

# University of the West of Scotland

## Undergraduate Programme Specification

**Session: 2024/25**

**Last Modified: 2024-06-12**

**Status: Published**

1	<b>Named Award Title:</b>	BSc (Hons) Computer Networking
2	<b>Award Title for Each Award: <sup>1</sup></b>	BSc Honours Computer Networking BSc Honours Computer Networking (Sandwich) BSc Computer Networking BSc Computer Networking DipHE Computer Networking CertHE Computer Networking
3	<b>Date of Validation / Approval:</b>	March 2020 (most recent validation)
4	<b>Details of Cohorts Applies to:</b>	Students entering years 1-3 from 2024/25  Students who entered third year in 2023/24 will continue to follow previous programme specification – transitional arrangements are listed in this document.
5	<b>Awarding Institution/Body:</b>	<b>University of the West of Scotland</b>
6	<b>Teaching Institution(s)<sup>2</sup>:</b>	<b>University of the West of Scotland</b>  <b>New College Lanarkshire (collaborative, L9 only)</b>
7	<b>Language of Instruction &amp; Examination:</b>	<b>English</b>
8	<b>Award Accredited By:</b>	British Computer Society
9a	<b>Maximum Period of Registration:</b>	6 years full time, 8 years part time.  Part time students wishing BCS accreditation must complete the course within 6 years.  <a href="https://www.uws.ac.uk/authorised-interruption-guidance-notes">Authorised Interruption Guidance notes (uws.ac.uk)</a>
9b	<b>Duration of Study:</b>	Full Time – 4 years; Part Time – 8 years; With placement (optional) – 5 years
10	<b>Mode of Study:</b>	Full time  Part time
11	<b>Campus:</b>	Paisley  New College Lanarkshire (Cumbernauld campus)
12	<b>School:</b>	<b>Computing, Engineering &amp; Physical Sciences</b>
13	<b>Programme</b>	<b>Applied Computing</b>

<sup>1</sup> Include main award and all exit awards e.g. BA / BSc / BEng / DipHE / CertHE

<sup>2</sup> University of the West of Scotland and include any collaborative partner institutions involved in delivery.

	<b>Board:</b>	
<b>14</b>	<b>Programme Leader:</b>	<b>Duncan Thomson</b>

### **15. Admission Criteria**

Candidates must be able to satisfy the general admission requirements of the University of the West of Scotland as specified in Chapter 2 of the University Regulatory Framework together with the following programme requirements:

#### **SQA National Qualifications:**

Standard Entry Requirements: Highers at BCCC (90 UCAS Tariff points) including AT LEAST ONE OF: Maths, Apps of Maths, Computing Science, or Physics.

Minimum Entry Requirements: CCCC (84 UCAS Tariff points) including AT LEAST ONE OF: Maths, Apps of Maths, Computing Science, or Physics.

Also including Maths and English at least at Intermediate 2 / National 5.

#### **or GCE**

A Levels: CCD (88 UCAS Tariff points) including Maths OR Computing Science OR equivalent Also Maths and English at least at GCSE.

#### **or SQA National Qualifications/Edexcel Foundation**

An appropriate HNC/HND award may provide access to Year 2 (HNC) or Year 3 (HND).

Entry at a lower level may be offered where the content of the HN programme is not aligned to the degree programme.

#### **Other Required Qualifications/Experience**

Applicants may also be considered with other academic, vocational or professional qualifications deemed to be equivalent.

#### **Further desirable skills pre-application (i.e. to satisfy additional PSRB requirements or other)**

Students should have a basic knowledge of and abilities in working with computers.

**General Overview**

The growth in use of the Internet and the resulting wide range of network-connected devices and services have radically altered the way individuals and organisations communicate and conduct business. Such technologies have transformed, and will continue to transform, our lives.

There is a growing demand for skilled personnel who are able to design, implement and maintain network infrastructure for large, medium and small enterprises, as well as organisations in the public and third sector.

The Computer Networking programme is designed to give you experience in general computing, along with the skills and knowledge required to administer systems, build and troubleshoot networks, and adapt to new technologies which are continually developing in this fast-moving area.

The Computer Networking programme is available as a Single degree programme with options (subject to timetabling constraints).

The BSc (Hons) Computer Networking is recognised by the British Computer Society (BCS) fully meeting the educational requirements for Chartered IT Professional registration.

There are opportunities for both gaining a sandwich degree through a full-time placement lasting for a full academic session and for shorter part-time placements in second and third year.

