Programme Specification

Awarding Body/Institution	Queen Mary, University of London
Teaching Institution	Queen Mary, University of London
Name of Final Award and Programme Title	MSc Computer Science with Industrial Experience
Name of Interim Award(s)	PG Certificate and PG Diploma
Duration of Study / Period of Registration	24 Months FT
QM Programme Code / UCAS Code(s)	H6L2
QAA Benchmark Group	Computing
FHEQ Level of Award	Level 7
Programme Accredited by	BCS The Chartered Institute for IT
Date Programme Specification Approved	
Responsible School / Institute	School of Electronic Engineering & Computer Science

Schools which will also be involved in teaching part of the programme
NA

Institution(s) other than Queen Mary that will provide some teaching for the programme
NA

Programme Outline

This MSc programme offers a broad range of advanced study options, with modules taken from a variety of application areas. It is multidisciplinary and, in addition to computer science, you may choose options in which computer science intersects with other fields. The programme prepares you for a wide range of careers depending on your selection of modules studied. Typical jobs after graduation include advanced programmer, software development and support, software engineer, product designer/developer, systems analyst, interface/interaction designer, database developer, and other specialist employment based on your selected study areas.

The programme includes a year in industry between the taught component and the project.

Aims of the Programme

The aim of this Masters programme is to offer a broad range of advanced study in the conceptual analysis of information and the development of effective technologies for its representation, distribution and use. The programme is multi-disciplinary and in addition to computer science optionally involves aspects of cognitive psychology, psycholinguistics, artificial intelligence, bioinformatics, logic, sociology and organisational management. The course aims to address both fundamental principles and advanced techniques and to provide students with directly applicable knowledge and skills. The course is aimed at preparing

students both for research study and specialist employment, especially in domains such as broadcasting, multimedia production, consumer electronics and IT equipment-manufacturing.

 The aims of the placement year are to:
• Ground the taught components of the programme in practical experience at a scale not possible within the College;
• Improve career preparation, giving students a better understanding of future career options and enhancing their career prospects.

What Will You Be Expected to Achieve?

The programme provides opportunities for students:

i) to develop a knowledge of a range of modelling, evaluation and design methods used in research and development in the focal areas of the programme.

(ii) to gain experience with applying them in practice in a research-oriented project.

Academic Content:	
A 1	Theories, principles and techniques on Computer Science
A 2	Programming languages and environments, systems development methodologies
A 3	Approaches to program and system testing and evaluation

Disciplinary Skills - able to:	
B 1	Design, implement and test software systems
B 2	Critically evaluate alternative technology solutions
B 3	Design and implement data structures that are appropriate to a given software solution
B 4	Critically reflect on their own performance in Computing projects and apply to future projects

Attributes:	
C 1	Integrate scholarship, research and professional activities with the Computing discipline in a developing professional career
C 2	Evaluate their practice and engage in continuing professional development

How Will You Learn?

Each non-project-based module involves lectures, problem solving coursework and practical sessions. Lectures are used to introduce principles and methods and also to illustrate how they can be applied in practice. Coursework allows students to develop their skills in problem solving and to gain practical experience. Practical sessions provide students with guidance and help while solving a problem. These lessons take the form of exercise classes and programming laboratories that allow the

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students to learn-by-doing in order to complement the lectures.

Individual projects are undertaken during the summer months under the supervision of an academic member of staff with whom there are weekly consultancy meetings. These are used for students to report on their progress, discuss research and design issues and plan their future work. This develops and reinforces students' ability to communicate technical ideas clearly and effectively. The Projects Coordinator also runs a thread of taught sessions to support the project module. A number of industrial-linked projects are offered each year, which students can apply for.

How Will You Be Assessed?

The assessment of taught modules normally consists of a combination of written examination and coursework.

The project is examined on the basis of a written report, a formal oral presentation, and, where applicable, a demonstration of any software and/or hardware developed by the student.

The industrial placement is assessed by a combination of written report, viva, learning journal and 2 employer evaluations. The first employer evaluation takes place a few months into the placement and the second takes places shortly before the end of the placement. Each evaluation involves employer and student jointly setting appropriate objectives within a structured framework of categories; progress is later measured against these objectives using set marking criteria.

How is the Programme Structured?

Year 1

Semester 1
(Maximum of 4 modules to be taken in Semester 1)

Select at least one from:
ECS713P Functional Programming (15 credits)
ECS789P Semi-Structured Data and Advanced Data Modelling (15 credits)
ECS793P Introduction to Object-Oriented Programming (15 credits)
Further options:
ECS708P Machine Learning (15 credits)
ECS709P Introduction to Computer Vision (15 credits)
ECS712P Design for Human Interaction (15 credits)
ECS715P Program Specifications (15 credits)
ECS765P Big Data Processing (15 credits)
IPLM701P Introduction to Law for Science and Engineering (15 credits)

Semester 2
(Maximum of 4 modules to be taken in Semester 2)

Select at least one from:
ECS726P Security and Authentication (15 credits)
ECS733P Interactive Systems Design (15 credits)
ECS773P Bayesian Decision and Risk Analysis (15 credits)
Further options from:
ECS725P Mobile Services (15 credits)
ECS727P Real Time & Critical Systems (15 credits)
ECS728P Business Technology Strategy (15 credits)
ECS735P The Semantic Web (15 credits)
ECS736P Information Retrieval (15 credits)
ECS737P Software Analysis and Verification (15 credits)
ECS763P Natural Language Processing (15 credits)

