

Title of Programme: MSc Computer Science (Modular)

Programme Code: CMCSM

Programme Specification

This programme specification is relevant to students entering:
01 September 2023

Associate Dean of School (Academic Quality Assurance):
Mariana Lilley



A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

Summary of amendments to the programme

Date	Section	Amendment
24.03.2021	D	7COM1083 and 7COM1087 (0-credit) Preparation for Project modules phased out, and academic content integrated into project module so that topics are covered in context, and student overheads are reduced.
24.03.2021	D	For students on the Advanced Computer Science route, 7COM1073 Foundations of Data Science will be their first default elective module. Students will have an opportunity to select a 30-credit module other than 7COM1073 Foundations of Data Science up to the end of the first teaching week.

28.03.2022	D	7COM2000 Professional Work Placement for MSc Computer Science replaces 7COM1065 Professional Work Placement for MSc Computer Science.
28.03.2022	D	'Sandwich' awards require 240 credit points including at least 210 at level 7, passing the individual project (60 credits), and a year's approved and satisfactory industrial placement (60 credit points).
16.03.23	Table 1a	Part-time entry closed. Programme is offered in full-time mode only.
16.03.23	Table 1a	Responsible Technology 7COM2001 replaces 7COM1080 Legal and Ethical Practice Exercise.
16.03.23	Table 1a	Students on the Advanced Research route will normally study (7COM1084, 7COM1085) AFTER the individual MSc project.

If you have any queries regarding the changes please email AQO@herts.ac.uk

Programme Specification

Modular Masters Programme in Computer Science

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	College Lane
Programme accredited by	BCS, The Chartered Institute for IT
Final Award (Qualification)	MSc
All Final Award titles	MSc Computer Science
(Qualification and Subject)	MSc Artificial Intelligence and Robotics MSc Computer Networks and Systems Security MSc Cyber Security MSc Data Science and Analytics MSc Software Engineering MSc Advanced Computer Science
	MSc Artificial Intelligence and Robotics (sandwich) MSc Computer Networks and Systems Security (sandwich) MSc Cyber Security (sandwich) MSc Data Science and Analytics (sandwich) MSc Software Engineering (sandwich) MSc Advanced Computer Science (sandwich) * Note: Sandwich award is NOT available for MSc Computer Science
	MSc Artificial Intelligence and Robotics with Advanced Research MSc Computer Networks and Systems Security with Advanced Research MSc Cyber Security with Advanced Research MSc Data Science and Analytics with Advanced Research MSc Software Engineering with Advanced Research MSc Advanced Computer Science with Research
	* Note: the 'with Advanced Research' award is NOT available for MSc Computer Science
FHEQ level of award	7

A. Programme Rationale

The Programme is intended to serve the needs of several kinds of postgraduate students and offers a range of awards to suit their different backgrounds and circumstances. For the purposes of this document, we divide the awards into three categories: Specialist, Generalist, and Crossover. Our purpose is to provide those working towards each of the awards with opportunities to study a set of subjects from within computer science that will complement their existing qualifications and enhance their career prospects and to do this via a set of learning experiences that will support their personal development.

The Specialist Awards

- MSc Artificial Intelligence and Robotics
- MSc Computer Networks and Systems Security
- MSc Cyber Security
- MSc Data Science and Analytics
- MSc Software Engineering

These awards are targeted at students who have a good Honours degree in computer science or a very closely related discipline and who have decided upon a specialist career path or are aiming to enter a PhD programme in one of the specialisms on offer. Those studying for one of these awards may concentrate entirely on their chosen specialism and will be expected to complete a major project that is clearly situated within that specialism.

Specialist Award students will pursue study within their chosen area informed by current research and recent technological developments and will be provided with the opportunity to carry out independent project work that is close to the forefront of the discipline. Graduates obtaining these awards will be equipped to enter specialist employment in technically advanced and unpredictable working environments requiring sound judgment and the exercise of personal responsibility and initiative.

The Generalist Award: MSc Advanced Computer Science

This award is targeted at those who have a good Honours degree in computer science or a very closely related discipline, and who wish to extend and deepen their knowledge in two or more different sub-discipline areas, with a view to enhancing their career prospects or preparing for a programme of research that requires knowledge of one or more of these sub-discipline areas. Those studying for this award will have a wide range of taught modules from which to choose and will be expected to complete a major project that extends and applies what they have learnt in one or more of the taught modules they have taken.

Within their taught modules Generalist students will pursue study informed by current research and recent technological and developments. They will also be given opportunities to carry out independent project work that is close to the forefront of the discipline. Graduates obtaining this award will be equipped to enter employment in technically advanced and unpredictable working environments requiring sound judgment and the exercise of personal responsibility and initiative.

The Crossover Award: MSc Computer Science

This award is targeted at those who have a good Honours degree (or equivalent knowledge and experience) in a numerate discipline other than computer science, and who wish to obtain core knowledge and skills in computer science that they can apply to problems drawn from the subject discipline of their first degree, and to problems that are relevant to their chosen career. Those working towards this award will be required to follow a prescribed course of taught modules and will be expected to complete a major independent project that applies what they have learnt to a problem drawn from the subject of their first degree, or from their chosen career path.

The purpose of this award is to provide a pathway into employment for those seeking positions in which they will apply their knowledge of computer science to their previous discipline area, or apply aspects of their previous discipline to problems in computer science. They are required to follow a programme of studies that rapidly brings them up to an advanced standard in a set of key subject areas, with the aim of enabling them to execute a major project in which they apply their knowledge and skills in Computer Science to a problem taken from the domain of their first degree, from their recent work experience, or from some other area.

The Sandwich Awards

Applicable to all specialist awards and MSc Advanced Computer Science award:

- MSc Artificial Intelligence and Robotics (sandwich)
- MSc Computer Networks and Systems Security (sandwich)
- MSc Cyber Security (sandwich)
- MSc Data Science and Analytics (sandwich)
- MSc Software Engineering (sandwich)
- MSc Advanced Computer Science (sandwich)

All above awards offer the opportunity for students to undertake a period of industrial placement, and so develop their understanding and skills within a professional environment. In order to be eligible for a placement, students must have passed 120 credits, including a pass from their first attempt at the first 60 credits.

All students who have become eligible for a placement will be issued a statement of eligibility from the Department of Computer Science.

The 'with Advanced Research' Awards

Applicable to specialist awards and MSc Advanced Computer Science award

MSc Artificial Intelligence and Robotics with Advanced Research
MSc Computer Networks and Systems Security with Advanced Research
MSc Cyber Security with Advanced Research
MSc Data Science and Analytics with Advanced Research
MSc Software Engineering with Advanced Research
MSc Advanced Computer Science with Research

All above awards offer the opportunity for students to study advanced research topics in computer science, normally across multiple specialisms, and comprehensive research methods, and to undertake an extended masters project on a cutting-edge research topic.

Graduates obtaining these awards will be equipped to pursue research to PhD level, or to enter specialist employment in technically advanced and unpredictable working environments requiring sound judgment and the exercise of personal responsibility and initiative.

B. Educational Aims of the Programme

Diversity and Inclusion

Our programmes are purposefully designed to enable all students to engage meaningfully with the curriculum by being accessible and representative. We will support students to shape their learning experience, removing barriers and enabling them to succeed. The curriculum explicitly includes multiple and representative perspectives, valuing collective identities and individual diversity. Learning, teaching and assessment activities help students to understand how they can enhance outcomes both for themselves and for others. All students belong to a learning community, and during their studies we really want to hear their voices, encourage them to listen to others, and express themselves.

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

Additionally this programme aims to:

- build upon their existing degree-level knowledge and practical experience;
- undertake a substantial programme of individual project work at postgraduate level;
- evaluate and further develop their skills in research, independent study and self-management, and prepare themselves for lifelong learning;
- develop an understanding of the social, legal and ethical context within which a computing professional is expected to operate, and of the standards that will be expected of them when they graduate;
- acquire the necessary skills to undertake further study or research at postgraduate level, and to secure employment in their chosen career.

