

PROGRAMME SPECIFICATION

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Award titles

Programme Title(s)

MSc Computer Science
MSc Computer Science with Artificial Intelligence
MSc Computer Science with Big Data Analytics
MSc Computer Science with Cyber Security
MSc Computer Science with Software Engineering
MSc Computer Science with UX

Internal Programme Title(s) (if different to the title on the certificate)

Programme to be included in Graduation Ceremonies

Yes

Delivery period

September 2024-September 2028

Intake points

6 intakes per year (8-week cycle on carousel model) January, March, May, July, September, November

Regulatory details

Regulatory details
Awarding body
Wrexham University
Programme delivered by
Wrexham University
Location of delivery
100% online
Faculty/Department
Faculty of Arts, Computing and Engineering (FACE)
Exit awards available
PGDiploma Computer Science PGDiploma Computer Science with Artificial Intelligence PGDiploma Computer Science with Big Data Analytics PGDiploma Computer Science with Cyber Security PGDiploma Computer Science with Software Engineering PGDiploma Computer Science with UX PGCert Computer Science
Professional, Statutory or Regulatory Body (PSRB) accreditation
The programme has been designed to align with the requirements of the British Computer Society (BCS) and accreditation will be requested post approval. This information is correct at the time of validation, please refer to the PSRB register for current accreditation status.



Regulatory details
Please add details of any conditions that may affect accreditation (e.g. is it dependent on choices made by a student?) e.g. <i>completion of placement.</i>
HECoS codes
MSc Computer Science 100366 MSc Computer Science with Artificial Intelligence 100359 MSc Computer Science with Big Data Analytics 100370 MSc Computer Science with Cyber Security 100376 MSc Computer Science with Software Engineering 100374 MSc Computer Science with UX 100736
UCAS code
N/A
Relevant External Reference Points
QAA Subject Benchmark Statement: Computing March 2022 https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements/computing Master's Degree Characteristics Statement https://www.qaa.ac.uk/en/the-quality-code/characteristics-statements/characteristics-statement-masters-degrees The Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies https://www.qaa.ac.uk/quality-code/qualifications-and-credit-frameworks
List the programmes that offer the Foundation Year route
N/A
Mode of study
Online/distance learning part time
Normal length of study for each mode of study
Minimum: 2 years part time Maximum: 4 years part time
Language of study
English
Transitional arrangements for re-validated provision if applicable
N/A
Repeat year students
If a student has passed one element of an assessment in a module and needs to re-sit the other, they can: <ul style="list-style-type: none"> remain on the original module and retain the mark for the element they have passed and resit the failure or <ul style="list-style-type: none"> Complete all elements of assessment in the new module, however they need to be aware this would still count as a reassessment therefore they could only achieve a maximum mark of 40%
The following University Award Regulations apply to this programme (<i>highlight the appropriate ones and delete the others</i>)
General Regulations



Regulatory details

Regulations for Taught Masters Degrees taught
Language Admissions Policy

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Date of validation event:	
Date of approval	27 th June 2024
Approved Validation Period:	September 2024 to September 2028
Transitional arrangements approved (if revalidation)	Enter details from section 3 following validation event confirming what arrangements are
Date and type of revision:	Enter the date of any subsequent revisions (Detail the type of revision made and the implementation date)

Criteria for admission to the programme

Standard entry criteria

Entry requirements are in accordance with the University's admissions policy, please click on the following link for more information. [Admissions policies](#)

Entry requirements are in accordance with the current University regulations. The applicant should have or be about to complete an undergraduate degree in any subject with a minimum grade of 2:2 (or equivalent qualification). We will also accept master's degrees or equivalent.

We may also accept applicants who do not have these qualifications based on two or more years of relevant work experience.

Following the applicant's first initial interest they will be contacted by the Enrolment Advisor (EA), this will be through both email and telephone. The EA coaches the student to identify that a fully online distance programme is the suitable programme for them and establishes whether they have a profile which will be likely to succeed in applying for the programme. The EA then compiles a complete file on the applicant helping them to provide all necessary documentation, such as proof of identification, transcripts, certificates, IELTS certificates, etc. This file is then used to complete the enrolment process for the next available (or the applicants preferred) intake. Where applicants may be borderline, their file will be passed to the person(s) responsible for enrolment decisions within the Subject area. The EA supports the applicant and is available to deal with any queries up until the point when the applicant pays for their first module, at which point they are introduced to the Student Success Coordinator. (see student support section p. 47)

International entry qualifications are outlined on the UK National Information Centre for global qualifications and skills (UK ENIC) as equivalent to the relevant UK entry qualification.

