MODULE SPECIFICATION PROFORMA

Module Code:	COM651

Module Title:	Managing Networks and Systems

Level:	6	**Credit Value:**	20

Cost Centre(s):	GACP	JACS3 **code**: HECoS code:	II20 100365

Faculty:	Arts, Science and Technology	**Module Leader:**	Nigel Houlden

Scheduled learning and teaching hours	24 hrs
Guided independent study	176 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 Networks and Security	✓	☐
BSc (Hons) Computer Networks and Security (with Industrial Placement)	✓	☐

Pre-requisites
None.

Office use only
Initial approval: 03/04/2019 Version no:1
With effect from: 01/09/2021
Date and details of revision: Approved by APSC March 19 Version no:

Module Aims

This module aims to introduce students to, and provide them with theory and practical experience in the management of computer networks and systems. Students will, through a combination of exercise, simulation and real-world configuration, work with network equipment understanding how design, law and regulation ensure computer networks and systems are secure by design and by default.

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	
1	Demonstrate an understanding and application of regulation relating to network and systems privacy and security.	KS1	KS2
		KS3	KS4
		KS5	KS10
2	Provide students with an insight into cutting-edge and emergent network technology management.	KS1	KS2
		KS3	KS4
		KS5	KS10
3	Identify and evaluate problems and solutions in terms of their application and relevance.	KS1	KS2
		KS3	KS4
		KS5	KS10
4	The application of appropriate routing and security techniques.	KS3	KS4
		KS6	KS10

Transferable skills and other attributes

Students will continue to develop their understanding and application of technology and regulations.

Derogations

None.

Assessment:

Indicative Assessment Tasks:

The Report element of the assignment will be to produce a paper in an appropriate specification such as IEEE, covering a current topic in networking management. The second element will be a test of the application of practical taught throughout the module.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1 2 3	Report	50		3,000
2	4	Practical	50	2 hours	

Learning and Teaching Strategies:

The delivery for the module will consist primarily of lecture and lab work, split approximately 50/50. However, the time will be used flexibly, when pertinent, to allow other modes of learning to be integrated, such as tutorials, guest speakers, or site visits. Module delivery will be supported by the use of the University's Virtual Learning Environment (VLE).

Lectures will be used to deliver the key theories and principles of the module, supported by reflection and practice of these through lab sessions and discussion.

Labs will provide students with the opportunity to put their knowledge and theories into practice, coding solutions in a relevant computer programming language, implementing algorithms on live networks and responding to exercises and briefs that form part of the on-going module portfolio assessment. Students are expected to work in small groups during lab sessions. Problems and scenarios will start off reasonably constrained, but will increase in complexity, scope, and duration as the module advances.
An emphasis will be placed on students synthesising information from a complex, and often contradictory, set of data sources. Local industrial contacts will be used to ensure currency.

Syllabus outline:

Network Modelling/Simulation/Optimisation
Addressing Schemes
Route Optimisation / redistribution
Networking Algorithms
Multicast Routing
QoS
Design
Connectivity Routing
Advanced Network Management (SNMP, Netflow, Wireshark)
Regulation frameworks (GDPR, PECR, NIS)

New technology and regulations will be added/updated year upon year.

Indicative Bibliography:

Essential reading

Subramanian, M (2013). *Network Management: Principles and Practices. India: Pearson Education.*

Olifer, N. & Olifer, V., 2005. *Computer Networks: Principles, Technologies and Protocols for Network Design*. John Wiley and Sons.

Other indicative reading

Chapple, M. & Gibson, D (2015). CISSP Official Study Guide, Sybex; 7th edition