

Programme Specification

Awarding Body/Institution	Queen Mary, University of London
Teaching Institution	Queen Mary, University of London
Name of Final Award and Programme Title	Master of Engineering (MEng) in Electronic Engineering and Telecommunications
Name of Interim Award(s)	Master of Engineering (MEng)
Duration of Study / Period of Registration	Four Years, Full Time
QM Programme Code / UCAS Code(s)	H690
QAA Benchmark Group	Engineering
FHEQ Level of Award	Level 7
Programme Accredited by	Institute of Engineering and Technology (IET)
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

N/A

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

N/A

Programme Outline

These programmes cover the most rapidly growing areas of electronic engineering and all aspects of communications. You will learn about microwave and optical systems as well as the design, operation, and management of large-scale communication networks for computers and voice and video signals. A range of technical and business modules provides a strong engineering foundation to this specialised degree.

Aims of the Programme

This is one of our MEng programmes, which is an integrated masters programme that both include technical content beyond normal first degree level and additional content on economic, social and environmental issues. In addition they provide enhanced experience of project management in a group activity.

Programme Title: MEng Electronic Engineering and Telecommunications

The accredited degrees form a group of programmes with the same broad aims and objectives; the difference being that they address different technical flavours of the broad spectrum that is now Electronic Engineering.

Skill-based aims and objectives are, therefore, common across the family, but the instantiation of these objectives may make use of different technical aspects within the family.

Context-based aims and objectives describe the differences between the programmes and Level-based aims and objectives between the BEng and MEng degrees.

What Will You Be Expected to Achieve?

Skill-based aims and objectives:

At the end of his/her degree, each student should be able to demonstrate the following abilities:

- the ability to recall factual knowledge and the ability to apply it in familiar and unfamiliar situations;
- the ability to apply scientific, mathematical and software 'tools' to a familiar or unfamiliar situation;
- the ability to use Information Technology as a key tool pervading all aspects of Electronic Engineering;
- the ability to understand practical issues concerning real systems (whether hardware or software);
- the ability to recognise insufficient existing knowledge and the ability to search for the necessary scientific, mathematical and software 'tools' relevant to that particular issue;
- the ability to work as part of a team;
- the ability to manage time effectively;
- the ability to appreciate the financial background against which decisions are made in industry;
- the ability to show a certain level of reflection on the role of engineering in society;

and the following skills:

- the perceptive skills needed to understand information presented in the form of technical circuit-diagrams, flow-charts and high-level languages;
- the practical skills needed to implement a piece of hardware or software and to use laboratory test equipment;
- the analytical skills needed to verify the correct behaviour of a hardware or software system or component and to be able to identify faults;
- the design skills needed to synthesise a design (in hardware and/or software) from a specification (including the choice of the best option from a range of alternatives), to implement the design and to evaluate the design against the original specification;
- the written and oral communication skills needed to present information, in particular written information, effectively;
- the critical reasoning skills needed to appraise a particular topic;

Context-based aims and objectives

- To provide a wide coverage of telecommunications systems from physical layer, through network layer to applications.
- To emphasise Electromagnetics as the key underlying theoretical base for wireless communications.
- To provide practical skills in Electromagnetics.

Level-based aims and objectives

Additional objectives for MEng degree

- To provide greater technical depth by including 5 modules in the final year from a Department MSc degree (level 7 modules).
- To provide greater experience of group project working.
- To provide enhanced problem-solving skills through case-study investigations.
- To provide a greater understanding of business and financial matters

Academic Content:

A 1

A 2

A 3

Disciplinary Skills - able to:	
B 1	
B 2	
B 3	

Attributes:	
C 1	
C 2	
C 3	

How Will You Learn?

Each non-project-based course unit 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 the 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.

How Will You Be Assessed?

The assessment of the taught course units takes place through a written examination and coursework.

The final year project is examined on the basis of a written report, a formal oral presentation, and a demonstration of the piece of software or hardware developed by the student. In addition to the final year project, other modules introduce project and group working skills.

How is the Programme Structured?

Semester 1
ECS401U Procedural Programming

Programme Title: MEng Electronic Engineering and Telecommunications

ECS402U Professional and Research Themes
ECS408U Electronic Engineering Mathematics I
ECS412U Digital Circuit Design

Semester 2

ECS403U Communications and Networks
ECS409U Analogue Electronic Systems
ECS411U Signals and Information
ECS423U Electronic Engineering Maths 2

ECS422U - Skills for Electronic Engineering and Computer Science (runs in sem1/2. Non credit bearing)

Semester 3

ECS501U C Programming
ECS502U Microprocessor Systems Design
ECS517U Electronic Devices and Applications
ECS524U Internet Protocols and Applications

Semester 4

ECS504U Electric and Magnetic Fields
ECS514U Design & Build Project in Electronic Engineering
ECS515U Signals and Systems Theory
ECS525U Telecommunication Systems

Semester 5

ECS626U Group Project (30 credits)
ECS644U Microwave and Millimetrewave Electronics
Plus two from:
ECS601U Control Systems
ECS602U Digital Signal Processing
ECS604U Entrepreneurship in Information Technology
ECS607U Data Mining
ECS615U Digital Systems Design
ECS642U Embedded Systems
ECS643U Power Electronics