In addition to the academic entry requirements, all applicants whose first language is not English or Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see [academic-entry-requirements](#) for details), including IELTS.

International students are required to provide an English Language Certificate which meets the requirements of the University (*please see [English-language-requirements](#) for details*).



Non Standard entry criteria

N/A

Record of Prior (Experiential) Learning

Applicants may enter the programme at various levels with Recognition of Prior Learning (RPL) or Recognition of Prior Experiential Learning (RPEL) in accordance with the University General Regulations. Any programme-specific restrictions are outlined below.

Applicants may RPL a maximum of 60 credits onto the online programmes. RPL is not permitted to the CONL701 Critical Research for Postgraduate Study, CONL717 Applied Research Methods or CONL718 Dissertation modules. Candidates who are admitted to a Taught Master's scheme but do not progress to completion may qualify for either a Postgraduate Certificate, provided that they have attained a minimum of 60 credits of which none were RPL and that this constitutes a validated programme or for a Postgraduate Diploma, provided that they have attained 120 credits of which no more than 60 were RPL and that this constitutes a validated programme.

DBS Requirements

N/A

Suitability for Practice Procedure

N/A

Aims of the programme

The MSc Computer Science programmes aim to develop a strong acquisition of higher-level skills and knowledge leading to increased employability, and professionalism. It will allow students to delve deeper into specific areas of computer science, such as artificial intelligence, machine learning, and data science, and engage in research to contribute to the advancement of knowledge in computer science.

The Computer Science suite of programmes has overarching aims, which will provide students with:

- A suitable conversion to Computer Science from a related degree specialism.
- Specialised Focus – Enable students to concentrate on specific domains within computer science, such as artificial intelligence, machine learning, and data science.
- Cultivating Research and Innovation – Cultivate a mindset geared towards research and provide avenues for students to contribute to the progression of knowledge in computer science.
- Advancing Theory and Practice – Utilise advanced knowledge and comprehension to effectively tackle intricate computational problems, addressing real-world challenges in software engineering.
- Professional Growth – Foster the development of skills such as critical thinking, problem-solving, project management, and collaborative teamwork.
- Ethical and Social Considerations – Advocate for an understanding of the ethical and social implications of computer science and technology, prompting students to critically evaluate technology's impact on society. Address issues like privacy, and security, and promote responsible and inclusive computing practices.



- Lifelong Learning – Promote a culture of continuous learning and professional advancement, encouraging students to remain updated with the latest developments in computer science.

At programme specific level, the additional aims are:

MSc Computer Science

The MSc Computer Science program offers an elevated level of technical expertise in networking, web development, and software development. It is designed to expand upon students' existing knowledge or relevant commercial experience, providing them with advanced skills and capabilities in these critical areas. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem solving, legal, ethical, and professional issues are embedded throughout the modules.

MSc Computer Science with Artificial Intelligence

The MSc in Computer Science with Artificial Intelligence delivers a comprehensive grasp of both the theoretical underpinnings and practical applications of AI. It covers a wide range of topics including natural language processing, computer vision, probabilistic reasoning, and search algorithms, enabling students to develop a profound understanding of the multifaceted field of artificial intelligence. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem solving, legal, ethical, and professional issues are embedded throughout the modules.

MSc Computer Science with Big Data Analytics

The MSc in Computer Science with Big Data Analytics provides an in-depth exploration of the methodologies and distinctive challenges inherent in harnessing data for analytics, decision-making, and monitoring in practical, real-world scenarios. This program is dedicated to cultivating expertise in machine learning, data analysis, and leveraging datasets for predictive modelling and monitoring applications. Through coursework and hands-on training, students will gain comprehensive insights into the intricacies of big data analytics, preparing them to tackle the complexities of contemporary data-driven environments effectively. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem solving, legal, ethical, and professional issues are embedded throughout the modules.

