Programme Specification: Undergraduate

For Academic Year 2025/26

1. Course Summary

Names of programme and award title(s)	BSc (Hons) Computer Science and Mathematics BSc (Hons) Computer Science and Mathematics with International Year (see Annex for details) BSc (Hons) Computer Science and Mathematics with Work Placement Year (see Annex for details)
Award type	Single Honours
Mode of study	Full-time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 6
Normal length of the programme	3 years; 4 years with either the International Year or Placement Year between years 2 and 3
Maximum period of registration	The normal length as specified above plus 3 years
Location of study	Keele Campus
Accreditation (if applicable)	Not applicable
Regulator	Office for Students (OfS)
Tuition Fees	**UK students:** Fee for 2025/26 is £9,535* **International students:** Fee for 2025/26 is £17,700** The fee for the international year abroad is calculated at 15% of the standard year fee The fee for the Industrial placement year is calculated at 20% of the standard year fee

> ***Please note this document applies to Level 5 (Year 2) students in 2026/27. Level 4 (Year 1) students should refer instead to the document labelled '2026/27'.***

How this information might change: *Please read the important information at http://www.keele.ac.uk/student-agreement/. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.*

** These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/*

*** These fees are for new students. We reserve the right to increase fees in subsequent years of study by an*

inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/

2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on this subject. In keeping with Keele's commitment to breadth in the curriculum, the programme also gives you the opportunity to take some modules in other disciplines and in modern foreign languages as part of a 360-credit Honours degree. Thus it enables you to gain, and be able to demonstrate, a distinctive range of graduate attributes.

3. Overview of the Programme

Many real-world computational problems are interdisciplinary in nature and solving them requires skills and techniques from both Computer Science and Mathematics. In this single honours programme, you will learn techniques from these tightly connected disciplines, allowing you to work in a variety of sectors and to solve a diverse range of scientific and technical problems. You will have a wide choice of available modules from Computer Science and Applied and Pure Mathematics, allowing you to tailor the degree to your own future career aspirations. You will develop technical and transferable skills that are now vital to business, government, science and society. There is pressing need for graduates with the professional understanding, practical skills, and theoretical foundations to harness software and hardware technologies, developed and analysed with advanced mathematical techniques to solve real-world problems and develop the systems of the future.

There is also an emphasis on the development of professional, academic, transferrable, employability, and team working skills, through regular sessions taught by academic and subject experts, including industrial guest lectures and sessions related to careers, placements, employability, and academic skills.

4. Aims of the programme

The broad aims of the programme are to enable you to:

- Develop your intellectual, practical and additional transferable skills, to enable you to gain a strong academic grounding in the disciplines of Computer Science and Mathematics and an understanding of the professional issues relevant to your future working life.
- Acquire the knowledge, understanding and skills relevant to discrete and continuous mathematics, including logical argument, rigorous mathematical proof, problem solving and mathematical modelling;
- Further develop your interest in Computer Science and Mathematics within a caring and intellectually stimulating environment;
- Demonstrate the application of cutting-edge Computer Science and Mathematics research and practice, as informed by discipline and industry trends and market requirements.
- Prepare for further study or research, and for employment in industry, commerce or public service, particularly in any area where precise, logical thought and problem-solving skills are valued.
- Acquire a foundation for life-long learning, study and enquiry in Computer Science and Mathematics.

The range of opportunities for graduates with computing and mathematical skills continues to expand. Many of our graduates move into employment that is directly computing-related, for example as systems analysts, software engineers, data analysts and consultants, as well as working on mathematical aspects in finance, accountancy and engineering. A number of graduates go on to study for higher degrees in a wide range of subject areas, at Keele and elsewhere.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

Successful students will be able to demonstrate knowledge and understanding of:

LO1.1 Computational thinking including its relevance to everyday life.

LO1.2 The scientific method and its applications to problem solving, using a structured mathematical or analytical approach.

LO1.3 Essential facts, concepts, principles and theories relating to computing and computer applications as appropriate to the programme of study.

LO1.4 Mathematical methods and techniques in calculus, algebra, ordinary differential equations, and optional modules, and the use of mathematical notation.

LO1.5 The role of logical mathematical argument and deductive reasoning, including the formal process of mathematical proof, through the study of algebra, calculus, and optional modules;

LO1.6 Modelling: use such knowledge and understanding in the modelling and design of computer-based systems for the purposes of comprehension, communication, prediction and the understanding of trade-offs.

