

Module Specification

1. Factual information			
Module title	T216A: Cisco networking (CCNA)-A	Level	2
Module tutor	TBA	Credit value	30
Module type	Taught	Notional learning hours	8

2. Rationale for the module and its links with other modules
<p>Students will begin with Cisco networking (CCNA) (T216). This will give them the knowledge, understanding, and skills needed to configure a LAN/WAN using Cisco equipment (which should also leave you well prepared for the industry-standard CCNA certification examination) They will also gain hands-on practical experience of configuring networks at four compulsory day schools.</p> <p>Cisco Systems are market leaders in supplying networking equipment for the internet. They also have a well-established educational programme for network professionals.</p> <p>The Arab Open University offers the Cisco Certified Network Associate “CCNA” (ICND1) Version 5 curriculum, which provides the knowledge, understanding, and skills needed to configure a LAN/WAN using Cisco equipment.</p> <p>The module is composed of two modules:</p> <ul style="list-style-type: none"> • Introduction to Networks • Routing and switching essentials

3. Aims of the module
<p>The module aims to:</p> <ul style="list-style-type: none"> • Provide the student with the knowledge, understanding, and skills needed to configure a LAN/WAN using Cisco equipment. • Provide the student with hands-on experience of configuring networks.

4. Pre-requisite modules or specified entry requirements
The student should have completed the study of the TM112 module.

5. Intended learning outcomes	
A. Knowledge and understanding	Learning and teaching strategy
<p>After studying the module the student will be able to:</p> <p>A1. Describe the role of protocol layers in data networks, and describe the devices and services used to support communications in data networks and the Internet</p> <p>A2. Describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments</p> <p>A3. Describe Ethernet and basic switching concepts, as well as the operation of Cisco switches</p> <p>A4. Explain enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q</p> <p>A5. Describe the purpose, nature, and operations of a router, routing tables, and the route lookup process</p> <p>A6. Describe how VLANs create logically separate networks and how routing occurs between them</p> <p>A7. Describe dynamic routing protocols, distance vector routing protocols, and link-state routing protocols</p> <p>A8. Describe the operations and benefits of access control lists (ACLs) Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS), and Network Address Translation (NAT)</p>	<ul style="list-style-type: none"> • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

B. Cognitive skills	Learning and teaching strategy
<p>After studying the module the student will be able to:</p> <p>B1. Design, calculate, and apply subnet masks and addresses to fulfil given requirements in IPv4 and IPv6 network</p> <p>B2. Build simple Ethernet network using routers and switches</p> <p>B3. Troubleshoot and monitor networks</p>	<ul style="list-style-type: none"> • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

C. Practical and professional skills	Learning and teaching strategy
<p>After studying the module the student will be able to:</p> <p>C1. Build a simple Ethernet network using routers and switches</p> <p>C2. Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations</p> <p>C3. Utilize common network utilities to verify small network operations and analyze data traffic</p> <p>C4. Configure, monitor and troubleshoot: basic operations of a small switched network, static routing, default routing, basic operations of routers in a small routed network (RIPv1, RIPv2 and OSPF protocols (single-area OSPF)), VLANs, inter-VLAN routing, ACLs for IPv4 and IPv6, and NAT</p>	<ul style="list-style-type: none"> • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

D. Key transferable skills	Learning and teaching strategy
<p>After studying the module the student will be able to:</p> <p>D1. Build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.</p> <p>D2. Configure and troubleshoot routers and switches, and resolve common issues with RIPv1, RIPv2, single-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.</p>	<ul style="list-style-type: none"> • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

6. Indicative content.
<p>The study material is provided by Cisco at their website</p> <p>CCNA1- Introduction to networks</p> <ul style="list-style-type: none"> • CH1: Exploring the Network • CH2: Configuring a Network Operating System • CH3: Network Protocols and communications • CH4: Network Access • CH5: Ethernet • CH6: Network Layer • CH7: IP Addressing • CH8: Subnetting IP Networks • CH9: Transport Layer • CH10: Application Layer • CH11: Build a Small Network <p>CCNA2- Routing and Switching essentials</p> <ul style="list-style-type: none"> • CH1: Introduction to Switched Networks • CH2: Basic Switching Concepts and Configuration

6. Indicative content.

- CH3: VLANs
- CH4: Routing Concepts
- CH5: Inter-VLAN Routing
- CH6: Static Routing
- CH7: Routing Dynamically
- CH8: Single-Area OSPF
- CH9: Access Controls Lists
- CH10: DHCP
- CH11: Network Address Translation for IPv4

7. Assessment strategy, assessment methods and their relative weightings

TMA Work: 20%
 MTA: 30%
 Exam: 50%

8. Mapping of assessment tasks to learning outcomes

Assessment tasks	Learning Outcomes																
	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	C1	C2	C3	C4	D1	D2
TMA	√	√	√	√	√				√	√	√	√	√	√	√	√	√
MTA	√	√	√		√				√	√	√		√		√	√	√
Final Exam			√	√	√	√	√	√	√		√		√		√	√	√

9. Teaching staff associated with the module		
Tutor's name and contact details	Contact hours	
TBA		

10. Key reading list				
Author	Year	Title	Publisher	Location
Module adopted from OU, UK.	2013	CCNA Routing and Switching	Cisco	Cisco website www.netacad.com

11. Other indicative text (e.g. websites)
Learning Management System (http://lms.arabou.edu.kw/module)