MSc Computer Science with Cyber Security

The MSc in Computer Science with Cyber Security provides an extensive and specialised knowledge base along with advanced practical skills in the cyber security domain. It encompasses methodologies for constructing and evaluating secure systems and technological frameworks. The programme aims to enhance students' expertise in computer security, cyber security, network security, and associated areas. It delves deeply into technical disciplines, particularly focusing on the development of secure software platforms and strategies to counter sophisticated attack methodologies aimed at breaching system security and disrupting normal operations. The curriculum integrates professional-level competencies essential for auditing and managing institutional and organisational risks associated with cyber security and data protection regulations. This comprehensive approach is facilitated through a blend of interactive theoretical sessions and hands-on technical instruction and exercises. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem solving, legal, ethical, and professional issues are embedded throughout the modules.

MSc Computer Science with Software Engineering

The MSc in Computer Science with Software Engineering provides the pragmatic aspects of computer programming with a strong commercial orientation, emphasizing the development of applications for contemporary mobile devices and fundamental concepts in data communications. Moreover, the program is dedicated to fostering advanced software development and programming competencies, equipping graduates for demanding and fast-paced careers in software development. While providing foundational knowledge where necessary, the curriculum prioritizes problem-solving and the creation of tangible computer-based services and applications using cutting-edge technologies. Alongside grasping the underlying principles, students actively engage in applying program design, modern web technologies, network design, implementation, troubleshooting, and management to address real-world challenges. The program places a profound emphasis on honing troubleshooting skills, ensuring graduates are adept at addressing practical issues encountered in software applications. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem solving, legal, ethical, and professional issues are embedded throughout the modules.

MSc Computer Science with UX

The MSc in Computer Science with UX provides a distinctive combination of technical proficiencies and human-centred design principles, with the overarching goal of crafting intuitive, efficient, and captivating user experiences across a spectrum of digital products and systems. This holistic approach integrates cutting-edge technological expertise with a deep understanding of human behaviour and preferences, ensuring that the resulting digital experiences resonate with users on both functional and emotional levels. By emphasising the seamless fusion of technology and design, this programme equips students with the versatility and creativity needed to develop innovative solutions that not only meet user needs but also exceed their expectations, ultimately driving greater user satisfaction and engagement in today's digital landscape. This includes a 45-credit research project, during which students will focus on a specialised topic under appropriate supervision. Problem-solving, legal, ethical, and professional issues are embedded throughout the modules.

Distinctive features of the programme

The online MSc programmes are to be delivered fully online and have a modular delivery pattern, which includes modules at 15 credits each. The delivery pattern begins with a common first module, followed by the carousel model encompassing a framework of eight 15-credit modules, before moving on to the dissertation stage. These online learning programmes offer high levels of support and flexibility through a modular delivery pattern enabling students to work at a pace that suits their individual preferences.

The programmes develop the individual profile of the student and incorporate several instances where the student can analyse contemporary computing contexts to provide judgements and solutions that reflect best practices in technological development. This is augmented with several practical modules, where students gain hands-on experience and knowledge within appropriate domains.

All the modules have been designed to draw upon academic guidelines and industry expectations to ensure that they meet current best practices and provide the necessary skills for future graduate employment. It is envisaged that upon completion of their programme of study, students will either gain commercial employment within a cognate role or continue to further their MPhil/PhD study with a relevant academic domain.



Credit Accumulation and exit awards

PGCert Computer Science

Students who have completed 60 credits comprised of CONL701 Critical Research for Postgraduate Study and any three carousel modules but are unable to or choose not to continue on the programme will be entitled to the generic PGCert Computer Science exit award.

PGDiploma Computer Science (and all specialisms)

Students who have completed 120 credits comprised of CONL701 Critical Research for Postgraduate Study and any seven of the eight carousel modules for the programme but are unable to or choose not to continue with the programme are entitled to the relevant PGDiploma Computer Science exit award.

Programme Structure Diagram, including delivery schedule

All the online MSc programmes follow a common structure with a variation in specialised modules.