LO1.7 Requirements, practical constraints and computer-based systems (and this includes computer systems, information security, embedded, and distributed systems) in their context: recognise and analyse criteria and specifications appropriate to specific problems, and plan strategies for their solutions.

LO1.8 Critical evaluation and testing: analyse the extent to which a computer-based system meets the criteria defined for its current use and future development.

LO1.9 The science of data investigation and data visualisation

LO1.10 Probability-based models, hypothesis testing, statistical inference and likelihood and the application of statistics;

LO1.11 Methods and tools: deploy appropriate theory, practices and tools for the specification, design, implementation, analysis, and evaluation of computer-based systems.

LO1.12 Professional considerations: recognise the professional, economic, social, environmental, moral and ethical issues involved in the sustainable exploitation of computer technology and be guided by the adoption of appropriate professional, ethical and legal practices.

LO1.13 More specialised areas of Computer Science and Mathematics in optional modules at Level 6.

Subject specific skills

Successful students will be able to:

LO2.1 Specify, design and construct reliable, secure and usable computer-based systems.

LO2.2 Evaluate systems in terms of quality attributes and possible trade-offs presented within the given problem.

LO 2.3 Demonstrate knowledge of key mathematical and statistical concepts, both explicitly and by applying them to the solution of problems.

LO 2.4 Comprehend problems, abstract their essentials and formulate them in symbolic form so as to facilitate their analysis and solution, and understand how mathematical and statistical processes may be applied to them.

LO 2.5 Select and apply appropriate mathematical and statistical techniques

LO 2.6 Use models to analyse an underlying problem and to interpret the results of this analysis.

LO2.7 Plan and manage projects to deliver computing systems within constraints of requirements, timescale and budget.

LO2.8 Recognise any risks and safety aspects that may be involved in the deployment of computing systems within a given context.

LO 2.9 Understand the importance of assumptions made in mathematical and statistical models, be aware of when and where they are used and possible consequences of their violation

LO 2.10 Construct and develop logical mathematical arguments with clear identification of assumptions and conclusions

LO 2.11 Reason critically, carefully and logically and derive (prove) mathematical results

LO 2.12 Demonstrate facility with mathematical abstraction;

LO2.13 Deploy effectively the tools used for the construction and documentation of computer applications, with particular emphasis on understanding the whole process involved in the effective deployment of computers to solve practical problems.

LO2.14 Critically evaluate and analyse complex problems, including those with incomplete information, and devise appropriate solutions, within the constraints of a budget.

LO 2.15 Demonstrate skills relating particularly to the design and conduct of experimental and observational studies and the analysis of data resulting from them.

Key or transferable skills (including employability skills)

Successful students will have the opportunity to develop:

LO3.1 A wide range of generic skills to ensure they become effective in the workplace, to the benefit of themselves, their employer and the wider economy.

LO3.2 Intellectual skills: critical thing; making a case; numeracy and literacy; information literacy. The ability to construct well-argued and grammatically correct documents. The ability to locate and retrieve relevant ideas and ensure these are correctly and accurately referenced and attributed.

LO 3.3 Acquire, analyse, synthesise, summarise and present information and ideas from a range of sources.

LO3.4 Self-management: self-awareness and reflection; goal setting and action planning; independence and adaptability; acting on initiative; innovation and creativity. The ability to work unsupervised, plan effectively and meet deadlines, and respond readily to changing situations and priorities.

LO3.5 Interaction: reflection and communication; the ability to succinctly present rational and reasoned arguments that address a given problem or opportunity, to a range of audiences (orally, electronically or in writing).

LO3.6 Team working and management: the ability to recognise and make best use of the skills and knowledge of individuals to collaborate. To be able to identify problems and desired outcomes and negotiate to mutually acceptable conclusions. To understand the role of a leader in setting direction and taking responsibility for actions and decisions.

LO 3.7 Work comfortably with numerate concepts and arguments in all stages of work.

LO3.8 Contextual awareness: the ability to understand and meet the needs of individuals, business and the community, and to understand how workplaces and organisations are governed.

LO3.9 Sustainability: recognising factors in environmental and societal contexts relating to the opportunities and challenges created by computing systems across a range of human activities.