For the **MSc Artificial Intelligence and Robotics**, to provide students with opportunities to:

- develop awareness of current research and practice in artificial intelligence and robotics;
- acquire the knowledge and practical skills that are needed to contribute to the design and implementation of working systems in intelligent computing;
- extend their understanding of the scope and limitations of different computational paradigms, such as the way in which Symbolic AI or stochastic methods complement each other.

For the **MSc Computer Networks and Systems Security**, to provide students with opportunities to:

- develop awareness of current research in the areas of computer networking, distributed systems and security;
- extend their knowledge of the principles underpinning technologies used for computer networking, distributed systems and security;
- extend their technical expertise and practical skills in the design, management and evaluation of networks;
- extend knowledge of and critically evaluate, techniques and tools employed in system security;
- develop the ability to respond to rapid technological change in the area of distributed systems and networks.

For the **MSc Cyber Security**, to provide the students with the opportunity to:

- develop awareness of current research and practice in cybersecurity;
- extend their knowledge and understanding of the theory, concept, principles, policies and standards in cybersecurity;
- extend their technical expertise and practical skills in the design, management and evaluation of methods and procedures employed in cyber defence;
- develop the ability to respond to rapid technological change in cybersecurity.

For the **MSc Data Science and Analytics**, to provide the students with the opportunity to:

- develop awareness of current research and practice in data science and analytics;
- extend their knowledge and understanding of the fundamental mathematical ideas behind data science and relevant computational algorithms and the fundamentals of probability, information and statistical methods
- extend their knowledge and understanding of the principles and practice of obtaining data from various sources, the essential methods for pre-processing and cleaning data, data analytics and modelling
- develop their ability of producing appropriate algorithmic definitions to provide useful data science analysis

For the **MSc Software Engineering**, to provide the students with the opportunity to:

- develop awareness of current research and practice in software engineering;
- extend theoretical knowledge and practical skills of models, methodologies, measures and tools that can be employed in the software engineering process;
- extend and deepen their knowledge and skills in the design and implementation of programmed systems;
- apply and critically evaluate a variety of software engineering practices.

For the **MSc Advanced Computer Science**, to provide students with opportunities to:

- develop awareness of current research and practice in two or more sub-discipline areas of computer science;
- develop an understanding of a variety of paradigms within which programmed systems may be developed, and how the choice of paradigm affects the approach to solving problems and the nature of the solutions obtained;
- extend their knowledge and understanding of, and their practical skills in, a range of advanced computer science topics.

For the **MSc Computer Science**, to provide students with opportunities to:

- deploy, articulate and evaluate advanced and key principles and techniques of computer science and be in a position to make critical responses and design decisions on the basis of those principles;
- develop a deep and systematic understanding of the application of computer science principles and techniques to the modelling and solution of problems in computer science and other disciplines;
- develop a deep understanding of, and practical skills in, the design and development of programmed systems that complex solve problems from within and outside computer science;
- develop a deep understanding of, and be able to critically evaluate how different approaches to modelling, design and programming can affect the nature of solutions to complex computational problems and their fitness for purpose.

Graduate Attributes

Our graduates will be capable and professional, creative and enterprising, and will build their social and global awareness throughout. In addition to their subject expertise and proficiency, as a University of Hertfordshire graduate, they will be:

- Professionally focused
- Globally minded
- Sustainability driven
- Digitally capable and confident
- Inclusive and collaborative
- Evidence based and ethical

C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014), and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2021) have been used as a guiding framework for curriculum design.

Knowledge and Understanding:	Teaching/learning methods & strategies	Assessment
<p>MSc Artificial Intelligence and Robotics graduates should have knowledge and understanding of:</p> <p>A1. The distinctive features of a variety of problem-solving paradigms within the sub-discipline area of Artificial Intelligence and Robotics Advanced principles and their practical implementation, underlying developments in Artificial Intelligence.</p>	<p>Acquisition of knowledge and understanding is through a combination of, initially, lecturer-led presentation of specific topics using lectures, tutorials and practical classes and later increasingly via guided reading among specialist textbooks and journals as the means of acquainting students with topics at the forefront of the discipline.</p> <p>Students are progressively expected to integrate leading-edge material into the core themes for their subject area with a minimum of support and to take responsibility for selection and use of advanced theories, principles and methods in particular contexts, developing their understanding of these independently. There is a module in which investigative subject-specific research methods are embedded in the taught modules. The general principles are covered explicitly in the supporting material for the project module. In the project, students learn how to apply these methods, where appropriate, to their chosen subject area, under the guidance of their project supervisor.</p> <p>The optional industrial placement provides the opportunity to contextualise knowledge and understanding in a working</p>	<p>Knowledge and understanding are assessed through a combination of in-course assessment and unseen examinations for taught modules, as deemed appropriate for the subject knowledge and skills under assessment.</p> <p>The capstone is a major project, in which knowledge and understanding must be evidenced, and must be shown to be applied in the context of a substantial piece of independent investigative and/or development work (depending upon the award being sought). The principal assessment of project outcomes is via a dissertation, which would normally include a review of relevant literature.</p> <p>To achieve A20, students on the Sandwich award reflect on knowledge gained from the placement: reconsidering theory in light of practice, the transferable skills that they have enhanced, and goals for further professional development.</p>
<p>MSc Computer Networks and Systems Security graduates should have knowledge and understanding of:</p> <p>A2. The complex interaction between different components in current and developing network technologies.</p> <p>A3. A range of leading-edge tools and techniques that can be used in developing and managing a network application/system.</p> <p>A4. The issues and problems of importance in the design and deployment of networks and distributed systems.</p> <p>A5. How research in the area of distributed systems and networks may be applied to</p>		

modern computer systems and applications.

MSc Cyber Security graduates should have knowledge and understanding of:

- A6. The fundamental and advanced aspects of cyber security in terms of theory, practice, policy and security standard to enable critical cyber security decision making.
- A7. The extant threats to current and emerging systems and networks and the effective countermeasures to such threats in compliance with information security management standards.
- A8. The social, legal and ethical issues relating to cyber security in the context of secure system design and programming, information security management, penetrating testing and cyber operations

MSc Data Science and Analytics graduates should have knowledge and understanding of:

- A9. The fundamental mathematical ideas behind data science and relevant computational algorithms and the fundamentals of probability, information and statistical methods.
- A10. The principles and practice of obtaining data from various sources, the essential methods for data pre-processing and cleaning, and data visualisation.
- A11. The underlying ethical and legal issues and constraints on the holding and the use of data.

MSc Software Engineering graduates should have knowledge and understanding of:

- A12. The complex relationships between models of software

environment, and to develop through interaction with professionals in the discipline.

Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.

A20 is achieved through the full-time, industry work placement experienced by students on the 'Sandwich' award.

engineering processes and the artefacts produced by such processes.

A13. The role of estimation and measurement in making effective technical decisions in the software engineering process.

A14. The leading-edge technical practices implemented within software engineering processes.

MSc Advanced Computer Science graduates should have knowledge and understanding of:

A15. The relationships between computational problems and the choice of programming paradigm to solve them.

A16. At least two specialist topics of computer science to advanced depth.

MSc Computer Science graduates should have knowledge and understanding of:

A17. Fundamental computer science concepts and how they may be applied to the solution of complex problems from within and outside computer science.

A18. Principles and practices of software development methodologies.

For all MSc Awards, students should be able to:

A19. Critically evaluate and reflect on professional, social, legal and ethical issues related to contemporary practices in computer science.

For all Sandwich Awards, students should be able to:

A20. Build contextual knowledge of practical and operational aspects of a CS or IT related role through a substantive work placement experience.

