Module Details

Module Code:	PROG C7Z24
Full Title:	Introduction to Scripting APPROVED
Valid From::	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	1 Semester
Credits::	5
Module Owner::	Peadar Grant
Departments:	Unknown
Module Description:	Scripting in PowerShell and Bash on Windows and UNIX platforms is introduced in an applied problem-solving environment. Concepts are taught by application to common system administration tasks encountered in development and operations environments.

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Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Identify opportunities to automate workflows within system administration and software development.
MLO2	Compose scripts to automate tasks within common client and server operating system environments
MLO3	Interact with end-user applications and local and remote data sources from scripting environments
MLO4	Access scripting host facilities on remote systems using standard protocols

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

Scripting context
Scripting as a means of automation; task identification the context of client and server operating systems; review of the command-line interface; scripting facilities offered within main client and server operating systems (PowerShell, BASH); relationship of scripting to programming.

Script development
Development tools used with scripting environments; version control of scripts; system-wide installation of custom scripts; debugging tools.

Scripting skills
Mapping familiar programming concepts into the scripting environment: user input and output; variables; conditionals (including existence of files and directories); loops (including over files and directories); functions. Development using basic scripting concepts: invoking system commands, input/output redirection, command-line argument processing, piping output to input, use of return values.

Applications
Scripting skill development through application in varied scenarios: file and directory management; file compression/decompression; file metadata; text patterns; file format conversions; web downloads; usage of Windows registry; use of data contained in text files, spreadsheets and relational databases; local user account management; local service management; network share mapping; package management; local hardware configuration management; scripting of Microsoft Office applications; scripting from within GUI applications (e.g. Java IDEs); Makefiles

Remoting
Accessing scripting capabilities on remote systems using SSH and PowerShell Remoting. Use of console text editors. Automation of file transfers to/from remote hosts. Configuring key-based non-interactive logins to remote hosts.

Module Assessment

Assessment Breakdown	%
Course Work	100.00%

Module Special Regulation

Assessments

Full Time On Campus

Course Work			
Assessment Type	Class Test	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	Week 6	**Learning Outcome**	1,2
Duration in minutes	0		
Assessment Description Class test			
Assessment Type	Class Test	**% of Total Mark**	40
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	2,3,4
Duration in minutes	0		
Assessment Description Class test			
Assessment Type	Continuous Assessment	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4
Duration in minutes	0		
Assessment Description Scripting assignment			

No Project

No Practical

No Final Examination

Part Time On Campus

Course Work			
Assessment Type	Class Test	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	Week 6	**Learning Outcome**	1,2
Duration in minutes	0		
Assessment Description Class test			
Assessment Type	Class Test	**% of Total Mark**	40
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	2,3,4
Duration in minutes	0		
Assessment Description Class test			
Assessment Type	Continuous Assessment	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,4
Duration in minutes	0		
Assessment Description Scripting assignment			

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.

Reassessment Description
Repeat lab exam and CA project to address all learning outcomes.

Module Workload

Workload: Full Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	2 x 2 hours lab per week	Every Week	4.00	4
Independent Study	Non Contact	Practical work (scripting practice) each week to strengthen scripting ability	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
Practical	Contact	1 x 3 hours lab per week	Every Week	3.00	3
Independent Study	Non Contact	Practical work (scripting practice) each week to strengthen scripting ability	Every Week	3.00	3
Directed Reading	Non Contact	No Description	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	3.00

Module Resources

Recommended Book Resources

Wilson, Ed. Windows PowerShell Step by Step, 3rd. 2015.

Vossen, JP and Albing, C. (2017), Bash Cookbook, 2nd.

Supplementary Book Resources

Mark G. Sobell. (2012), A practical guide to Linux commands, editors, and shell programming.

Don Jones, Richard Siddaway, Jeffery Hicks. (2013), PowerShell in Depth: An Administrator's Guide, Manning.

This module does not have any article/paper resources

This module does not have any other resources

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