

<b>Title of Module: Business Computer Networks</b>			
<b>Code: COMP11043</b>	<b>SCQF Level: 11</b> (Scottish Credit and Qualifications Framework)	<b>Credit Points: 20</b>	<b>ECTS: 10</b> (European Credit Transfer Scheme)
<b>School:</b>	School of Computing, Engineering and Physical Sciences		
<b>Module Co-ordinator:</b>	Costas Iliopoulos		
<b>Summary of Module</b>			
<p>The module focuses on developing students' capabilities to allow them to contribute effectively to the planning, design, development, acquisition, implementation, management and evaluation of modern business computer networks.</p> <p>The module examines and evaluates a considerable range of concepts, principles, models, methodologies, protocols and technologies that underpin modern, technology-driven, business computer networking. Importantly, the module also identifies, discusses, and critically reflects on design, implementation and utilisation issues relating to computer networks in business and industry.</p> <p>An extensive array of communication concepts, protocols and networking technologies are discussed at length, with a key focus on the TCP/IP stack of protocols and related technologies. Their applicability and relevance in addressing the needs of modern business and industry are also considered. Best practices are introduced, as well as ways of improving network performance.</p> <p>Current and emerging trends in the field of business computer networking are also introduced as a matter of course, and their scope, technological and business benefits, and impact are also discussed. In this context, developments in areas such as optical and wireless networking, virtualisation trends such as VLANs and VPNs, software defined networking (SDN), cloud networking, cloud computing and cloud-based services, next generation networking and emerging communication protocols are introduced, contextualised and evaluated.</p> <p>Undertaking this module will help the student develop a range of <b>graduate attributes</b> including: critical &amp; analytical thinking, evaluation skills, problem solving, research skills, autonomous working, collaborating, effective communication and ambition to succeed.</p>			

<b>Module Delivery Method</b>					
<b>Face-To-Face</b>	<b>Blended</b>	<b>Fully Online</b>	<b>HybridC</b>	<b>HybridO</b>	<b>Work-based Learning</b>
✓	✓	✓			
<p><b>Face-To-Face</b> Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.</p> <p><b>Blended</b> A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations</p>					

**Fully Online**

Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

**HybridC**

Online with mandatory face-to-face learning on Campus

**HybridO**

Online with optional face-to-face learning on Campus

**Work-based Learning**

Learning activities where the main location for the learning experience is in the workplace.

<b>Campus(es) for Module Delivery</b>
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The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓					✓	

<b>Term(s) for Module Delivery</b>
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(Provided viable student numbers permit).

Term 1	✓	Term 2	✓	Term 3	✓
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<b>Learning Outcomes: (maximum of 5 statements)</b>
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On successful completion of this module the student will be able to:

L1. Demonstrate systematic knowledge and a critical understanding of the concepts, principles, models, methodologies, protocols and technologies that underpin the creation, operation and management of contemporary business computer networks

L2. Demonstrate professional level abilities and practices in investigating, analysing and defining requirements for the successful introduction of appropriate and viable, business driven, network-based solutions

L3. Demonstrate extensive knowledge and abilities in designing and modelling of business computer networks

L4. Demonstrate critical abilities in developing strategies to support the planning, development, acquisition, implementation, integration, management and evaluation of business computer networks

<b>Employability Skills and Personal Development Planning (PDP) Skills</b>
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<b>SCQF Headings</b>	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 11.  A critical understanding of contemporary networking concepts, principles, protocols, models, methodologies and their use in a business context

	A critical understanding of the functionality and use of hardware based networking devices and technologies in creating business computer networks	
Practice: Applied Knowledge and Understanding	<p>SCQF Level 11.</p> <p>Critically analyse business requirements and use appropriate methodologies and techniques to design and model network-based &amp; technology-driven solutions for a range of business scenarios</p> <p>Critically apply relevant networking approaches, methodologies and technologies to satisfy specific business needs and propose appropriate, technology driven and business-aware solutions</p>	
Generic Cognitive skills	<p>SCQF Level 11.</p> <p>Apply critical analysis, knowledge and judgment to evaluate networking solutions in a variety of business settings</p> <p>Develop abilities in bringing together information from a variety of sources, including academic and technical publications, and analyse, evaluate and contextualise it</p>	
Communication, ICT and Numeracy Skills	<p>SCQF Level 11.</p> <p>A critical understanding and an ability to communicate effectively using a range of print and electronic communication methods for academic and professional audiences</p>	
Autonomy, Accountability and Working with others	<p>SCQF Level 11.</p> <p>Demonstrate an ability to identify and address personal learning needs</p> <p>Exercise a substantial ability to work autonomously or in group activities, demonstrating critical inquiry in producing quality work, underpinned by rigorous investigation</p>	
<b>Pre-requisites:</b>	Before undertaking this module the student should have undertaken the following:	
	<b>Module Code:</b>	<b>Module Title:</b>
	<b>Other:</b>	
<b>Co-requisites</b>	<b>Module Code:</b>	<b>Module Title:</b>

\* Indicates that module descriptor is not published.