Keele Graduate Attributes

The Keele Graduate Attributes are the qualities (skills, values and mindsets) which you will have the opportunity to develop during your time at Keele through both the formal curriculum and also through co- and extra-curricular activities (e.g., work experience, and engagement with the wider University community such as acting as ambassadors, volunteering, peer mentoring, student representation, membership and leadership of clubs and societies). Our Graduate Attributes consist of four themes: **academic expertise, professional skills, personal effectiveness, and social, environmental and ethical responsibility.** You will have opportunities to engage actively with the range of attributes throughout your time at Keele: through your academic studies, through self-assessing your own strengths, weaknesses, and development needs, and by setting personal development goals. You will have opportunities to discuss your progress in developing graduate attributes with, for example, Academic Mentors, to prepare for your future career and lives beyond Keele.

6. How is the programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- **Traditional and interactive lectures** providing students with detailed notes, often supported by copies of lecture slides in electronic form
- **Online resources, activities and communities 'around' our live teaching sessions**
- **Practical sessions** in computer laboratories often supported by copies of laboratory instruction sheets
- **Web-based learning** using the University's virtual learning environment (KLE)
- **Tutorial Classes** provide opportunities for students to ask questions about, and suggest answers to mathematical and computational problems, and to present their own ideas to members of staff and other students using an appropriate medium of communication
- **Group project** sessions in which students develop a design for a software item to a level sufficient to allow implementation to follow
- **Alternative and authentic assessments**

- **Engaging activities and support to students in diverse, inclusive ways**

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Academic Mentors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- lectures allow students to gain a systematic knowledge and understanding of Computer Science and Mathematics concepts and ideas and how to apply them to development of software and information systems.
- in-situ teaching with 'value adding' activities and resources that on-campus presence allows
- online content that supports and feeds into the taught sessions provided.
- web-based learning and directed reading allow students to develop their interest in Computer Science and Mathematics, their ability to reflect on their own learning and to take responsibility for its development.
- group sessions enable students to develop their written and oral communication skills.
- practical sessions and group work encourage students to work both independently and in collaboration with others as well as enabling them to solve problems in new or unfamiliar environments.
- assessments that directly link to 'real' research and learning activity within our subjects as well as ones that relate better to the real-world working environment.

7. Teaching Staff

The Computer Science and Mathematics academic staff currently comprises Professors, Readers, Senior Lecturers, Lecturers and Teaching Fellows, of whom a number are Associate Fellows, Fellows and Senior Fellows of the Higher Education Academy. More information about our staff is available at http://www.keele.ac.uk/scm/staff/

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from programme to programme, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April. Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are two types of module delivered as part of your programme. They are:

- Compulsory modules - a module that you are required to study on this course;
- Optional modules - these allow you some limited choice of what to study from a list of modules.

Global Challenge Pathways

This programme includes the option for you to take a Global Challenge Pathway. These modules offer you an exciting opportunity to work with students and staff from different disciplines to explore topical global issues such as power and conflict, health inequalities, climate change, generative AI, social justice, global citizenship, and enterprise from different perspectives.

Global Challenge Pathways can be taken as one 15-credit module at Levels 5 and 6. For more information about our Global Challenge Pathways please visit:
https://www.keele.ac.uk/study/undergraduate/globalchallengepathways/

Modern Languages or Certificate in TESOL

Alternatively, you could choose to study modules with the University Language Centre. The Language Centre offers three pathways; The Language Specialist, The Language Taster, and The Trinity Certificate in Teaching English to Speakers of Other Language (TESOL). Language Centre modules are available separately for students at Levels 4 and 5. At Level 6 they are included within the Global Challenge Pathways.

If you choose the Language Specialist pathway, you will automatically be enrolled on a Semester 2 Modern

Language module as a continuation of your language of choice as a faculty funded 'additional' module. Undertaking a Modern Languages module in Semester 2 is compulsory if you wish to continue to the Language Specialist Global Challenge Pathway the following academic year.

For more information about Language Centre option modules available to you please visit the following webpages.

For Level 4 and 5 students please visit: https://www.keele.ac.uk/study/languagecentre/languagecentreoptions/

For Level 6 students please visit: https://www.keele.ac.uk/students/academiclife/global-challenge-pathways/

A summary of the credit requirements per year is as follows, with a minimum of 90 subject credits (compulsory plus optional) required for each year.