Students will begin by completing the 15-credit CONL701 Critical Research for Postgraduate Study module that will prepare them for the rest of the programme. For the academic regulations for online taught masters programmes, this will be deemed as the 15-credit research methods module.

This common first module will be followed by eight core 15-credit modules relevant to their specialism that will meet the learning outcomes for the specific programme. These modules will be delivered through a rolling carousel structure, with students completing the elements in any order following the order of delivery. Any individual module may have students enrolled from several cohorts with various start dates and programme specialisms.

Once the eight carousel modules have been completed, students will study their 45-credit dissertation stage. This is comprised of the 15-credit CONL717 Applied Research Methods module (the lit review/dissertation proposal module in the current academic regulations), followed by the 30-credit CONL718 Dissertation module.

Students will be assigned a supervisor, who will provide one-to-one support and guidance relevant to the topic and field of study. Students will be required to have studied (though not necessarily passed at the point of registration) all the first 135 credits before registering for the dissertation stage. It is permitted for students to trail up to one carousel module, 15 credits, by the current academic regulations for online-taught master's programmes

MSc Computer Science

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Structures and Algorithms	Module Title	Database Systems
Module Code	CONL704	Module Code	CONL705
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Machine Learning	Module Title	Networking Principles
Module Code	CONL708	Module Code	CONL710
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core

Module Title	Software Development for the Web	Module Title	Systems Engineering
Module Code	CONL713	Module Code	CONL714
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Virtual and Cloud Computing	Module Title	Security and Risk Management in a Digital Environment
Module Code	CONL715	Module Code	CONL721
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

MSc Computer Science with Artificial Intelligence

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Analysis and Visualisation	Module Title	Data Structures and Algorithms
Module Code	CONL703	Module Code	CONL704
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Database Systems	Module Title	Machine Learning
Module Code	CONL705	Module Code	CONL708
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Systems Engineering	Module Title	Big Data: Challenges and Opportunities
Module Code	CONL714	Module Code	CONL722
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Artificial intelligence in Theory and Practice	Module Title	Ethics for Artificial Intelligence
Module Code	CONL725	Module Code	CONL726
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

MSc Computer Science with Big Data Analytics

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Analysis and Visualisation	Module Title	Data Structures and Algorithms
Module Code	CONL703	Module Code	CONL704
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Database Systems	Module Title	Machine Learning
Module Code	CONL705	Module Code	CONL708
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Systems Engineering	Module Title	Virtual and Cloud Computing
Module Code	CONL714	Module Code	CONL715
Credit Value	15	Credit Value	15



Core/Optional	Core	Core/Optional	Core
Module Title	Security and Risk Management in a Digital Environment	Module Title	Big Data: Challenges and Opportunities
Module Code	CONL721	Module Code	CONL722
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

MSc Computer Science with Cyber Security

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Structures and Algorithms	Module Title	Machine Learning
Module Code	CONL704	Module Code	CONL708
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Networking Principles	Module Title	Secure Software Development
Module Code	CONL710	Module Code	CONL711
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Systems Engineering	Module Title	Security and Risk Management in a Digital Environment
Module Code	CONL714	Module Code	CONL721
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Digital Forensics	Module Title	Ethical Hacking
Module Code	CONL723	Module Code	CONL724
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

MSc Computer Science with Software Engineering

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Structures and Algorithms	Module Title	Database Systems
Module Code	CONL704	Module Code	CONL705
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Mobile App Development	Module Title	Secure Software Development
Module Code	CONL709	Module Code	CONL711
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Software Development for the Web	Module Title	Systems Engineering
Module Code	CONL713	Module Code	CONL714
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core



Module Title	Virtual and Cloud Computing	Module Title	Security and Risk Management in a Digital Environment
Module Code	CONL715	Module Code	CONL721
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

MSc Computer Science with UX

Module Title	Critical Research for Postgraduate Study		
Module Code	CONL701		
Credit Value	15		
Core/Optional	Core		
Module Title	Data Structures and Algorithms	Module Title	Mobile App Development
Module Code	CONL704	Module Code	CONL709
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Secure Software Development	Module Title	Software Development for the Web
Module Code	CONL711	Module Code	CONL713
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Systems Engineering	Module Title	Security and Risk Management in a Digital Environment
Module Code	CONL714	Module Code	CONL721
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	User Interface Design	Module Title	Human Computer Interaction
Module Code	CONL727	Module Code	CONL728
Credit Value	15	Credit Value	15
Core/Optional	Core	Core/Optional	Core
Module Title	Applied Research Methods	Module Title	Dissertation
Module Code	CONL717	Module Code	CONL718
Credit Value	15	Credit Value	30
Core/Optional	Core	Core/Optional	Core

