

Postgraduate Programme Specification

MSc in Computer Science

This specification provides a summary of the main features of the programme and learning outcomes that a student might reasonably be expected to achieve and demonstrate where full advantage is taken of all learning opportunities offered. Further details on the learning, teaching and assessment approach for the programme and modules can be accessed on the University website and Virtual Learning Environment, GCU Learn. All programmes of the University are subject to the University's [Quality Assurance](#) processes.

1. GENERAL INFORMATION			
Programme Title	Master of Science in Computer Science		
Final Award	Master of Science in Computer Science		
Awarding Body	Glasgow Caledonian University		
School	School of Science and Engineering/GCU London		
Department	GCU London		
Mode of Study	Full-time Part-time Online Distance Learning		
Location of Delivery	Glasgow Campus London Campus		
UCAS Code			
Accreditations (PSRB)			
Period of Approval	From:	September 2024	To: August 2029

2. EDUCATIONAL AIMS OF PROGRAMME
The aim for MSc Computer Science is to deliver a programme that allows students to develop an advanced knowledge and relevant in-depth practical skills in the rapidly expanding fields of Computer Science and Analytics technologies. Students study and apply the underpinning technologies of cloud-based, information security, programming principles, software development methodologies and human computer interaction, together with developing a working knowledge of AI and Machine Learning – The programme offers a comprehensive curriculum covering both theoretical foundations and practical applications, preparing them for careers in industry or further study at the doctoral level. The programme combines the latest academic advances and provides practice in utilising the tools, techniques and design patterns used by industry professionals, to produce graduates that are intellectually and practically equipped for high quality relevant employment or capable of moving onwards to undertake related research. The programme philosophy and content are consistent-with and underpinned by professional and academic quality bodies, i.e., the BCS, ACM, IEEE and QAA. At this current time whilst the programme has been aligned to the professional bodies' standards, it has not yet been accredited to any. The programme is consistent with the University's 2030 Vision that aims to create employable graduates wanting to use their skills to make a positive difference to society.

3. LEARNING OUTCOMES
The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas: A: Knowledge and understanding;

- A1 Explain theoretical and practical concepts of Computer Science and their applications to real- world problems.
- A2 Compare processes, methods, techniques, tools and technologies and their application within Computer Science systems.
- A3 Evaluate a range of technology options to determine the most appropriate within the development of Computer Science applications.
- A4 Understand the principles and processes involved in the architecture structure and development of Computer Science systems.
- A5 Evaluate advances in processes, methods, techniques and tools used to develop, evolve and support the operation of systems that utilize Computer Science.

B: Practice: Applied knowledge, skills and understanding;

- B1 Demonstrate a comprehensive knowledge and understanding of the professional and ethical responsibilities for Computer Science practitioners.
- B2 Demonstrate a deep understanding of the concepts and practical application of Computer Science.
- B3 Demonstrate a deep understanding of the concepts, architecture and practical application of Cloud Computing Platforms.
- B4 Demonstrate deep knowledge and understanding of the concepts and application of Computer Science by undertaking a Masters dissertation on a Computer Science-centred topic.
- B5 Demonstrate an understanding of the required theory, process and practice of applying Artificial Intelligence and Machine Learning to real world problems.
- B6 Apply and understand the fundamental concepts and techniques in Data Visualisation.
- B7 Specify a set of requirements for a solution to meet the needs of stakeholders.
- B8 Practically apply appropriate and transferrable skills for the design and testing of solutions within Computer Science domains.
- B9 Demonstrate effective use of a variety of techniques, components, tools and environments in the design and development of solutions within Computer Science domains.
- B10 Apply theory to practical and realistic career-related tasks.

C: Generic cognitive skills;

- C1 Identify, analyse and solve practical problems.
- C2 Plan, conduct and report on work.
- C3 Evaluate alternative design and implementation solutions.
- C4 Critically evaluate work undertaken by themselves and others.
- C5 Critically evaluate research and technical evidence from a variety of sources.
- C6 Creativity, innovation & independent thinking.

D: Communication, numeracy and ICT skills

- D1 Demonstrate appropriate communication skills: written, oral and listening.
- D2 Demonstrate numeric ability in Computer and Data Science applications
- D3 Presentation skills.
- D4 Develop good working practice within a design/development team.
- D5 Effective information retrieval and research skills.
- D6 Demonstrate report writing skills.

E: Autonomy, accountability and working with others.