Intellectual skills:	Teaching/learning methods & strategies	Assessment
<p>MSc Artificial Intelligence and Robotics students should be able to:</p> <p>B1. Use and critically evaluate methods currently employed in fields covered by this route, such as neural computing, intelligent agents systems, robotics and artificial life.</p> <p>MSc Computer Networks and Systems Security students should be able to:</p> <p>B2. Use and critically evaluate a range of tools in designing and managing networks.</p> <p>B3. Critically evaluate the implications of different design and configuration decisions for particular scenarios.</p> <p>MSc Cyber Security students should be able to:</p> <p>B4. Identify and critically evaluate vulnerabilities of and threats to the security and integrity of distributed systems.</p> <p>B5. Conduct and manage a comprehensive risk assessment of the distributed systems in a complex and unpredictable environment.</p> <p>MSc Data Science and Analytics students should be able to:</p> <p>B6. Apply mathematical skills to simple data science problems, implement algorithms and programs to analyse a given dataset, and make sensible recommendations of the nature of the data analysed.</p> <p>MSc Software Engineering students should be able to:</p> <p>B7. Produce models of software engineering processes and artefacts using appropriate modelling techniques.</p> <p>B8. Apply measures to software engineering processes and artefacts and use the data</p>	<p>Intellectual skills are developed through the methods and strategies outlined in section A, above. There is a strong expectation that students independently will develop the capacity to evaluate and select suitable candidates for specific tasks.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by independent study</p>	<p>Intellectual skills are assessed through in-course assignments and the project, but also indirectly through unseen examinations where understanding developed through activity relying on these skills is required.</p>

<p>produced to evaluate software engineering activities.</p> <p>MSc Advanced Computer Science students should be able to:</p> <p>B9. Use and critically evaluate a range of methods and tools currently employed in at least two specialist topics of computer science to advanced depth.</p> <p>MSc Computer Science students should be able to:</p> <p>Use and critically evaluate a range of methods and tools currently employed in the design and/or development of computer systems to solve problems from within or without computer science.</p>		
<p>Practical skills:</p>	<p>Teaching/learning methods & strategies</p>	<p>Assessment</p>
<p>MSc Artificial Intelligence and Robotics students should be able to:</p> <p>C1. Carry out a significant independent investigation as part of their project, typically including software development.</p> <p>MSc Computer Networks and Systems Security students should be able to:</p> <p>C2. Apply the methods of computer science to various aspects of the analysis, design, implementation and evaluation of a range of networking technologies.</p> <p>C3. Individually pursue an investigation into an agreed area of study relating to networking, distributed systems, or system security.</p> <p>MSc Cyber Security students should be able to:</p> <p>C4. Select, deploy, and critically evaluate context-appropriate countermeasures which may include but are not limited to</p>	<p>Practical skills are developed through by the methods and strategies outlined in section A, above. There is a strong expectation that students independently will develop the capacity to evaluate and select suitable candidates for specific tasks. The major vehicle for this development is the final project, where they are guided by supervision from a member of the academic staff.</p> <p>The optional industrial work placement provides the opportunity to enhance the development of computing related practical abilities through interaction with professionals in the discipline.</p>	<p>Practical skills are assessed through in-course assignments and the project, but also indirectly through unseen examinations where understanding developed through activity relying on these skills is required.</p> <p>Planning, analysis and design activities are also assessed by the individual project, within which development work applying practical skills to novel problems is also normally needed in order for students to demonstrate mastery of the computing-related practical abilities relevant to their award.</p>

the use of specific cryptographic technology, techniques in writing secure code, and designing and developing a cyber defence environment.

- C5. Individually pursue an investigation into an agreed area of study relating to cyber security such as security analysis, risk assessment, or cyber operations.

MSc Data Science and Analytics students should be able to:

- C6. Apply a commonly used data science software framework that provides the essential algorithms for data visualisation and analytics for various use cases.
- C7. Individually pursue an investigation into an agreed area of study relating to data science and analytics.

MSc Software Engineering students should be able to:

- C8. Apply and critically evaluate appropriate software engineering practices with account taken of the contextual limitations of specific software development environments.
- C9. Individually pursue an investigation into an agreed area of study relating to software engineering, typically including software development.

MSc Advanced Computer Science students should be able to:

- C10. Individually pursue a significant independent investigation into an agreed area of study in computer science as part of their project, typically including software development.

MSc Computer Science students should be able to:

C11. Plan, execute, monitor and reflect upon a substantial piece of independent development work or experimentation solving problems from within or without computer science.		
Transferable skills:	Teaching/learning methods & strategies	Assessment
<p>D1. Undertake a substantial piece of practical work at postgraduate level, independent of close supervision.</p> <p>D2. Evaluate and make critical use of relevant academic and technical literature.</p> <p>D3. Utilise their knowledge in practical applications.</p> <p>D4. Build upon and extend their knowledge with a minimum of guidance.</p> <p>D5. Express themselves knowledgably and coherently, both in writing and orally.</p> <p>D6. Explain, justify and otherwise defend their work and ideas, both in its specific details and within a broader context.</p> <p>D7. Examine and apply advanced skills in computer science research.</p>	<p>Transferable skills are developed through the programme by the following:</p> <p>Skill D1 is developed through the final project and supporting lectures.</p> <p>Skill D2 is developed through guided reading, coursework assignments, the final project and supporting lectures.</p> <p>Skill D3 is developed through coursework assignments and the final project.</p> <p>Skill D4 is developed through coursework assignments and the final project.</p> <p>Skill D5 is developed through coursework assignments and the final project.</p> <p>The optional industrial placement period offers enhanced opportunities for developing either a wider range of skills, or developing specific skills to higher levels of proficiency.</p> <p>Students on the 'with Advanced Research' award study 'Advanced Research Topics in Computer Science' and 'Research Methods' in their second year, after their individual project. These two double modules provide a strong grounding in application of research and analysis, project management, and soft skills including creative problem solving.</p>	<p>Transferable skills are assessed through the following:</p> <p>Skill D1 is assessed through the final project.</p> <p>Skill D2 is assessed through examinations, coursework assignments and the final project.</p> <p>Skill D3 is assessed through coursework assignments and the final project.</p> <p>Skill D4 is assessed through examinations, coursework assignments and the final project.</p> <p>Skill D5 is assessed through examinations, coursework assignments and the final project.</p> <p>Skill D6 is assessed through coursework assignments and the final project.</p> <p>Skill D7 is assessed by coursework assignments in 'Advanced Research Topics in Computer Science' and 'Research Methods', requiring students to demonstrate knowledge in a variety of advanced research and skills areas through portfolio assessment.</p>

D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in 1-year full-time (12 or 18 months). In addition, the programme also offers 2-year full time (24 months) 'with Advanced Research' and 2-year sandwich (24 months) awards.

The study on the programme leads to the award of:

The Standard Awards

MSc Artificial Intelligence and Robotics
MSc Computer Networks and Systems Security
MSc Cyber Security
MSc Data Science and Analytics
MSc Software Engineering
MSc Advanced Computer Science
MSc Computer Science

The duration of 1-year full time programmes, in full-time study mode is 12 months for Semester A (September) entrants and 18 months for Semester B (January) entrants.

The Sandwich Awards

MSc Artificial Intelligence and Robotics (sandwich)
MSc Computer Networks and Systems Security (sandwich)
MSc Cyber Security (sandwich)
MSc Data Science and Analytics (sandwich)
MSc Software Engineering (sandwich)
MSc Advanced Computer Science (sandwich)

* Note: Sandwich award is NOT available for MSc Computer Science

The 'with Advanced Research' Awards

MSc Artificial Intelligence and Robotics with Advanced Research
MSc Computer Networks and Systems Security with Advanced Research
MSc Cyber Security with Advanced Research
MSc Data Science and Analytics with Advanced Research
MSc Software Engineering with Advanced Research
MSc Advanced Computer Science with Research

* Note: the 'with Advanced Research' award is NOT available for MSc Computer Science

Entry is normally at Masters (level 7) with related and appropriate degree qualifications. Intake is normally Semester A (September) and Semester B (January).

