

## MODULE DESCRIPTOR

### Module Title

Introduction To Data Networks

|           |               |             |        |
|-----------|---------------|-------------|--------|
| Reference | CM2521        | Version     | 4      |
| Created   | October 2017  | SCQF Level  | SCQF 8 |
| Approved  | November 2015 | SCQF Points | 15     |
| Amended   | October 2017  | ECTS Points | 7.5    |

### Aims of Module

1. To introduce students to the architecture, structure, functions, components, and models of the Internet and other computer networks. 2. To introduce students to the principles and structure of IP addressing. 3. To introduce students to the fundamental concepts of Ethernet, media and operations.

### Learning Outcomes for Module

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

- 1 Select suitable equipment, and protocols for use in small network.
- 2 Diagnose problems and propose solutions to basic problems in equipment selection, protocol use and configurations in a network.
- 3 Analyse and design IP addressing schemes for a small network.
- 4 Configure a small network.
- 5 Troubleshoot small network.

### Indicative Module Content

Exploring the Network: Communicating in a Network-Centric World, the Network as a Platform, LANs, WANs, and the Internet, The expanding Network. Configuring a Network Operating System: IOS Bootcamp, Getting Basics, Addressing Schemes. Network Protocols and Communications: Network Protocols and Standards, Using Requests for Comments, Moving Data in the Network. Application Layer: Application Layer Protocols, Well-Known Application Layer Protocols and Services. Transport Layer: Transport Layer Protocols, TCP and UDP. Network Layer: Network Layer Protocols, Routing, Routers, Configuring a Cisco Router. IP Addressing: IPv4 Network Addresses, IPv6 Network Addresses, Connectivity Verification. Subnetting IP Networks: Subnetting an IPv4 Network., Addressing Schemes, Design Considerations for IPv6. Network Access: Data Link Layer, Media Access Control, Physical Layer, Network Media. Ethernet: Ethernet Protocol, Address Resolution Protocol, LAN Switches. Network Management and Performance: Create and Grow, Keeping the Network Safe, Basic Network Performance, Managing IOS Configuration Files.

### Module Delivery

This 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   | 72        | N/A       |
| Non-Contact Hours   | 78        | 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, 2, 3 |
| Description: | A closed book online examination. |            |     |                    |         |

#### Component 2

|              |   |            |     |                    |      |
|--------------|---|------------|-----|--------------------|------|
| Type:        | Coursework  | Weighting: | 50% | Outcomes Assessed: | 4, 5 |
| Description: | A practical laboratory exercise associated with the Cisco Course 1. |            |     |                    |      |

### MODULE PERFORMANCE DESCRIPTOR

#### Explanatory Text

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

|             |    | Examination:   |   |   |   |   |   |    |
|-------------|----|--|---|---|---|---|---|----|
|             |    | A  | B | C | D | E | F | NS |
| Coursework: | A  | A  | A | B | B | C | E |    |
|             | B  | A  | B | B | C | C | E |    |
|             | 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 STALLINGS, W. 2013. Data and Computer Communication, 10th ed. New Jersey: Prentice Hall

- 2 This module represents Course 1 of the four course CCNA (Cisco Certified Networking Associate) Routing and Switching Curriculum. The material for the course is provided by Cisco to the University in the form of web-based learning and assessment mechanisms as well as lab equipment in the form of routers and switches for practical training.