Students with an Honours degree may consider entry to Masters degrees in specialisms of computing or telecommunications, or postgraduate research.

The teaching, learning and assessment strategy is designed to help students master the learning outcomes of the programme. Many of the learning outcomes of the programme are practical in nature and a large proportion of class time is spent in computing laboratories engaging with appropriate hardware and software acquiring practical knowledge and skills through a variety of activities. The theoretical understanding underpinning the subject is mainly engendered through lectures, tutorials, seminars and individual study. The practical classes reinforce this knowledge and provide an opportunity to develop and demonstrate practical skills applying this knowledge. Students will be required to work both individually and in groups. Students are expected to undertake independent study to supplement and consolidate what is taught in formal classes. The teaching is supported by the University's Virtual Learning Environment.

Knowledge and understanding is mostly assessed through class tests, exams or written work.. The applied knowledge skills are assessed through in-class demonstrations, assessments, implementation exercises, or reflective logs. Many assessments provide opportunities for students to develop their written and verbal communication and organisational skills, with increasing levels of autonomy expected as the student progresses through the course. Most modules use a combination of assessment approaches appropriate to the

	learning outcomes to be demonstrated.
<b>17</b>	<p><b>Graduate Attributes, Employability &amp; Personal Development Planning</b></p> <p>Graduates of the programme will be <b>Universal</b>, <b>Work-ready</b> and <b>Successful</b> across the three dimensions, academic, personal and professional which encapsulate the breadth of the learning experience at University level. The programme aims to develop the student's intellectual and imaginative capabilities, professional understanding and judgement, problem-solving and communications skills, and ability to work as an effective team member.</p> <p>During the course of the programme, students will have opportunities to develop their employability skills in the area of computer networking, and to meet a number of potential employers through, for example, programme, division, school, or wider university events.</p> <p>The programme has 4 strands of Personal Development Planning:</p> <ul style="list-style-type: none"> <li>• Each student will be assigned a personal tutor (their Year Leader) with whom they will be expected to meet each term</li> <li>• One module at each level is associated with the aims of personal development (COMP07067, COMP08053/WRKB08001, COMP09093 and COMP10034)</li> <li>• A number of events related to employability</li> <li>• The opportunity to develop a portfolio of work using the University's ePortfolio system</li> </ul>
<b>18</b>	<p><b>Work Based Learning/Placement Details</b></p> <p>There are a range of opportunities for work-based learning within the programme.</p> <p>There is an opportunity for second-year students to undertake the module COMP08063 Work-Related Learning (Comp) module while undertaking a part time placement in a company in the second trimester. Continuing third year students may choose to take the COMP09016 Placement Project (Computing) as an optional module to continue this work.</p> <p>An alternative is a sandwich placement either between L9 and L10 or (less frequently) between L8 and L9 where a paid placement of at least 36 weeks duration is undertaken on a full-time basis, leading to a sandwich award. The 40-credit, module must be agreed and documented according to the COMP0001 Sandwich Placement: Computing module descriptor for this option.</p> <p>Honours year students in appropriate full time employment may, in consultation with the programme leader, take either WRKB10001 (WBL 4 – Industrial Project (40 Point)) or WRKB10002 (WBL 4 – Industrial Project (20</p>

	<p>Point)) to replace up to 2 core modules, provided the learning outcomes of the Honours year are met.</p> <p>Note that participation in the Work-Related Learning, Placement Project and Sandwich Placement modules is subject to the availability of suitable placements with external bodies.</p>
<b>19</b>	<b>Attendance and Engagement</b>
	<p>In line with the <a href="#">Student Attendance and Engagement Procedure</a>, 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 VLE, and complete assessments and submit these on time.</p> <p>For the purposes of this programme, academic engagement equates to the following:</p> <p>Students are expected to attend their timetabled classes and to engage fully with the learning activities which form each module. An attendance level of 80% is generally expected across all modules.</p>
<b>20</b>	<b>Equality and Diversity</b>
	<p>The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: <a href="#">UWS Equality, Diversity and Human Rights Code</a>.</p> <p>The BSc (Hons) Computer Networking involves a number of modules which require use to basic computing hardware or software which may not be fully accessible to all. Prospective students with physical disabilities which might limit their access to such systems should consult with the Programme Leader before enrolling on this programme, and should liaise with academic staff as appropriate when studying a module using such systems.</p>

Programme structures and requirements, SCQF level, term, module name and code, credits and awards ( [Chapter 1, Regulatory Framework](#) )