For further information on the content of modules currently offered, including the list of elective modules, please visit: https://www.keele.ac.uk/recordsandexams/modulecatalogue/

Year	Compulsory	Optional	
		Min	Max
Level 4	120	0	0
Level 5	90	30	30
Level 6	60	60	60

Module Lists

Level 4

Compulsory modules	Module Code	Credits	Period
Introduction to Programming	CSC-10070	15	Semester 1
Sets, Functions and Proofs	MAT-10071	15	Semester 1
Limits, Series and Calculus	MAT-10079	15	Semester 1
Computer Systems and Fundamentals	CSC-10080	30	Semester 1-2
Introduction to Algorithms	CSC-10064	15	Semester 2
Linear algebra	MAT-10073	15	Semester 2
Differential Equations and Multivariable Calculus	MAT-10075	15	Semester 2

Level 5

Compulsory modules	Module Code	Credits	Period
Database Systems	CSC-20002	15	Semester 1
Data Science Techniques	CSC-20095	15	Semester 1
Linear Differential Equations	MAT-20041	15	Semester 1
Computational Mathematics with Python	MAT-20051	15	Semester 1
Computational and Artificial Intelligence I	CSC-20043	15	Semester 2
Professional Mathematics and Data Analysis	MAT-20043	15	Semester 2

Optional modules	Module Code	Credits	Period
Flexible Work Placement (Level 5)	NAT-20011	15	Semester 1-2
Software Engineering	CSC-20041	15	Semester 2
Computer Graphics and Animation	CSC-20079	15	Semester 2
Abstract Algebra	MAT-20025	15	Semester 2
Complex Variable I and Vector Calculus	MAT-20047	15	Semester 2

Level 5 Module Rules

Please note: You cannot take both Flexible Work Placement (Level 5) and Flexible Work Placement (Level 6)

Level 6

Compulsory modules	Module Code	Credits	Period
Machine Learning Applications	CSC-30041	15	Semester 1
Partial Differential Equations	MAT-30003	15	Semester 1
Computer Science and Mathematics Project	CSC-30083	30	Semester 1-2

Optional modules	Module Code	Credits	Period
Cyber Security	CSC-30057	15	Semester 1
Software Development Management	CSC-30069	15	Semester 1
Non-linear Differential Equations	MAT-30002	15	Semester 1
Group Theory	MAT-30013	15	Semester 1
Number Theory and Cryptography	MAT-30038	15	Semester 1
Flexible Work Placement (Level 6)	NAT-30008	15	Semester 1-2
Professional Experience in Education	NAT-30012	15	Semester 1-2
Advanced Databases and Applications	CSC-30002	15	Semester 2
Computational and Artificial Intelligence II	CSC-30027	15	Semester 2
Data Ethics and Security	CSC-30045	15	Semester 2
Waves	MAT-30011	15	Semester 2
Mathematical Modelling	MAT-30051	15	Semester 2

Level 6 Module Rules

Please note: You cannot take both Flexible Work Placement (Level 5) and Flexible Work Placement (Level 6). You also cannot take both Flexible Work Placement (Level 6) and Professional Experience in Education.

Learning Outcomes

The table below sets out what students learn in the programme and the modules in which that learning takes place. Details of how learning outcomes are assessed through these modules can be found in module specifications.

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Computational thinking including its relevance to everyday life.	All Computer Science modules
An understanding of the scientific method and its applications to problem solving in this area	All modules
Knowledge and understanding: demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to Computing and computer applications as appropriate to the programme of study.	All Computer Science modules
Appropriate mathematical methods and techniques and the use of mathematical notation.	Introduction to Algorithms - CSC-10064 All mathematical modules.
The role of logical mathematical argument and deductive reasoning, including the formal process of mathematical proof	Introduction to Algorithms - CSC-10064 All mathematical modules.
Modelling: use such knowledge and understanding in the modelling and design of computer-based systems for the purposes of comprehension, communication, prediction and the understanding of trade-offs.	All Computer Science modules; Linear Algebra; Differential Equations and Multivariable Calculus; Linear Differential Equations; Computational Mathematics with Python
Requirements, practical constraints and computer-based systems (and this includes computer systems, information, security, embedded, and distributed systems) in their context: recognise and analyse criteria and specifications appropriate to specific problems, and plan strategies for their solutions.	All Computer Science modules
Critical evaluation and testing: analyse the extent to which a computer-based system meets the criteria defined for its current use and future development.	Human-Computer Interaction; Database Systems; Software Engineering; Software Development Management; Advanced Web Technologies
Data investigation and visualisation	Mathematics Data Analysis Projects
Methods and tools: deploy appropriate theory, practices and tools for the specification, design, implementation and evaluation of computer-based systems.	All Computer Science modules.
Professional considerations: recognise the professional, economic, social, environmental, moral and ethical issues involved in the sustainable exploitation of computer technology and be guided by the adoption of appropriate professional, ethical and legal practices.	All modules except Introduction to Programming; Data Science Techniques; Computer Graphics and Animation; Introduction to Algorithms; Advanced Programming and Software Design; Web Technologies; Database Systems; Computational and Artificial Intelligence I; Computational and Artificial Intelligence II; Machine Learning Applications.
Probability-based models, hypothesis testing, statistical inference and likelihood and the application of statistics	Medical Statistics

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Specify, design and construct reliable, secure and usable computer-based systems.	All Computer Science modules except Introduction to Algorithms, Computational and Artificial Intelligence I, Computational and Artificial Intelligence II
Evaluate systems in terms of quality attributes and possible trade-offs presented within the given problem.	Database Systems; Introduction to Algorithms; Software Engineering; Software Development Management; Computer Science and Mathematics Project
Plan and manage projects to deliver computing systems within constraints of requirements, timescale and budget.	All Computer Science modules
Recognise any risks and safety aspects that may be involved in the deployment of computing systems within a given context.	Database Systems; Software Engineering; Software Development Management; Advanced Databases and Applications; Computer Science and Mathematics Project; Cyber Security.
Deploy effectively the tools used for the construction and documentation of computer applications, with particular emphasis on understanding the whole process involved in the effective deployment of computers to solve practical problems.	All Computer Science modules
Critically evaluate and analyse complex problems, including those with incomplete information, and devise appropriate solutions, within the constraints of a budget.	Computer Graphics and Animation; Introduction to Algorithms; Database Systems; Software Engineering; Software Development Management; Advanced Databases and Applications; Computer Science and Mathematics Project; Cyber Security
Demonstrate knowledge of key mathematical and statistical concepts, both explicitly and by applying them to the solution of problems.	All mathematical modules
Comprehend problems, abstract their essentials and formulate them in symbolic form so as to facilitate their analysis and solution, and understand how mathematical and statistical processes may be applied to them.	All mathematical modules
Select and apply appropriate mathematical and statistical techniques	All mathematical modules
Use models to analyse an underlying problem and to interpret the results of this analysis.	Mathematical modelling
Understand the importance of assumptions made in mathematical and statistical models, be aware of when and where they are used and possible consequences of their violation	All mathematical modules
Construct and develop logical mathematical arguments with clear identification of assumptions and conclusions	All mathematical modules
Reason critically, carefully and logically and derive (prove) mathematical results	All mathematical modules
Demonstrate facility with mathematical abstraction	Linear Algebra, Abstract Algebra

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
A wide range of generic skills to ensure they become effective in the workplace, to the benefit of themselves, their employer and the wider economy.	All modules
Intellectual skills: critical thinking; making a case; numeracy and literacy; information literacy. The ability to construct well-argued and grammatically correct documents. The ability to locate and retrieve relevant ideas, and ensure these are correctly and accurately referenced and attributed.	Database Systems; Software Engineering; Computational and Artificial Intelligence I; Software Development Management; Advanced Databases and Applications; Computer Science and Mathematics Project; Computational and Artificial Intelligence II; Cyber Security.
Acquire, analyse, synthesise, summarise and present information and ideas from a range of sources	All mathematical modules
Self-management: self-awareness and reflection; goal setting and action planning; independence and adaptability; acting on initiative; innovation and creativity.	Software Engineering; Computer Science and Mathematics Project; Flexible work placement
Interaction: reflection and communication: the ability to succinctly present rational and reasoned arguments that address a given problem or opportunity, to a range of audiences (orally, electronically or in writing).	All modules
Team working and management: the ability to recognise and make best use of the skills and knowledge of individuals to collaborate. To be able to identify problems and desired outcomes and negotiate to mutually acceptable conclusions. To understand the role of a leader in setting direction and taking responsibility for actions and decisions.	Software Engineering; Software Development Management
Contextual awareness: the ability to understand and meet the needs of individuals, business and the community, and to understand how workplaces and organisations are governed.	Database Systems; Software Engineering; Software Development Management; Advanced Databases and Applications; Flexible Work Placement
Sustainability: recognising factors in environmental and societal contexts relating to the opportunities and challenges created by computing systems across a range of human activities.	Software Engineering; Software Development Management

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Honours Degree **BSc (Hons) Computer Science and Mathematics**	360 credits	You will require at least 120 credits at levels 4, 5 and 6 You must accumulate at least 270 credits in your main subject (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in this subject.
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

International Year option: in addition to the above students must pass a module covering the international year in order to graduate with a named degree including the 'international year' wording. Students who do not complete, or fail the international year, will be transferred to the three-year version of the programme.

