Programme Title: BSc(Eng) Creative Computing with Industrial Experience

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 (Engineering) Creative Computing with Industrial Experience
Name of interim award(s):	Bachelor of Science (Engineering)
Duration of study / period of registration:	4 years
QMUL programme code / UCAS code(s):	I153
QAA Benchmark Group:	Engineering
FHEQ Level of Award :	Level 6
Programme accredited by:	n/a
Date Programme Specification approved:	N/A
Responsible School / Institute:	School of Electronic Engineering & Computer Science

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

School of Engineering & Materials Science

School of Geography

School of Languages, Linguistics & Film

Institution(s) other than QMUL that will provide some teaching for the programme:

Programme outline

This programme is intended to respond to a growing demand in the industry for graduates with a high level of training in creative multimedia production, multimedia social networks, computer-driven animation, multimedia scripting, interactive multimedia design, 3D graphics, web-based advertisement production, and management and planning of media assets. The programme aims to access a new population of better quality and better motivated undergraduate students by exploiting the unique competencies within EECS that shall be complemented by relevant courses from the Humanities and Social Studies faculty. The programme is designed to respond to the demand from the creative sector that requests for people who can combine technical and creative skills, as demonstrated from our experience with the industries linked with the MAT Doctoral Training Centre - http://www.mat.qmul.ac.uk/

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The Creative Industries form some 7% of the UK economy, similar in size to the financial services industry, with export of services of nearly £15bn in 2005 (DCMS, Creative Industries Economic Estimates Statistical Bulletin, October 2007). During 1997-2005 they grew by 6%, double the overall UK economic growth, making them important not just to the UK Digital Economy, but to the UK economy as a whole. Yet the Creative Industries are unlike almost every other industry, with a small number of large players complemented by a very large number of small businesses, micro-businesses, and individuals. Training students with the skills to maintain the UK's position as a world leader in the Creative Industries will be a particularly important challenge - which the Doctoral Training Centre in Media and Arts Technology has already started addressing at graduate level. We want now to naturally complete our training provision with this undergraduate programme.

Aims of the programme

This programme covers fundamental aspects of the digital economy, creative multimedia production, computer-driven animation, multimedia scripting, interactive multimedia design, 3D graphics, web-based advertisement production, and management and planning of media assets. Graduates from this programme will effectively combine technical and creative skills. The programme aims to emphasise computer systems, digital installations and software with a special focus on new media creation; to provide a core knowledge of media production, multimedia system design; to focus on the increasingly important area of 3D graphics and computer-driven animation; to emphasise scripting and production aspects of media creation; to equip the students with the practical skills needed to modify and test a piece of software and hardware; to enable the students to develop the written and oral communication skills needed to present information, both in written and multimedia form, effectively.

The career opportunities for the graduates from this programme are in the (interactive) media production, music and game industry, internet, communications and consumer industries. The blending of technical courses with business and arts courses will equip the graduates with the skills that are necessary to understand and to contribute to the modern arts and media sectors of the digital economy.

What will you be expected to achieve?

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the relevant QAA benchmark statement(s) (see above) and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008), and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education 2003 and Queen Mary Statement of Graduate Attributes have been used as a guiding framework for curriculum design.

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QMUL Model

The QMUL Model is an innovative teaching and learning initiative that will broaden opportunities for Queen Mary undergraduates within and beyond higher education, supporting them to plan and manage their ongoing professional development. The Model is firmly grounded in the core QMUL values of respect for, and engagement with, the local area and communities, with a distinctive focus on enabling students to make a positive societal impact through leadership in their chosen field. The Model is organised around the key themes of:

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

Students are required to study QMUL Model modules to the value of at least 10 credits at each year of undergraduate study. Model modules may be 5, 10 or 15 credits. Model modules are indicated within this programme specification.

In your first year of study, the Model module will be core or compulsory and will be situated within your home School or Institute. In subsequent years, students will be strongly encouraged to study at least one Model module beyond their home discipline(s), which could, for example, be in another School / Institute or area of QMUL or undertaken as a module outside of QMUL.

If Model module information is not provided on this programme specification for all subsequent years of study, this will be identified as your studies continue.

Where a Model module elective can be selected from an approved group of Model modules, no guarantee can be provided that your first choice of Model module will be available.

