

Programme Specification

BSc Computer Science

For students entering Part 1 in September 2024

UCAS Code: G400

UFCOMP B

UFCOMP B2

UFCOMP B3

UFCOMP BSY

UFCOMP BSY3

UFCSWIY B

UFCSWIY B2

UFCSWIY B3

This document sets out key information about your Programme and forms part of your Terms and Conditions with the University of Reading.

Awarding Institution	University of Reading
Teaching Institution	University of Reading
Length of Programme	3 years
Length of Programme with placement/year abroad	BSc Computer Science (students from Beihang University, China) - 3 years BSc Computer Science (students from KMITL, Thailand) - 3 years (internal transfer only) BSc Computer Science with Study Year Abroad - 4 years (internal transfer only) BSc Computer Science with Study Year Abroad (students from KMITL, Thailand) - 4 years (internal transfer only) BSc Computer Science with Industrial Year - 4 years (UCAS Code: G401) BSc Computer Science with Industrial Year (students from Beihang University, China) - 4 years BSc Computer Science with Industrial Year (students from KMITL, Thailand) - 4 years (internal transfer only)
Accreditation	British Computer Society
QAA Subject Benchmarking Group	Computing

Programme information and content

The programme aims to provide you with a comprehensive understanding of computer science by covering both theoretical and practical principles. The program covers a broad range of subjects, including the fundamentals of computer systems, programming, software engineering, and advanced computing and applications. Modules convey these subjects through Part 1, Part 2, and Part 3 to give you a strong foundation in the basics of computer science, as well as more advanced computing topics and applications.

Through lectures and practical applications in computer labs, tutorials, and seminars, you will gain a deep understanding of computer science topics and be exposed to cutting-edge

solutions and industrial collaborations. This approach combines theoretical knowledge with hands-on experience to give you a comprehensive education in computer science.

The programme also emphasizes the development of transferable skills that are essential for success in your future career. You will learn analytical and critical thinking skills that are necessary for problem-solving and decision-making. You will develop independent study skills, time management skills, and effective communication skills in both oral and written form as well as learn how to work effectively in teams, enhancing your collaboration and creativity skills.

Part 1:	Introduces you to the foundation of computer science with a set of subjects to build knowledge of computer systems, programming concepts and principles, object-oriented programming language, databases, and mathematics for computing.
Part 2:	Provides you with core computer science modules, which enable you to further acquire CS knowledge, develop the intellectual methodology, and device computational judgment and critical thinking skills to solve computing problems. You will be able to build competencies through a range of subjects in data structures, algorithms, operating systems, computer networks, python programming language, and software engineering and software systems design.
Placement/Study abroad year:	<p>A placement option provides you with the opportunity to undertake a credit-bearing and one year-long placement as part of your programme. During the placement you will be able to apply CS knowledge and skills in industrial environment, further develop problem-solving competencies, and increase experiences working in real-world.</p> <p>A Study Abroad option provides you with the opportunity to undertake a non-credit-bearing study and one year-long with one of our partner universities across the world. During the year abroad, you will be exposed to a different higher educational system and experience their teaching and learning and increase cultural awareness.</p>
Part 3:	<p>Gives you the opportunity to select a set of modules, which may fit a direction leading to your career path in the computing industry or pursue a higher degree in computer science, data science, and related disciplines.</p> <p>The 40 credit compulsory degree project module provides you with a unique opportunity to integrate the CS knowledge and skills learned and to explore innovations for creating sustainable computing solutions.</p>

Programme Learning Outcomes - BSc Computer Science

During the course of the Programme, you will have the opportunity to develop a range of skills, knowledge and attributes (known as learning outcomes) For this programme, these are:

Learning outcomes	
1	Possess a strong grounding knowledge of computer systems, computing theories and concepts, programming principles, and algorithms.