<b>Learning and Teaching</b>
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<b>Learning Activities</b> During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	<b>Student Learning Hours</b> (Normally totalling 200 hours): <small>(Note: Learning hours include both contact hours and hours spent on other learning activities)</small>
Lecture/Core Content Delivery	24
Laboratory/Practical Demonstration/Workshop	8
Tutorial/Synchronous Support Activity	10
Asynchronous Class Activity	40
Independent Study	118
	200 Hours Total

**\*\*Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

**Required Resources:** Consultation of the following resources is an integral element of the module and material from these resources will be included in the assessment process.

Business Data Communications and Networking, Alan Dennis and Alexandra Durcikova, Wiley, 2014, 12th edition

Module resources on Moodle and a defined selection of relevant documents and other resources, accessible via the UWS e-library collections or available on the Internet.

A collection of networking utilities, training simulation materials and audio-visual materials are also used to enrich the student learning experience.

**Extension Resources:** Consultation of the following resources is recommended.

Computer and Communication Networks, Nader F. Mir, Prentice Hall, 2015

Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS, Michael J. Kavis, Wiley, 2014

Cloud Management and Security, Imad M. Abbadi, Wiley, 2014

Cloud Computing: Concepts, Technology & Architecture, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Prentice Hall, 2013

Computer Networking: A Top-Down Approach, James Kurose and Keith Ross, Addison Wesley, 2012, 6th edition

Data Communications and Networking, Behrouz Forouzan, McGraw-Hill, 2012, 5th edition

Enterprise Cloud Computing: Technology, Architecture, Applications, Gautam Shroff,

Cambridge University Press, 2010, 1st edition

Private Cloud Computing: Consolidation, Virtualization, and Service-Oriented Infrastructure, Stephen Smoot and Nam Tan, Morgan Kaufmann, 2011, 1st edition

(\*\*N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk\*) to wait until the start of session for confirmation of the most up-to-date material)

### Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: [Academic engagement procedure](#)

### Supplemental Information

<b>Programme Board</b>	Computing
<b>Assessment Results (Pass/Fail)</b>	No
<b>Subject Panel</b>	Business & Applied Computing
<b>Moderator</b>	Tony Gurney
<b>External Examiner</b>	C Luo
<b>Accreditation Details</b>	BCS
<b>Version Number</b>	2.09

### Assessment: (also refer to Assessment Outcomes Grids below)

Class Test (Written) (40%)

Written Report (60%)

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.  
(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

### Assessment Outcome Grids (Footnote A.)

Component 1						
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)	✓	✓	✓	✓	40	0

<b>Component 2</b>						
<b>Assessment Type (Footnote B.)</b>	<b>Learning Outcome (1)</b>	<b>Learning Outcome (2)</b>	<b>Learning Outcome (3)</b>	<b>Learning Outcome (4)</b>	<b>Weighting (%) of Assessment Element</b>	<b>Timetabled Contact Hours</b>
Case study	✓	✓	✓	✓	60	0
<b>Combined Total For All Components</b>					100%	0 hours

#### Footnotes

- A. Referred to within Assessment Section above
- B. Identified in the Learning Outcome Section above

#### Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note). This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

#### **Equality and Diversity**

The module teaching team work very closely with the School of Computing's Enabling Support Coordinator, as well as Student Services, the Enabling Support Team, the Centre for Academic Practice and Development, the Quality and Enhancement Unit, and Human Resources to ensure a commitment to all students (and staff) associated with the programme, regardless of age, disability, gender, race, religion or belief or sexual orientation.

The module teaching team make very close reference to the University's Equality and Diversity policy: <http://www.paisley.ac.uk/schoolsdepts/equality/documents/EandD-Strategy.pdf>

Because this module is delivered by open, distance and electronic mode of learning, very close reference is also made to accessibility related issues through: The University of Paisley's Special Needs Website: <http://www.paisley.ac.uk/specialneeds/> as well as Special Educational Needs Disability Act (SENDA):

<http://www.opsi.gov.uk/acts2001/20010010.htm> and TechDis Service web site: <http://www.techdis.ac.uk>

[UWS Equality and Diversity Policy](#)

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)