Semester 6

ECS626U Group Project (contd)
ECS619U Network Planning, Finance and Management
ECS622U Product Development
Plus one from:
ECS617U Integrated Circuit Design
ECS637U Digital Media and Social Networks
ECS639U Web Programming
ECS645U Microwave and Millimetrewave Communications Systems
ECS649U Electrical Machines and Systems

Semester 7

ECS770U Project
Plus options from:
ECS701U Communication Theory
ECS707U Fundamentals of DSP (If not taken as ECS602U in sem 6)
ECS708U Machine Learning
ECS709U Introduction to Computer Vision
ECS782U Introduction to IOT
ECS783U Enabling Communication Technologies for IOT
IPLM701U Introduction to Law for Science and Engineering
At least one from:
ECS702U Mobile and WLAN Technologies

Programme Title: MEng Electronic Engineering and Telecommunications

ECS703U 21st Century Networks

Semester 8

ECS770U Project

Plus three from:

ECS724U Network Modelling and Performance

ECS725U Mobile Services

ECS726U Security and Authentication

ECS728U Business Technology Strategy

ECS734U Techniques for Computer Vision

IPLM702U Foundations for Intellectual Property Law and Management

Progression Criteria

To progress from one developmental year to the next, a student must meet any programme and pathway requirements and take and pass modules as detailed below. There shall also be an approved threshold requirement, specifying an average mark higher than the pass mark that is required to progress to the next year of the integrated masters. This mark shall be set as standard at a minimum of 50.0.

Individual programme regulations may specify higher thresholds, and/or that the threshold mark should be calculated across multiple developmental years.

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 the value of 120 credits, and pass modules (excluding modules at Level 3) to the value of 105 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 modules at Level 3) to the value of 210 credits from developmental years one and two;

iv. developmental year three to developmental year four:

Take modules to the value of 120 credits, pass modules (excluding modules at Level 3) to the value of 315 credits from developmental years one, two, and three, and meet any approved threshold requirement that specifies a higher average level achievement than the pass mark;

Academic Year of Study

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Electronic Engineering Maths 2	ECS423U	15	4	Compulsory	1	Semester 2
Embedded Systems	ECS642U	15	6	Elective	3	Semester 1

What Are the Entry Requirements?

A/AS-levels

Tariff/Grades requirement: AAB (340 points) A level Maths and Physics required.

Programme Title: MEng Electronic Engineering and Telecommunications

Vocational or applied A-levels

Acceptability: Accepted and subject to the above tariff requirements for A/AS-levels. Additional information: Must be in related subject, Engineering OR Applied Science.

BTEC Extended Diploma

Pass with D*D*D* in Engineering or Applied Science with grade B in A-level Maths.

BTEC Diploma (120 Credit)

Pass with D*D* in Engineering or Applied Science with grade B in A-level Maths or Science.

BTEC Subsidiary Diploma (60 Credit)

Pass with D*. These qualifications are acceptable ONLY if offered with two appropriate A-levels ie Maths/ICT grade B.

HNC

For 1st year only. 120 credits at level 4. Must have distinction overall.

HND

2nd year possible. 240 credits at level 5. Pass HND with distinction overall.

Access

Pass with 45 credits in Access in Engineering at level 3, of which 30 credits must be Distinction and 15 credits at Merit or Higher. An additional entry maths test will be required if you do not hold A level Mathematics.

International Baccalaureate

Acceptability: Acceptable on its own and combined with other qualifications. Subjects and grades required: 34 points overall. Must include either HL English grade 4 or SL English grade 4 or above. HL Maths and Physics must be at least 6.

IELTS 6.0(5.5 in all components)

How Do We Listen and Act on Your Feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between Schools and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year.

Each school operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute 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, such as through student membership, or consideration of student surveys.

All schools operate an Annual Programme Review of their taught undergraduate and postgraduate provision. The process is normally organised at a School-level basis with the Head of School, or equivalent, responsible for the completion of the school's Annual Programme Reviews. Schools/institutes are required to produce a separate Annual Programme Review for undergraduate programmes and for postgraduate taught programmes using the relevant Undergraduate or Postgraduate Annual Programme Review pro-forma. Students' views are considered in this process through analysis of the NSS and module evaluations.

Academic Support

Each student is allocated a personal tutor in their first year and the tutor remains with them until they complete their programme.

--

Programme-specific Rules and Facts

N/A

Specific Support for Disabled Students

<p>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.</p> <p>Students can access advice, guidance and support in the following areas:</p> <ul style="list-style-type: none">• 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

<p>The programme is scrutinised by a School Industrial Advisory Panel. The Panel meets annually to discuss research and teaching matters pertinent to our field.</p> <p>Vodafone and Juniper Networks both come in and give guest lectures to students on our ELEM005 module.</p>

Programme Specification Approval

Person completing Programme Specification	Dr. John Schormans
Person responsible for management of programme	Ms. Jane Reid
Date Programme Specification produced/amended by School Learning and Teaching Committee	12 February 2016

Programme Title: MEng Electronic Engineering and Telecommunications

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