

Module Code:	COM442
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Module Title:	CCNA Routing & Switching - Connecting Networks
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Level:	4	Credit Value:	20
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Cost Centre(s):	GACP	JACS3 code:	I120
		HECoS code:	100365

Faculty:	Arts, Science and Technology	Module Leader:	Dr. Paul Comerford
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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"/>	<input checked="" type="checkbox"/>
BSc (Hons) Computing	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Computer Networks and Security	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Cyber Security	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Computer Science (with Industrial Placement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Computing (with Industrial Placement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Computer Networks and Security (with Industrial Placement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BSc (Hons) Cyber Security (with Industrial Placement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Delivery as standalone or part of CPD package	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: 28/11/2018
 With effect from: 01/09/2019
 Date and details of revision:

Version no:1

Version no:

Module Aims

This module covers wide area network (WAN) technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. The configuration and troubleshooting of network devices and resolving of common issues with data link protocols. Students will also develop the knowledge and skills needed to implement virtual private network (VPN) operations in a complex network.

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	Evaluate the different WAN technologies and their benefits including broadband connections Analyse first hop redundancy protocols (HSRP) in a switched network.	KS1	KS2
		KS3	KS4
		KS5	
2	Design, plan and implement virtual private networks (VPNs), tunnelling and NAT operations.	KS1	KS2
		KS3	KS4
		KS5	
3	Select appropriate Monitoring tools including syslog, SNMP, and NetFlow.	KS1	KS2
		KS3	KS4
		KS5	
4	Analyse different network architecture including Borderless networks, Data centres & virtualization, Collaboration technology & solutions.	KS1	KS2
		KS3	KS4
		KS5	

Transferable skills and other attributes

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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 involving more complex functionality e.g. NAT, Tunnels etc., 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 CCNA Routing and Switching: Connecting 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 or an example taken from a typical business environment.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1-3,4,5	In-class test	40	1.25 hours	
2	2	Practical	40	2 hours	
3	4,5	Coursework	20		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:

WAN Concepts
 Point-to-Point Connections
 Branch Connections
 Access Control Lists
 Network Security and Monitoring
 Quality of Service
 Network Evolution
 Network Troubleshooting

Indicative Bibliography:
Essential reading
CCNA Routing and Switching 200-125 Official Cert Guide Library Hardcover –2016: Ciscopress
Other indicative reading