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ECS769P Advanced Object Oriented Programming (15 credits)
ECS781P Cloud Computing (15 credits)
ECS784P Data Analytics (15 credits)
ECS786P Parallel Computing (15 credits)
ECS794P Machine Learning for Visual Data Analytics (15 credits)
IPLM702P Foundations of Intellectual Property Law and Management (15 credits)

Semester 3
ECS751P Project (60 credits)

Year 2

ECS744P Industrial Placement Project

Academic Year of Study   1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
		15	7	Elective	1	Semester 1

What Are the Entry Requirements?

The entry requirements are a good Honours degree (first or upper-second class honours) in Electronic Engineering, Computer Science, Mathematics or a related discipline. Applicants with unrelated degrees will be considered if there is evidence of significant relevant industrial experience.

For international students, English Language skills are required to a recognised standard. The minimum requirement is: IELTS 6.5 or TOEFL (IBT) 92. For students not quite meeting this requirement (e.g. IELTS 6.0), enrolling on a one month pre-sessional English Language course is required. These conditions are higher than standard College conditions.

How Do We Listen and Act on Your Feedback?

The Student-Staff Liaison Committee provides a formal means of communication and discussion between the School and its students. The committee consists of student representatives from each cohort, together with appropriate representation from School staff. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Student-Staff Liaison Committees meet four times a year, twice in each teaching semester.

Each semester, students are invited to complete a web-based module questionnaire for each of their taught modules, and the results are fed back through the SSLC meetings. The results are also made available on the student intranet, as are the minutes of the SSLC meetings. Any actions necessary are taken forward by the relevant Senior Tutor, who chairs the SSLC, and general issues are discussed and actioned through the School's Learning and Teaching Committee.

The School's Learning and Teaching Committee advises the Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in this Committee's work in a number of ways, including through student membership and consideration of student surveys and module questionnaires.

The School participates in the College's Annual Programme Review process, which supports strategic planning and operational issues for all undergraduate and taught postgraduate programmes. The APR includes consideration of the School's Taught

Programmes Action Plan, which records progress on learning and teaching related actions on a rolling basis. Students' views are considered in the APR process through analysis of the NSS and module questionnaires, among other data.

Academic Support

All students are assigned an academic advisor during induction week. The advisor 's role is to guide their advisees in their academic development including module selection, and to provide first-line pastoral support.

In addition, the School has a Senior Tutor for postgraduate students who provides second-line guidance and pastoral support for students, as well as advising staff on related matters.

EEvery member of teaching staff holds 2 open office hours per week during term-time.

Additional academic support is provided to those students who are successful in securing an industrial-linked project.

The year in industry is supported by a dedicated Industrial Placements Manager.

Programme-specific Rules and Facts

The programme adheres to the standard Academic Regulations for taught postgraduate programmes, with a special regulation for a progression point after the taught component.

Specific Support for Disabled Students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

Students can access advice, guidance and support in the following areas:
• Finding out if you have a specific learning difficulty like dyslexia
• Applying for funding through the Disabled Students' Allowance (DSA)
• Arranging DSA assessments of need
• Special arrangements in examinations
• Accessing loaned equipment (e.g. digital recorders)
• Specialist one-to-one "study skills" tuition
• Ensuring access to course materials in alternative formats (e.g. Braille)
• Providing educational support workers (e.g. note-takers, readers, library assistants)
• Mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links With Employers, Placement Opportunities and Transferable Skills

The School has a wide range of industrial contacts secured through research projects and consultancy, our Industrial Experience programme and our Industrial Advisory Panel.

The Industrial Advisory Panel works to ensure that our programmes are state-of-the-art and match the changing requirements of this fast-moving industry. The Panel includes representatives from a variety of Computer Science oriented companies ranging from SMEs to major blue-chips. These include: Microsoft Research, IBM, The National Physical Laboratory, National Instruments, PA Consulting, Rohde and Schwarz, O2, Cisco Systems, ARM, Selex and BAE Systems.

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Recent graduates have found employment as IT consultants, specialist engineers, web developers, systems analysts, software designers and network engineers in a wide variety of industries and sectors. A number of students also go on to undertake PhDs in electronic engineering and computer science. Merril Lynch, Microsoft, Nokia, Barclays Capital, Logica,, Credit Suisse, KPMG, Transport for London, Sky and Selex ES are among the organizations that have recently employed graduates of EECS programmes.

Transferable skills are developed through a variety of means, including embedding of QM Graduate Attributes in taught modules and the summer project, together with the opportunity to participate in extra-curricular activities, e.g. the School's E++ Society, the School's Annual Programming Competition and external competitions with support from the School.

Students have the opportunity to undertake an industrial-linked project in the summer - these are very competitive.

Programme Specification Approval

Person completing Programme Specification	Jennifer Richards
Person responsible for management of programme	Rupal Vaja
Date Programme Specification produced/amended by School Learning and Teaching Committee	18th Jan 2017
Date Programme Specification approved by Taught Programmes Board	