Work Placement Year option: in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree including the 'with Work Placement Year' wording. Students who do not complete, or fail the work placement year, will be transferred to the three-year version of the programme.

10. How is the Programme Assessed?

The wide variety of assessment methods used on this programme at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used on your programme:

- **Unseen examinations** in different formats test a student's knowledge and understanding of computer science topics. Such examinations are of two hours in length and contain compulsory and possibly also optional questions.
- **Online examinations** taken during a 28-hour assessment window.
- **Class tests** are taken during the course of a module, usually in a lecture slot. They are intended to assess a student's current understanding and subject knowledge in that module in a structured and focused manner. Some taught compulsory modules may have class tests as part of the assessment profile.
  Coursework normally consists of assignments designed to assess student's knowledge and understanding of the module material. Some of these assignments may be computer based; others take the form of individual reports, essays or group projects.
- **Short reports**: for which students are required to write up their own account of small group studies and discussions on particular topics.
  Tutorial Participation, whereby students may be asked to make contributions based on the subject material, either orally or as a written solution, sometimes in consultation with their peers.
- **Dissertations** are formal reports of work carried out by students undertaking a project. Projects involve the integration and application of theoretical knowledge and problem-solving skills to an identified programming need and/or research problem within the discipline. Dissertations describe product and process in extended detail.
- **Oral presentations** and reports assess a student's ability to communicate their knowledge and understanding, both visually and orally, to both general and academic audiences.

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity

	Scheduled learning and teaching activities	Guided independent Study	Placements
Year 1 (Level 4)	28.6%	71.4%	0%
Year 2 (Level 5)	28.2%	71.8%	0%
Year 3 (Level 6)	18.3%	81.7%	0%

12. Accreditation

This programme does not have accreditation from an external body.

13. University Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: http://www.keele.ac.uk/student-agreement/

If this programme has any exemptions, variations or additions to the University Regulations these will be detailed in an Annex at the end of this document titled 'Programme-specific regulations'.

14. What are the typical admission requirements for the Programme?

See the relevant course page on the website for the admission requirements relevant to this programme: https://www.keele.ac.uk/study/

English for Academic Purposes

Please note: All new international students entering the university will provide a sample of Academic English during their registration Using this sample, the Language Centre may allocate you to an English language module which will become compulsory. This will replace any GCP modules. *NB:* students can take an EAP module only with the approval of the English Language Programme Director and are not able to take any other Language modules in the same academic year.

English Language Modules at Level 4:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 5:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 6:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2); ENL-90005 Advanced Business English Communication
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

Recognition of Prior Learning (RPL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here: https://www.keele.ac.uk/qa/programmesandmodules/recognitionofpriorlearning/

15. How are students supported on the programme?

Support for student learning on the Programme is provided in the following ways:

- Module lecturers, teaching fellows and computing laboratory demonstrators are responsible for providing support for learning on the modules. They also give individual feedback on coursework assignments and more general feedback on examinations. Students do not normally need to make a formal appointment to meet a member of staff. Some staff have dedicated office hours when they guarantee to be in their room and available for enquiries. Other staff have an open door policy, which means students can drop in at any time. Many staff have both.
- Every student is allocated to an Academic Mentor who is responsible for reviewing and advising on students' academic progress in Computer Science and Mathematics.
- Academic Mentors also act as a first point of contact for students on non-academic issues which may affect their learning and can refer students on to a range of specialist health, welfare and financial services co-ordinated by the University's Student Services.
- The Faculty has a team of Student Experience & Support Officers (SESOs). They are there to provide support for students and students can book an appointment with a SESO at any time. Where there is an issue that Academic Mentor cannot help students with, they may recommend that a meeting is arrange to see a SESO for further follow up.

16. Learning Resources

Computer Science and Mathematics is taught in lecture theatres, teaching rooms and computer laboratories. The learning resources available to students on the Programme include:

Dedicated networked PC laboratories within the School of Computing and Mathematics, which use the Microsoft Windows and GNU/Linux operating systems and provide a wide range of supported software. The School buildings are accessible 24 hours a day (via a purchasable key fob). Students have individual email accounts and file stores on University and School servers. Additional facilities are provided for final year projects.

