

Module Details	
Module Title	Computer Communications and Networks
Module Code	COS5025-B
Academic Year	2022/3
Credits	20
School	Department of Computer Science
FHEQ Level	FHEQ Level 5

Contact Hours	
Type	Hours
Directed Study	152
Laboratories	24
Lectures	24

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims
1. To introduce concepts of data communication with computer networks at different levels and applications. 2. To develop skill in network design and performance evaluation skills. 3. To reinforce the background knowledge with practical experience of computer networks.

Outline Syllabus
(1) Internetworking and the Internet (2) Protocol Architecture (3) Network Topology (4) LAN and W-LAN (5) High-Speed LANs (6) Data Transmission (7) Signal Encoding Techniques (8) Data Link Control (9): Multiple Access Protocols (10) Network Layer (11) Subnetting (12) Routing (13) Transport Layer (14) Application Layer (15) Principles of network security.

Learning Outcomes	
Outcome Number	Description
01	Explain the function of data, signals and the different media used for data communication, signal encoding, and multiplexing; data transmission with data link and transport protocols. Outline the common problems with data transmission. Explain typical computer network topologies and their components by modelling and evaluating their performance in the laboratory. Understand principles of network security.
02	Develop, design, analyse and monitor communication networks. Identify some of the factors driving the need for network security. Have a basic knowledge of the fundamentals of cryptography such as symmetric/asymmetric encryption, digital signatures, hash functions, Securing e-mail, and Securing TCP connections.
03	Demonstrate analytical and problem-solving skills.

Learning, Teaching and Assessment Strategy
A combination of online lectures (SOL Lecture, Learning Obj)/ Laboratory (Lab)/directed study (Dir Study). Concepts, principles & theories explored in formal lectures, practised & demonstrated in labs. Oral feedback is given during Laboratory/online Lectures. The Lab test (EXCOMP) will assess the application of practical skills to the knowledge base of the module using the CISCO Packet Tracer software. The theoretical closed book exam (EXAMC) will assess this and an understanding of the theoretical issues.

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Examination - Closed Book	A timed on campus examination (2 Hrs)	50%
Summative	Computerised examination	An on-campus computer-based assessment. Can refer to exams and tests students take on external platforms (1.5h).	50%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.