Module Definition Form (MDF)

Module code: MOD003262	**Version:** 2 **Date Amended:** 28/Feb/2020

1. Module Title
Network Routing

2a. Module Leader
Edward Deacon

2b. School
School of Computing and Information Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisite:	MOD002580	Computer Systems	Compulsory
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Modern networks continue to evolve to keep pace with the changing way organizations carry out their daily business. Users now expect instant access to company resources from anywhere and at any time. These resources not only include traditional data but also video and voice. There is also an increasing need for collaboration technologies that allow real-time sharing of resources between multiple remote individuals as though they were at the same physical location.

The global Internet is a collection of networks, termed Autonomous Systems (AS), that are linked together via high-speed communication links provided by telecommunication organisations.

Your studies will focus on the key concepts and protocols of network routing. We will cover basic routing and switching concepts, including static and default routing, Virtual Local Area Networks (VLANs), and inter-VLANs routing. Dynamic protocols such as RIP and OSPF will be discussed and explored. Network security using Access Control Lists will be introduced and the wider issues of network and Internet security considered.

You will study in classes which contain a mixture of theory, delivered through a series of lectures, and practical implementations, delivered through a series of guided laboratory exercises. In the lab sessions you will gain a deep understanding of routing and switching concepts and acquire hands-on-skills using advanced network simulation tools that comply with industry standard router platforms. As part of studying this module you will be able to access on-line materials including the Cisco Networking Academy online curriculum and access specialist laboratory resources.

6b. Outline Content

- Introduction to Switched Networks - Basic Switching Concepts and Configuration - VLANs - Routing Concepts - Inter-VLAN Routing - Static Routing - Routing Dynamically - Single-Area OSPF - Network Security issues including Access Control Lists

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 the on-line web based curriculum and relevant networking laboratory facilities.

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	Compare and contrast Distance-Vector and Link-state routing protocols
2	Knowledge and Understanding	Apply appropriate routing protocols in a relevant organisational domain
3	Intellectual, practical, affective and transferrable skills	Design a small routable network comprising LAN and WAN components
4	Intellectual, practical, affective and transferrable skills	Configure routers to implement small routable networks

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	12	1,2,3	Lecture 1 hr x 12 weeks
Other teacher managed learning	24	4	Laboratory 2 hr x 12 weeks
Student managed learning	114	1-4	Background reading of on-line curriculum and completing lab logbook
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1-4	100 (%)	Fine Grade	30 (%)

The module is assessed by coursework assignment, which will test student's application of networking knowledge and skills through their ability to design, implement and test a networking solution comprising both local and wide area networks. (equivalent to 3000 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]