The Keele Learning Environment (KLE) which provides easy online access to a range of learning resources including lecture notes and other resources supplied in modules.

The extensive collection of books and journals relevant to undergraduate study held in the University Library. Much of this material is also accessible online to Keele students from anywhere in the world with a University username and password.

17. Other Learning Opportunities

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided in the Annex for the International Year.

Work Placement Year

Students have the opportunity to apply directly for the 4-year 'with Work Placement Year' degree programme or to transfer onto the 4-year degree programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 4-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking their year-long placement. Eligibility rules are included in the Annex.

Students wishing to take the work placement year should meet with the Programme Director to obtain their signature to confirm agreement before they will be allowed to commence their placement.

International students who require a Tier 4 visa must check with the Immigration Compliance Team prior to commencing any form of placement.

A summary of the Work Placement Year, which is a potential option for students after completion of year 2 (Level 5), is provided in the Annex for the Work Placement Year.

Other opportunities

18. Additional Costs

Some travel costs may be incurred if an external project is undertaken in the third year. However, any such costs would be discussed with you before the project was selected. It would be possible for you to select an internal project that would not incur any additional costs.

Professional Experience in Education is an optional third year (level 6) module which involves students spending time supporting a teacher in a local school or college, over eight weeks (64 hours). Due to UK Home Office rules on student Tier 4 Visas this option is not available if a student has a student Tier 4 Visa to study in the UK. A DBS check will be required in order to take the module*. Travel will be required, depending on the location of the school or college you choose. The costs of both of these would be incurred by the student and cannot be reimbursed by the University. It is possible to select alternative modules, which do not incur any cost.

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative. Where additional costs are in direct control of the University we will ensure increases do not exceed 5%.

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation. We do not anticipate any further costs for this programme.

19. Quality management and enhancement

The quality and standards of learning in this programme are subject to a continuous process of monitoring, review and enhancement.

- The School Education Committee is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Revalidation process.

Student evaluation of, and feedback on, the quality of learning on every module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of annual programme review.
- Findings related to the programme from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:
http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/

20. The principles of programme design

The programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

a. UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: http://www.qaa.ac.uk/quality-code
b. QAA Subject Benchmark Statement: Computing (2022) https://www.qaa.ac.uk/docs/qaa/sbs/sbs-computing-22.pdf; Mathematics, Statistics and Operational Research (2023): https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements/subject-benchmark-statement-mathematics-statistics-and-operational-research
c. Keele University Regulations and Guidance for Students and Staff: http://www.keele.ac.uk/regulations

21. Annex - International Year

Computer Science and Mathematics with International Year

International Year Programme

Students registered for this Single Honours programme may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year option. Students accepted onto this option will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the standard programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the International Year option.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 55% across all modules in Semester 1 at Level 5 is normally required. Places on the International Year are then conditional on achieving an average mark of 55% across all Level 5 modules. Students with up to 15 credits of re-assessment who meet the 55% requirement may progress to the International Year. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's Academic Mentor, 1st and 2nd year tutors and programme director)

Students may not register for both an International Year and a Placement Year.

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Academic Mentoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

1. Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
2. Discuss the benefits and challenges of global citizenship and internationalisation
3. Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.
4. Communicate effectively in an international setting;
5. Reflect on previous learning within an international context

In addition, students who complete the International Year will be able to:

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Regulations

Students registered for the International Year are subject to the programme-specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any module with significant overlap to the Level 6 modules they will study on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students who meet external eligibility criteria may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

22. Annex - Work Placement Year

Computer Science and Mathematics with Work Placement Year

Work Placement Year summary

Students registered for this programme may either be admitted for or apply to transfer during their studies to the 'with Work Placement Year' option (NB: for Combined Honours students the rules relating to the work placement year in the subject where the placement is organised are to be followed). Students accepted onto this programme will have an extra year of study (the Work Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the Work Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Work Placement Year will normally revert to the 3-year programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the Work Placement Year option.

Work Placement Year Programme Aims

In addition to the programme aims specified in the main body of this document, the Work Placement Year aims to provide students with the opportunity to carry out a long-term work-based learning experience (minimum 30 weeks equivalent of full-time work) in the computing sector between Years 2 and 3 (Levels 5 and 6) of their degree programme. The module will be underpinned by employability skills training (as part of their preparation during year 2), reflective assessment, employer and tutor evaluation and support from academic tutors.