Part-time delivery

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e. semester 1,2)	Year of Study
Level 7	CONL701	Critical Research for Postgraduate Study	15	Core	N/A	N/A
Level 7	CONL703	Data Analysis and Visualisation	15	Core	N/A	N/A
Level 7	CONL704	Data Structures and Algorithms	15	Core	N/A	N/A
Level 7	CONL705	Database Systems	15	Core	N/A	N/A
Level 7	CONL708	Machine Learning	15	Core	N/A	N/A
Level 7	CONL709	Mobile App Development	15	Core	N/A	N/A



Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e. semester 1,2)	Year of Study
Level 7	CONL710	Networking Principles	15	Core	N/A	N/A
Level 7	CONL711	Secure Software Development	15	Core	N/A	N/A
Level 7	CONL713	Software Development for the Web	15	Core	N/A	N/A
Level 7	CONL714	Systems Engineering	15	Core	N/A	N/A
Level 7	CONL715	Virtual and Cloud Computing	15	Core	N/A	N/A
Level 7	CONL717	Applied Research Methods	15	Core	N/A	N/A
Level 7	CONL718	Dissertation	15	Core	N/A	N/A
Level 7	CONL721	Security and Risk Management in a Digital Environment	15	Core	N/A	N/A
Level 7	CONL722	Big Data: Challenges and Opportunities	15	Core	N/A	N/A
Level 7	CONL723	Digital Forensics	15	Core	N/A	N/A
Level 7	CONL724	Ethical Hacking	15	Core	N/A	N/A
Level 7	CONL725	Artificial intelligence in Theory and Practice	15	Core	N/A	N/A
Level 7	CONL726	Ethics for Artificial Intelligence	15	Core	N/A	N/A
Level 7	CONL727	User Interface Design	15	Core	N/A	N/A
Level 7	CONL728	Human Computer Interaction	15	Core	N/A	N/A

Intended learning outcomes of the programme

MSc Computer Science

Knowledge and Understanding

	Level 7
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out



Intellectual Skills

Level 7	
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

Level 7	
C1	Work with a range of computer hardware and networked devices to implement complete and functional systems or platforms
C2	Make effective use of a range of theories and techniques applicable to computer science scenarios
C3	Undertake a significant computer science related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution and evaluation
C4	Synthesise the knowledge, skills and theories from the computing areas covered by the programme to solve a complex problem that may require the integration of different computer science techniques and/or technologies

Practical, Professional and Employability Skills

Level 7	
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

MSc Computer Science with Artificial Intelligence

Knowledge and Understanding

Level 7	
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out



Intellectual Skills

	Level 7
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

	Level 7
C1	Work with a range of computer hardware, software, and network devices to implement complete, functional, and secure systems or platforms
C2	Make effective use of a range of theories and techniques applicable to Artificial Intelligence scenarios
C3	Undertake a significant computer science related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution, and evaluation
C4	Synthesise the knowledge, skills and theories from the computing areas covered by the programme to solve a complex problem that may require the integration of different computer science techniques and/or technologies

Practical, Professional and Employability Skills

	Level 7
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

MSc Computer Science with Big Data Analytics

Knowledge and Understanding

	Level 7
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out



Intellectual Skills

	Level 7
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

	Level 7
C1	Work with a range of online, software and database tools to implement complete and functional systems or platforms
C2	Make effective use of a range of theories and techniques applicable to computer science scenarios
C3	Undertake a significant computer science related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution and evaluation
C4	Synthesise the knowledge, skills and theories from the computing areas covered by the programme to solve a complex problem that may require the integration of different computer science techniques and/or technologies