<b>21</b>	<b>Learning Outcomes (Maximum of 5 per heading)</b>
	<p>Outcomes should incorporate those applicable in the relevant QAA Benchmark statements.</p> <p>Please ensure that Learning Outcomes are appropriate for the level of study. Further information is available via SCQF: <a href="https://scqf.org.uk/support/support-for-educators-and-advisers/support-for-colleges-heis/">https://scqf.org.uk/support/support-for-educators-and-advisers/support-for-colleges-heis/</a> and a Level Descriptors tool is available (<a href="#">SCQF Level Descriptors Tool   Scottish Credit and Qualifications Framework</a>) and ensure appropriate cognisance of Chapter 1, Regulatory Framework. <a href="https://www.uws.ac.uk/media/6514/regulatory-framework-2023-2024.pdf">https://www.uws.ac.uk/media/6514/regulatory-framework-2023-2024.pdf</a></p>

	<b>SCQF LEVEL 7</b> <b>Learning Outcomes (Maximum of 5 per heading)</b>
<b>Knowledge and Understanding</b>	
<b>A1</b>	Demonstrate an understanding of computer network theory and protocol operation.
<b>A2</b>	Demonstrate an understanding of the basic principles and techniques of web development.
<b>A3</b>	Demonstrate knowledge of the fundamental concepts of software development.
<b>A4</b>	Demonstrate an understanding of the internal structure and operation of computer systems.
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Design and implement a simple computer network.
<b>B2</b>	Develop and publish a web site using a range of technologies.
<b>B3</b>	Design and implement a basic computer program.
<b>B4</b>	Compare and contrast operating system software.
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Demonstrate the ability to communicate ideas both verbally and in writing.
<b>C2</b>	Produce a reflective account of learning and personal development planning.
<b>C3</b>	Use standard PC applications to process and manipulate a variety of information and data.
<b>C4</b>	Work with integers in a variety of bases (binary, hexadecimal and decimal).
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	Troubleshoot problems in a simple computer network.
<b>D2</b>	Select appropriate tools and techniques for tackling a specified networking task.
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Demonstrate an understanding of project management fundamentals and terminology.
<b>E2</b>	Demonstrate an understanding of personal development and awareness of professionalism.

### Learning Outcomes - Level 7 Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
7	COMP07009	Introduction to Web Development	20	✓			
7	COMP07067	Professional Development in Computing	10	✓			
7	COMP07027	Introduction to Programming	20	✓	✓		1
7	COMP07027	Computer Systems	20	✓			
7	COMP07012	CCNA1: Introduction to Networks	20		✓		
7	MATH070xx	Mathematics for Computing	10		✓		

Footnotes for Core Modules:

1: Long thin module taught through T1 and T2.

### Learning Outcomes - Level 7 Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
7	COMP07013	Design for Interaction	20		✓		

Footnotes for option modules

Or any other module from within Computing, or the wider university, subject to prerequisite and timetabling constraints

<b>22 a</b>	<b>Level 7 Criteria for Progression and Award</b>
	<p>Links: <a href="#">UWS Regulatory Framework</a>; and <a href="#">Student Experience Policy Statement</a>.</p> <p>In line with the Regulatory Framework, for the (exit) award of CertHE Computer Networking, at least 120 credit points must be achieved, including all core modules listed above.</p> <p>Students not meeting the core module requirements, but with the requisite 120 credits may be eligible for the (exit) award of CertHE Information Technology.</p> <p>Distinction will be awarded in line with University Regulations and no imported credit can be used. (Regulations 3.35 &amp; 3.26)</p>

	<b>Level 8 Learning Outcomes (Maximum of 5 per heading)</b>
<b>Knowledge and Understanding</b>	
<b>A1</b>	Demonstrate a detailed knowledge of routing and switching in TCP/IP networks.
<b>A2</b>	Demonstrate an understanding of operating systems concepts.
<b>A3</b>	Demonstrate an understanding of relational database theory.
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Design and implement a computer network using routers and switches.
<b>B2</b>	Perform basic operating system administration tasks.
<b>B3</b>	Design and implement a relational database to a specification.
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Utilise a database to store and retrieve information effectively.
<b>C2</b>	Work within a range of command-line base operating environments
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	Select an appropriate routing strategy based on network requirements.
<b>D2</b>	Locate and correct problems in a computer network.
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Work effectively within a team.
<b>E2</b>	Work under instruction to configure a computer system.

