

Programme Title: Bachelor of Science (BSc) Computer Science with Business Management (G4N1)



## Programme Specification (UG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	Bachelor of Science (BSc) Computer Science with Business Management
Name of interim award(s):	Cert HE, DipHE,BSc
Duration of study / period of registration:	3 years
QMUL programme code / UCAS code(s):	G4N1
QAA Benchmark Group:	Computing
FHEQ Level of Award :	Level 6
Programme accredited by:	
Date Programme Specification approved:	
Responsible School / Institute:	School of Electronic Engineering & Computer Science

Schools / Institutes which will also be involved in teaching part of the programme:

School of Business & Management

Collaborative institution(s) / organisation(s) involved in delivering the programme:

### Programme outline

This programme focuses on computer science while providing an understanding of business management. The programme includes core computer science and business management modules such as the fundamentals of management, marketing and economics for business. You will gain practical skills and experience in the use and applications of information technology in business. The programme develops high levels of competence and demonstrable skills in core computer science areas such as programming and a greater appreciation of the context in which information technology is used.

### Aims of the programme

This programme aims to combine skills in programming and program design with knowledge of business and financial management, an important IT application context. The first two years of the programme has 10 units of Computer Science and 6 units of Business Management:  
The Computer Science element of the programme aims to build practical skills in software engineering. These start with

competence in programming and go on to develop systems analysis and program and database design. Students also gain understanding of computer systems

The Business Management element of the programme aims to develop critical analytical skills and introduce students to the core business subjects. In the Accounting elements students will gain competence in handling and evaluating financial data and be able to appreciate the role of finance and management information systems in business environments.

The aims of the final year are to allow a student to explore more specialised applications and to demonstrate and consolidate the skills gained in a project. A project should normally include substantial work in either a) design and implementation of a computer systems or b) analysis of an IT application problem and specification of a proposed solution. Many projects will include work in both these areas; however, by agreement with the project supervisor the scope of a project may be varied.

## What will you be expected to achieve?

The programme includes threads in software engineering, computer systems, software applications, business management. The learning outcomes are given for each thread in the programme and also for the transferable skills gained.

### Software Engineering

- knowledge of the basic theory of programming languages and the ability to write basic programs
- knowledge of fundamental algorithms and the notion of complexity
- experience in applying a range of methods in the development of large-scale software systems
- knowledge of the software life-cycle, software design methodologies and software development tools
- understanding of database principles and techniques and their role they play in information management

### Computer Systems

- knowledge of computer system components and architecture
- understanding of the principles of operating systems and networks and the techniques required for their implementation

### Applications

- knowledge of some advanced application techniques (depending on the options taken) and experience with using them in practice

### Business Management

- fundamentals of management,
- strategy, marketing and organisational behaviour.
- appreciation of the context in which information technology is used

### General Knowledge and Transferable Skills

- experience in problem-solving
- work effectively as a member of a team
- knowledge of project management skills
- appreciate the presence of risk in IT practice
- produce well-written reports.

## Please note that the following information is only applicable to students who commenced their Level 4 studies in 2017/18, or 2018/19

In each year of undergraduate study, students are required to study modules to the value of at least 10 credits, which align to one or more of the following themes:

- networking
- multi- and inter-disciplinarity
- international perspectives
- enterprising perspectives.

These modules will be identified through the Module Directory, and / or by your School or Institute as your studies progress.

Academic Content:	
A 1	Knowledge and skills related to the key field of software engineering, including the ability to design, implement and test algorithms and larger programmes in a rigorous and principled way, and detailed understanding of the software development life-cycle, relevant methodologies and tools.
A 2	Knowledge and skills related to the key field of computer systems, including understanding of the principles of computer architecture, operating systems and networks, and the ability to use specific techniques for small-scale implementations.
A 3	Knowledge and skills related to the key field of applications, including understanding of some of the major application areas in the sciences, medicine, industry and commerce, and the ability to grasp and apply appropriate usability principles and techniques for these areas.
A 4	Knowledge and skills related to the key field of business management, including understanding of the fundamentals of management, strategy, marketing and organisational behaviour, and an appreciation of the context in which information technology is used.

Disciplinary Skills - able to:	
B 1	Analyse and solve technical problems effectively, both individually and as part of a design team
B 2	Understand and apply technical project management techniques and skills
B 3	Demonstrate awareness and understanding of the mathematical, scientific and engineering foundations of the discipline of computer science
B 4	Demonstrate awareness and understanding of the historical, social, professional, industrial and ethical context of the discipline of computer science
B 5	Communicate technical detail effectively to a variety of audiences, both through production of well-written technical reports and through oral presentation / demonstration

Attributes:	
C 1	Connect information and ideas within the broader context of the discipline of computer science
C 2	Acquire and apply knowledge in a critical way, evaluating its reliability and relevance, in order to investigate and solve unfamiliar problems
C 3	Explain complex technical concepts clearly in a variety of settings, to a variety of audiences, using a variety of media
C 4	Develop a strong sense of intellectual and professional integrity
C 5	Think and work creatively, using information and experience as the basis for decision-making

### How will you learn?

Taught courses involve lectures, problem-solving courseworks and practical sessions or seminars. Lectures are used to introduce principles, methods and techniques and, through the use of examples, to illustrate how they can be applied in practice. Courseworks allow students to develop their own skills in design and problem-solving and gain extensive practical experience of building computer systems using a wide range of tools and techniques. On Computer Science courses, students mostly 'learn through doing' and can expect to spend far longer in the teaching laboratory than in lectures.

