

Module Code:	COM428
---------------------	--------

Module Title:	CCNA Routing & Switching - Introduction to Networks
----------------------	---

Level:	4	Credit Value:	20
---------------	---	----------------------	----

Cost Centre(s):	GACP	JACS3 code:	I120
		HECoS code:	100365

Faculty :	Arts, Science and Technology	Module Leader:	Dr. Paul Comerford
------------------	------------------------------	-----------------------	--------------------

Scheduled learning and teaching hours	36 hrs
Guided independent study	164 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
BSc (Hons) Computer Science	<input type="checkbox"/>	✓
BSc (Hons) Computing	<input type="checkbox"/>	✓
BSc (Hons) Computer Networks and Security	<input type="checkbox"/>	✓
BSc (Hons) Cyber Security	<input type="checkbox"/>	✓
BSc (Hons) Computer Science (with Industrial Placement)	<input type="checkbox"/>	✓
BSc (Hons) Computing (with Industrial Placement)	<input type="checkbox"/>	✓
BSc (Hons) Computer Networks and Security (with Industrial Placement)	<input type="checkbox"/>	✓
BSc (Hons) Cyber Security (with Industrial Placement)	<input type="checkbox"/>	✓
Delivery as standalone or part of CPD package	<input type="checkbox"/>	✓

Pre-requisites
None

Office use only

Initial approval: 28/11/2019

With effect from: 01/09/2019

Date and details of revision:

Version no:1

Version no:

Module Aims

This module introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, participants will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

Intended Learning Outcomes

Key skills for employability

KS1	Written, oral and media communication skills
KS2	Leadership, team working and networking skills
KS3	Opportunity, creativity and problem solving skills
KS4	Information technology skills and digital literacy
KS5	Information management skills
KS6	Research skills
KS7	Intercultural and sustainability skills
KS8	Career management skills
KS9	Learning to learn (managing personal and professional development, self-management)
KS10	Numeracy

At the end of this module, students will be able to

Key Skills

At the end of this module, students will be able to		Key Skills	
1	Identify and classify the devices and services used to support communications in data networks and the Internet.	KS1	KS2
		KS3	KS4
		KS5	
2	Explain fundamental Ethernet concepts such as media, services, and operations.	KS1	KS2
		KS3	KS4
		KS5	
3	Understand and describe the role of protocol layers in data networks.	KS1	KS2
		KS3	KS4
		KS5	
4	Understand and describe the importance of addressing and naming schemes of data networks in IPv4 and IPv6 environments.	KS1	KS2
		KS3	KS4
		KS5	
5	Design, plan and implement a simple IPv4 and IPv6 network using routers and switches.	KS1	KS2
		KS3	KS4
		KS5	

Transferable skills and other attributes

--

Derogations

None

Assessment:

Indicative Assessment Tasks:

Students undertaking this module are registered for the Cisco Networking Academy system and use is made of this material for the assessment. Assessment 1 is the Cisco on-line test set by the Academy but administered by Glyndwr University.

Assessment 2 - Practical exercise that takes place in the Glyndwr networking laboratory.

This typically requires students to work in groups of 2 where they design a network, build it on real equipment, troubleshoot and demonstrate the operation to the supervisor. The exercise is based on the material studied as part of the Cisco CCNA Routing and Switching Introduction to Networks.

Assessment 3 – Individually students produce a report based on the material studied applied to a specific scenario which may well be the basis of the practical exercise.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1-4	In-class test	40	1.15	
2	5	Practical	40	2 hours	
3	1-4	Coursework	20	2 hours	1000

Learning and Teaching Strategies:

The module is taught using a structured programme of online learning, mini-seminars, tutorials, practical exercises and student-centred learning specifically:

Self-directed learning using on-line material and lectures to supplement on-line material

On-line multiple choice tests to give formative feedback

Lab sessions to gain practical networking experience and re-enforce theory Individual assignment work as part lab work and skills test

Web based research

Syllabus outline:

Explore the Network

Configure a Network Operating System

Network Protocols and Communications

Network Access

Ethernet

Network Layer

IP Addressing

Subnetting IP Networks

Transport Layer

Application Layer

Build a Small Network

Indicative Bibliography:
Essential reading
Odom, W. (2016), <i>CCNA Routing and Switching 200-125 Official Cert Guide</i> . Indianapolis: Cisco Press.
Other indicative reading