NETW C7032: IPv6

Module Details

Module Code:	NETW C7032
Full Title	IPv6 APPROVED
Valid From:	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	1 Semester
Credits:	5
Module Author	Paula Keane
Departments:	Unknown
Module Description:	The aim of this module is provide students with a deep understanding of the need and operation of IPv6. Students will learn how to configure IPv6 on network devices and to configure IPv6 devices to communicate with IPv6 and IPv4 hosts.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	Module Learning Outcome Description
MLO1	Compare and contrast IPv6 and IPv4 protocol format.
MLO2	Design, calculate and apply subnet masks and addresses to fulfil given requirements in an IPv6 network.
MLO3	Configure and troubleshoot IPv6 on routers and implement static IPv6 routes and dynamic routing protocols for IPv6.
MLO4	Plan, design and deploy IPv6 including into an existing IPv4 network.
MLO5	Discuss in detail the features and functions of the ICMPv6 protocol.
MLO6	Discuss and implement dynamic addressing in IPv6.

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 Learning Outcome Description
MLO1	Compare and contrast IPv6 and IPv4 protocol format.
MLO2	Design, calculate and apply subnet masks and addresses to fulfil given requirements in an IPv6 network.

Indicative Content
IPv6 Versus IPv4 The History of IPv6, Overview of Functionality, Transition Aspects.
The Structure of the IPv6 Protocol General Header Structure, The Fields in the IPv6 Header, Extension Headers, comparison to IPv4 header format.
IPv6 Addressing Address Types and Notation.
ICMPv6 General Message Format, Processing Rules, Neighbour Discovery, Autoconfiguration, Path MTU Discovery, Multicast Group Management.
Security in IPv6 IPv6 Security Elements, Interworking of IPv6 Security with Other Services, Open Issues in IPv6 Security.
IPv6 routing IPv6 routing table and static routes, Routing Protocols for IPv6 (RIPng, EIGRP, OSPFv3).
Deployment Creating an IPv6 addressing plan, configuring IPv6 VLANs, IPv4 and IPv6 integration and coexistence including dual stacking, NAT64 and tunneling techniques.
Dynamic Addressing SLAAC, Stateless and Stateful DHCPv6.

Module Content & Assessment

Assessment Breakdown	%
Course Work	30.00%
Final Examination	70.00%

Special Regulation

Assessments

Full Time

Course Work			
Assessment Type	Class Test	**% of Total Mark**	30
Marks Out Of	100	**Pass Mark**	40
Timing	Sem 2 End	**Learning Outcome**	2,3,4,6
Duration in minutes	120		
Assessment Description Formal practical test on configuring and troubleshooting an IPv6 installation.			

No Project

No Practical

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	70
Marks Out Of	100	**Pass Mark**	40
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4,5,6
Duration in minutes	120		
Assessment Description Written examinination			

Part Time

Course Work			
Assessment Type	Class Test	**% of Total Mark**	30
Marks Out Of	100	**Pass Mark**	40
Timing	Sem 2 End	**Learning Outcome**	2,3,4,6
Duration in minutes	120		
Assessment Description Formal practical test on configuring and troubleshooting an IPv6 installation.			

No Project

No Practical

Final Examination			
Assessment Type	Formal Exam	**% of Total Mark**	70
Marks Out Of	100	**Pass Mark**	40
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4,5,6
Duration in minutes	120		
Assessment Description End of year exam			

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 & Resources

Workload: Full Time

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Formal lectures	Every Week	1.00	1
Practical	Contact	Lab based sessions to reinforce the theory covered in the lectures	Every Week	2.00	2
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Independent Study	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

Workload: Part Time

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
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Independent Study	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

Resources

Recommended Book Resources

    Graziani, R. (2017), IPv6 Fundamentals, 2. 17, Cisco Press, p.658, [ISBN: 1587144778].

    Hagen, S. (2009), IPv6 Essentials, 2nd Edition, 2. O'Reilly Media, [ISBN: 0-596-10573-8].

This module does not have any article/paper resources

This module does not have any other resources

statuslog

No Status Log Information