Practical, Professional and Employability Skills

	Level 7
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

MSc Computer Science with Cyber Security

Knowledge and Understanding

	Level 7
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out

Intellectual Skills



Level 7	
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

Level 7	
C1	Work with a range of computer hardware, software, and network devices to implement complete, functional and secure systems or platforms
C2	Make effective use of a range of theories and techniques applicable to cyber security scenarios
C3	Undertake a significant cyber security related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution and evaluation
C4	Synthesise the knowledge, skills and theories from the computer science areas covered by the programme to solve a complex problem that may require the integration of different cyber security techniques and/or technologies

Practical, Professional and Employability Skills

Level 7	
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

MSc Computer Science Software Engineering

Knowledge and Understanding

Level 7	
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out

Intellectual Skills

Level 7	
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science



Level 7	
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

Level 7	
C1	Work with a range of computer software and distributed devices to implement complete and functional systems or platforms
C2	Make effective use of a range of theories and techniques applicable to computer science scenarios
C3	Undertake a significant software engineering related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution and evaluation
C4	Synthesise the knowledge, skills and theories from the computing areas covered by the programme to solve a complex problem that may require the integration of different computer science techniques and/or technologies

Practical, Professional and Employability Skills

Level 7	
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

MSc Computer Science with UX

Knowledge and Understanding

Level 7	
A1	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
A2	Give a critical account of current and emerging developments in computer science
A3	Compare and contrast software development tools and techniques for a variety of practical situations
A4	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the specific area in which the project is carried out

Intellectual Skills

Level 7	
B1	Carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated within the specialist area of computer science
B2	Synthesise and predict the future development of current and emerging technologies in the field of computer science, being mindful of external factors



	Level 7
B3	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of computer science
B4	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills

	Level 7
C1	Work with a range of computer hardware, software, and network devices to implement complete, functional and secure systems or platforms
C2	Make effective use of a range of theories and techniques applicable to UX scenarios
C3	Undertake a significant software engineering related thesis which involves an analytical, rigorous, and critical approach to problem identification, solution and evaluation
C4	Synthesise the knowledge, skills and theories from the computing areas covered by the programme to solve a complex problem that may require the integration of different computer science techniques and/or technologies

Practical, Professional and Employability Skills

	Level 7
D1	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
D2	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D3	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D4	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value



Learning and teaching strategy

Since this program is conducted online through a Virtual Learning Environment (VLE) for students who are consistently studying remotely, it's crucial to tailor the learning experience to fit their study circumstances. Moreover, it must be considered that online distance learning (DL) students, especially those in part-time study, are typically full-time professionals with busy work and home lives, making them time-constrained and strategic in their approach to studies. Given these expectations, the learning and teaching approach encompasses the following characteristics:

Each 15-credit module spans 7 study weeks, with an additional week dedicated to final assessment completion. Every week is regarded as an independent learning module, showcasing unique content presentations, and set deadlines for completing learning tasks. This structured integration of knowledge, presentations, contents, and practice activities allows students to investigate and apply learning content while demonstrating progress through VLE tools like discussion boards and quizzes.

Content sections, along with associated activities, are utilised to make modules accessible and manageable, enabling students to demonstrate their progress and skill acquisition. This approach also facilitates feedback, support, and intervention from module leaders and tutors as needed.

Knowledge and understanding are cultivated through diverse content presentation methods, including online videos, narrated presentations, written content, hyperlinked web resources, digital readings, and students' own research and collaboration efforts, aiming to keep students engaged.

Skills development is fostered through various learning activities within the VLE, such as online forums for discursive and collaborative tasks, group activities, research, reflection on professional practice, report and presentation development, and relevant practice activities. The use of online tools allows module leaders and tutors to monitor student progress and provide feedback effectively.

Skills development is facilitated through a diverse array of learning activities integrated into the Virtual Learning Environment (VLE). These activities encompass online forums designed for engaging in discursive and collaborative tasks, interactive group exercises, research assignments, opportunities for reflecting on professional practice, tasks focused on report and presentation development, as well as practical activities relevant to the subject matter. Leveraging online tools enables module leaders and tutors to effectively track student progress and deliver timely, constructive feedback.

