

Programme Title: MSc Electronic Engineering by Research



## Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	MSc Electronic Engineering by Research
Name of interim award(s):	PG Certificate and PG Diploma
Duration of study / period of registration:	12 Months FT, 24 Months PT
QMUL programme code(s):	H6T5 FT, H6T6 PT
QAA Benchmark Group:	Engineering
FHEQ Level of Award:	Level 7
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:

NA

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

NA

### Programme outline

An MSc by Research will provide you with the necessary skills to undertake research, either in an academic or industrial environment. You will join one of our research groups, taking four selected taught modules and completing an extended research project. The expectation is that every graduate from the degree publishes at least one conference paper as part of the research. You will have the opportunity to develop further research and technical skills and to be able to demonstrate a level of independence that is greater than developed on a purely taught programme.

The programme is suitable for outstanding students who have an interest in advanced research-based study in one of our research specialisms: Antenna and Electromagnetics; Centre for Digital Music (C4DM); Multimedia and Vision (MMV); Networks and Communications

This programme is accredited by the Institution of Engineering and Technology on behalf of the Engineering Council as meeting the requirements for Further Learning for registration as a Chartered Engineer. Candidates must hold a CEng accredited BEng/BSc (Hons) undergraduate first degree to comply with full CEng registration requirements.

## Aims of the programme

The programme aims to expose students to a challenging research environment, and to allow them to develop demonstrable technical and research skills through an extensive research project. In addition it will develop skills in communications (written, verbal), planning and research, relevant to both industrial and academic practice.

The programme provides opportunities to develop further research and technical skills and to be able to show a demonstrable level of independence greater than that provided in a purely taught course structure. It develops solid theoretical and practical research competences in the student's chosen field of study and an additional degree qualification, supporting his/her employability. Successful completion of the course will often provide a route to further study at doctoral level or for a research and development position in industry.

## What will you be expected to achieve?

- An understanding of the fundamental technical issues within the area of study, e.g. Digital Music Production
- An ability to assess critically and apply advanced techniques in area of study, demonstrated through successful completion of a cognate research project
- An understanding of the issues surrounding writing a journal paper for publication in the area of study
- An understanding of the issues surrounding presenting a conference paper in the area of study
- An understanding of the issues surrounding time management and finances in sponsored research projects

### Academic Content:

A 1	Theory, principles, concepts and methodologies fundamental to electronic engineering.
A 2	Current developments in the engineering of analogue and digital electronic systems, in particular within a range of research-led specialities.
A 3	Approaches to critical enquiry
A 4	Research project planning and monitoring
A 5	Evaluation of alternative research methods
A 6	Evaluation of alternative project trajectories

### Disciplinary Skills - able to:

B 1	Demonstrate comprehension and higher level cognitive skills necessary to solve engineering problems in research-led specialities.
B 2	Demonstrate the ability to analyse and evaluate using the appropriate mathematical principles and techniques that underpin the analysis of systems relevant to research-led specialities.
B 3	Develop a clearly defined, focused research question
B 4	Sustain a focused approach to a complex research problem

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B 5	Choose and apply appropriate research methods
B 6	Critically evaluate alternative solutions
B 7	Plan, activate and review an appropriate research project

Attributes:	
C 1	Learn to engage critically with knowledge.
C 2	Understand the importance of learning continuously in a fast-changing world.
C 3	Integrate scholarship, research and professional activities within the context of an Electronic Engineering research project in a developing professional career.
C 4	Evaluate 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 students to learn-by-doing in order to complement the lectures.

Individual 120-credit projects are undertaken throughout the year 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.

### 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.

### How is the programme structured?

Please specify the full time and part time programme diets (if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

Students must undertake the MSc Research Project, worth 120 credits.

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In the taught component of the programme, the students select four 15-credit Level 7 modules relevant to their research project area and academic background, in discussion with their project supervisor.

### Semester 1

Any 2 level 7 EECS modules. (For part time any 1 level 7 EECS module)

### Semester 2

Any 2 level 7 EECS modules. (For part time any 1 level 7 EECS module)

### Semester 3

ECS753P MSc by Research Project (120 credits)

## Academic Year of Study

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester

## What are the entry requirements?

Further information on our entry requirements can be found at <http://eecs.qmul.ac.uk/postgraduates/entry-requirements/>

## 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 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.

## What academic support is available?

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.

Every 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.

## 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.

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

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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.

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## Programme Specification Approval

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**Person completing Programme Specification:**

Rupal Vaja

**Person responsible for management of programme:**

John Schormans

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

29th January 2018

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