Programme Specification: Post Graduate Taught

For Academic Year 2025/26

1. Course Summary

Names of programme and award title(s)	MSc Advanced Computer Science
Award type	Taught Masters
Mode of study	Full-time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 7
Normal length of the programme	1 year
Maximum period of registration	The normal length as specified above plus 3 years
Location of study	The British International College, Nepal
Accreditation (if applicable)	British Computer Society
Regulator	Office for Students (OfS)
Tuition Fees	Please refer to the British International College website for information in relation to Tuition Fees.

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.*

2. Overview of the Programme

The course is aimed at developing an advanced knowledge of underlying principles and concepts of Internet technologies, web based applications and Internet enabled enterprise systems. The course will also develop and extend the practical skills that are necessary for the designing, building, deployment and evaluation of distributed information systems and enterprise applications over the Internet.

Graduates from this programme should be able to undertake both development and management roles. The course recognises the wide variety of potential destinations for students after completion of their course and as such uses compulsory modules to deliver key skills and enable students to obtain the required knowledge.

3. Aims of the programme

The aims of the programme are:

- to deliver to students knowledge which allows them to fully participate in the development of modern Internet and Web based systems and to apply an approach to the management and control of such activities;
- to provide students with the research and scholarship skills to undertake independent research and to develop software applications;
- to develop critical, analytical and problem based learning skills;
- to develop student - centred independent active learning;
- to develop student's communication, numeracy, time management, self-management and professional development skills;
- to develop skills for team working needed in the creation of modern systems.

4. 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), match the abilities specified in the QAA 2011 Subject Benchmark Statement for Master's degrees in Computing and 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

LO 1.1 An ability to evaluate the technical, societal and management dimensions of computer systems.

LO 1.2 A knowledge and understanding of advanced aspects of computer systems and their use.

LO 1.3 A combination of theory and practice, with practice being guided by theoretical considerations.

LO 1.4 A strong emphasis on the underlying discipline and/or applications.

LO 1.5 The mastery of the practical methodology of the relevant area of computing, whether for general application in software development or in specialised applications relating to the storing, processing and communication of information.

LO 1.6 An understanding of, and attention to, the many and varied aspects of quality.

LO 1.7 An understanding of professional, legal, social, cultural and ethical issues related to computing and an awareness of societal and environmental impact.

Subject specific skills

LO 2.1 An ability to engage in a peer review process that involves the critical review of papers, software and proposals, coupled with positive advice for improvement and innovation.

LO 2.2 The ability to assess systems (which may include software, devices, people, and so on), to recognise the individual components and to understand their interaction, to improve systems, to replace them and to create them; this includes socio-technical systems such as those relevant to aspects of healthcare and also computing systems used in specialised applications such as bioinformatics, e-science, virtual environments, financial services, and transport.

LO 2.3 Familiarity with codes of ethics and codes of practice specific to the specialism of the degree programme, relevant industrial standards and principles underpinning the development of high integrity systems (for safety, security, trust, privacy, and so on), while keeping in focus the benefits of, approaches to and opportunities offered by innovation.

LO 2.4 Entrepreneurship, which tends to involve acquiring resources to ensure the success of some technically sound endeavour.

LO 2.5 Communication skills to address effectively technical and non-technical audiences.

Key or transferable skills (including employability skills)

LO 3.1 Ability to set goals and identify resources for the purpose of learning.

LO 3.2 An ability to critically review the literature, which includes identifying all of the key developments in a particular area of study, critically analysing them and identifying limitations and avenues for further development or explanation.

LO 3.3 An ability to recognise and respond to opportunities for innovation.

LO 3.4 Leadership skills, which tend to be characterised by acquiring a vision (based on sound technical insights) coupled with the ability to encourage others to share in that vision and to ensure that this will not be to their detriment.

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 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.

5. How is the programme taught?

You will use a variety of learning tools in studying for this course. The principal method for you to acquire knowledge is the use of formal lectures. These are supplemented by smaller group tutorials and practical sessions dependent on the topics being covered in the module. Self-study using material provided and that which you research for yourself will supplement the formal learning opportunities.

