

Module specification

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Module Code	COM488
Module Title	CCNA - Introduction to Networking
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100365
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
Stand-alone module aligned to BSc (Hons) Cyber Security for QA and assessment	Option

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	18 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	18 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	08/11/2023
With effect from date	Aug 2024
Date and details of revision	

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Version number	1

Module aims

This module introduces the architecture, structure, functions, components and models of computer networks and the Internet. The Cisco Certified Network Associate (CCNA) - Introduction to Networking material is the focus of study for this module. It uses the OSI and TCP layered models to examine the nature and roles of protocols and services at the application, network, data link and physical layers. The principles and structure of IPv4 and IPv6 addressing and the fundamentals of Ethernet concepts, media and operations are introduced to provide a foundation for the curriculum. The module introduces routing protocols, emphasizing the fundamental concept of routing within networks and the internet.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Describe the principles of networking hardware and software in relation to network layer models.
2	Explain the role of technologies utilised in the infrastructure of computer networks and the internet.
3	Design, plan and build a simple network involving LAN and WAN technologies.
4	Demonstrate and apply the need for addressing and naming schemes of data networks in IPv4 and IPv6 environments.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The module will involve continuous coursework that revolves around real-world scenarios centred on modern networking technologies. Key assessment tasks will focus on network design, implementation, and testing. This includes creating local area networks with suitable IP addressing schemes and configuring switches and routers to establish connectivity within a network topology

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2, 3, 4	Portfolio	100%



Derogations

None

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.

As this module progresses, the strategies will change to best support a diverse learning environment. Initially, the module will start with a heavier reliance on engaging tutor-led lectures, demonstrations, and workshops to ensure that the students get the relevant threshold concepts. As the module continues experiential and peer learning strategies will be encouraged as the students' progress with their portfolio work.

Assessment will occur throughout the module to build student confidence and self-efficacy in relation to applied mathematical and technical concepts.

Indicative Syllabus Outline

Yearly content will be updated to represent the most appropriate content for current industry technologies, but a list of indicative topics could include:

- IPv4 Addressing
- IPv6 Addressing
- Transmission Control Protocol
- User Datagram Protocol
- Routing protocols
- Networking devices; routers and switches.
- Ethernet standards
- Basic switch and end device configuration
- Linking LANs via Wide Area Networks (WANs)
- Network models
- Data Link layer
- Ethernet Switching
- Network layer
- Address Resolution
- Network Security fundamentals

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Cisco Certified Network Associate (CCNA) – Introduction to Networking

Other indicative reading

O. Wendell, *CCNA 200-301 Official Cert Guide Library: Advance Your It Career with Hands-On Learning*, Cisco Press, 2020

L. Peterso, B. Davie, *Computer Networks: A Systems Approach (The Morgan Kaufmann Series in Networking)*, Morgan Kaufmann, 2021

J. Kurose, *Computer Networking: A Top-Down Approach*, Global Edition, Pearson, 2021