All activities are planned to align constructively with module and weekly learning outcomes, as well as formative and summative assessments, ensuring their effectiveness in helping students achieve outcomes. This alignment and emphasis on active learning tasks are initiated through the ABC Learning Design process at the start of each module's development.

In these programs, students' application of learning and theories presented in modules is essential for successful completion. Collaborative tasks integrated into the weekly structure offer ample opportunities for students to apply learning to their professional contexts, compare experiences with peers, and contribute to internationalisation efforts.

At the dissertation stage, individual specialist supervision supports students through the development of research chapters, adhering to research design and questions.



Following educational research and best practices, the program employs a diverse range of delivery and assessment methods, reflecting program features and providing learning opportunities within a supportive environment to facilitate knowledge transfer.

The University Skills Framework

At Wrexham University we aim to help students develop and enhance key employability skills and capabilities during their study. There are three key areas with different attributes, attitudes and skills and the aim is to help students have the opportunity to enhance and develop skills such as resilience, adaptability, confidence, team work, emotional intelligence and communication, creativity and acting ethically and sustainably. Programmes are designed to enable students to develop and enhance these skills via module content, module learning outcomes and assessment opportunities. Each module will help provide different opportunities for developing and enhancing these capabilities.

The programme has been designed using an Employability Level Descriptor in collaboration with the Careers and Employability team. The Employability Level Descriptor document is reviewed as part of validation and following approval will be published in the student programme handbook.

The Careers and Employability team are available to provide additional career education activities for all programmes as well as individualised information, advice and guidance. Learners gain access to self-directed learning resources by logging into our [careers portal](#). Here students can book professional career guidance appointments and make employment and volunteering applications and learn to build and develop their CVs and applications.

Work based/placement learning statement

N/A

Welsh medium provision

The programmes will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh.

Assessment strategy

Considering the programme format mentioned against the Learning and Teaching Strategy above (online DL delivery) the goal is to make best use of assessment practices that similarly meet the needs of students in this context.

The assessment tasks will be determined by aligning them constructively with the module's learning outcomes and activities to ensure comprehensive coverage. The typical features of the online distance learning delivery approach for this program include the following.

For students who are working at a distance, it is critical to ensure that they are demonstrating progress through the submission of work in the VLE. Also, for professional learners, smaller submissions are more achievable during the working week. Therefore, we will have 2 assessment points per module.

Assessment methods will be varied to include formats such as online quizzes, reports, essays, case studies, projects, reflective statements, strategic plans, presentations (both written and recorded) and journals.

In addition, the assessment schedule of the programme considers the dual needs of assessment for learning and assessment of learning. The strategy is to provide a sequence and variety of assessment tasks to reflect the modular learning outcomes which contribute towards the achievement of the award. Assessments are written in a manner which



incorporates subject specific theory and content together with consideration of professional practice and educational scholarship based on current scenarios, where applicable. Each assessment includes the standard Master's level marking criteria as a foundation for consistency and provides clarity concerning the subsequent academic judgements.

The Assessment Strategy is based on commentary provided by the UK Quality Code for Higher Education, that: Assessment and feedback practices are informed by reflection, consideration of professional practice, and subject specific and educational scholarship to develop assessment activities which are closely connected with real-world situations or tasks. Criteria for assessment marking are included with each assessment document to clearly articulate and promote consistency at each level and a shared understanding of the basis on which academic judgements are made.

Feedback provision will be following current policies and practices in place throughout Wrexham University to support ongoing progression and development, this will be in electronic format. Up-to-date details are provided in the annual Programme Handbook.

All assessments are subject to inclusion in current quality practices which include second marking of a satisfactory sample and external examiner scrutiny.

The following pages contain details of indicative assessment types, which will be a varied mix of assessment types. More specific detail can be found in the module specification, and of modules to be delivered on the carousel model.