Formal lectures and self-study materials are used to introduce concepts to the student. The smaller group tutorials and practical's enable both consolidation of this material and an understanding of the practicalities of its application in a modern business environment. The tutorials and practical's achieve this aim by having the students apply the taught concepts to real world problems in a situation where individual progress can be monitored.

NB: *all the taught content for the franchise programme delivered at the British International College (BIC) Nepal is provided by Keele tutors.*

All first semester 15-credit taught modules, with the exception of one module delivered over two semesters, will be delivered in block mode, i.e. each of these modules will be delivered over a period of six consecutive weeks. In any week at most two block mode modules will be scheduled to be delivered during the first semester. All taught modules in the second semester are delivered along the whole semester.

6. Teaching Staff

The Computer Science academic staff comprises three Professors, three Senior Lecturers, five Lecturers and five Teaching Fellows. More information about the Computer Science 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.

7. What is the structure of the programme?

An outline of the structure of the MSc Advanced Computer Science Programme is given in the tables below.

NB: There are two intakes for the British International College (BIC) Nepal franchise programme in September and January.

Year	Compulsory	Optional	
		Min	Max
Level 7	30	150	150

Module Lists

Level 7

Compulsory modules	Module Code	Credits	Period
Research Horizons	CSC-40041	15	Semester 1
Mathematics for AI and Data Science	CSC-40072	15	Semester 1

Optional modules	Module Code	Credits	Period
Cloud Computing	CSC-40039	15	Semester 1
Distributed Intelligent Systems	CSC-40045	15	Semester 1
Advanced Programming in Python	CSC-40068	15	Semester 1
Human Factors of Cyber Security	CSC-40104	15	Semester 1
Collaborative Application Development	CSC-40038	15	Semester 2
Visualisation for Data Analytics	CSC-40048	15	Semester 2
Data Analytics and Databases	CSC-40054	15	Semester 2
Applications of AI, Machine Learning and Data Science	CSC-40070	15	Semester 2
Cryptography	CSC-40120	15	Semester 2
Cyber Security	CSC-40122	15	Semester 2
Industrial Placement	CSC-40035	60	Semester 3
MSc Project	CSC-40040	60	Semester 3

Level 7 Module Rules

Optional Modules: Students must choose optional modules in semester 1 and in semester 2 in consultation with their academic mentor. Students must consider not taking more than two modules per block otherwise they could be overloading themselves.

MSc Project or Industrial Placement: Students either do a project or an industrial placement. Students wishing to do an industrial placement will have to apply for this and satisfy the selection criteria of the relevant industrial placement.

For the January cohort at BIC Nepal, the following structure applies:

CSC-40041	Research Horizon	Semester 2 (Jan-April)	15	Compulsory
CSC-40072	Mathematics for AI and DS	Semester 2 (Jan-April)	15	Compulsory
CSC-40039	Cloud Computing	Semester 2 (Jan-April)	15	Optional
CSC-40045	Distributed Intelligent Systems	Semester 2 (Jan-April)	15	Optional
CSC-40068	Advanced Programming in Python	Semester 2 (Jan-April)	15	Optional
CSC-40104	Human Factors of Cyber Security	Semester 2 (Jan-April)	15	Optional
CSC-40048	Visualisation for Data Analytics	Sem 3 (May-Aug)	15	Optional
CSC-40054	Data Analytics and Databases	Sem 3 (May-Aug)	15	Optional
CSC-40070	Applications of AI, Machine Learning and Data Science	Sem 3 (May-Aug)	15	Optional
CSC-40120	Cryptography	Sem 3 (May-Aug)	15	Optional
CSC-40122	Cyber Security	Sem 3 (May-Aug)	15	Optional
CSC-40038	Collaborative Application Development	Sem 3 (May-Aug)	15	Optional
CSC-40040	MSc Project	Sem 1 (Sept-Jan)	60	Optional
CSC-40035	Industrial Placement	Sem 1 (Sept-Jan)	60	Optional

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.

