MODULE DESCRIPTOR

Module Title

Connecting Networks

Reference	CM4101	Version	2
Created	April 2017	SCQF Level	SCQF 10
Approved	July 2016	SCQF Points	15
Amended	August 2017	ECTS Points	7.5

Aims of Module

To provide the student with the ability to critically appraise the architectures, technologies and network services required to connect and manage scalable Wide Area Networks.

Learning Outcomes for Module

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

1	Critically evaluate suitable equipment, protocols and configurations for use in Wide Area Networks.
2	Configure and deploy Wide Area Networks to meet business goals.
3	Configure and secure network traffic within Wide Area Networks.
4	Evaluate and monitor the performance of systems within Wide Area Networks.
5	Troubleshoot problems and make recommendations in equipment selection, protocol use and configurations in Wide Area Networks.

Indicative Module Content

Computer Network Design: Hierarchical Network Design, Cisco Enterprise Architecture, Evolving Network Architectures. WAN Connectivity: WAN Architecture, WAN Technologies and Connectivity. WAN Technologies: Frame Relay, PPP, MPLS, Ethernet WAN Network Address Translation: Configuration, Operation, and Troubleshooting. Site-to-Site Connectivity: VPNs, IPSec, GRE Tunnels. Network Monitoring: Syslog, SNMP, NetFlow.

Module Delivery

The module is taught using a structured programme of web based learning materials, web-based activities, practical exercises and student centred learning.

Indicative Student Workload	Full Time	Part Time
Contact Hours	33	N/A
Non-Contact Hours	117	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
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, 5
Description:	Exam worth 50% of total module assessment				

Component 2

Type:	Practical Exam	Weighting:	50%	Outcomes Assessed:	2, 3, 4
Description:	Practical exam worth 50% of total module assessment.				

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.

		Practical Exam:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
	A	A	A	B	B	C	E	
	B	A	B	B	C	C	E	
	C	B	B	C	C	D	E	
Examination:	**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	(CM1103) Computer Systems and Networking, (CM2103) Routing and Switching, (CM3103) Scaling Computer Networks, or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1 STALLINGS, W., 2014. Data and Computer Communications, 10th Ed., Pearson.

2 REGAN, P., 2003. Wide Area Networks, Prentice Hall,

3 TANENBAUM, A., WETHERALL, D., 2011. Computer Networks, 5th Ed., Pearson.

4 BONAVENTURE, O., 2011. Computer Networking: Principles, Protocols and Practice, The Sailor Foundation.

5 Comer, D. (2015) Computer networks and Internets: Global edition. 6th edn. United Kingdom: Pearson Education.

6 KIZZA, 2015. Guide to Computer Network Security (Computer Communications and Networks). Springer.

7 This module is based and uses some of the material from Course 4 of the four course CCNA (Cisco Certified Networking Associate) Routing and Switching Curriculum. The material for the course is provided in the form of adapted lectures, web?based learning and assessment mechanisms, as well as practical lab activities.