MODULE DESCRIPTOR

Module Title

Systems Programming And Security

Reference	CMM530	Version	3
Created	April 2017	SCQF Level	SCQF 11
Approved	June 2014	SCQF Points	15
Amended	August 2017	ECTS Points	7.5

Aims of Module

To review the design, implementation and functioning of operating systems. To provide the student with the ability to proficiently administer the resources provided by operating systems. To enable the student to deploy secure infrastructure using common operating systems.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Demonstrate an understanding of the inner working of common operating systems.
2	Efficiently program the operating system by making direct system calls.
3	Demonstrate an understanding of the security features of common operating systems.
4	Design and implement secure systems using advanced operating system features.

Indicative Module Content

Key topics covered in this module will include: Operating system concepts, Linux and Windows design choices; Introduction to systems programming using system calls; OS Security, Windows Firewall; Shell scripting and system programming.

Module Delivery

Key concepts are introduced and illustrated through lectures. The necessary practical skills are developed through a series of laboratory exercises.

Indicative Student Workload	Full Time	Part Time
Contact Hours	44	44
Non-Contact Hours	106	106
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

| Type: | Examination | Weighting: | 50% | Outcomes Assessed: | 1, 3 |

| Description: | This is a closed book examination. |

Component 2

| Type: | Coursework | Weighting: | 50% | Outcomes Assessed: | 2, 4 |

| Description: | This is a coursework where students will design and implement secure systems. |

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The calculation of the overall grade for this module is based on 50% weighting of C1 and 50% weighting of C2. An overall minimum grade D is required to pass the module.

		Coursework:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
	A	A	A	B	B	C	E	
	B	A	B	B	C	C	E	
Examination:	**C**	B	B	C	C	D	E	
	D	B	C	C	D	D	E	
	E	C	C	D	D	E	E	
	F	E	E	E	E	E	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1 TANENBAUM,A, BOS, H.,(2014). Modern Operating Systems: Global Edition, 4th Ed.,Pearson. ISBN 9-781-29206142-9

2 SMITH, R., (2016) Elementary Information Security, 2nd Ed., Jones & Bartlett Learning. ISBN: 9-781-28405593-1

3 PFLEEGER,C., PFLEEGER,S., MARGULIES, J., (2015) Security in Computing, 5th Ed., Prentice Hall.

4 ENGEBRETSON, P., (2013) The basics of hacking and penetration testing [electronic version]:ethical hacking made easy, 2ns Ed., Elesvier. ISBN:978-0-12-411644-3

5 BASTA, A., FINNAMORE, D., PALLADINO,S., (2013). Linux Operation and Administration, International Edition. Cengage Learning. ISBN: 978-1-111-64147-4