Module code & title	Assessment type and weighting	Indicative submission date
CONL701 Critical Research for Postgraduate Study	60% Written Assignment 40% Presentation	Week 5 Week 9
CONL703 Data Analysis and Visualisation	30% Coursework 70% Coursework	Week 5 Week 9
CONL704 Data Structures and Algorithms	50% Coursework 50% Coursework	Week 5 Week 9
CONL705 Database Systems	75% Coursework 25% Written Assignment	Week 6 Week 9
CONL708 Machine Learning	40% Portfolio 60% Portfolio	Week 6 Week 9
CONL709 Mobile App Development	50% Practical 50% Coursework	Week 7 Week 9
CONL710 Networking Principles	75% Coursework 25% Written Assignment	Week 6 Week 9
CONL711 Secure Software Development	70% Coursework 30% In-class Test	Week 7 Week 9
CONL713 Software Development for the Web	70% Coursework 30% In-class test	Week 7 Week 9
CONL714 Systems Engineering	70% Coursework 30% In-class test	Week 7 Week 9
CONL715 Virtual and Cloud Computing	40% Coursework 60% Coursework	Week 5 Week 9
CONL717 Applied Research Methods	40% Written Assignment 60% Presentation	Week 6 Week 9
CONL718 Dissertation	50% Dissertation/Project 50% Dissertation/Project	Week 6 Week 9
CONL721 Security and Risk Management in a Digital Environment	40% Written Assignment 60% Written Assignment	Week 5 Week 9

Module code & title	Assessment type and weighting	Indicative submission date
CONL722 Big Data: Challenges and Opportunities	75% Practical 25% Written Assignment	Week 7 Week 9
CONL723 Digital Forensics	70% Coursework 30% In-class test	Week 7 Week 9
CONL724 Ethical Hacking	70% Coursework 30% In-class test	Week 7 Week 9
CONL725 Artificial Intelligence	65 % Coursework 35% Written Assignment	Week 6 Week 9
CONL726 Ethics for Artificial Intelligence	35 % Coursework 65% Written Assignment	Week 5 Week 9
CONL727 User Interface Design	40% Written Assignment 60% Coursework	Week 6 Week 9
CONL728 Human Computer Interaction	30% Written Assignment 70% Written Assignment	Week 6 Week 9

Assessment and award regulations

Derogations

N/A

Non-Credit Bearing assessment

N/A

Borderline Classifications (Undergraduate programmes)

N/A

Ordinary Degrees

N/A

Restrictions for trailing modules (Taught Masters)

All students are required to take the Critical Research for PG Study module as their first module. Once students have completed this module along with seven carousel modules, they will be invited to enrol in CONL717. It is important to note that the module result for the seventh carousel module will not be available at the time when students are invited to register for CONL717 and complete the module payment.

Similarly, the invitation to enrol in CONL718 takes place before the result of CONL717 is available. However, students must meet the progression criteria of having passed 120 taught credits before they are allowed to continue and enrol in the dissertation module.

Prerequisites for processing to MRes research component

N/A

Accreditation

N/A

Quality Management

All provision is expected to comply with the University processes for quality assurance, the QAA Quality Code and any specific PSRB requirements to ensure the quality of the learning and teaching on the programme. The University uses the following mechanisms to help evaluate, enhance and review programmes delivery;

Student Evaluation of Module Questionnaire



Student Voice Forum
Individual student feedback
Student representatives
Continuous Programme Monitoring and Enhancement reports
Periodic review and re-validation process
External Examiner reports
PSRB requirements and accreditation activities

Support for Students

The University has a range of departments that offer support for students such as:

- Library & IT Resources
- Inclusion Services
- Careers Service
- Chaplaincy
- Counselling & Wellbeing
- Student Funding and Welfare
- Student Administration

Please access the University's website at www.wrexham.ac.uk to find out more about the Departments.

The Student Union offers support for students, please access their website at to find out more. <https://www.wrexhamglyndwrsu.org.uk/>

Students are allocated a Student Success Coordinator (SSC) to provide proactive encouragement and support throughout their online journey and to identify when students need further guidance to succeed. The SSC should always be the first point of contact for any queries or concerns. The SSC will not provide any academic advice but will direct students to the appropriate member of the academic team if an academic issue is identified. Should assistance be required from another department in the University, the SSC will then advise on contacting the relevant student services department.

Equality and Diversity

Wrexham University is committed to providing access to all students and promotes equal opportunities in compliance with the Equality Act 2010 legislation. This programme complies fully with the University's Equality and Diversity Policy, ensuring that everyone who has the potential to achieve in higher education is given the chance to do so. Please click on the following link for more information about