Entry Requirements for the Work Placement Year

Admission to the Work Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 4-year 'with work placement year' degree programme, or to transfer onto the 4-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 4-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long work placement. Students who fail to pass the work placement year, and those who fail to meet the minimum requirements of the work placement year module, (* or equivalent, work placement), will be automatically transferred onto the 3-year degree programme.

* We recommend where possible students undertake a placement of between 9 - 12 months on a full-time basis to maximize academic and personal growth. However, the Work Placement Year mandates a minimum of 24 weeks in duration, ideally on a full-time basis, but no less than 21 hours per week. This enables those undertaking an unpaid placement to work on a part-time basis alongside.

The criteria to be applied are:

- A good University attendance record and be in 'good academic standing'.
- Academic Performance (an average of 50% across all modules in Semester 1 at Level 5 is normally required. Places on the Work Placement Year are then conditional on achieving an average mark of 50% across all Level 5 modules. Students with up to 15 credits of re-assessment who meet the 50% requirement may progress to the Work Placement Year. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account)
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.
- *(International students only)* Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Work Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the work placement year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the work placement programme.

Students may not register for both an International Year and a Work Placement Year.

Student Support

Students will be supported whilst on the Work Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organization at around 5 weeks after the placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete the 'with Work Placement Year' option will be able to:

LO4.1 Evaluate their own employability skills (via a SWOT Analysis).

LO4.2 Create ILOs for their placement in order to develop the skills areas which they have identified as being weak or needing further enhancement.

LO4.3 Develop, through practice in the work place, the work-related skills identified through their SWOT analysis and ILOs.

LO4.4 Apply academic theory learnt as part of the taught degree to real situations in the work place.

LO4.5 Reflect on their work placement activities and experiences and evaluate the impact on their employability skills.

LO4.6 Explain how the professional computing sector operates and identify the skills required to pursue careers within the sector.

These learning outcomes will be assessed through the non-credit bearing Work Placement Year module.

Regulations

Students registered for the 'with Work Placement Year' option are subject to programme-specific regulations (if any) and the University regulations. In addition, during the Work Placement Year, the following regulations will apply:

- Students undertaking the Work Placement Year must successfully complete the zero-credit rated 'Work Placement Year' module (NAT-30010)
- In order to ensure a high quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.
- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.

Students will be expected to behave professionally in terms of:

(i) conforming to the work practices of the organisation; and

(ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Work Placement Year

Tuition fees for students on the Work Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Work Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.

23. Annex - Programme-specific regulations

Programme Regulations: Computer Science and Mathematics

Final Award and Award Titles	BSc (Hons) Computer Science and Mathematics BSc (Hons) Computer Science and Mathematics with International Year BSc (Hons) Computer Science and Mathematics with Work Placement Year
Intermediate Award(s)	Diploma in Higher Education Certificate in Higher Education
Last modified	October 2024
Programme Specification	https://www.keele.ac.uk/qa/programmespecifications

The University's Academic Regulations which can be found on the Keele University website (https://www.keele.ac.uk/regulations/)[1] apply to and regulate the programme, other than in instances where the specific programme regulations listed below over-ride them. These programme regulations list:

- *Exemptions* which are characterised by the omission of the relevant regulation.
- *Variations* which are characterised by the replacement of part of the regulation with alternative wording.
- *Additional Requirements* which set out what additional rules that apply to students in relation to this programme.

The following **exemptions, variations** and **additional requirements** to the University regulations have been checked by Academic Services and have been approved by the Faculty Education Committee.

A) EXEMPTIONS

The clause(s) listed below describe where an exemption from the University's Academic Regulations exists:

For the whole duration of their studies, students on this Programme are exempt from the following regulations:

- **No exemptions apply.**

B) VARIATIONS

The clause(s) listed below describe where a variation from the University's Academic Regulations exists:

Variation 1: Transfer onto the MComp Computer Science Programme

This programme varies from Regulation C6, 2.3:

Regulation C6, paragraph 2.3 states that the rules governing eligibility for transfer onto an Integrated Masters programme shall be governed by the relevant Course Regulations.

BSc Computer Science and Mathematics students will, subject to the same considerations, normally be permitted to transfer on to the MComp Computer Science Programme within two weeks of the commencement of Level 5.

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[1] References to University Regulations in this document apply to the content of the University's Regulatory Framework as set out on the University website here https://www.keele.ac.uk/regulations/.

Version History

This document

Date Approved: 13 April 2026

What's Changed

Version for Level 5 cohort in 2026/27

Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes
1	2025/26	AMRO AL-SAID AHMAD	06 May 2025	