### Learning Outcomes - Level 8 Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
8	COMP08002	Database Development	20	✓			



8	COMP08074	Operating Systems	20	✓			
8	COMP08033	Object-Oriented Analysis	20	✓			1
8	COMP08097	CCNA2: Switching, Routing & Wireless Essentials	20		✓		
Plus <b>EITHER</b> of the following modules							
8	COMP08053	WBL 2 - Group Project (20 point)	20		✓		
8	WRKB08002	WBL 2 - Work Placement (20 point)	20		✓		

### Footnotes for Core Modules:

1 Student completing L8 prior to 2024/25 will have completed COMP08098 (CCNA 3, below) as a core module in place of COMP08033

### Learning Outcomes - Level 8 Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
7	COMP07012	CCNA1: Introduction to Networks			✓		1
8	COMP07027	Introduction to Programming			✓		1
8	COMP08098	CCNA3: Enterprise Networks, Security & Automation			✓		2
8	COMP08068	Programming for Mobile Devices			✓		

### Footnotes for option modules

1 Direct entrant students should take one of these modules as directed if similar material not covered previously

2 Recommended option for continuing students; Students completing L8 prior to 2024/25 will have completed this as a core module

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<b>22b</b>	<b>Level 8 Criteria for Progression and Award</b>
	Links: <a href="#">UWS Regulatory Framework</a> ; and <a href="#">Student Experience Policy Statement</a> . In line with the Regulatory Framework, for the (exit) award of DipHE Computer Networking, students require at least 240 credit points must be achieved of which a

	<p>minimum of 100 from the core modules above and none less than SCQF Level 7.</p> <p>Those students who achieve 240 credits, at least 90 of which at L8, without meeting the core module requirements above, may be eligible for the (exit) award of DipHE Information Technology.</p> <p>Distinction will be awarded in line with University Regulations and no imported credit can be used. (Regulations 3.35 &amp; 3.26)</p>
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<b>SCQF LEVEL 9</b>	
<b>Learning Outcomes (Maximum of 5 per heading)</b>	
<b>Knowledge and Understanding</b>	
<b>A1</b>	Demonstrate detailed knowledge of the operation of a variety of operating systems.
<b>A2</b>	Demonstrate a detailed knowledge of the terms and concepts of virtualisation
<b>A3</b>	Demonstrate an understanding of information security policies and practices
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Carry out a number of operating system administration tasks on a Windows platform.
<b>B2</b>	Use a range of Unix system administration skills to configure a system to specified
<b>B3</b>	Design and implement virtualised computing components to meet requirements
<b>B4</b>	Develop a security policy for an organisation
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Write a technical report on an aspect of computer networking
<b>C2</b>	Use a range of software appropriate to the field of computer networking
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	Draw on an appropriate range of sources to find answers to networking problems
<b>D2</b>	Evaluate a number of solutions to a problem, selecting the most suitable based on appropriate criteria
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Work effectively within a group to design and implement solutions to problems
<b>E2</b>	Demonstrate awareness of current professional issues in computing

### Learning Outcomes - Level 9 Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
9	COMP09024	Unix System Administration	20	✓			
9	COMP09089	Windows Server Administration	20	✓			
9	COMP09093	Professional Computing Practice	10	✓	✓		1
9	COMP09117	Virtualisation & Cloud Computing	20		✓		
9	COMP09086	Information Security Management	20		✓		
9	COMP09086	Research Methods in Computing	10	✓	✓		1
9	COMP09022	Data Communications & Networks	20		✓		2

Footnotes for Core Modules:

1 May run in either term 1 or term 2, depending on campus and numbers

2 Transitional arrangement: **Only** for students completing year 3 in 2023/24 or prior (in place of COMP09xxx Virtualisation & Cloud Computing)

### Learning Outcomes - Level 9 Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
7	COMP07027	Introduction to Programming	20	✓	✓		1
7	COMP07012	CCNA1: Introduction to Networks	20		✓		1
8	COMP08097	CCNA2: Switching, Routing & Wireless Essentials	20		✓		2
8	COMP08098	CCNA3: Enterprise Networks, Security & Automation	20		✓		
8	COMP08002	Database Development	20	✓			2
9	COMP09006	Web Site Development	20	✓			

9	COMP09050	Database Applications	20	✓			
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Footnotes for option modules

1 Students entering directly to third year may be directed to take one of these modules, depending on pre-existing experience

