APPROVED

PROG C7019: Advanced System Administration

Module Details

Module Code:	PROG C7019
Full Title:	Advanced System Administration APPROVED
Valid From::	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	2 Semesters
Credits::	10
Module Owner::	Elizabeth Rooney
Departments:	Unknown
Module Description:	The aim of this module is to provide students with the required knowledge and skills to plan, design, implement and manage systems in a heterogeneous networked environment. In addition, students are required to produce a project plan and technical documentation for work produced.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Demonstrate an understanding of the services, structures and techniques necessary for systems administration in both small scale and enterprise wide infrastructures using virtualization solutions.
MLO2	Plan, install, configure, manage, maintain and backup Windows and Linux based Servers and Services including File, DNS, DHCP, Mail and Web.
MLO3	Configure and manage Data Storage.
MLO4	Secure Linux and Windows Servers and Services.
MLO5	Manage system reliability and availability.
MLO6	Use command line tools and techniques to complete management tasks in core administrative areas.

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
System Administration Services Introduction to Systems Administration Services. Client/Server communications.
Installation, Upgrading and Deploying Windows and Linux Based Servers. Planning, installation, configuration and upgrades of both windows and linux servers. Rapid Deployment of servers across a network. Client installation, configuration and connectivity. Troubleshooting.
Infrastructure Service Planning Planning IP4 and IP6 addressing. Planning, Installing and configuration of DHCP service; Planning, installation and configuration of DNS.
File and Storage Services Planning, implementing, managing and troubleshooting File and Storage Services. Providing Home and Shared Folder access across a network. Troubleshooting access control problems. Distributed File Systems.
Web Services Plan, install, configure and deploy Web Services (IIS and Apache). Client connectivity and troubleshooting.
Mail Service Understand all terminology associated with Mail Service. Mail Service Architecture. Design and implement an email services such as Exchange.
Remote Access and Network Access Protection Planning and managing remote access. VPN Authentication; VPN protocols; Firewalls and NAP.
Clustering and High Availablity Discussion of DNS Round Robin and Network Load Balancing. Availability Strategies. Clustering concepts. Installation and Failover Clustering.
Backup and Fault Tolerance Design System Backup and Recovery Processes. Design Fault Tolerance solutions.
Security Policy Planning Security policies; update and patch management.
Server Monitoring and Maintenance Evaluating tools to monitor and manage both linux and windows environments.

Module Assessment

Assessment Breakdown	%
Course Work	100.00%

Module Special Regulation

Assessments

Full Time On Campus

Course Work

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 6	**Learning Outcome**	1,2,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 12	**Learning Outcome**	1,3,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Continuous Assessment	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	Every Second Week	**Learning Outcome**	1,2,3,6
Duration in minutes	0		

Assessment Description
Weekly lab tasks introducing real world services. Students will be expected to install, configure and troubleshoot these services individually or as part of a group. Students will design a WIKI and write a technical report for each lab created. Students will be responsible for the management of their WIKI.

Assessment Type	Class Test	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 13	**Learning Outcome**	1,2,3,6
Duration in minutes	120		

Assessment Description
Individual Practical Lab Test to assess students ability to configure/troubleshoot specific services in a heterogeneous network.

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S2 Week 25	**Learning Outcome**	1,4,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S2 Week 29	**Learning Outcome**	1,5,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Continuous Assessment	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	Every Second Week	**Learning Outcome**	1,4,5,6
Duration in minutes	0		

Assessment Description
Weekly lab tasks introducing real world services. Students will be expected to install, configure and troubleshoot these services individually or as part of a group.

Assessment Type	Class Test	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S2 Week 30	**Learning Outcome**	1,4,5,6

Duration in minutes	60

Assessment Description
Individual Practical Lab Test to assess students ability to configure/troubleshoot specific services in a heterogeneous network.

No Project

No Practical

No Final Examination

Part Time On Campus

Course Work

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 6	**Learning Outcome**	1,2,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 12	**Learning Outcome**	1,3,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

Assessment Type	Continuous Assessment	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	0
Timing	Every Second Week	**Learning Outcome**	1,2,3,6
Duration in minutes	0		

Assessment Description
Weekly lab tasks introducing real world services. Students will be expected to install, configure and troubleshoot these services individually or as part of a group. Students will design a WIKI and write a technical report for each lab created. Students will be responsible for the management of their WIKI.

Assessment Type	Class Test	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 13	**Learning Outcome**	1,2,3,6
Duration in minutes	120		

Assessment Description
Individual Practical Lab Test to assess students ability to configure/troubleshoot specific services in a heterogeneous network.

Assessment Type	Multiple Choice Questions	**% of Total Mark**	10
Marks Out Of	0	**Pass Mark**	0
Timing	S2 Week 25	**Learning Outcome**	1,4,6
Duration in minutes	60		

Assessment Description
MCQ Tests to assess students understanding of the theory presented in the lecture.

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Marks Out Of	0	**Pass Mark**	0
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Timing	Every Second Week	**Learning Outcome**	1,4,5,6
Duration in minutes	0		

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Marks Out Of	0	**Pass Mark**	0
Timing	S2 Week 30	**Learning Outcome**	1,4,5,6
Duration in minutes	60		

Assessment Description
Individual Practical Lab Test to assess students ability to configure/troubleshoot specific services in a heterogeneous network.

No Project

No Practical

No Final Examination

Reassessment Requirement

No repeat examination
Reassessment of this module will be offered solely on the basis of coursework and a repeat examination will not be offered.

Module Workload

Workload: Full Time On Campus					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	1 hour lecture per week to deliver the theory of System Administration	Every Week	1.00	1
Practical	Contact	3 hour practical/lab based session to apply the theory to a real work task	Every Week	3.00	3
Independent Study	Non Contact	No Description	Every Week	2.00	2
Directed Reading	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	1 hour lecture per week to deliver the theory of System Administration	Every Week	1.00	1
Practical	Contact	3 hour practical/lab based session to apply the theory to a real work task	Every Week	3.00	3
Independent Study	Non Contact	No Description	Every Week	2.00	2
Directed Reading	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

Limoncelli, Thomas A., and Hogan, Christine. (2017), The Practice of System and Network Administration, 3rd. Addison Wesley, [ISBN: 0321492668].

Mark G. Sobell. (2017), Practical Guide to Linux Commands, Editors, and Shell Programming, A, 3/E - See more at: http://www.pearsonhighered.com/educator/product/Practical-Guide-to-Linux-Commands-Editors-and-Shell-Programming, 4th. Prentice Hall, [ISBN: 013308504X].

Greg Tomsho. (2017), Guide to Installation, Storage and Compute with Server 2016, [ISBN: 0133740066-4].

Greg Tomsho. (2017), Networking with Server 2016, [ISBN: 0133740078-7].

Æleen Frisch. (2009), Essential System Administration, 3rd Edition Tools and Techniques for Linux and Unix Administration.

Evi Nemeth, Garth Snyder ,Trent R. Hein ,Ben Whaley , Dan Mackin. (2018), UNIX and Linux System Administration Handbook, 5th. Pearson Education, [ISBN: 0134277554].

Arnold Robbins. (2016), BASH Pocket Reference, 2. O'Reilly Publishers, [ISBN: 9781491941591].

Michael Palmer. (2018), Hands-on Microsoft Windows Server 2016, Cengage, [ISBN: 13 9781305078].

This module does not have any article/paper resources

This module does not have any other resources