

MODULE SPECIFICATION FORM

Module Title: CCNA Routing and Switching: Connecting Networks	Level: 5	Credit Value: 20
--	----------	------------------

Module code: COM531 (if known)	Cost Centre: GACP	JACS3 code: 1120
-----------------------------------	-------------------	------------------

Trimester(s) in which to be offered: 1/2	With effect from: Sept 2018
--	-----------------------------

Office use only: To be completed by AQSU:	Date approved: September 2014 Date revised: October 2017 Version no: 2
---	--

Existing/New: New	Title of module being replaced (if any): N/A
-------------------	--

Originating Academic Department: Computing	Module Leader: Nigel Houlden
--	------------------------------

Module duration (total hours): 200 Scheduled learning & teaching hours: 48 Lecture Practical; classes & workshop Independent study hours: 152 Placement hours:	Status: core/option/elective (identify programme where appropriate): Option : BSc (Hons) Computing BSc (Hons) Computer Networks & Security BSc (Hons) Telecommunications BSc (Hons) Intelligent Computing BSc (Hons) Computing Philosophy BSc (Hons) Computer Science BSc (Hons) Informatics
---	---

Programme(s) in which to be offered: BSc (Hons) Computing BSc (Hons) Computer Networks & Security BSc (Hons) Telecommunications BSc (Hons) Intelligent Computing BSc (Hons) Computing Philosophy BSc (Hons) Computer Science BSc (Hons) Informatics	Pre-requisites per programme (between levels): None
--	---

Module Aims: (Include any skills and attributes which may be developed but are not necessarily assessed.)

This module covers 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:

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

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), tunneling 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

Key skills for employability

1. Written, oral and media communication skills
2. Leadership, team working and networking skills
3. Opportunity, creativity and problem solving skills
4. Information technology skills and digital literacy
5. Information management skills
6. Research skills
7. Intercultural and sustainability skills
8. Career management skills
9. Learning to learn (managing personal and professional development, self management)
10. Numeracy

Assessment:

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 hrs	
2	2	In-class test	40%	2 hrs	
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:

- 1: Hierarchical Network Design
- 2: Connecting to the WAN
- 3: Point-to-Point Connections
- 4: Frame Relay
- 5: Network Address Translation for IPv4
- 6: Broadband Solutions
- 7: Securing Site-to-Site Connectivity
- 8: Monitoring the Network
- 9: Troubleshooting the Network

Bibliography:

Essential reading:

Wendell Odom (2013) Cisco CCNA Routing and Switching 200-120 Official Cert Guide
Library: Cisco press

Other indicative reading: