

School of Physics, Engineering and Computer Science

Title of Programme: Modular BSc Honours Computer Science (online)

Programme Code: CMWCSIT  
CMWSLCSIT (Supported Distance Learning)

# Programme Specification

This programme specification is relevant to students entering levels 4 and 6:  
01 September 2022

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

Signature



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.

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**Summary of amendments to the programme:**

Section	Amendment

If you have any queries regarding the changes please email [AQO@herts.ac.uk](mailto:AQO@herts.ac.uk)

# Programme Specification

## Modular BSc Honours in Computer Science (online)

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.

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### Section 1

<b>Awarding Institution/Body</b>	University of Hertfordshire
<b>Teaching Institution</b>	University of Hertfordshire
<b>University/partner campuses</b>	Online/Supported Distance Learning
<b>Programme accredited by</b>	
<b>Final Qualification</b>	BSc Honours
<b>All Final Award titles</b>	BSc Honours in Computer Science
<b>(Qualification and Subject)</b>	BSc Honours in Computer Science (Applied Data Science) BSc Honours in Information Technology
<b>FHEQ level of award</b>	6
<b>UCAS code(s)</b>	None
<b>Language of Delivery</b>	English

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#### A. Programme Rationale

The Modular BSc Honours in Computer Science (online) is a well-established and popular degree programme. This programme is designed to mirror its campus-based BSc Honours Computer Science counterpart.

At Level 4, the programme is offered in part-time mode only with students typically studying 60 to 75 credits per year. At Level 6, students may choose to study one, two or three years online and may study online in full-time (120 credits per year) or part-time mode.

The programme is likely to appeal to mature students who are in employment and wish to study flexibly and to students from overseas who wish to gain a qualification from a British university but do not wish to spend all of their time in the UK. The final year of the programme will appeal to direct entrants who have already gained 240 credits from an HND in Computer Studies or similar qualification, both those who are newly qualified and want to continue to study, perhaps whilst in employment or seeking their first job and those who qualified some years ago and would like the opportunity to 'top up' their qualification whilst still working.

The programme recognises a broad distinction between Computer Science (CS) and Information Technology (IT) and is structured so as to allow students to progress along the three main themes of computer science, applied data science and information technology. There is a common core of compulsory material in the first and second years of study to ensure that all students have the appropriate foundation for all three themes.

The programme therefore equips graduates for a wide variety of careers in professional roles (not necessarily constrained to the IT industry) that involve the design, development and/or the evaluation of programmed systems, or of wider socio-technical systems involving a programmed sub-system.

Further information on entry requirements is given in section G.

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## B. Educational Aims of the Programme

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:

provide students with the opportunities to:

- develop a range of cognitive abilities relevant to the design, development and evaluation of programmed solutions to problems;
- develop a range of practical skills relevant to the design, development and evaluation of programmed solutions to problems;
- develop a range of transferable skills including communication, logical presentation of ideas and arguments, and independent and team working; and practice these skills within the context of their studies;
- recognise and begin to appreciate the legal, social, ethical and professional issues involved in the application of their knowledge and skills to a range of problems;
- encounter a broad range of activities drawn from a variety of problem domains.

For both Computer Science awards the programme additionally aims, at a high level, to provide students with opportunities to:

- develop specific in-depth technical abilities and skills that are relevant to the design, development and management of computational systems;
- develop a broad understanding of, and practical abilities in, a range of computing disciplines.

For the Information Technology award, the programme additionally aims, at a high level, to provide students with opportunities to:

- develop specific in-depth technical abilities and skills that are relevant to the design, development and management of computing-based systems that support information handling and decision making;
- develop a broad understanding of, and practical abilities in, a range of computing disciplines.

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## 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 to the QAA benchmark statements for Computing and 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 (2016) have been used as a guiding framework for curriculum design.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
A1- The methodology of developing programmed solutions and a subset of the tools, notations and techniques appropriate to the various stages of development, from problem identification to system implementation and evaluation.	At Level 4, A1 – A6 are introduced via specific topics using a combination of online learning materials, online tutorials and guided self-study. The material is integrated via the core theme of programmed system design, and students will be helped to appreciate these topics within this framework. Tasks will in general concentrate	At Level 4, A1 – A6 are assessed through a combination of primarily coursework and unseen online tests. Assessments concentrate on specific topics, within a provided framework, rather than on substantive integrative tasks.  At Level 5, A1 – A6 will be assessed through a combination

<p>A2- The complexity of interactions between agents, which could be human or programmed systems, at various levels, and the implications of this for the developer of a programme solution.</p> <p>A3- The context within which a professional software designer operates and implications for professional practice including the legal, social, ethical and professional issues involved.</p> <p><b>Additionally for BSc Computer Science (CS) award</b></p> <p>A4- An in depth understanding of the theories and principles relevant to the design and development of programmed systems and their subsequent use in specific contexts.</p> <p><b>Additionally for BSc Computer Science (Applied Data Science) award</b></p> <p>A5- An in depth understanding of the theories and principles relevant to of obtaining data from various sources, the essential methods for pre-processing and cleaning data, and data analytics</p> <p><b>Additionally for Information Technology (IT) award</b></p> <p>A6- An in depth understanding of the theories and principles relevant to the design and development of information technology systems and their subsequent use in specific contexts.</p>	<p>on building proficiency and confidence at the topic level, and students will not be expected to work at the systems level without considerable support.</p> <p>At Level 5, for all awards routes, additional topics addressing A1 – A6 will be studied using a combination of online learning materials, online tutorials and guided self-study. Students will be expected to begin to integrate material and adopt a more critical and analytical attitude to their learning, and to the topics and tasks being taught.</p> <p>The learning opportunities will provide insight into the range of options available for solving design problems and therefore into the selection of appropriate methodological and system components, as well as of their evaluation.</p> <p>At Level 6, learning relating to A1 – A6 is expected to be increasingly independent, critical and evaluative; and students are expected to take increasing responsibility for the selection and use of theories, principles and methods in particular contexts, and for tackling particular problems. This understanding is expected to include an appreciation of the limits of applicability of theories, the uncertainty and inherent open-endedness of many practical problems in computing and of the human and societal constraints on approaches to problem solution. Some material will be presented via online learning materials and online tutorials, with significant learning undertaken and achieved through independent, self-study.</p> <p>At all levels of the programme, students are 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.</p>	<p>of coursework and unseen online tests. Where appropriate, assessments will also include a component of peer assessment by students. Assessments will begin to include more substantial elements of team work and project work and, through those, more substantive assessment tasks.</p> <p>At Level 5, A3 will additionally be assessed through a team-based project.</p> <p>At Level 6, A1 – A6 will again be assessed through a combination of coursework and unseen online tests; with again the opportunity for peer assessment where appropriate. There will be a substantial component of individual project-type activity, for which students will be expected to: establish for themselves the framework within which the work is carried out; select and apply knowledge and understanding as appropriate to the specific problem(s) being addressed; and evaluate solutions, reference appropriate research or scholarship.</p>
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Intellectual skills	Teaching and learning methods	Assessment strategy
B Not applicable under QAA Benchmarking statement. Intellectual skills are subsumed under Knowledge and Understanding		
Practical skills	Teaching and learning methods	Assessment strategy
<p>C1- Use specific tools, techniques, notations and methods in the context of the design and development of programmed computer systems.</p> <p>C2- Use computer systems and associated technology to support the development of programmed systems.</p> <p>C3- Engage in effective discussion of technical information as appropriate to the system design and development task.</p> <p>C4- Carry out design activities ranging from initial problem identification to system implementation and evaluation, and as an individual or participate as a member of a team carrying out a subset of these activities.</p> <p><b>Additionally for BSc Computer Science (CS) awards</b></p> <p>C5- Design, implement and evaluate systems as characterised by Computer Science approaches, methodologies and practices.</p> <p><b>Additionally for BSc Information Technology (IT) award</b></p> <p>C6- Design, Implement and evaluate systems as characterised by Information Technology approaches, methodologies and practices.</p>	<p>Level 4, 5 and 6 will address C1 – C3 using online learning materials and online tutorials for the presentation of instructional material, with practical tasks, independent study and project work offering the opportunity to practise the skills in a supportive environment. The amount of instructional material will decrease as the programme progresses, with students being expected to take an increasing responsibility for developing their own skills and identifying resources to support their development.</p> <p>Level 4, 5 and 6 will address C4. The examples used at Level 4 will be less complex, and considerable support will be given in problem identification and evaluation. At Levels 5, 6 this support will be increasingly reduced and more open tasks will be set. Students will be exposed to employ a variety of technologies such as operating environments, programming languages, applications and specification techniques.</p> <p>At Level 6 students will be expected to extend their skills developed in C1 – C6 to the task of evaluating and selecting appropriate approaches to addressing specific tasks appropriate to that level.</p> <p>C1 – C6 are further developed and deepened through an individual self-defined and managed project at Level 6.</p> <p>Throughout the levels of the programme, the learner is encouraged to further develop their practical skills by independent study.</p>	<p>At Level 4 practical skills C1 and C2 will be assessed directly through coursework, and assessed indirectly through unseen online tests. The online tests will assess understanding that has developed, or been consolidated, as a result of practical activity.</p> <p>At Level 5, C3 and C4 are assessed, through a group design task.</p> <p>At Level 6, C1 – C6 will be assessed directly and indirectly. The independent project at Level 6 will assess C4 – C6.</p> <p>Typically, students passing the four Level 4 core modules together with the appropriate Level 5 core modules will be deemed to have met the minimum threshold level in C1 – C6 necessary to progress to examination for an Honours award.</p>
Transferable skills	Teaching and learning methods	Assessment strategy

<p>D1- Communicate effectively orally, in writing and visually using the conventions, vocabulary and the form and register of academic expression.</p> <p>D2- Manage their own learning including time management, the organization and retrieval of information, and the identification of personal needs for continuing professional development.</p> <p>D3- Select and use a variety of modes of discourse, including mathematical, informal and diagrammatic.</p> <p>D4- Work effectively both independently and/or as part of a team.</p> <p>D5- Reflect upon their work and the work of others, and explain, justify and otherwise defend their work and ideas, with reference to academic, professional issues, debates and conventions.</p>	<p>Transferable skills are developed through using a variety of learning and teaching methods and strategies.</p> <p>Students are expected to take an increasing responsibility for their own learning as the programme progresses, and are supported in meeting D1 through guided learning experiences. The development of confidence and ability to use more formal, mathematical, modes is addressed at Level 4 explicitly.</p> <p>Students are encouraged to form study groups at Level 4, and to start building a collaborative attitude towards studying, whilst also taking responsibility for their own learning.</p> <p>At Levels 4 and 5, team-working is used explicitly in the context of a design task, and students will be supported in meeting D3 through this.</p> <p>D5 is developed through exposure to contemporary issues at Level 5 and beyond.</p> <p>At Level 6, the project addresses D1 – D5, together with the independent aspects of D4.</p> <p>During the course of the programme, assessed and non-assessed work encourages the learner to develop a wide range of transferable skills. In Level 4, this starts with closely defined and directed assignments. At Level 5 the learner is encouraged by more loosely defined projects and at Level 6, these are supported through the self-definition of work in the project. Throughout, the learner is encouraged to develop transferable skills.</p>	<p>Transferable skills are assessed through a variety of means built into the curriculum.</p> <p>At Level 4, 5 and 6, D1 is assessed in different ways e.g. a short report at Level 4, a team presentation at Level 5, an individual presentation at Level 6.</p> <p>At Levels 4, 5 and 6, D2 is assessed by setting different kinds of task, providing feedback on those tasks to students (partly through formative peer assessment) and encouraging reflection by students.</p> <p>At Levels 4, 5 and 6, D3 is assessed in different ways, depending on the topic and the nature of the assessment. Additionally, the independent project at Level 6 provides opportunities for students to select appropriate modes of discourse for the problem(s) they are seeking to address.</p> <p>At Levels 4 and 5, D4 is assessed for group work.</p> <p>At Level 6, D4 is assessed through the independent project.</p> <p>At Level 6, D5 is assessed by reviewing the outcomes of assignments as well as through formative peer assessment, where appropriate.</p>
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## D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in multiple modes of study. Level 4 is primarily available as part-time only (albeit

students from Supported Distance Learning institutions may be able to study full-time at Level 4). Levels 5 and 6 are available as both part-time and full time, with multiple intakes per year (for example, September, January and May), leading to the following study patterns:

- **For entry at Level 4 the programme in its entirety is offered in two study patterns:**
  - a. an entirely part-time study pattern (6 years in duration); or,
  - b. a study pattern which offers part-time study for Level 4 and then mixture of part-time and full-time study for Levels 5 and 6 (4-5 years in duration).
  
- **For entry at Level 5 the programme in its entirety is offered in two study patterns:**
  - a. an entirely part-time study pattern (4 years in duration); or,
  - b. a study pattern which offers a mixture of part-time and full-time for Level 5 and then full-time study for Level 6 (2-3 years in duration).
  
- **For entry at Level 6 the programme in its entirety is offered in two study patterns:**
  - a. an entirely part-time study pattern (2 years in duration); or,
  - b. an entirely full-time study pattern (1 year in duration, for September entry only).

This programme leads to the award of a BSc Degree with Honours in Computer Science, BSc Degree with Honours in Computer Science (Applied Data Science), BSc Degree with Honours in Information Technology. Entry is normally at Level 4, but entry is also possible at Level 5 and at Level 6 with appropriate entry qualifications. (See further information in section G)

Once a BSc student has progressed to Level 6 and the student has made the decision to study for the Information Technology degree, or for the Computer Science degree, or for the Computer Science (Applied Data Science) degree, there is no automatic right to transfer between the different themes/routes. Requests to transfer between themes/routes will however be considered on a case by case basis.

Professional and Statutory Regulatory Bodies

N/A

Work-Based Learning, including Sandwich Programmes

N/A

Programme Structure

The programme structure is presented in Table 1a-1 through Table 1a-6. Final awards are identified in Table 1b-1. Interim awards are identified in Table 1b-2. The Programme Learning Outcomes are developed and assessed through the constituent modules. Table 2 identifies where each Programme Learning Outcome is assessed in modules.

The School operates on minimum student numbers. All optional modules are offered subject to student demand and other operational constraints. This programme specification does not commit the School to make optional modules available to students choosing to take a module as an option. Furthermore, Table 1a-1 through Table 1a-6 indicate which Level 4, 5 and 6 modules might operate in which semester. Tables 3 and 4 provide examples of possible study patterns.

**Table 1a-1: Level 4 modules for all BSc (Hons) routes through the programme**

<b>Compulsory Modules</b> Module Titles	Online Module code	SDL Module code	Credit points	Language of delivery	% Examination	% Coursework	% Practical	Semesters
Computational Problem Solving (COM)	4WCM2000	4WCM2001	30	English	0	100	0	A
Introduction to Programming and Discrete Structures (COM)	4WCM2006	4WCM2007	30	English	0	100	0	A
Data Modelling for Databases (COM)	4WCM2002	4WCM2003	15	English	0	100	0	B
From Silicon to C (COM)	4WCM2004	4WCM2005	30	English	0	100	0	B
Team Software Project (COM)	4WCM2010	4WCM2009	15	English	0	100	0	B

**Table 1a-2: Level 5 modules for all BSc (Hons) routes through the programme**

<b>Compulsory Modules</b> Module Titles	Online Module code	SDL Module code	Credit points	Language of delivery	% Examination	% Coursework	% Practical	Semester
Accessibility and Usability (COM)	5WCM2000	5WCM2001	15	English	0	100	0	A
Database Systems (COM)	5WCM2004	5WCM2005	15	English	0	100	0	A
Programming, Algorithms and Data Structures (COM)	5WCM0017	5WCM2012	30	English	0	100	0	A
Artificial Intelligence (COM)	5WCM2006	5WCM2007	15	English	0	100	0	B
Data Science Team Project (COM)	5WCM2008	5WCM2009	30	English	0	100	0	B
Operating Systems and Computer Networks (COM)	5WCM2010	5WCM2011	15	English	0	100	0	B

**Table 1a-3: Level 6 modules for all BSc (Hons) routes through the programme**

<b>Compulsory Modules</b> Module Titles	Online Module code	SDL Module code	Credit points	Language of delivery	% Examination	% Coursework	% Practical	Semester
Computer Systems Security (COM)	6WCM0032	6WCM0031	15	English	0	100	0	A, C
Responsible Computing (COM)	6WCM2000	6WCM2001	15	English	0	100	0	A, C



**Table 1a-4: Core Level 6 modules for BSc (Hons) Computer Science**

<b>Compulsory Modules Module Titles</b>	<b>Online Module code</b>	<b>SDL Module code</b>	<b>Credit points</b>	<b>Language of delivery</b>	<b>% Examination</b>	<b>% Coursework</b>	<b>% Practical</b>	<b>Semester</b>
Mobile Computing (COM)	6WCM0034	6WCM0033	15	English	0	100	0	A
Software Architecture (COM)	6WCM2002	6WCM2003	15	English	0	100	0	A
Internet of Things (COM)	6WCM2004	6WCM2005	15	English	0	100	0	B
Robotics (COM)	6WCM2006	6WCM2007	15	English	0	100	0	B
Computer Science Project (COM)	6WCM0029	6WCM0030	30	English	0	100	0	B, C

**Table 1a-5: Core Level 6 modules for BSc (Hons) Computer Science (Applied Data Science)**

<b>Compulsory Modules Module Titles</b>	<b>Online Module code</b>	<b>SDL Module code</b>	<b>Credit points</b>	<b>Language of delivery</b>	<b>% Examination</b>	<b>% Coursework</b>	<b>% Practical</b>	<b>Semester</b>
Data Mining and Visualisation (COM)	6WCM0035	6WCM0036	30	English	0	100	0	A
Machine Learning and Neural Networks (COM)	6WCM2008	6WCM2009	15	English	0	100	0	B
Principles of Data Science	6WCM2010	6WCM2011	15	English	0	100	0	B
Data Science Project (COM)	6WCM2016	6WCM2017	30	English	0	100	0	B, C

**Table 1a-6: Core Level 6 modules for BSc (Hons) Information Technology**

<b>Compulsory Modules Module Titles</b>	<b>Online Module code</b>	<b>SDL Module Code</b>	<b>Credit points</b>	<b>Language of delivery</b>	<b>% Examination</b>	<b>% Coursework</b>	<b>% Practical</b>	<b>Semester</b>
Data Mining and Visualisation (COM)	6WCM0035	6WCM0036	30	English	0	100	0	A
Cloud Computing	6WCM2012	6WCM2013	15	English	0	100	0	B
User Experience	6WCM2014	6WCM2015	15	English	0	100	0	B
Information Technology Project (COM)	6WCM0039	6WCM0040	30	English	0	100	0	B, C

**Progression to level 5 requires a minimum of 90 credits.** The maximum study rate in such an instance would be 150 credits and students would be expected to remedy any failed modules from level 4 in the first instance.

**Progression to level 6 requires 210 credits, 90 of which must be at level 5.** The maximum study rate in such an instance would be 150 credits and students would be expected to remedy any failed modules from level 5 in the first instance.

Honours classification

The University has approved structure and assessment regulations common to all programmes. Full details are provided in UPR AS14, Section D.

Final and interim awards

The programme provides for the following final (see Table 1c-1) and interim awards (see Table 1c-2).

**Table 1b-1: Final Awards**

Final Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
BSc (Hons)	Computer Science	360 credit points including 240 at level 6/5 of which 120 must be at level 6, including core modules for the award and the major individual major project.	6	All programme learning outcomes (see Table 2)
BSc (Hons)	Computer Science (Applied Data Science)	360 credit points including 240 at level 6/5 of which 120 must be at level 6, including core modules for the award and the major individual major project.	6	All programme learning outcomes (see Table 2)
BSc (Hons)	Information Technology	360 credit points including 240 at level 6/5 of which 120 must be at level 6, including core modules for the award and the major individual major project.	6	All programme learning outcomes (see Table 2)

Interim Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
University Certificate	Untitled	45 credit points at level 4	4	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
Certificate of Higher Education	Untitled	120 credit points at level 4	4, 5	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
Diploma of Higher Education	Untitled	240 credit points including at least 120 at level 5	5, 6	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
BSc	Computer Science	300 credit points including 180 at level 6/5 of which 60 must be at level 6.  Direct entrants at Level 6 must meet the minimum University of Hertfordshire credit and level	6	A subset of the programme learning outcomes (see table 2) depending on the student's individual modules passed.

		requirements defined in <u>UPR AS11</u> , including a minimum of 75 UH credits at Level 6 (the maximum APL is 225 credits at Levels 4 and 5).		
BSc	Computer Science (Applied Data Science)	300 credit points including 180 at level 6/5 of which 60 must be core at level 6, and include 6WCM2008 Machine Learning and Neural Networks and/or 6WCM2010 Principles of Data Science.  Direct entrants at Level 6 must meet the minimum University of Hertfordshire credit and level requirements defined in <u>UPR AS11</u> , including a minimum of 75 UH credits at Level 6 (the maximum APL is 225 credits at Levels 4 and 5).	6	A subset of the programme learning outcomes (see table 2) depending on the student's individual modules passed.
BSc	Information Technology	300 credit points including 180 at level 6/5 of which 60 must be at level 6 and include 6WCM2012 Cloud Computing and/or 6WCM2014 User Experience.  Direct entrants at Level 6 must meet the minimum University of Hertfordshire credit and level requirements defined in <u>UPR AS11</u> , including a minimum of 75 UH credits at Level 6 (the maximum APL is 225 credits at Levels 4 and 5).	6	A subset of the programme learning outcomes (see table 2) depending on the student's individual modules passed.

## Programme-specific assessment regulations

The programme is compliant with the University's academic regulations (UPR AS11, UPR AS12 or UPR AS13, UPR AS14) with the exception of those listed below, which have been specifically approved by the University:

Refer to Table 1c for a summary of the progression requirements of the programme.

**Period of registration:** The maximum period within which a student may gain an award on the programme is eight (8) years from the student's first date of registration on it for students who joined the programme at

Level 4. The maximum period of registration for students who joined the programme at Level 6 is four (4) years.

**Final year BSc projects:** A student cannot be compensated for the final year project.

**Eligibility for a specialist Honours award:** To be eligible for a specialist Honours award, a student must pass, or be accredited with passes, in the compulsory modules for that award as identified in Table 1a-1 through Table 1a-6, as well as a pass (without compensation) in the project module for that award.

Typically, students must have studied and passed at least 45 credits prior to enrolling on the final year project module.

## Transitional arrangements

The revised programme structure is being implemented from September 2022. The following transitional arrangements are made for referred and deferred students under the revised structure.

Module	Transitional Arrangements (2022/23)
<b>4WCM0019 Platforms for Computing (COM)</b>	4WCM0019 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 4WCM0019 with 4WCM2004 From Silicon to C (COM).
<b>4WCM0020 Human Dimensions of Computing (COM)</b>	4WCM0020 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 4WCM0020 with 4WCM2010 Team Software Project (COM) and 4WCM2002 Data Modelling for Databases (COM).
<b>4WCM0021 Models and Methods in Computing (COM)</b>	4WCM0021 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 4WCM0021 with 4WCM2000 Computational Problem Solving (COM).
<b>4WCM0022 Programming (COM)</b>	4WCM0022 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 4WCM0022 with 4WCM2006 Introduction to Programming and Discrete Structures (COM).
<b>5WCM0011 Operating Systems and Computer Networks (COM)</b>	5WCM0011 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 5WCM0011 with 5WCM2010 Operating Systems and Computer Networks (COM) plus another level 5 15-credit module to be determined in discussion with the programme leader.
<b>5WCM0018 Software Development Exercise (COM)</b>	5WCM0018 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 5WCM0018 with 5WCM2008 Data Science Development Exercise (COM).
<b>5WCM0019 Contemporary Issues (COM)</b>	5WCM0019 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 5WCM0019 with 5WCM2000 Accessibility and Usability (COM).
<b>5WCM0020 Databases (COM)</b>	5WCM0020 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 5WCM0020 with 5WCM2004 Database Systems (COM).
<b>5WCM0022 IT in Organisations (COM)</b>	5WCM0020 will run for last time in 2022/23. Appropriate replacement module to be determined in discussion with the programme leader, depending on previous modules passed, and student's academic interests.
<b>6WCM0027 Programming and Software Engineering Practice (COM)</b>	6WCM0027 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 6WCM0027 with 6WCM2002 Software Architecture (COM) and 6WCM2006 Robotics (COM).
<b>6WCM0041 Project Planning (COM)</b>	6WCM0041 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 6WCM0041 with 6WCM2000 Responsible Computing (COM).
<b>6WCM0037 Web Scripting (COM)</b>	6WCM0037 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 6WCM0037 with Level 6

	core modules from the Information Technology award (modules to be determined based on modules previously passed).
<b>6WCM0019 Quantum Computing (COM)</b>	6WCM0019 will run for last time in 2022/23. Appropriate replacement module to be determined in discussion with the programme leader, depending on previous modules passed, and student's academic interests.
<b>6WCM0025 User Experience Design (COM)</b>	6WCM0025 will run for last time in 2022/23. Deferred/repeating students will have the option to replace 6WCM0025 with 6WCM2014 User Experience (COM) and 6WCM2000 Responsible Computing (COM).

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## E. Management of Programme & Support for student learning.

### Management

The programme is managed and administered through:

- Dean of School;
- The Associate Dean of School (Academic Quality Assurance) and the Associate Dean of School (Teaching and Learning) who have overall responsibility for programmes;
- The Programme Leader who helps students understand the programme structure;
- Student representatives on programme committees;
- Module Leaders;
- Admissions Tutor with specific responsibility for open days, recruitment and selection of students;
- Programme Committee, the membership of which is defined by the Standing Orders of the Academic Board.

### Support

Students are supported by:

- An induction week at the beginning of each new academic session;
- A Programme Leader to help students understand the programme structure, and provide pastoral support;
- Academic support which will be provided by academic staff who have individual responsibility for a group of students on a module;
- Student representatives on programme committees;
- Studynet, a versatile online inter-active intranet and learning environment;
- Guided student-centred learning on Studynet module sites;
- A range of online learning materials and activities specially designed to support students in their studies;
- Access to extensive digital and print collections of information resources;
- Office of Dean of Students (<https://www.herts.ac.uk/about-us/governance/office-of-the-dean-of-students>);
- Student Wellbeing (<https://www.herts.ac.uk/life/support-and-wellbeing/student-wellbeing>);
- Careers and Employment Service (<https://www.herts.ac.uk/life/careers-and-recruitment>);
- Hertfordshire Students' Union (<https://hertfordshire.su/>).

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## 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 Programme Handbook;
- 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/>. Furthermore, the OfS has judged that the University of Hertfordshire delivers consistently outstanding teaching, learning and outcomes for its students. It is of the highest quality found in the UK. Consequently, the University received a Gold award in the 2018 Teaching Excellence and Student Outcomes (TEF) exercise. This award was made in June 2018 and is valid for up to 3 years. The TEF panel's report and conclusions can be accessed at: <https://www.officeforstudents.org.uk/advice-and-guidance/teaching/tef-outcomes/#/provider/10007147>

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## G. Entry requirements

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

For entry to Level 5, students will have completed 120 credits from an appropriate programme. In addition to accruing the appropriate number and level of credit points or equivalent, admission to the programme is on the basis that applicants have successfully completed a programme of study that is broadly equivalent to Level 4 of the campus-based based programme.

For entry to Level 6, students will have completed 240 credits from an HND Computer Studies, Diploma or Degree or equivalent. In addition to accruing the appropriate number and level of credit points or equivalent, admission to the programme is on the basis that applicants have successfully completed a programme of study that is broadly equivalent to Levels 4 and 5 of the campus-based based programme.

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).

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If you would like this information in an alternative format please contact:  
Online Degrees [online-degrees@herts.ac.uk](mailto:online-degrees@herts.ac.uk)

If you wish to receive a copy of the latest Programme Annual Monitoring and Evaluation Report (AMER) and/or the External Examiner's Report for the programme, please email a request to [aqo@herts.ac.uk](mailto: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.

				Programme Learning Outcomes (as identified in Section 1 and the following page)																
				Knowledge & Understanding						Practical Skills						Transferable Skills				
Level	Module Title	Module Code	Compulsory (C) or Optional (O)	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5
Level 4	Introduction to Programming and Discrete Structures (COM)	4WCM2006	C(All)	X	X					X	X		X				X	X	X	
	Data Modelling for Databases (COM)	4WCM2002	C(All)	X	X		X	X	X	X	X		X			X	X	X	X	
	Computational Problem Solving (COM)	4WCM2000	C(All)	X	X					X	X		X				X	X	X	
	Team Software Project (COM)	4WCM2010	C(All)	X	X	X				X	X	X	X	X	X	X	X	X	X	X
	From Silicon to C (COM)	4WCM2004	C(All)	X	X					X	X		X				X		X	
Level 5	Programming, Algorithms and Data Structures (COM)	5WCM0017	C(All)	X			X	X	X	X			X	X	X		X	X		
	Data Science Team Project (COM)	5WCM2008	C(All)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Accessibility and Usability (COM)	5WCM2000	C(All)	X	X	X				X		X	X			X	X	X	X	
	Database Systems (COM)	5WCM2004	C(All)	X		X	X	X	X	X		X		X	X	X	X	X		X
	Operating Systems and Networks (COM)	5WCM2010	C(All)		X		X	X	X	X			X	X	X					
	Artificial Intelligence (COM)	5WCM2006	C(All)	X	X					X	X		X			X	X			

				Programme Learning Outcomes (as identified in Section 1 and the following page)																
				Knowledge & Understanding						Practical Skills						Transferable Skills				
Level	Module Title	Module Code	Compulsory (C) or Optional (O)	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5
Level 6	Information Technology Project (COM)	6WCM0039	C(IT)	X	X	X			X	X	X	X	X		X	X	X	X	X	X
	Computer Science Project (COM)	6WCM0029	C(CS)	X	X	X	X			X	X	X	X	X		X	X	X	X	X
	Data Science Project (COM)	6WCM2016	C(ADS)	X	X	X		X		X	X	X	X	X		X	X	X	X	X
	Computer Systems Security (COM)	6WCM0032	C(All)	X	X	X	X	X	X		X						X			
	Responsible Computing (COM)	6WCM2000	C(All)			X	X	X	X								X		X	X
	Principles of Data Science (COM)	6WCM2010	C(ADS)		X			X		X				X			X	X		
	Machine Learning and Neural Networks (COM)	6WCM2008	C(ADS)					X					X				X			
	Data Mining and Visualisation (COM)	6WCM0035	C(IT), C(ADS)		X			X	X	X					X	X		X	X	
	User Experience (COM)	6WCM2014	C(IT)	X	X				X	X							X			X
	Cloud Computing (COM)	6WCM2012	C(IT)	X	X	X			X	X	X		X		X	X	X			X
	Mobile Computing (COM)	6WCM0034	C(CS)	X			X			X				X			X			
	Internet of Things	6WCM2004	C(CS)	X			X			X							X	X	X	X
	Software Architecture (COM)	6WCM2002	C(CS)	X	X		X				X	X					X	X		X
	Robotics (COM)	6WCM2006	C(CS)	X	X		X			X			X							



## KEY TO PROGRAMME LEARNING OUTCOMES

### Knowledge and Understanding

- A1. The methodology of developing programmed solutions and a subset of the tools, notations and techniques appropriate to the various stages of development, from problem identification to system implementation and evaluation.
- A2. The complexity of interactions between agents, which could be human or programmed systems, at various levels, and the implications of this for the developer of a programme solution.
- A3. The context within which a professional software designer operates and implications for professional practice including the legal, social, ethical and professional issues involved.  
**Additionally for the Computer Science (CS) award**
- A4. An in depth understanding of the theories and principles relevant to the design and development of programmed systems and their subsequent use in specific contexts.  
**Additionally for the Computer Science (Applied Data Science) award**
- A5. An in depth understanding of the theories and principles relevant to of obtaining data from various sources, the essential methods for pre-processing and cleaning data, and data analytics.  
**Additionally for the Information Technology (IT) award**
- A6. An in depth understanding of the theories and principles relevant to the design and development of information technology systems and their subsequent use in specific contexts.

### Intellectual Skills

Not applicable under QAA Benchmarking statement. Intellectual skills are subsumed under Knowledge and Understanding

### Practical Skills

- C1 Use specific tools, techniques, notations and methods in the context of the design and development of programmed computer systems.
- C2 Use computer systems and associated technology to support the development of programmed systems.
- C3 Engage in effective discussion of technical information as appropriate to the system design and development task.
- C4 Carry out design activities ranging from initial problem identification to system implementation and evaluation, and as an individual or participate as a member of a team carrying out a subset of these activities.

#### **Additionally for the BSc Computer Science (CS) awards**

- C5 Design, implement and evaluate systems as characterised by Computer Science approaches, methodologies and practices.

#### **Additionally for BSc Information Technology (IT) award**

- C6 Design, Implement and evaluate systems as characterised by Information Technology approaches, methodologies and practices. [For BSc IT degree titles]

### Transferable Skills

- D1 Communicate effectively orally, in writing and visually using the conventions, vocabulary and the form and register of academic expression.
- D2 Manage their own learning including time management, the organization and retrieval of information, and the identification of personal needs for continuing professional development.
- D3 Select and use a variety of modes of discourse, including mathematical, informal and diagrammatic.
- D4 Work effectively both independently and/or as part of a team.
- D5 Reflect upon their work and the work of others, and explain, justify and otherwise defend their work and ideas, with reference to academic, professional issues, debates and conventions.

## Section 2

### Programme management

<b>Relevant QAA subject benchmarking statements</b>	Computing September 2017
<b>Type of programme</b>	Undergraduate
<b>Date of validation/last periodic review</b>	October 21
<b>Date of production/ last revision of PS</b>	December 21
<b>Relevant to level/cohort</b>	Levels 4 and 6 September 2022, Level 5 September 2023
<b>Administrative School</b>	School of Physics, Engineering and Computer Science

Table 3 Course structure

Course details		
Course code	Course description	HECOS
CMWCSIT	Modular BSc (Hons) Computer Science (Online)	100366 (50%) 100372 (50%)
CMWSLCSIT	Modular BSc (Hons) Computer Science (Supported Distance Learning)	100366 (50%) 100372 (50%)