Professional and Statutory Regulatory Bodies

The following awards have been accredited as meeting the requirements for Partial CITP:

- MSc Computer Science
- MSc Artificial Intelligence and Robotics
- MSc Computer Networks and Systems Security
- MSc Cyber Security
- MSc Data Science and Analytics
- MSc Software Engineering
- MSc Advanced Computer Science

- MSc Artificial Intelligence and Robotics (sandwich)
- MSc Computer Networks and Systems Security (sandwich)
- MSc Cyber Security (sandwich)
- MSc Data Science and Analytics (sandwich)
- MSc Software Engineering (sandwich)
- MSc Advanced Computer Science (sandwich)
- Note: Sandwich award is NOT available for MSc Computer Science

- MSc Artificial Intelligence and Robotics with Advanced Research
- MSc Computer Networks and Systems Security with Advanced Research
- MSc Cyber Security with Advanced Research
- MSc Data Science and Analytics with Advanced Research
- MSc Software Engineering with Advanced Research
- MSc Advanced Computer Science with Research

The awards above have been accredited by BCS, The Chartered Institute for IT. Accreditation is a mark of assurance that the degree meets the standards set by BCS. An accredited degree entitles you to professional membership of BCS, which is an important part of the criteria for achieving Chartered IT Professional (CITP) status through the Institute. Some employers recruit preferentially from accredited degrees, and an accredited degree is likely to be recognised by other countries that are signatories to international accords.

Work-Based Learning, including Sandwich Programmes

A sandwich award requires the successful completion of at least 30 weeks full-time equivalent placement activity from a maximum of two separate approved placements, neither of which will be normally less than 12 weeks in duration as defined in [UPR AS11](#). Students are supported by the Careers and Placements Office in finding a placement.

Students enrolled on the sandwich (Placement) version of their award will be enrolled on a zero credited module (7COM1064) during the Semester before they go for placement to prepare them for a placement and support their efforts in securing an appropriate placement.

Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Table 1a Outline Programme Structure

MSc Computer Science

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Operating Systems and Networks	7COM1012	15	0	0	100	0	A
Programming and Program Design	7COM1015	30	20	55	25	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Software Development Exercise	7COM1081	30	20	0	80	0	B
Computer Architectures	7COM1013	15	80	0	20	0	B
Multi-User Database Systems	7COM1082	15	50	50	0	0	B
Computer Science Masters Project	7COM1040	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Software Development Exercise	7COM1081	30	20	0	80	0	B
Computer Architectures	7COM1013	15	80	0	20	0	B
Multi-User Database Systems	7COM1082	15	50	50	0	0	B
Semester C: Vacation							
Operating Systems and Networks	7COM1012	15	0	0	100	0	A
Programming and Program Design	7COM1015	30	20	55	25	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Academic Session 2							
Computer Science Masters Project	7COM1040	60	0	0	80	20	B

MSc Artificial Intelligence and Robotics

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Semester C: Vacation							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Academic Session 2							
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	B

MSc Artificial Intelligence and Robotics (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	A

MSc Artificial Intelligence and Robotics with Advanced Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Semester C: Vacation							
Year 2							
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Semester C: Vacation							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Artificial Intelligence and Robotics Masters Project	7COM1086	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

MSc Computer Networks and System Security

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Semester C: Vacation							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Academic Session 2							
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	B

MSc Computer Networks and System Security (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	A

MSc Computer Networks and Systems Security with Advanced Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Semester C: Vacation							
Year 2							
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Secure Systems Programming	7COM1028	15	0	50	50	0	B
Network System Administration	7COM1029	15	30	0	50	20	B
Semester C: Vacation							
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Computer Networks and Systems Security Masters Project	7COM1077	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

MSc Cyber Security

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Cyber Security Masters Project	7COM1070	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Semester C: Vacation							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Academic Session 2							
Cyber Security Masters Project	7COM1070	60	0	0	80	20	C

MSc Cyber Security (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Cyber Security Masters Project	7COM1070	60	0	0	80	20	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Cyber Security Masters Project	7COM1070	60	0	0	80	20	A

MSc Cyber Security with Advanced Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Semester C: Vacation							
Year 2							
Cyber Security Masters Project	7COM1070	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Digital Forensics	7COM1067	15	40	0	60	0	B
Penetration Testing	7COM1068	15	20	0	80	0	B
Semester C: Vacation							
Information Security Management and Compliance	7COM1066	15	40	0	60	0	A
Cyber Operations	7COM1069	15	40	0	60	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Cyber Security Masters Project	7COM1070	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

MSc Data Science and Analytics

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Foundations of Data Science	7COM1073	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	B
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Foundations of Data Science	7COM1073	30	0	60	40	0	B
Semester C: Vacation							
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	A
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	A
Academic Session 2							
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	B

MSc Data Science and Analytics (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Foundations of Data Science	7COM1073	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Foundations of Data Science	7COM1073	30	0	60	40	0	B
Semester C: Vacation							
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	A
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	A

MSc Data Science and Analytics with Advanced Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Foundations of Data Science	7COM1073	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	B
Semester C: Vacation							
Year 2							
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Foundations of Data Science	7COM1073	30	0	60	40	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Semester C: Vacation							
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Data Mining	7COM1018	15	0	60	40	0	A
Applied Data Science and Analytics	7COM1074	15	45	0	55	0	A
Year 2							
Data Science and Analytics Masters Project	7COM1075	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

MSc Software Engineering

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Software Engineering Masters Project	7COM1038	60	0	0	80	20	C

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Semester C: Vacation							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Academic Session 2							
Software Engineering Masters Project	7COM1038	60	0	0	80	20	B

MSc Software Engineering (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Software Engineering Masters Project	7COM1038	60	0	0	80	20	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Software Engineering Masters Project	7COM1038	60	0	0	80	20	A

MSc Software Engineering with Advanced Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules Module Title	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Year 1							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Semester C: Vacation							
Year 2							
Software Engineering Masters Project	7COM1038	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules Module Title	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Year 1							
Programming for Software Engineers	7COM1025	30	0	50	50	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Semester C: Vacation							
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Software Engineering Masters Project	7COM1038	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

MSc Advanced Computer Science

Mode of study Full-time 1 year (180 Credits)

Entry point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Advanced Computer Science Masters Project	7COM1039	60	0	0	80	20	C

Please choose 1x 30 credit optional modules for Semester A **AND** Semester B (as identified in the table above), your total credits should add up to 180.

Optional Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; if no selection is made, the OPTIONAL modules will default to:

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

Mode of study Full-time 18 months (180 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Academic Session 1							
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Semester C: Vacation							
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Academic Session 2							
Software Engineering Masters Project	7COM1038	60	0	0	80	20	B

Please choose 1x 30 credit optional modules for Semester A **AND** Semester B (as identified in the table above), your total credits should add up to 180.

Optional Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Titles							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; if no selection is made, the OPTIONAL modules will default to:

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

MSc Advanced Computer Science (Sandwich)

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	AB
Advanced Computer Science Masters Project	7COM1039	60	0	0	80	20	C

Please choose 1x 30 credit optional module for Semester A **AND** Semester B (as identified in table below), your total credits should add up to 240.

Optional Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; if no selection is made, the OPTIONAL modules will default to:

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Title							
Year 1							
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Preparation for Placement	7COM1064	0	0	0	P/F	0	B
Semester C: Vacation							
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Professional Work Placement for MSc Computer Science	7COM2000	60	0	0	P/F	0	BC
Advanced Computer Science Masters Project	7COM1039	60	0	0	80	20	A

Please choose 1x 30 credit optional module for Semester A **AND** Semester B (as identified in table above), your total credits should add up to 180.

Optional Modules	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Module Titles							
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; if no selection is made, the OPTIONAL modules will default to:

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

MSc Advanced Computer Science with Research

Mode of Study: Full-time 2 years (240 Credits)

Entry Point Semester A (September) entry

Compulsory Modules Module Title	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Year 1							
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Semester C: Vacation							
Year 2							
Advanced Computer Science Masters Project	7COM1039	60	0	0	80	20	A
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	B
Research Methods	7COM1085	30	0	0	P/F	0	C

Please choose 1x 30 credit optional modules for Semester A **AND** Semester B (as identified in table above), your total credits should add up to 240.

Optional Modules Module Titles	Module Code	Credit Points	Test	Examination	Coursework	Practical	Semesters
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; if no selection is made, the OPTIONAL modules will default to:

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

Mode of study Full-time 2 years (240 Credits)

Entry point Semester B (January) entry

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Year 1							
Optional Semester B Module (1x30cr)	OPTIONAL	30					B
Computational Algorithms and Paradigms	7COM1078	30	70	0	30	0	B
Semester C: Vacation							
Optional Semester A Module (1x30cr)	OPTIONAL	30					A
Team Research and Development Project	7COM1079	15	20	0	80	0	A
Responsible Technology	7COM2001	15	40	0	60	0	A
Year 2							
Advanced Computer Science Masters Project	7COM1039	60	0	0	80	20	B
Research Methods	7COM1085	30	0	0	P/F	0	C
Advanced Research Topics in Computer Science	7COM1084	30	0	0	P/F	0	A

Please choose 1x 30 credit optional modules for Semester A **AND** Semester B (as identified in table above), your total credits should add up to 240.

Optional Modules Module Titles	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Artificial Life with Robotics	7COM1032	30	30	0	70	0	A
Foundations of Data Science	7COM1073	30	0	60	40	0	A, B
Wireless Mobile and Multimedia Networking	7COM1076	30	10	50	40	0	A
Measures and Models for Software Engineering	7COM1024	30	0	60	40	0	A
Theory and Practice of Artificial Intelligence	7COM1034	30	100	0	0	0	B
Neural Networks and Machine Learning	7COM1033	30	40	60	0	0	B
Distributed Systems Security	7COM1027	30	40	60	0	0	B
Software Engineering Practice and Experience	7COM1026	30	60	0	20	20	B
Programming for Software Engineers	7COM1025	30	0	50	50	0	B

Students will have an opportunity to select their OPTIONAL modules up to the end of the first teaching week; **if no selection is made, the OPTIONAL modules will default to:**

- Foundations of Data Science 7COM1073 in Semester A;
- Programming for Software Engineers 7COM1025 in Semester B.

The award of an MSc degree requires 180 credit points with at least 150 points passed at level 7 plus the requirements specified in Section 2 (Programme-specific assessment regulations).

The award of an MSc 'Sandwich' or 'With Advanced Research' degree requires 240 credit points with at least 210 points passed at level 7 plus the requirements specified in Section 2 (Programme-specific assessment regulations).

Table 1b Final and interim awards available

The programme provides the following final and interim awards:

Final Award	Award Title	Minimum requirements	Available at end of (normally):	Programme Learning Outcomes developed (see above)
Masters	MSc Artificial Intelligence and Robotics	180 credit points, which must include all core modules for the award.	3 Semesters for Semester A (September) entrants. 1 Semester plus vacation plus 2 further Semesters for Semester B (January) entrants	A1, A16, A19, B1, C1, D1, D2, D3, D4, D5, D6
	MSc Computer Networks and Systems Security			A2, A3, A4, A5, A16, A19, B2, B3, C2, C3 D1, D2, D3, D4, D5, D6
	MSc Cyber Security			A6, A7, A8, A16, A19, B4, B5, C4, C5 D1, D2, D3, D4, D5, D6
	MSc Data Science and Analytics			A9, A10, A11, A16, A19 B6, C6, C7 D1, D2, D3, D4, D5, D6
	MSc Software Engineering			A12, A13, A14, A16, A19, B7, B8, C8, C9 D1, D2, D3, D4, D5, D6
	MSc Advanced Computer Science			A15, A16, A19, B9, C10, D1, D2, D3, D4, D5, D6
	MSc Computer Science			A17, A18, A19, B10, C11, D1, D2, D3, D4, D5, D6
Masters	MSc Artificial Intelligence and Robotics (sandwich)	240 credit points, which must include all core modules for the award.	6 Semesters	A1, A16, A19, A20 B1, C1, D1, D2, D3, D4, D5, D6
	MSc Computer Networks and Systems Security (sandwich)			A2, A3, A4, A5, A16, A19, A20 B2, B3, C2, C3 D1, D2, D3, D4, D5, D6
	MSc Cyber Security (sandwich)			A6, A7, A8, A16, A19, A20 B4, B5, C4, C5 D2, D3, D4, D5, D6
	MSc Data Science and Analytics (sandwich)			A9, A10, A11, A16, A19, A20 B6, C6, C7 D1, D2, D3, D4, D5, D6
	MSc Software Engineering (sandwich)			A12, A13, A14, A16, A19, A20 B7, B8, C8, C9 D1, D2, D3, D4, D5, D6
	MSc Advanced Computer Science (sandwich)			
Masters	MSc Artificial Intelligence and Robotics with Advanced Research	240 credit points, which must include all core modules for the award.	6 Semesters	A1, A16, A19, B1, C1, D1, D2, D3, D4, D5, D6, D7
	MSc Computer Networks and			A2, A3, A4, A5, A16, A19, B2, B3, C2, C3

Systems Security with Advanced Research		D1, D2, D3, D4, D5, D6, D7
MSc Cyber Security with Advanced Research		A6, A7, A8, A16, A19, B4, B5, C4, C5 D1, D2, D3, D4, D5, D6, D7
MSc Data Science and Analytics with Advanced Research		A9, A10, A11, A16, A19 B6, C6, C7 D1, D2, D3, D4, D5, D6, D7
MSc Software Engineering with Advanced Research		A12, A13, A14, A16, A19, B7, B8, C8, C9 D1, D2, D3, D4, D5, D6, D7
MSc Advanced Computer Science with Research		A15, A16, A19, B9, C10, D1, D2, D3, D4, D5, D6, D7

Interim Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
Postgraduate Certificate	Postgraduate Certificate (untitled)	60 credit points at Level 7.	1-2 Semesters	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm
Postgraduate Diploma	Postgraduate Diploma Artificial Intelligence and Robotics Postgraduate Diploma Computer Networks and Systems Security Postgraduate Diploma Cyber Security Postgraduate Diploma Data Science and Analytics Postgraduate Diploma Software Engineering Postgraduate Diploma Computer Science	120 credit points at level 7 Students must pass 120 credits worth of taught modules that are core for the award. Compensation may be allowed at the discretion of the Programme Board of Examiners.	2-3 Semesters	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.

	Postgraduate Diploma Advanced Computer Science	<p>All taught modules for each specialist award are Core (compulsory), though compensation may be allowed at the discretion of the Programme Board of Examiners.</p> <p>At the discretion of the Programme Board of Examiners, candidates with an FNFA in 7COM1078 may be permitted to substitute an approved 30 credits of modules that are Elective for the award.</p>	2-3 Semesters	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.
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Masters and Diploma awards can be made "with Distinction" or "with Commendation" where criteria as described in [UPR AS14](#), Section D and the students' handbook are met.

Programme-specific assessment regulations

The programme is compliant with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12](#) and [UPR AS14](#)) with the exception of those listed below, which have been specifically approved by the University:

- A compensated pass cannot be awarded for the individual MSc project.
- A compensated pass cannot be awarded for the Professional Work Placement for MSc Computer Science module.

Further points of clarification and interpretation relevant to this specific programme are given below:

- To enrol on the project module, students must typically have studied 120 credits of taught modules from the programme and passed at least 60 credits (in order to satisfy UPR AS14, D5.2.3).
- **To be eligible for a placement, students must have passed 120 credits, AND passed their first 60 credits at first sitting. Students who have not met these progression requirements, including those with outstanding deferrals, will normally be transferred from the sandwich course to the corresponding 2-year 'with Advanced Research' course.** Students may also be eligible to transfer to the corresponding 180-credit pathway, following consultation with the programme leader.
- All students who have become eligible for a placement will be issued a statement of eligibility from the Department of Computer Science.
- Students are responsible for securing their placement. Students are required to secure their placement by the School's published deadline. Students who do not secure a placement by the deadline, will normally be automatically transferred from the Sandwich award to the corresponding 2-year 'With Advanced Research' course.
- For registration to continue, students should normally have met the requirements for the PG Dip award within three years and the MSc award within four years (all periods calculated from date of registration on the Programme).

- Students who are registered on the standard 180-credit full time course are not normally allowed to change their study pattern to the corresponding 2-year full time Sandwich course or the 2-year full time 'With Advanced Research' course.
- **Modules normally only run in either Semester A or Semester B. Failed modules can only be repeated in the semester in which they run. Therefore, depending on when the opportunity exists to repeat failed modules, International Students on certain student visas will need to return to their country of residency and apply for a new visa to return to repeat modules at a later date.**

Course Code	Award Title	Modules (child instance codes & title)	Must be included in classification algorithm?
PECSMACS	MSc Advanced Computer Science	Advanced Computer Science Masters Project 7COM1039	No
PECSMACSE	MSc Advanced Computer Science (sandwich)	Advanced Computer Science Masters Project 7COM1039 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMACSE	MSc Advanced Computer Science with Research	Advanced Computer Science Masters Project 7COM1039 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No
PECSMAIR	MSc Artificial Intelligence and Robotics	Artificial Intelligence and Robotics Masters Project 7COM1086	No
PECSMAIRE	MSc Artificial Intelligence and Robotics (sandwich)	Artificial Intelligence and Robotics Masters Project 7COM1086 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMAIRE	MSc Artificial Intelligence and Robotics with Advanced Research	Artificial Intelligence and Robotics Masters Project 7COM1086 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No
PECSMCNSS	MSc Computer Networks and Systems Security	Computer Networks and Systems Security Masters Project 7COM1077	No
PECSMCNSE	MSc Computer Networks and Systems Security (sandwich)	Computer Networks and Systems Security Masters Project 7COM1077 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMCNSE	MSc Computer Networks and Systems Security with Advanced Research	Computer Networks and Systems Security Masters Project 7COM1077 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No

PECSCSM	MSc Computer Science	Computer Science Masters Project 7COM1040	No
PECSMCYS	MSc Cyber Security	Cyber Security Masters Project 7COM1070	No
PECSMCYSE	MSc Cyber Security (sandwich)	Cyber Security Masters Project 7COM1070 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMCYSE	MSc Cyber Security with Advanced Research	Cyber Security Masters Project 7COM1070 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No
PECSMDSA	MSc Data Science and Analytics	Data Science and Analytics Masters Project 7COM1075	No
PECSMSEE	MSc Data Science and Analytics (sandwich)	Data Science and Analytics Masters Project 7COM1075 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMDSAE	MSc Data Science and Analytics with Advanced Research	Data Science and Analytics Masters Project 7COM1075 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No
PECSMSE	MSc Software Engineering	Software Engineering Masters Project 7COM1038	No
PECSMSEE	MSc Software Engineering (sandwich)	Software Engineering Masters Project 7COM1038 Professional Work Placement for MSc Computer Science 7COM2000	No
PECSMSEE	MSc Software Engineering with Advanced Research	Software Engineering Masters Project 7COM1038 Advanced Research Topics in Computer Science 7COM1084 Research Methods 7COM1085	No

E. Management of Programme & Support for student learning

Management

The programme is managed and administered through:

- The Programme Leader, who is responsible for advising students on the programme as a whole and chairing the programme committee.
- Student representatives on programme committees
- Module Leaders.
- A designated administrative team to deal with day-to-day administration associated with the modules within the programme

Support

Students are supported by:

- An induction week at the beginning of each new academic session.
- Overseas Orientation.
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc.
- Office of Dean of Students, Student Wellbeing (incorporating Counselling, Mental Health and Disability Support), Chaplaincy, and Day Nursery.
- A versatile on-line inter-active intranet and learning environment.
- Guided student-centred learning on Canvas module sites.
- Access to extensive digital and print collections of information resources.
- Attractive modern study environments in 3 Learning Resources Centres.
- Student Success Hubs, which include a Mathematics Drop-in Centre.
- Medical Centre.
- University Disability Advisors.
- Careers and Employment.
- Hertfordshire Student's Union.
- Dedicated programme site

F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A dedicated programme site
- A Definitive Module Document (DMD) for each constituent module;

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>.

G. Entry requirements

For guidance purposes, the normal entry requirements for the programme are:

For admission to:

- MSc Artificial Intelligence and Robotics
- MSc Computer Networks and Systems Security
- MSc Cyber Security
- MSc Data Science and Analytics
- MSc Software Engineering
- MSc Advanced Computer Science
- MSc Artificial Intelligence and Robotics (sandwich)
- MSc Computer Networks and Systems Security (sandwich)

- MSc Cyber Security (sandwich)
- MSc Data Science and Analytics (sandwich)
- MSc Software Engineering (sandwich)
- MSc Advanced Computer Science (sandwich)
- MSc Artificial Intelligence and Robotics with Advanced Research
- MSc Computer Networks and Systems Security with Advanced Research
- MSc Cyber Security with Advanced Research
- MSc Data Science and Analytics with Advanced Research
- MSc Software Engineering with Advanced Research
- MSc Advanced Computer Science with Research

A student should have a recent good Honours Degree (or equivalent) in Computer Science or cognate discipline.

For admission to:

- MSc Computer Science

A student should have a recent good Honours Degree in a non-Computer Science subject combined with knowledge or experience of computing that goes beyond that of an end-user.

Applicants whose first language is not English must demonstrate sufficient competence in English to benefit from the Programme. This is normally demonstrated by recognised awards, as presented in: <https://www.herts.ac.uk/international/new-international-students/international-apply-now/international-entry-requirements>. Candidates who do not satisfy these requirements will be considered on a case-by-case basis.

For current entry tariff point requirements, please refer to the relevant page for the Course on the University website or on the online prospectus.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

If you would like this information in an alternative format please contact: Hutton Hub Student Administration Service hhaq@herts.ac.uk

If you wish to receive a copy of the latest External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

Table 2: Development of Intended Programme Learning Outcomes in the Constituent Modules

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

MSc Artificial Intelligence and Robotics

		Programme Learning Outcomes (as identified in section 1 and the following page)												
		Knowledge & Understanding				Intellectual Skills			Practical Skills			Transferable Skills		
Module Title	Module Code	A1	A16	A19	A20	B1	C1	D1	D2	D3	D4	D5	D6	D7
Theory and Practice of Artificial Intelligence	7COM1034	X	X			X			x	X	x		x	
Artificial Life with Robotics	7COM1032	X	x			X			X	X	X		X	
Neural Networks and Machine Learning	7COM1033	X	X			X			X	X	X		X	
Team Research and Development Project	7COM1079		X						X	X	X	X	X	
Responsible Technology	7COM2001			X					X	X	X	X		
Artificial Intelligence and Robotics Masters Project	7COM1086	X	X			x	x	x	X	x	X	x	X	
And for the MSc Artificial Intelligence and Robotics (Sandwich)														
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement												
Professional Work Placement for MSc Computer Science	7COM2000				X					X				
And for the MSc Artificial Intelligence and Robotics with Advanced Research														
Advanced Research Topics in Computer Science	7COM1084	X	X						X		X			X
Research Methods	7COM1085	X	X						X		X			X

MSc Computer Networks and Systems Security

Programme Learning Outcomes (as identified in section 1 and the following page)																		
Knowledge and Understanding									Intellectual Skills			Practical Skills			Transferable Skills			

Module Title	Module Code	A2	A3	A4	A5	A16	A19	A20	B1	B2	C1	C2	D1	D2	D3	D4	D5	D6	D7
Wireless Mobile and Multimedia Networking	7COM1076	X	X	X	X	X			X	X	X								
Network System Administration	7COM1029	X	X			X			X	X	X								
Secure Systems Programming	7COM1028	X	X	X	X	X			X	X	X			X	X	X		X	
Distributed Systems Security	7COM1027	X	X	X	X	X			X	X	X			X	X	X		X	
Team Research and Development Project	7COM1079					X								X	X	X	X	X	
Responsible Technology	7COM2001						X							X	X	X	X		
Computer Networks and Systems Security Masters Project	7COM1077	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	
And for the MSc Computer Networks and Systems Security (Sandwich)																			
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement																	
Professional Work Placement for MSc Computer Science	7COM2000							X							X				
And for the MSc Computer Networks and Systems Security with Advanced Research																			
Advanced Research Topics in Computer Science	7COM1084	X				X								X		X			X
Research Methods	7COM1085	X				X								X		X			X

MSc Cyber Security

		Programme Learning Outcomes (as identified in section 1 and the following page)																
		Knowledge and Understanding					Intellectual Skills			Practical Skills			Transferable Skills					
Module Title	Module Code	A6	A7	A8	A16	A19	A20	B4	B5	C4	C5	D1	D2	D3	D4	D5	D6	D7
Distributed Systems Security	7COM1027	X	X	X	X			X	X	X								
Cyber Operations	7COM1069	X	X	X	X			X	X	X								
Penetration Testing	7COM1068	X	X	X	X			X	X	X								
Information Security Management and Compliance	7COM1066	X	X	X	X			X	X	X								
Digital Forensics	7COM1067	X	X	X	X			X	X	X			X	X	X		X	
Team Research and Development Project	7COM1079				X								X	X	X	X	X	
Responsible Technology	7COM2001					X							X	X	X	X		
Cyber Security Masters Project	7COM1070	X	X	X	X			X	X	X	X	X	X	X	X	X	X	
And for the MSc Cyber Security (Sandwich)																		
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement.																
Professional Work Placement for MSc Computer Science	7COM2000						X							X				
And for the MSc Cyber Security with Advanced Research																		
Advanced Research Topics in Computer Science	7COM1084	X			X								X		X			X
Research Methods	7COM1085	X			X								X		X			X

MSc Data Science and Analytics

Programme Learning Outcomes (as identified in section 1 and the following page)																			
		Knowledge and Understanding						Intellectual Skills		Practical Skills			Transferable Skills						
Module Title	Module Code	A9	A10	A11	A16	A19	A20	B6	C6	C7	D1	D2	D3	D4	D5	D6	D7		
Neural Networks and Machine Learning	7COM1033		X	X	X			X	X										
Data Mining	7COM1018	X	X	X	X			X	X										
Foundations of Data Science	7COM1073	X	X	X	X			X	X										
Applied Data Science and Analytics	7COM1074	X	X	X	X			X	X										
Team Research and Development Project	7COM1079				X							X	X	X	X	X			
Responsible Technology	7COM2001					X						X	X	X	X				
Data Science and Analytics Masters Project	7COM1075	X	X	X	X			X	X	X	X	X	X	X	X	X			
And for the MSc Data Science and Analytics (sandwich)																			
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement.																	
Professional Work Placement for MSc Computer Science	7COM2000						X						X						
And for the MSc Data Science and Analytics with Advanced Research																			
Advanced Research Topics in Computer Science	7COM1084	X			X							X		X			X		
Research Methods	7COM1085	X			X							X		X			X		

MSc Software Engineering

		Programme Learning Outcomes (as identified in section 1 and the following page)																
		Knowledge and Understanding						Intellectual Skills		Practical Skills			Transferable Skills					
Module Title	Module Code	A12	A13	A14	A16	A19	A20	B6	B7	C8	C9	D1	D2	D3	D4	D5	D6	D7
Software Engineering Practice and Experience	7COM1026	X	X	X	X			X	X	X								
Programming for Software Engineers	7COM1025	X	X	X	X			X	X	X								
Measures and Models for Software Engineering	7COM1024	X	X	X	X			X	X	X								
Team Research and Development Project	7COM1079				X								X	X	X	X	X	
Responsible Technology	7COM2001					X							X	X	X	X		
Software Engineering Masters Project	7COM1075	X	X	X	X			X		X	X	X	X	X	X	X	X	
And for the MSc Software Engineering (sandwich)																		
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement.																
Professional Work Placement for MSc Computer Science	7COM2000						X							X				
And for the MSc Software Engineering with Advanced Research																		
Advanced Research Topics in Computer Science	7COM1084	X			X								X		X			X
Research Methods	7COM1085	X			X								X		X			X

MSc Advanced Computer Science

		Programme Learning Outcomes (as identified in section 1 and the following page)												
		Knowledge and Understanding				Intellectual Skills		Practical Skills		Transferable Skills				
Module Title	Module Code	A15	A16	A19	A20	B9	C10	D1	D2	D3	D4	D5	D6	D7
Theory and Practice of Artificial Intelligence	7COM1034		X			X			X	X	X		X	
Artificial Life with Robotics	7COM1032		X			X			X	X	X		X	
Neural Networks and Machine Learning	7COM1033		X			X			X	X	X		X	
Data Mining	7COM1018		X			X			X	X	X		X	
Foundations of Data Science	7COM1073		X			X			X	X	X		X	
Applied Data Science and Analytics	7COM1074		X			X			X	X	X		X	
Wireless Mobile and Multimedia Networking	7COM1076		X			X			X	X	X		X	
Network System Administration	7COM1029		X			X			X	X	X		X	
Secure Systems Programming	7COM1028		X			X			X	X	X		X	
Distributed Systems Security	7COM1027		X			X			X	X	X		X	
Cyber Operations	7COM1069		X			X			X	X	X		X	
Penetration Testing	7COM1068		X			X			X	X	X		X	
Information Security Management and Compliance	7COM1066		X			X			X	X	X		X	
Digital Forensics	7COM1067		X			X			X	X	X		X	
Software Engineering Practice and Experience	7COM1026		X			X			X	X	X		X	
Programming for Software Engineers	7COM1025		X			X			X	X	X		X	
Measures and Models for Software Engineering	7COM1024		X			X			X	X	X		X	
Computational Algorithms and Paradigms	7COM1078	X	X			X			X	X	X		X	
Team Research and Development Project	7COM1079		X						X	X	X	X	X	
Responsible Technology	7COM2001			X					X	X	X	X		
Advanced Computer Science Masters Project	7COM1039	X	X			X	X	X	X	X	X	X	X	
And for the MSc Advanced Computer Science (Sandwich)														
Preparation for Placement	7COM1064	This module will prepare students on the sandwich awards for a placement and support their efforts in securing an appropriate placement.												
Professional Work Placement for MSc Computer Science	7COM2000				X					X				
And for the MSc Advanced Computer Science with Research														
Advanced Research Topics in Computer Science	7COM1084	X	X						X		X			X
Research Methods	7COM1085	X	X						X		X			X

MSc Computer Science

		Programme Learning Outcomes (as identified in section 1 and the following page)												
		Knowledge and Understanding					Intellectual Skills	Practical Skills	Transferable Skills					
Module Title	Module Code	A16	A17	A18	A19	A20	B10	C11	D1	D2	D3	D4	D5	D6
Programming and Program Design	7COM1015		X	X			X							
Computer Architectures	7COM1013		X				X							
Operating Systems and Networks	7COM1012		X				X			X	X	X		X
Software Development Exercise	7COM1081		X	X			X			X	X	X		X
Multi-User Database Systems	7COM1082	X	X	X			X			X	X	X		X
Responsible Technology	7COM2001			X	X					X	X	X	X	
Computer Science Masters Project	7COM1040	X	X				X	X	X	X	X	X	X	X

KEY TO PROGRAMME LEARNING OUTCOMES

Knowledge and Understanding

MSc Artificial Intelligence and Robotics

- A1. The distinctive features of a variety of problem-solving paradigms within the sub-discipline area of Artificial Intelligence and Robotics Advanced principles and their practical implementation, underlying developments in Artificial Intelligence

MSc Computer Networks and Systems Security

- A2. The complex interaction between different components in current and developing network technologies
- A3. A range of leading-edge tools and techniques that can be used in developing and managing a network application/system
- A4. The issues and problems of importance in the design and deployment of networks and distributed systems
- A5. How research in the area of distributed systems and networks may be applied to modern computer systems and applications

MSc Cyber Security

- A6. The fundamental and advanced aspects of cyber security in terms of theory, practice, policy and security standard to enable critical cyber security decision making
- A7. The extant threats to current and emerging systems and networks and the effective countermeasures to such threats in compliance with information security management standards
- A8. The social, legal and ethical issues relating to cyber security in the context of secure system design and programming, information security management, penetrating testing and cyber operations

MSc Data Science and Analytics

- A9. The fundamental mathematical ideas behind data science and relevant computational algorithms and the fundamentals of probability, information and statistical methods

Practical Skills

MSc Artificial Intelligence and Robotics

- C1. Carry out a significant independent investigation as part of their project, typically including software development.