2 Available only for direct entrant students

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<b>22c</b>	<b>Level 9 Criteria for Progression and Award</b>
	<p>Links: <a href="#">UWS Regulatory Framework</a>; and <a href="#">Student Experience Policy Statement</a>.</p> <p>In line with the Regulatory Framework, for the award of BSc Computer Networking, at least 360 credit points must be achieved of which all core modules for L9 listed above must be passed, with minimum of 180 credits at SCQF Level 8 and none less than SCQF Level 7. Students who meet the required credit minima above but do not pass the core modules may be eligible for the BSc Information Technology award.</p> <p>Students who have taken and passed the COMP00001 placement module in addition to the degree requirements for BSc Computer Networking will be eligible for the BSc Computer Networking (Sandwich) award.</p> <p>Distinction will be awarded in line with University Regulations and no imported credit can be used. (Regulations 3.35 &amp; 3.26)</p>

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<b>SCQF LEVEL 10 Learning Outcomes (Maximum of 5 per heading)</b>	
<b>Knowledge and Understanding</b>	
<b>A1</b>	Demonstrate a critical understanding of a specialism of computer networking
<b>A2</b>	Demonstrate a critical understanding of the principles of computer and network security
<b>A3</b>	Demonstrate a critical understanding of the operation of computer networks.
<b>A4</b>	Demonstrate a detailed knowledge of the theory of radio-based computer networks
<b>A5</b>	Demonstrate a detailed understanding of the tools and techniques used to manage and monitor networks

<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Carry out a practical investigation of network operation using a range of skills and techniques
<b>B2</b>	Design, configure and evaluate a secure computer network
<b>B3</b>	Design, configure and evaluate radio-based communication networks
<b>B4</b>	Implement a range of tools for managing and automating networks
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Use mathematical models to predict or describe the operation of a computer network
<b>C2</b>	Prepare and deliver a technical presentation in a specialism of computer networking
<b>C3</b>	Write a technical report for a professional audience on a specialism of computer networking
<b>C4</b>	Use a range of software to support and develop work
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	Carry out a critical review of previous work in the specialism of computer networking
<b>D2</b>	Make judgements based on limited or biased information
<b>D3</b>	Identify the most important criteria when evaluating solutions to problems
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Work autonomously to near-professional standard according to an agreed specification
<b>E2</b>	Work effectively under guidance in a peer relationship with qualified practitioners
<b>E3</b>	Demonstrate the ability to reflect critically on work based on experience and professional standard
<b>E4</b>	Work effectively in a group to solve complex networking problems

### Learning Outcomes - Level 10 Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	

	COMP10034	Computing Honours Project	40	✓	✓		
	COMP10014	Network Security	20	✓			
	COMP10023	Wireless Networking	20		✓		
	COMP10023	Network Management, Monitoring & Automation	20		✓		
<b>EITHER of the following modules (see footnote)</b>							
	COMP10064	Virtualisation	20	✓			1
	COMP10xxx	Data Communications & Networks	20	✓			1

Footnotes for Core Modules:

1 Transitional arrangements: Students entering Honours year up until and including 2024/25 will undertake COMP10064 Virtualisation; Students entering Honours year after this will undertake COMP10xxx Data Communications & Networks

### Learning Outcomes - Level 10 Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
10	WRKB10001	WBL 4 – Industrial Project (40 point)	40	✓	✓		1
10	WRKB10002	WBL 4 – Industrial Project (20 point)	20	✓	✓		1

Footnotes for option modules

1 Students in appropriate full time employment may, in consultation with the Programme Leader, take one of the Industrial Project modules in place of one or two of the core 20-credit modules, provided all L10 programme learning outcomes are met. Students **may not** select these modules without discussing their choice and industrial project topic with the programme leader and the appropriate module coordinator.

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<b>23</b>	<b>Regulations of Assessment</b>
<p>Candidates will be bound by the general assessment regulations of the University as specified in the <a href="#">University Regulatory Framework</a> .</p> <p>An overview of the assessment details is provided in the Student Handbook and the assessment criteria for each module is provided in the module descriptor which forms part of the module pack issued to students. For further details on assessment please refer to</p>	

Chapter 3 of the Regulatory Framework.

To qualify for an award of the University, students must complete all the programme requirements and must meet the credit minima detailed in Chapter 1 of the Regulatory Framework.

<b>24</b>	<b>Combined Studies</b>
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There may be instances where a student has been unsuccessful in meeting the award criteria for the named award and for other more generic named awards existing within the School. Provided that they have met the credit requirements in line with the SCQF credit minima (please see Regulation 1.21), they will be eligible for a Combined Studies award (please see Regulation 1.61).

For students studying BEng or BSc awards, the award will be BSc Combined Studies.