Module Definition Form (MDF)

Module code: MOD009062	**Version:** 1 **Date Amended:** 01/Nov/2022

1. Module Title
Introduction to Networks

2a. Module Leader
James Kadirire

2b. School
School of Computing and Information Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module introduces the fundamental concepts of computer networking, which underpin the World Wide Web (WWW), cybersecurity, AI, software development, business systems, and many other technologies. You'll learn how computer networks operate, including network architectures, models, protocols, and components required to support SMEs and large organisations. You'll also develop your understanding of the 7-Layer OSI Reference Model and the TCP/IP layered model, which form the foundation of almost all modern networks. The purpose and functionality of each of the seven OSI layers (Application, Presentation, Session, Transport, Network, Data Link, and Physical) will be explored in depth.

Each week, you'll engage with key networking topics, reinforced through handson laboratory exercises in two state-of-the-art networking and cybersecurity labs. These labs provide practical experience in constructing and configuring network devices, reflecting current industry practice.

To support your learning, you'll use the Cisco CCNA Introduction to Networks and CompTIA Network+ course materials, both widely recognised by leading technology companies with complex intranets and extranets.

The Introduction to Networks module provides a strong foundation for advanced study in Cybersecurity, Computer Networking, Forensic Computing, and Cloud Computing.

6b. Outline Content

- Data communication principles and devices
- Network standards
- The ISO reference model
- The TCP/IP model
- Physical layer
- Number systems
- Data Link Layer
- Ethernet switching
- Network Layer
- IPv4 addressing
- Transport layer
- Application Layer
- Basic device configuration

6c. Key Texts/Literature
The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources
Students will be given access to two state-of-the-art networking/cybersecurity laboratories with real computer networking kit such as routers and switches and cybersecurity/forensic security racks; Cisco Packet Tracer, a no frills, feature-packed network simulator and visualiser, that can simulate complex network topologies covering networking, internet of things (IoT) and cybersecurity.

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Discuss the role and function of common network devices, protocols and applications
2	Knowledge and Understanding	Evaluate network standards and models to support network communication
3	Knowledge and Understanding	Critically discuss the purpose of the communications layered model and each of its layers
4	Intellectual, practical, affective and transferrable skills	Design an IPv4 addressing scheme suitable for a small Local Area Network
5	Intellectual, practical, affective and transferrable skills	Design a network design suitable for a small Local Area Network demonstrating a full understanding of basic networking concepts
6	Intellectual, practical, affective and transferrable skills	Configure and test networking devices to implement a small Local Area Network

8a. Module Occurrence to which this MDF Refers

Year	Occurrence	Period	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	24	1-3	Lecture 2 hr x 12 weeks
Other teacher managed learning	24	4-6	Laboratory 2 hr x 12 weeks
Student managed learning	252	1-6	1 hr/week preparation for, and reflection on, laboratories, 2 hrs/week undertaking homework exercises, 80 hrs in total preparing for the assignment, 100 hrs in total for background reading and preparation for the in-class test
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1-3	60 (%)	Fine Grade	30 (%)
In-class test, 1 hour 30 minutes, equivalent to 3600 words					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Coursework	4-6	40 (%)	Fine Grade	30 (%)
Coursework assignment equivalent to 2400 words					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]