- E1 Awareness of strengths and weaknesses/ Planning, monitoring, reviewing and evaluating own learning and development.

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| E2 | Reliability, integrity, honesty and ethical awareness. |
| E3 | Ability to prioritise tasks and time management. |
| E4 | Appreciating and desiring the need for continuing professional development. |
| E5 | Interpersonal skills, team working and leadership. |
| E6 | Entrepreneurial independence and risk-taking. |
| E7 | Commercial Awareness. |
| E8 | Self-confidence, self-discipline & self-reliance (independent working). |

4. LEARNING AND TEACHING METHODS

The programme provides a variety of learning and teaching methods. Programme and Module specific guidance will provide detail of the learning and teaching methods specific to each module.

Across the programme the learning and teaching methods and approaches may include the following:

- Lectures
- Seminars
- Practical classes
- Placements
- Simulation experiences
- Groupwork
- Flipped classroom approaches
- Online learning

The above approaches may be delivered either in person or online as appropriate and determined at module level by the Module Leader.

5. ASSESSMENT METHODS

The programme provides a variety of formative and summative assessment methods. Programme and Module specific guidance will provide detail of the assessment methods specific to each module.

Across the programme the assessment methods may include the following:

- Written coursework (essays, reports, case studies, dissertation, literature review)
- Oral coursework (presentations, structured conversations)
- Practical Assessment (Placement, VIVA, Laboratory work)
- Group work
- Blogs and Wikis
- Portfolio Presentations
- Formal Examinations and Class Tests

The above assessments may be delivered either in person and online as appropriate and determined at module level by the Module Leader.

6. ENTRY REQUIREMENTS

Specific entry requirements for this programme can be found on the prospectus and study pages on the GCU website at this location: www.gcu.ac.uk/study

The Course webpage specific to this Programme is: <https://www.gcu.ac.uk/study/courses/msc-computer-science-multiple-locations>

All students entering the programme are required to adhere to the [GCU Code of Student Conduct](#).

7. PROGRAMME STRUCTURE AND AVAILABLE AND FINAL EXIT AWARDS¹

The following modules are delivered as part of this programme:

Module Code	Module Title	Core or Optional	SCQF Level	Credit Size	Coursework 1 %	Coursework 2 %
MMI127126	Human Computer Interaction	Core	11	15	70	30
MMI330703	Programming Principles	Core	11	15	60	40
MMI226824	Artificial Intelligence and Machine Learning	Core	11	15	50	50
MMI226823	Data Ethics and Research Methods	Core	11	15	30	70
MMI230702	Database Systems	Core	11	15	60	40
MMI330704	Software Engineering and DevOps	Core	11	15	50	50
MMI230701	Information Security	Core	11	15	40	60
MMI226820	Data Visualisation	Core	11	15	30	70
MMG411931	Dissertation	Core	11	60	80	20

Students undertaking the programme on a full-time basis commencing in September of each year will undertake the modules in the order presented above. This may be subject to variation for students commencing the programme at other times of year (e.g. January) and/or undertaking the programme on a part-time or distance learning mode of delivery.

The following final and early Exit Awards are available from this programme²:

Postgraduate Certificate in Computing - *achieved upon successful completion of 60 credits*

Postgraduate Diploma in Computer Science - *achieved upon successful completion of 120 credits*

MSc in Computer Science - *achieved upon successful completion of 180 credits*

8. ASSESSMENT REGULATIONS

¹ Periodically, programmes and modules may be subject to change or cancellation. Further information on this can be found on the GCU website here:

<https://www.gcu.ac.uk/currentstudents/essentials/policiesandprocedures>

² Please refer to the [GCU Qualifications Framework](#) for the minimum credits required for each level of award and the Programme Handbook for requirements on any specified or prohibited module combinations for each award.

Students should expect to complete their programme of study under the GCU Assessment Regulations that were in place at the commencement of their studies on that programme, unless proposed changes to University Regulations are advantageous to students. These can be found at:
<https://www.gcu.ac.uk/aboutgcu/services-and-facilities/qualityassuranceandenhancement/regulations-and-policies>

VERSION CONTROL (to be completed in line with AQPP processes)

Any changes to the PSP must be recorded below by the programme team to ensure accuracy of the programme of study being offered.

<i>Version Number</i>	<i>Changes/Updates</i>	<i>Date Changes/Updates made</i>	<i>Date Effective From</i>
1.0	PSP entered onto new template following event	Jan 2024	Sept 2024