Academic Content:	
A 1	Audio/Video data capture and processing, and an understanding of how these systems can be used creatively for audiovisual and computer-based content production
A 2	Principles of operation, limitations, potential and effective use of electronic media and their associated tools and technologies
A 3	Design, project and people management principles and techniques

Disciplinary Skills - able to:	
B 1	Analyse information and experiences, formulate independent judgements, and articulate reasoned arguments through reflection, review and evaluation
B 2	Source, navigate, select, retrieve, evaluate, manipulate and manage information from a variety of sources
B 3	Formulate reasoned responses to the critical judgements of others

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Attributes:	
C 1	Work independently on a practical or research-based project under supervision
C 2	Work effectively as part of a team, identifying tasks and roles, and managing time, resources and progress appropriately
C 3	Apply technical knowledge, understanding and skills in new situations

QMUL Model Learning Outcomes - Level 4:	
D 1	**(Networking) Identify and discuss their own career aspirations or relevant skills and knowledge and how they i**
D 2	**(International Perspectives) Consider the role of their discipline in diverse cultural and global contexts**
D 3	**(Enterprising Perspectives) Identify and discuss their individual enterprising perspectives**

QMUL Model Learning Outcomes - Level 5:	
E 1	(Multi/Inter-Disciplinarity) Evaluate perspectives from different disciplines
E 2	(Multi/Inter-Disciplinarity) Demonstrate how discipline specific problem solving techniques or approaches may be ge
E 3	(Networking) Evaluate and demonstrate their own attitudes, values and skills in the workplace and/or in the wider wo
E 4	(Enterprising Perspectives) Demonstrate and evaluate how they have enhanced their own learning through engaging

QMUL Model Learning Outcomes - Level 6:	
F 1	
F 2	
F 3	

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QMUL Model Learning Outcomes - Level 7:	
G1	
G2	
G3	

How will you learn?

The teaching, learning and assessment strategies will be tailored to the learning outcomes of the different modules. These will include lectures, practical and library-based research, presentations, group work and knowledge transfer activities. Lectures are used to introduce principles and methods and also to illustrate how they can be applied in practice. Practical and library-based research allows students to develop skills in review, investigative methods and critical analysis. Presentations and group work enhance students' team-working and communication skills. Knowledge transfer activities increase students' awareness of the broader context of their discipline and supports them in translating their knowledge, understanding and skills to that broader context.

How will you be assessed?

Taught modules will be assessed through a combination of examinations (EXM), coursework (CWK), portfolio and performance (PRA), as appropriate for the content and focus of each individual module. Project modules (DIS) will be examined on the basis of a final written report, a formal oral presentation, and a demonstration of the software / hardware / installation developed by the student.

How is the programme structured?

Please specify the full time and part time programme diets (if applicable). Please also outline the QMUL Model arrangements for each year of study. The description should be sufficiently detailed to fully define the structure of the diet.

The BSc(Eng) Creative Computing is a single programme with four pathways as electives: creative production pathway, society and geopolitics pathway, design pathway and advanced programming pathway. The programme includes a number of modules that bridge the gap between creative arts and technology to cater to the current industrial demand. The BSc(Eng) Creative Computing with Industrial Experience contains compulsory and elective modules as specified below.

Semester 1
ECS427U Professional and Research Practice (15 credits)
ECS405U Arts Application Programming (15 credits)
ECS406U Bridging Arts & Technology (15 credits)
DEN126 Design Studio (30 credits)
Semester 2
ECS415U Introduction to Digital Audio (15 credits)
ECS416U Introduction to Multimedia (15 credits)
ECS417U Fundamentals of Web Technology (15 credits)
DEN126 Design Studio cont. (30 credits)

Semester 3
ECS507U Website Design and Authoring (15 credits)

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ECS511U Creating Interactive Objects (15 credits)
ECS521U Interactive Media Design and Production (15 credits)
Select a stream from the following:
Students must follow the same stream over Semesters 3 and 4
Stream A (Technology):
ECS505U Software Engineering (15 credits)
Stream B (Geography/Media):
GG5126 Cultural Geographies (15 credits)
Stream C (Film: Production):
ECS505U Software Engineering (15 credits)
Stream D (Design):
DEN212 Design Studio year 2 (30 credits)

Semester 4
ECS520U Group Creative Project (15 credits)
ECS512U Sound Design (15 credits)
Follow the stream selected in Semester 3:
Stream A (Technology):
ECS506U Software Engineering Project (15 credits)
ECS522U Graphical User Interfaces (15 credits)
Stream B (Geography/Media):
ECS522U Graphical User Interfaces (15 credits)
GG5127 Society and Space (15 credits)
Stream C (Film: Production):
FLM403 Production Skills (30 credits)
Stream D (Design):
ECS522U Graphical User Interfaces (15 credits)
DEN212 Design Studio year 2 cont. (30 credits)

Semester 5 and Semester 6
ECS550U Industrial Placement Project (30 credits)

Semester 7
ECS625U Project (30 credits)
Plus three from:
MAT307 Innovation Strategy (15 credits)
ECS607U Data Mining (15 credits)
ECS610U Computer Graphics (15 credits)
ECS614U Sound Recording and Production Techniques (15 credits)
ECS638U Design for Human Interaction (15 credits)
ECS639U Web Programming (15 credits) (pre requisite ECS414U)

Semester 8
ECS625U Project cont. (30 credits)
ECS637U Digital Media and Social Networks (15 credits)
ECS612U Interaction Design (15 credits)
Plus two from:
ECS622U Product Development (15 credits)
ECS605U Image Processing (15 credits)
ECS629U Artificial Intelligence (15 credits)
ECS647U Bayesian Decision and Risk Analysis (15 credits)
ECS657U Multi-platform Games Development (15 credits)
FLM6201 Creative Production (15 credits) - Programme Co-Ordinator approval required for this module.

