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	Week 12	**Learning Outcome**	3,4,5
Duration in minutes	0		
Assessment Description n/a			

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	70
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4,5
Duration in minutes	0		
Assessment Description n/a			

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.*

Module Workload

Workload: Full Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	No Description	Every Week	1.00	1
Practical	Contact	No Description	Every Week	2.00	2
Tutorial	Contact	No Description	Every Week	1.00	1
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

Workload: Part Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	No Description	Every Week	1.00	1
Practical	Contact	No Description	Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Tutorial	Contact	No Description	Every Week	1.00	1
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

Cisco Press. (2017), Connecting Networks v6 Companion Guide, v6. Cisco Press, [ISBN: ISBN: 9780134].

This module does not have any article/paper resources

Other Resources

website, CISCO,
http://www.cisco.com