2	Possess strong programming competencies and skills across a variety of languages and paradigms.
3	Be able to apply concepts in theoretical computer science to actualise real world solutions in a variety of contexts or extensions to existing domain knowledge.
4	Describe, evaluate and apply a wide range of state-of-the-art methodologies and technologies.
5	Critically analyse, design and construct computing solutions that meet requirements based within interdisciplinary domains.
6	Apply knowledge of social, ethical, legal, and security aspects in development of software applications.
7	Apply research findings and critiques to creating fit-for-purpose and sustainable solutions.
8	Use innovative and creative approaches in problem-solving.
9	Work professionally as an individual and a team member with confidence in collaborative manner.
10	Effectively communicate over technical concepts, precisely and succinctly in professional writing and spoken narrative addressing various types of audience in an appropriate manner.
11	For the Industrial Year programme only: Experience of working within a professional environment aligned with computer science or cognate disciplines.

You will be expected to engage in learning activities to achieve these Programme learning outcomes. Assessment of your modules will reflect these learning outcomes and test how far you have met the requirements for your degree.

To pass the Programme, you will be required to meet the progression or accreditation and award criteria set out below.

Module information

Each part comprises 120 credits, allocated across a range of compulsory and optional modules as shown below. Compulsory modules are listed.

Part 1 Modules:

Module	Name	Credits	Level
CS1CA	Computer Systems Architecture	20	4
CS1DB	Databases	20	4
CS1IP	Imperative Programming	20	4
CS1MA	Mathematics and Computation	20	4
CS1OP	Object-Oriented Programming	20	4

Remaining credits in Part 1 will be made up of optional modules available in the School of Mathematical, Physical and Computational Sciences or modules from an approved list.

Part 2 Modules:

Module	Name	Credits	Level
CS2AI	Artificial Intelligence	20	5

CS2DA	Data Structures and Algorithms	20	5
CS2ON	Operating Systems and Computer Networking	20	5
CS2PP	Programming in Python	20	5
CS2SD	Software Systems Design	20	5
CS2SE	Software Engineering and Professional Development	20	5

Modules during a placement year or study year (if applicable):

Module	Name	Credits	Level
CS2AY	Study Abroad Year	120	5
CS2IY	Industrial Year	120	5

Students on one of the 4-year programmes will take one 120 credit module in either Study Abroad Year (CS2AY) or Industrial Year (CS2IY).

If you take a year-long placement or study abroad, Part 3 as described below may be subject to variation.

Part 3 Modules:

Module	Name	Credits	Level
CS3IP	Degree Project	40	6

Remaining credits in Part 3 will be made up of optional modules available in the School of Mathematical, Physical and Computational Sciences or modules from an approved list.

Placement opportunities

Placements:

You may be provided with the opportunity to undertake a credit-bearing placement as part of your Programme. This will form all or part of an optional module. You will be required to find and secure a placement opportunity, with the support of the University.

Study Abroad:

You may be provided with the opportunity to undertake a Study Abroad placement during your Programme. This is subject to you meeting academic conditions detailed in the Programme Handbook, including obtaining the relevant permissions from your School, and the availability of a suitable Study Abroad placement. If you undertake a Study Abroad placement, further arrangements will be discussed and agreed with you.

Optional modules:

The optional modules available can vary from year to year. An indicative list of the range of optional modules for your programme can be found online in the Course Catalogue. Details of optional modules for each part, including any additional costs associated with the optional modules, will be made available to you prior to the beginning of the Part in which they are to be taken and you will be given an opportunity to express interest in the optional

modules that you would like to take. Entry to optional modules will be at the discretion of the University and subject to availability and may be subject to pre-requisites, such as completion of another module. Although the University tries to ensure you are able to take the optional modules in which you have expressed interest this cannot be guaranteed.

Teaching and learning delivery:

You will be taught primarily through a mixture of lectures, lab practical, tutorials and seminars, depending on the modules you choose. Some modules may include group work.

Elements of your programme will be delivered via digital technology.

The scheduled teaching and learning activity hours and amount of technology enhanced learning activity for your programme will depend upon your module combination. In addition, you will undertake some self-scheduled teaching and learning activities, designed by and/or involving staff, which give some flexibility for you to choose when to complete them. You will also be expected to undertake guided independent study. Information about module study hours including contact hours and the amount of independent study which a student is normally expected to undertake for a module is indicated in the relevant module description.