MSc Computer Networks and Systems Security

- C2. Apply the methods of computer science to various aspects of the analysis, design, implementation and evaluation of a range of networking technologies.
- C3. Individually pursue an investigation into an agreed area of study relating to networking, distributed systems, or system security

MSc Cyber Security

- C4. Select, deploy, and critically evaluate context-appropriate countermeasures which may include but are not limited to the use of specific cryptographic technology, techniques in writing secure code, and designing and developing a cyber defence environment
- C5. Individually pursue an investigation into an agreed area of study relating to cyber security such as security analysis, risk assessment, or cyber operations

MSc Data Science and Analytics

- C6. Apply a commonly used data science software framework that provides the essential algorithms for data visualisation and analytics for various use cases

- A10. The principles and practice of obtaining data from various sources, the essential methods for data pre-processing and cleaning, and data visualisation.
- A11. The underlying ethical and legal issues and constraints on the holding and the use of data.

MSc Software Engineering

- A12. The complex relationships between models of software engineering processes and the artefacts produced by such processes.
- A13. The role of estimation and measurement in making effective technical decisions in the software engineering process.
- A14. The leading-edge technical practices implemented within software engineering processes.

MSc Advanced Computer Science

- A15. The relationships between computational problems and the choice of programming paradigm to solve them.
- A16. At least two specialist topics of computer science to advanced depth.

MSc Computer Science

- A17. Fundamental computer science concepts and how they may be applied to the solution of complex problems from within and outside computer science.
- A18. Principles and practices of software development methodologies.

For all MSc Awards

- A19. Critically evaluate and reflect on professional, social, legal and ethical issues related to contemporary practices in computer science

For all Sandwich Awards

- A20. Build contextual knowledge of practical and operational aspects of a CS or IT related role through a substantive work placement experience

Intellectual Skills

- C7. Individually pursue an investigation into an agreed area of study relating to data science and analytics

MSc Software Engineering

- C8. Apply and critically evaluate appropriate software engineering practices with account taken of the contextual limitations of specific software development environments
- C9. Individually pursue an investigation into an agreed area of study relating to software engineering, typically including software development.

MSc Advanced Computer Science

- C10. Individually pursue a significant independent investigation into an agreed area of study in computer science as part of their project, typically including software development.

MSc Computer Science

- C11. Plan, execute, monitor and reflect upon a substantial piece of independent development work or experimentation solving problems from within or without computer science

Transferable Skills

MSc Artificial Intelligence and Robotics

B1. Use and critically evaluate methods currently employed in fields covered by this route, such as neural computing, intelligent agents systems, robotics and artificial life.

MSc Computer Networks and Systems Security

B2. Use and critically evaluate a range of tools in designing and managing networks.
B3. Critically evaluate the implications of different design and configuration decisions for particular scenarios.

MSc Cyber Security

B4. Identify and critically evaluate vulnerabilities of and threats to the security and integrity of distributed systems
B5. Conduct and manage a comprehensive risk assessment of the distributed systems in a complex and unpredictable environment.

MSc Data Science and Analytics

B6. Apply mathematical skills to simple data science problems, implement algorithms and programs to analyse a given dataset, and make sensible recommendations of the nature of the data analysed

MSc Software Engineering

B7. Produce models of software engineering processes and artefacts using appropriate modelling techniques.
B8. Apply measures to software engineering processes and artefacts and use the data produced to evaluate software engineering activities.

MSc Advanced Computer Science

B9. Use and critically evaluate a range of methods and tools currently employed in at least two specialist topics of computer science to advanced depth.

MSc Computer Science

B10. Use and critically evaluate a range of methods and tools currently employed in the design and/or development of computer systems to solve problems from within or without computer science.

For all MSc Awards

D1. Undertake a substantial piece of practical work at postgraduate level, independent of close supervision.
D2. Evaluate and make critical use of relevant academic and technical literature
D3. Utilise their knowledge in practical applications.
D4. Build upon and extend their knowledge with a minimum of guidance.
D5. Express themselves knowledgably and coherently, both in writing and orally.
D6. Explain, justify and otherwise defend their work and ideas, both in its specific details and within a broader context.

For all Advanced Research Awards

D7. Examine and apply advanced skills in computer science research

Table 3: Development of Graduate Attributes in the Constituent Modules

This map identifies where the Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses.

D = Delivered

Module Title	Module Code	Professionally Focused	Globally Minded	Sustainability Driven	Digitally capable & confident	Inclusive and collaborative	Evidenced based and Ethical
Operating Systems and Networks	7COM1012	D			D		D
Computer Architectures	7COM1013	D			D		D
Programming and Program Design	7COM1015	D			D		D
Data Mining	7COM1018	D	D		D		D
Measures and Models for Software Engineering	7COM1024	D			D		D
Programming for Software Engineers	7COM1025	D			D		D
Software Engineering Practice and Experience	7COM1026	D			D		D
Distributed Systems Security	7COM1027	D			D		D
Secure Systems Programming	7COM1028	D			D		D
Network System Administration	7COM1029	D			D		D
Artificial Life with Robotics	7COM1032	D			D		D
Neural Networks and Machine Learning	7COM1033	D			D		D
Theory and Practice of Artificial Intelligence	7COM1034	D	D		D		D
Software Engineering Masters Project	7COM1038	D	D		D		D
Advanced Computer Science Masters Project	7COM1039	D	D		D		D
Computer Science Masters Project	7COM1040	D	D		D		D
Preparation for Placement	7COM1064	D			D		D
Information Security Management and Compliance	7COM1066	D	D		D		D
Digital Forensics	7COM1067	D	D		D		D
Penetration Testing	7COM1068	D	D		D		D
Cyber Operations	7COM1069	D	D		D		D
Cyber Security Masters Project	7COM1070	D	D		D	D	D
Foundations of Data Science	7COM1073	D			D		D

Applied Data Science and Analytics	7COM1074	D			D		D
Data Science and Analytics Masters Project	7COM1075	D	D		D		D
Wireless Mobile and Multimedia Networking	7COM1076	D	D		D		D
Computer Networks and Systems Security Masters Project	7COM1077	D	D		D		D
Computational Algorithms and Paradigms	7COM1078	D			D		D
Team Research and Development Project	7COM1079	D			D	D	D
Software Development Exercise	7COM1081	D			D		D
Multi-User Database Systems	7COM1082	D			D		D
Advanced Research Topics in Computer Science	7COM1084	D	D		D	D	D
Research Methods	7COM1085	D	D		D	D	D
Artificial Intelligence and Robotics Masters Project	7COM1086	D	D		D		D
Professional Work Placement for MSc Computer Science	7COM2000	D			D	D	D
Responsible Technology	7COM2001	D		D	D	D	D

Section 2

Programme management

Relevant QAA subject benchmarking statements	Computing
Type of programme	Taught Postgraduate
Date of validation/last periodic review	November 18
Date of production/ last revision of PS	March 2023
Relevant to level/cohort	Level 7 entering September 2023
Administrative School	School of Physics, Engineering & Computer Science
Language of Delivery	English

Table 4 Course structure

Course details			
Course Code	Course Description	HECOS	UCAS
PECSMACS	MSc Advanced Computer Science	100366 (50%) 100367 (50%)	NA
PECSMACSE	MSc Advanced Computer Science - Extended	100366 (50%) 100367 (50%)	NA
PECSMAIR	MSc Artificial Intelligence and Robotics	100366 (25%) 100359 (75%)	NA
PECSMAIRE	MSc Artificial Intelligence and Robotics - Extended	100366 (25%) 100359 (75%)	NA
PECSMCNSS	MSc Computer Networks and Systems Security	100366 (25%) 100365 (75%)	NA
PECSMCNSE	MSc Computer Networks and Systems Security - Extended	100366 (25%) 100365 (75%)	NA
PECSCSM	MSc Computer Science (Modular)	100366 (75%) 100372 (25%)	NA
PECSMCYS	MSc Cyber Security	100366 (25%) 100376 (75%)	NA
PECSMCYSE	MSc Cyber Security - Extended	100366 (25%) 100376 (75%)	NA
PECSMDSA	MSc Data Science and Analytics	100366 (25%) 100992 (75%)	NA
PECSMDSAE	MSc Data Science and Analytics - Extended	100366 (25%) 100992 (75%)	NA
PECSMSE	MSc Software Engineering	100366 (25%) 100374 (75%)	NA
PECSMSEE	MSc Software Engineering - Extended	100366 (25%) 100374 (75%)	NA