To progress from one developmental year to the next, a student must meet any programme and pathway requirements and take and pass modules as follows:

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i. foundation year to developmental year one: take modules to the value of 120 credits and pass modules to the value of 90 credits;
ii. developmental year one to developmental year two: take modules to a value of 120 credits and pass modules (excluding modules at Level 3) to the value of 90 credits from developmental year one;
iii. developmental year two to developmental year three: take modules to the value of 120 credits and pass modules (excluding module

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Professional and Research Practice	ECS427U	15	4	Compulsory	1	Semester 1	Yes
Bridging Arts & Technology	ECS406U	15	4	Compulsory	1	Semester 1	No
Arts Application Programming	ECS405U	15	4	Compulsory	1	Semester 1	No
Design Studio	DEN126	30	4	Compulsory	1	Semesters 1 & 2	Yes
Introduction to Multimedia	ECS415U	15	4	Compulsory	1	Semester 1	No
Introduction to Digital Audio	ECS416U	15	4	Compulsory	1	Semester 1	No
Fundamentals of Web Technology	ECS417U	15	4	Compulsory	1	Semester 1	No

Academic Year of Study FT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Creating Interactive Objects	ECS511U	15	5	Compulsory	2	Semester 1	No
Interactive Media Design & Production	ECS521U	15	5	Compulsory	2	Semester 1	No
Web Authoring	ECS507U	15	5	Compulsory	2	Semester 1	No
Software Engineering	ECS505U	15	5	Elective	2	Semester 1	No

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Design Studio Year 2	DEN212	30	5	Elective	2	Semesters 1 & 2	No
Cultural Geographies	GG5126	15	5	Elective	2	Semester 1	No
Software Engineering Project	ECS506U	15	5	Elective	2	Semester 2	No
Sound Design	ECS512U	15	5	Compulsory	2	Semester 2	No
Creative Group Project	ECS520U	15	5	Compulsory	2	Semester 2	Yes
Graphical User Interfaces	ECS522U	15	5	Elective	2	Semester 2	No
Production Skills	FLM403	30	4	Elective	2	Semester 2	No
Society and Space	GG5127	15	5	Elective	2	Semester 2	No

Academic Year of Study FT - Year 4

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Project	ECS625U	30	6	Compulsory	4	Semesters 1 & 2	No
Web Programming	ECS629U	15	6	Elective	4	Semester 1	No
Design for Human Interaction	ECS638U	15	6	Elective	4	Semester 1	No
Computer Graphics	ECS610U	15	6	Elective	4	Semester 1	No
Sound Recording & Production Techniques	ECS614U	15	6	Elective	4	Semester 1	No
Data Mining	ECS607U	15	6	Elective	4	Semester 1	No
Innovation Strategy	MAT307	15	6	Elective	4	Semester 1	No

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Interaction Design	ECS612U	15	6	Compulsory	4	Semester 2	No
Digital Media and Social Networks	ECS637U	15	6	Compulsory	4	Semester 2	No
Artificial Intelligence	ECS629U	15	6	Elective	4	Semester 2	No
Product Development	ECS622U	15	6	Elective	4	Semester 2	No
Image Processing	ECS605U	15	6	Elective	4	Semester 2	No
Bayesian Decision and Risk Analysis	ECS647U	15	6	Elective	4	Semester 2	No
Creative Production	FLM6201	15	6	Elective	4	Semester 2	No
Multi-platform Games Development	ECS657U	15	6	Elective	4	Semester 2	No

Academic Year of Study FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Industrial Placement Project	ECS550U	30	5	Compulsory	3	Semesters 1 & 2	No

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?

EECS has a Student Experience Teaching Learning and Assessment (SELTA) 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 Taught Programmes to ensure each programme is current and can be delivered effectively.

How do we listen to 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 Student Experience, Teaching, Learning and Assessment (SETLA) 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.

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.

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

Programme-specific rules and facts

Further information on the Academic Regulations can be found at http://www.arcs.qmul.ac.uk/media/arcs/policyzone/academic/Academic-Regulations-2017-18.pdf

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.

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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 of Electronic Engineering & Computer Science has a wide range of industrial contacts secured through research projects and consultancy, our Industrial Experience programme and our Industrial Board.

The Industry Panel works to ensure that our courses are state of the art and match the changing requirements of this fast moving industry. The Panel includes representatives from a variety of Electronic Engineering & Computer Science orientated companies ranging from SMEs to major blue-chips. These include: Microsoft Research, Royal Bank of Scotland, BT Labs, Oaklodge Consultancy, Intel Research, The Usability Company, Hewlett Packard Labs and Arclight Media Technology Limited

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Programme Specification Approval

Person completing Programme Specification:	Dr Karen Shoop
Person responsible for management of programme:	
Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:	
Date Programme Specification approved by Taught Programmes Board:	N/A

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