Accreditation details

Both the programmes of BSc Computer Science and BSc Computer Science with Industrial Year are accredited by the British Computer Society (BCS), the chartered institute for IT. When you successfully complete the degree, you are entitled to professional membership of the BCS, which is one of the criteria for achieving the status of Chartered IT Professional.

Assessment

The programme will be assessed through a range of assessment types, such as written examination, written coursework assignment, set exercise, and in-class test. In addition, the programme will also be assessed in forms of dissertation, presentation and demonstration in the final year of studies. Further information is contained in the individual module descriptions.

Progression

Part 1

To achieve a threshold performance at Part 1, a student will normally be required to:

- (i) Obtain an overall average of 40% over 120 credits taken in Part 1;
- (ii) Obtain a mark of at least 40% in individual modules amounting to not less than 80 credits taken in Part 1; and
- (iii) Obtain marks of at least 30% in modules amounting to 120 credits.

In order to progress from Part 1 to Part 2, a student must achieve a threshold performance;

The achievement of a threshold performance at Part 1 qualifies a student for a Certificate of Higher Education if they leave the University before completing the subsequent Part.

Transferring from a Joint Honours to a Single Honours programme

Students are able to transfer from a Joint Honours to a Single Honours programme in one of their joint subject areas at the end of Part 1, subject to fulfilling the Part 1 University Threshold Standard, achieving marks of at least 40% in at least 40 credits of modules in the subject to which they wish to transfer, and fulfilling any programme-specific progression rules for the Part 1 Single Honours Programme to which they wish to transfer.

Students who transfer from a Joint Honours to a Single Honours programme may not have taken all of the Part 1 modules listed in the Single Honours Programme Specification. The modules which they have taken will be shown on their Diploma Supplement.

Part 2

To achieve a threshold performance at Part 2, a student shall normally be required to:

- (i) Obtain a weighted average of 40% over 120 credits taken in Part 2; and
- (ii) Obtain marks of at least 40% in individual modules amounting to at least 80 credits taken in Part 2; and
- (iii) Obtain marks of at least 30% in individual modules amounting to at least 120 credits, except that a mark below 30% may be condoned in no more than 20 credits of modules owned by the Department of Mathematics and Statistics.

In order to progress from Part 2 to Part 3, a student must achieve a threshold performance;

The achievement of a threshold performance at Part 2 qualifies a student for a Diploma of Higher Education if they leave the University before completing the subsequent Part.

To be eligible for Honours, students must achieve at least 40% in modules amounting to 80 credits in the final Part, including the Degree Project (CS3IP).

Professional/placement year

Students are required to pass the professional placement year/study abroad year in order to progress on the programme which incorporates the professional placement year/study abroad year. Students who fail the professional placement year/study abroad year transfer to the non-placement year version of the programme.

Classification

Bachelors' degrees

The University's honours classification scheme is based on the following:

Mark Interpretation

70% - 100% First class

60% - 69% Upper Second class
50% - 59% Lower Second class
40% - 49% Third class
35% - 39% Below Honours Standard
0% - 34% Fail

The weighting of the Parts/Years in the calculation of the degree classification is:

Three year programmes:

Part 2: one-third

Part 3: two-thirds

Four year programmes, including professional/work placement or study abroad

Part 2: one-third

Placement/Study abroad: not included in the classification

Part 3: two-thirds

The classification method is given in detail in [Section 17](#) of the Assessment Handbook.

Additional costs of the programme

For textbooks and similar learning resources, we recommend that you budget up to £200 per year, depending on your preference to have your own books rather than borrow from the Library. Some books may be available second-hand, which will reduce costs. A range of resources to support your curriculum, including textbooks and electronic resources, are available through the Library. Reading lists and module specific costs are listed on the individual module descriptions.

Costs are indicative and may vary according to optional modules chosen and are subject to inflation and other price fluctuations. Estimates were calculated in 2023.

For further information about your Programme please refer to the Programme Handbook and the relevant module descriptions, which are available at <http://www.reading.ac.uk/module/>. The Programme Handbook and the relevant module descriptions do not form part of your Terms and Conditions with the University of Reading.

BSc Computer Science for students entering Part 1 in session 2024/25

7 July 2023

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