Level 7

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
LO 1.1 An ability to evaluate the technical, societal and management dimensions of computer systems.	All modules
LO 1.2 A knowledge and understanding of advanced aspects of computer systems and their use.	Cloud Computing - CSC-40039 Research Horizons - CSC-40041 Industrial Placement - CSC-40035 MSc Project - CSC-40040
LO 1.3 A combination of theory and practice, with practice being guided by theoretical considerations.	MSc Project - CSC-40040 Industrial Placement - CSC-40035 Cloud Computing - CSC-40039
LO 1.4 A strong emphasis on the underlying discipline and/or applications.	MSc Project - CSC-40040 Industrial Placement - CSC-40035 Cloud Computing - CSC-40039
LO 1.5 The mastery of the practical methodology of the relevant area of computing, whether for general application in software development or in specialised applications relating to the storing, processing and communication of information.	Cloud Computing - CSC-40039 MSc Project - CSC-40040 Industrial Placement - CSC-40035 Collaborative Application Development - CSC-40038
LO 1.6 An understanding of, and attention to, the many and varied aspects of quality.	All modules
LO 1.7 An understanding of professional, legal, social, cultural and ethical issues related to computing and an awareness of societal and environmental impact.	MSc Project - CSC-40040 Industrial Placement - CSC-40035 Collaborative Application Development - CSC-40038

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
LO 2.1 An ability to engage in a peer review process that involves the critical review of papers, software and proposals, coupled with positive advice for improvement and innovation.	Research Horizons - CSC-40041 MSc Project - CSC-40040 Industrial Placement - CSC-40035 Collaborative Application Development - CSC-40038
LO 2.2 The ability to assess systems (which may include software, devices, people, and so on), to recognise the individual components and to understand their interaction, to improve systems, to replace them and to create them; this includes socio-technical systems such as those relevant to aspects of healthcare and also computing systems used in specialised applications such as bioinformatics, e-science, virtual environments, financial services, and transport.	All modules
LO 2.3 Familiarity with codes of ethics and codes of practice specific to the specialism of the degree programme, relevant industrial standards and principles underpinning the development of high integrity systems (for safety, security, trust, privacy, and so on), while keeping in focus the benefits of, approaches to and opportunities offered by innovation.	All modules
LO 2.4 Entrepreneurship, which tends to involve acquiring resources to ensure the success of some technically sound endeavour.	Collaborative Application Development - CSC-40038
LO 2.5 Communication skills to address effectively technical and non-technical audiences.	All modules

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
LO 3.1 Ability to set goals and identify resources for the purpose of learning.	Research Horizons - CSC-40041 MSc Project - CSC-40040 Collaborative Application Development - CSC-40038 Industrial Placement - CSC-40035
LO 3.2 An ability to critically review the literature, which includes identifying all of the key developments in a particular area of study, critically analysing them and identifying limitations and avenues for further development or explanation.	MSc Project - CSC-40040 Industrial Placement - CSC-40035 Collaborative Application Development - CSC-40038 Research Horizons - CSC-40041
LO 3.3 An ability to recognise and respond to opportunities for innovation.	All modules
LO 3.4 Leadership skills, which tend to be characterised by acquiring a vision (based on sound technical insights) coupled with the ability to encourage others to share in that vision and to ensure that this will not be to their detriment.	Collaborative Application Development - CSC-40038 Industrial Placement - CSC-40035 MSc Project - CSC-40040

8. Final and intermediate awards

Master's Degree **MSc Advanced Computer Science**	180 credits	You will require at least 150 credits at Level 7
Postgraduate Diploma	120 credits	You will require at least 90 credits at Level 7
Postgraduate Certificate	60 credits	You will require at least 40 credits at Level 7

9. 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:** 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. Virtually all taught compulsory modules in Semester 1 have unseen examinations as part of the assessment profile.
- **Class tests:** these 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 regular short assignments designed to assess, in more depth than class tests, a student's knowledge and understanding of the course material. Some of these assignments may be computer based; others take the form of individual reports, essays or group projects. Virtually all taught optional modules in Semester 1 and all taught compulsory modules in Semester 2 are assessed exclusively through coursework.
- **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.

