

PROG C7016: Programming for System Administration and Networking

Module Details	
Module Code:	PROG C7016
Full Title:	Programming for System Administration and Networking 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:	Students completing this module will apply existing programming concepts blended with scripting abilities to an interpreted dynamically-typed scripting environment. Targeted towards a systems-administration environment, programming concepts are taught with an applied problem-solving focus. Emphasis is placed on working with varied data sources using standard libraries and communicating with external services and hardware.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	Module Learning Outcome Description
MLO1	Apply existing fundamental programming and scripting concepts to a interpreted programming language
MLO2	Utilise standard libraries for data consumption, processing and output operations
MLO3	Communicate with operating system services and external hardware
MLO4	Utilise standard software development and deployment tooling
Pre-requisite learning	
<p>Module Recommendations <i>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).</i></p>	
No recommendations listed	

Module Indicative Content
Introduction The role of programming in networking and system administration; landscape survey of languages and operating environments; relationship of programming to scripting; development tooling; interpreted languages; role of standard libraries.
Programming fundamentals Translation to interpreted environment of: variables, console input/output, conditionals, loops, functions; command-line argument (including optional and switch) handling; basic object-oriented programming; program organisation (modules, classes, functions); basic file input/output.
Data sources Utilisation of file formats common to the networking and system-administration environment (plain text, delimited text, CSV, INI files, XML, JSON, Microsoft Office) by application of standard libraries from multiple data sources (flat files, HTTP requests, relational databases).
System interaction Application of standard libraries for interaction with the host and other systems: external program calls; serial I/O to external devices (e.g. networking hardware, UPS, access control, A/V systems); detection of network presence/state; sending mail using SMTP; OS-level logging.

Module Assessment

Assessment Breakdown	%
Course Work	100.00%

Module Special Regulation

Assessments

Full Time

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

No Project

No Practical

No Final Examination

Part Time

Course Work			
Assessment Type	Class Test	% of Total Mark	30
Marks Out Of	0	Pass Mark	0
Timing	Week 6	Learning Outcome	1,2,4
Duration in minutes	0		
Assessment Description Lab exam			
Assessment Type	Class Test	% of Total Mark	40
Marks Out Of	0	Pass Mark	0
Timing	End-of-Semester	Learning Outcome	1,2,3,4
Duration in minutes	0		
Assessment Description Lab exam			
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 Programming assignment			
No Project			
No Practical			
No Final Examination			
Reassessment Requirement			
No repeat examination <i>Reassessment of this module will be offered solely on the basis of coursework and a repeat examination will not be offered.</i>			
Reassessment Description Lab exam and assignment to assess all learning outcomes			

Module Workload

Workload: Full Time					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Practical	Contact	2 x 2 hour lab per week	Every Week	4.00	4
Independent Study	Non Contact	Practical work (programming practice) each week to strengthen programming 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					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Practical	Contact	2 x 2 hour lab per week	Every Week	4.00	4
Independent Study	Non Contact	Practical work (programming practice) each week to strengthen programming 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

Module Resources

Recommended Book Resources

Alex Martelli, Anna Ravenscroft, Steve Holden. (2017), Python in a Nutshell, 3rd Ed.
Mueller, John. (2018), Beginning Programming with Python For Dummies, 2nd.

This module does not have any article/paper resources

This module does not have any other resources