Anglia Ruskin University

Module Definition Form (MDF)

Module code: MOD005453	**Version:** 1 **Date Amended:** 04/May/2016

1. Module Title
Network Scaling

2a. Module Leader
David Cameron

2b. Department
Department of Computing and Technology

2c. Faculty
Faculty of Science and Technology

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	**Module Code**	**Module Name**	**Condition**
Pre-requisite:	MOD005436	Networking Essentials	Compulsory
Pre-requisite:	MOD005428	Advanced Network Routing	Compulsory
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module is based on the CCNA 3 element of the Cisco Routing & Switching course. It builds on the key concepts of network switching and routing by focusing on the architecture, components, and operations of routers and switches in a larger and more complex network.

The student will learn how to configure routers and switches for advanced functionality as well as troubleshoot operational issues with areas such as Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS) & Spanning Tree Protocol (STP).

The course will look at the operations and benefits of link aggregation and Cisco VLAN Trunk Protocol (VTP) and offer opportunities to compare and troubleshoot both STP & Rapid Spanning Tree Protocol (RSTP) operations.

By the end of this module, the student will be able to configure and troubleshoot routers and switches to resolve common issues with Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), STP, and VTP in both IPv4 and IPv6 networks.

The module is delivered as a mixture of theory, delivered through a series of lectures, and practical implementation, delivered through a series of guided laboratory exercises. In the lab sessions students will gain deep understanding on the routing and switching concepts and acquire hands-on-skills using advanced network simulation tools that comply with industry standard router platforms.

Students studying this module will be able to access on-line materials including the Cisco Networking Academy online curriculum, the VLE, and access a specialist laboratory.

Assessment is through a closed-book exam and the demonstration of a network built and documented to suit a given scenario.

6b. Outline Content

Configure and troubleshoot DHCP and DNS operations for IPv4 and IPv6

Describe the operations and benefits of the Spanning Tree Protocol (STP)

Configure and troubleshoot STP operations

Describe the operations and benefits of link aggregation and Cisco VLAN Trunk Protocol (VTP)

Configure and troubleshoot VTP, STP, and RSTP

Configure and troubleshoot basic operations of routers in a complex routed network for IPv4 and IPv6

Configure and troubleshoot advanced operations of routers and implement RIP, OSPF, and

EIGRP routing protocols for IPv4 and IPv6

6c. Key Texts/Literature

The reading list to support this module is available at: http://readinglists.anglia.ac.uk/modules/mod005453

6d. Specialist Learning Resources

Packet Tracer Software

Specialist Networking Lab

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 advanced 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
2017/8	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	1,2,3,4	Lecture 1 hr x 12 weeks
Other teacher managed learning	24	1,2,3,4	Practical 2hr x 12 weeks
Student managed learning	114	1,2,3,4	Assignment preparation and reading
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	3,4	50 (%)	Fine Grade	30 (%)
Written assessment with practical element (1,500 word equivalent)					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Examination	1,2	50 (%)	Fine Grade	30 (%)
1hr 15, closed book (1,500 word equivalent)					

In order to pass this module, students are required to achieve an overall mark of 40%.
In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment of as specified above
(b) pass any pass/fail elements