

MODULE DESCRIPTOR

Module Title

Computing Network Fundamentals

Reference	CM1132	Version	1
Created	November 2023	SCQF Level	SCQF 7
Approved	April 2024	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

This module aims to provide students with fundamental knowledge in data communications and computer networks, emphasizing the development of skills in establishing data communications links, selecting optimal network configurations, understanding Local Area Networks' routing and switching concepts, and gaining proficiency in essential protocols and processes for managing computer networks.

Learning Outcomes for Module

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

- 1 Acquire an understanding of the key principles governing the organisation and operation of communication networks, utilising domain terminology.
- 2 Apply theoretical knowledge and practical skills to select suitable equipment and protocols for setting up small networks.
- 3 Apply practical skills to configure basic network devices, meeting specified operating characteristics.
- 4 Describe fundamental network behaviour through the examination of captured network traffic.

Indicative Module Content

Fundamentals of network communication, LANs and WANs overview, network operating systems, network access and reference models (OSI and TCP/IP), addressing schemes, IP addressing and Ethernet fundamentals, subnetting IP networks, routing concepts and basic router configuration, switching concepts and basic switch configuration, access control lists (ACLs), standards and best practices, and network traffic and log analysis (e.g., basics of Wireshark and NetFlow).

Module Delivery

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

Indicative Student Workload

	Full Time	Part Time
Contact Hours	40	N/A
Non-Contact Hours	110	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

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

Component 1

Type: Coursework Weighting: 100% Outcomes Assessed: 1, 2, 3, 4

Description: Coursework consisting of both practical and theoretical elements covering all module learning outcomes.

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighting of C1. An overall minimum grade of D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student needs to achieve an A in C1
B	The student needs to achieve a B in C1
C	The student needs to achieve a C in C1
D	The student needs to achieve a D in C1
E	The student needs to achieve an E in C1
F	The student needs to achieve an F in C1
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. (2018). Data and Computer Communications (10th ed.). Pearson.
- 2 Kurose, J. F., & Ross, K. W. (2017). Computer networking: a top-down approach. Pearson.
- 3 Chappell, L. (2018). Wireshark Network Analysis: The Official Wireshark Certified Network Analyst Study Guide.
- 4 Englander, I., & Wong, W. (2021). The architecture of computer hardware, systems software, and networking: An information technology approach. John Wiley & Sons.