Business Management seminars allow the testing of comprehension and the evaluation of critical analyses, together with opportunities for oral presentations and interpretations of cases.

Each year of study contains small group teaching sessions to encourage the development of reflective, insightful design and written and verbal communication skills. In year 1 computer science tutorials help students adapt to independent study and develop their study and communication skills through a series of research and presentation exercises. The Software Engineering team project in year 2. In the final year, individual projects include weekly consultancy meetings where students report on their progress, discuss their designs and plan their future work. These reinforce and develop the ability to communicate technical ideas clearly and effectively.

### How will you be assessed?

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

Project modules are normally examined on the basis of a written report, a formal oral presentation, and, where applicable, a demonstration of any software and/or hardware developed.

### How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

ECS620U Summer Internship (15 credits) to be offered between penultimate and final year \*

Final Year Module

Semester 5

ECS635U Project (30 credits) (Core)

BUS359 Contemporary strategic analysis (15 credits)

Plus two modules from:

ECS607U Data Mining (15 credits)

ECS610U Computer Graphics (15 credits)

ECS639U Web Programming (15 credits) (pre requisite ECS414U)

ECS640U Big Data Processing (15 credits)

ECS650U Semi-Structured Data and Advanced Data Modelling (15 credits) (pre requisite ECS519U)

ECS651U Computability, Complexity and Algorithms 15 credits)

Semester 6

ECS635U Project (cont) (30 credits) (Core)

BUS324 The Management of Human Resources (15 credits)

Plus two modules from:

ECS605U Image Processing (15 credits)

ECS612U Interaction Design (15 credits)

ECS659U Neural Networks and Deep Learning (15 credits)

ECS637U Digital Media and Social Networks (15 credits)

ECS647U Bayesian Decision and Risk Analysis (15 credits)

ECS655U Security Engineering (15 credits)

ECS656U Distributed Systems (15 credits)

\*At the discretion of the Director of Undergraduate Studies and Programme Organiser final year students may substitute up to 30 elective level 6 credits ( 2 modules) from EECS/other level 6 elective modules subject to timetabling constraints and module availability.

Academic Year of Study FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Summer Internship (see note in structure)*	ECS620U	15	6	Elective	3	
Project	ECS635U	30	6	Core	3	Semesters 1 & 2
The Management of Human Resources	BUS324	15	6	Compulsory	3	Semester 1
Data Mining	ECS607U	15	6	Elective	3	Semester 1
Computer Graphics	ECS610U	15	6	Elective	3	Semester 1
Web Programming	ECS639U	15	6	Elective	3	Semester 1
Big Data Processing	ECS640U	15	6	Elective	3	Semester 1
Semi-Structured Data and Advanced Data Modelling	ECS650U	15	6	Elective	3	Semester 1
Computability, Complexity and Algorithms	ECS651U	15	6	Elective	3	Semester 1
Contemporary Strategic Analysis	BUS359	15	6	Compulsory	3	Semester 2
Image Processing	ECS610U	15	6	Elective	3	Semester 2
Interaction Design	ECS612U	15	6	Elective	3	Semester 2
Neural Networks and Deep Learning	ECS659U	15	6	Elective	3	Semester 2
Digital Media and Social Networks	ECS637U	15	6	Elective	3	Semester 2
Bayesian Decision and Risk Analysis	ECS647U	15	6	Elective	3	Semester 2
Security Engineering	ECS655U	15	6	Elective	3	Semester 2
Distributed Systems	ECS656U	15	6	Elective	3	Semester 2

## What are the entry requirements?

Further information about the entry requirements for this programme can be found at:

<http://www.eecs.qmul.ac.uk/undergraduates/entry-requirements/>

## How will the quality of the programme be managed and enhanced? How do we listen to and act on your feedback?

EECS has a Teaching and Learning Committee (TLC) structure which enables programmes to be both managed and enhanced.

The Structure allows for subject level teaching groups and programme coordinators to regularly evaluate the content and delivery of each programme. Feedback from module evaluations and SSLC meetings are fed into these groups and this provides an opportunity for student feedback to be incorporated into the programmes.

Additionally, programme coordinators work with the Director of Education to ensure each programme is current and can be delivered effectively.

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 Student Experience Learning Teaching And Assessment (SETLA) Committee .

The School's Teaching and Learning Committee (TLC) advises the Director of Education 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.

## What academic support is available?

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

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

The School also has a Student Support Officer who is the first point of contact regarding all matters.

Every member of Teaching Staff holds 2 open office hours per week during term time.

## How inclusive is the programme for all students, including those with disabilities?

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.

## Programme-specific rules and facts

Further information on the Academic Regulations can be found at <http://www.arcs.qmul.ac.uk/policy>

In addition to this the programme does have special regulations (further details are available in the Academic Regulations):

1. There is a requirement for students to achieve a minimum mark of 30.0 in every module, and to pass the project outright (in addition to the standard award rules) in order to achieve the intended, accredited, award.
2. The exit award and the field of study of the exit award will be dictated by the specific modules passed and failed by a student.

## 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.

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. Merrill 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 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.

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## Programme Specification Approval

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Person completing Programme Specification:

Joan Hunter

Programme Title: Bachelor of Science (BSc) Computer Science with Business Management (G4N1)

**Person responsible for management of programme:**

Joan Hunter

**Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:**

7 December 2020

**Date Programme Specification approved by Taught Programmes Board:**