MODULE SPECIFICATION

Module Code:	CONL716

Module Title:	Wireless Technologies

Level:	7	**Credit Value:**	15

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

Faculty:	FAST	**Module Leader:**	Nigel Houlden

Scheduled learning and teaching hours	15 hrs
Guided independent study	135 hrs
Placement	0 hrs
Module duration (total hours)	150 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
MSc Computer Science with Networking	✓	☐

Pre-requisites
Studied CONL701 Critical Research for Postgraduate Study

Office use only
Initial approval: 04/09/2019 Version no:1
With effect from: 01/01/2020
Date and details of revision: Version no:

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Module Aims
This module will introduce students to the wireless networking principles and practices underpinning the rapid growth in personal mobile communications. By studying technologies such as WiFi, Bluetooth and mobile networks as well as the principles of wireless communications, students will be able to select, justify and apply technologies within appropriate contexts.

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	Make informed judgements of common techniques used in wireless communications technologies.	KS2	KS3
		KS4	KS6
2	Critically evaluate current and emerging developments in wireless networks.	KS1	KS4
		KS6	
3	Extend and improve strategies for implementing wireless technologies and dealing with communications problems in real time.	KS2	KS3
		KS4	KS10
4	Select, identify and justify appropriate wireless technologies for different situations.	KS3	KS5
		KS6	
5	Reflect upon applications of wireless communications.	KS2	KS3
		KS5	KS6

Transferable skills and other attributes

Analysis and design skills

Critical thinking and evaluation

Organisation and time management

Derogations

None

Assessment:

Indicative Assessment Tasks:

Students will complete two coursework assessments focusing on the application of wireless communications technologies within organisational environments. These will be followed by a final piece of written report demonstrating their ability to apply their knowledge gained from earlier weeks to a case study situation involving the selection and justification of wireless networking technologies.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration or Word count (or equivalent if appropriate)
1	1	Coursework	25%	750 words
2	2,3	Coursework	25%	750 words
3	4,5	Report	50%	1,500 words

Learning and Teaching Strategies:

The overall learning and teaching strategy is one of guided independent study requiring ongoing student engagement. Online material will provide the foundation of the learning resources, requiring the students to login and engage on a regular basis throughout the eight-week period of the module. There will be a mix of suggested readings, discussions and interactive content containing embedded digital media and self-checks for students to complete as they work through the material and undertake the assessment tasks. The use of a range digital tools via the virtual learning environment together with additional sources of reading will also be utilised to accommodate learning styles. There is access to a helpline for additional support and chat facilities through Canvas for messaging and responding.

Syllabus outline:

1. Fundamentals of computer networks and protocols
2. Signal transmission and encoding
3. Coding and error control
4. WiFi networks
5. Bluetooth and near field technologies
6. Mobile 3G/4G/5G networks
7. Long range communications

Indicative Bibliography:

Essential reading

Beard, C. and Stallings, W. (2015) *Wireless Communication Networks and Systems.* Pearson.

Other indicative reading

Comer, D.E. and Droms, R.E. (2014) *Computer Networks and Internets.* 6th ed. Boston: Pearson

Dye, M., McDonald R. and Rufi, A. (2008) *Network Fundamental: CCNA Exploration Companion Guide.* Cisco Press.

Fitzgerald, J. (2014) *Business, Data Communications and Networking.* 12th ed. Hoboken, NJ: Wiley.

Forouzan, B.A. (2012) *Data Communications Science.* 5th ed. New York: McGraw-Hill

Gralla, P. (2006) *How the Internet Works.* 8th ed. Indianapolis, IN: Que.

Graziani, R. and Johnson, A. (2012) *Routing Protocols and Concepts. CCNA Exploration Companion Guide.* Cisco Press.

Odom, W. (2016) *CCNA Routing and Switching 200-125 Official Cert Guide.* Indianapolis: Ciscopress.

Stallings, W (2013*) Data and Computer Communications.* 10th Ed. Pearson.