10. Accreditation

This programme is accredited by the British Computer Society.

11. 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'.

12. 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/

The typical admission requirement is a Second Class Honours or higher degree (overseas equivalent accepted) from an undergraduate or postgraduate programme of a university recognised as such by Keele University. Alternatively, the applicant should have completed an approved pre-masters course. The candidate must demonstrate a level of English language capability in reading, speaking and writing in one of the following ways:

- have achieved IELTS 6.5 or higher;
- have successfully undertaken a previous degree level programme taught entirely in English;
- have successfully completed an approved pre-masters course;
- have successfully completed an approved pre-sessional English course of the designated level.

We will also consider relevant industrial experience for students who do not reach the required degree level and who are not suitable for a pre-masters course.

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/

13. How are students supported on the programme?

Support for student learning and welfare is provided in a number of ways.

- Module leaders and demonstrators are responsible for providing learning support on the individual modules. They also give feedback on all summative and formative assessment, from individual feedback on coursework to more general feedback on examinations.
- The members of academic staff in Computer Science operate an open-door policy whereby lecturers and tutors are happy to see and advise students at any reasonable time or by mutually convenient appointment.
- Every student enrolled on the Programme will be allocated an Academic Mentor who is responsible for reviewing and advising on the student's academic progress throughout their time on the Programme. Students should approach their Academic Mentor in the first instance if they are experiencing issues with any part of the Programme.
- Academic Mentors also act as a first point of contact on any non-academic issues that may be affecting their learning and can also refer students to a range of specialist health, welfare and financial services coordinated by Student Services.
- There is an Independent Support Tutor who is independent of the lecturing team delivering the modules for the Programme and available to all students on the Programme. The role of the Independent Support is to provide general support for students, though they will deal specifically with attendance monitoring and the exceptional circumstances procedure.

14. Learning Resources

- There is a specialist teaching laboratory and associated workroom with equivalent configuration of machines, both of which are reserved for access by those studying postgraduate taught courses in the School. All the systems available have software appropriate to the modules included in this course, in addition to those provided as standard by the University.
- The relevant Course Handbook will provide you with key information and guidance on structure, content and assessment.
- You may contact the Course Director and the MSc Administrator, or their substitutes, via e-mail at all times on weekdays and you may expect a response to your communications within three working days.
- You will have access to the Course Director and tutors by appointment.
- You will have access to material in the courses' on-line learning resources.
- You will have access to Keele's Library Information Services on campus and via the Internet.

15. Other Learning Opportunities

The modules on this course are available for Continuing Professional Development (CPD).

16. Additional Costs

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.

17. 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 Postgraduate Taught Experience Survey (PTES), 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 on 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/

18. 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: *Subject Benchmark Statement for Master's Degrees in Computing,* Quality Assurance Agency for Higher Education, 2019. https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-computing-%28masters%29.pdf
c. Keele University Regulations and Guidance for Students and Staff: http://www.keele.ac.uk/regulations
d. Guidelines for programmes, British Computer Society, 2009. www.bcs.org/upload/pdf/heaguidelines.pdf and Accreditation criteria, British Computer Society, 2010. https://www.bcs.org/deliver-and-teach-qualifications/university-accreditation/, https://www.bcs.org/media/1209/accreditation-guidelines.pdf

Version History

This document

Date Approved: 23 June 2025

Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes
1.1	2024/25	SANGEETA SANGEETA	27 January 2025	Details about the January cohort running at BIC are added in a separate table
1	2024/25	EDWARD DE QUINCEY	10 June 2024	
1	2023/24	SANGEETA SANGEETA	17 April 2023	
1	2022/23	THEO KYRIACOU	22 August 2022	