

Programme Title: FGH6 FdCert International Science and Engineering Foundation Programme (Engineering)



## 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:	Foundation Certificate (FdCert) Engineering
Name of interim award(s):	
Duration of study / period of registration:	1 year
QMUL programme code / UCAS code(s):	FGH6, UCFF-QMSEFP1, USENG
QAA Benchmark Group:	
FHEQ Level of Award :	Level 3
Programme accredited by:	
Date Programme Specification approved:	06 Jan 2022
Responsible School / Institute:	School of Engineering & Materials Science

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

School of Biological & Behavioural Sciences

School of Mathematical Sciences

School of Physical and Chemical Sciences

School of Languages, Linguistics & Film

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

### Programme outline

The FdCert International Science and Engineering Foundation Programme (ISEFP Engineering) provides an alternative route onto a range of Engineering undergraduate degrees. QMUL offers tailored pathways for subjects across science and engineering.

Our ISEFP Engineering is open to international students and face-to-face sessions are taught entirely at the Mile End campus by university staff. In-line with Queen Mary's 2030 Strategy, high quality learning resources and interactive sessions with academic staff will be available online. As a foundation student, you have access to all QMUL's facilities and will be a full-time student of the university.

Highlights:

- Opportunity to apply to engineering undergraduate degrees after completing the Foundation year at the appropriate level
- Study at campus-based university within easy reach of all of London's attractions
- Full access to all student facilities (academic, welfare, IT, library, social and sport)
- Experienced and well-qualified teaching staff, many of whom teach on undergraduate and postgraduate programmes

**Aims of the programme**

The foundation year will equip you with the skills and knowledge to undertake an undergraduate degree in Engineering. Successful completion of this programme at the appropriate level can guarantee you a place on one of the following programmes upon application:

- Aerospace Engineering BEng
- Biomedical Engineering BEng
- Chemical Engineering BEng
- Mechanical Engineering BEng
- Robotics Engineering BEng
- Sustainable Energy Engineering BEng

A selection of these degree programmes can also be taken as a sandwich with a year in industry.

**What will you be expected to achieve?**

- Pass 105 credits including SEF030 Communication in Science and Technology, SEF041 Mathematics B, SEF005 Physics - Mechanics and Materials, SEF006 Physics - Fields and Waves and SEF024 Introduction to Engineering
- Achieve an overall average of  $\geq 55\%$ , including  $\geq 55\%$  in SEF041 Mathematics B
- For progression onto particular programmes there may be additional requirements. Please check the handbook or contact [fedu@qmul.ac.uk](mailto:fedu@qmul.ac.uk) for more information

**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:

A1	The purpose of engineering, the spectrum of activities in engineering, theory and practice as applied to engineering problems, the need for standardisation and the development of standards.
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A2	Mechanical properties of commonly used engineering materials; thermal stresses in large structures, the use of factors of safety in design.
A3	The 4-stroke cycle, design considerations for thermal expansion and contraction in reciprocating I.C. engines, thermal effects on components made from different materials.
A4	Electrons inside the Atom: Ionisation and excitation; hydrogen spectrum, energy levels; Bohr model of the atom, theory of energy levels; periodic table; X-rays and their uses.
A5	Gravitational Fields: Force and potential; Newton's theory of gravitation; planetary fields; satellite motion.
A6	Wave Motion: Progressive waves; wave properties; qualitative treatment of stationary waves; mechanical waves and resonance.
A7	Introduction to atomic structure: electrons, protons and neutrons, mass and atomic numbers, isotopes and radioactivity, measures of size of atoms and ions.
A8	Mathematical topics such as algebra, functions, geometry and trigonometry, and an introduction to the techniques of calculus.

Disciplinary Skills - able to:	
B1	present data in reports in a readily-assimilated fashion, and in accord with scientific conventions
B2	solve simple problems relating to mechanical applications of linear and rotational motion.
B3	solve problems involving finite, infinite and power series
B4	understand a range of appropriate and relevant experimental techniques and how they are used; be able to perform some of them.

Attributes:	
C1	To grasp the principles and practices of their field of study
C2	To produce analyses which are grounded in evidence
C3	To apply their analytical skills to investigate unfamiliar problems
C4	To work individually and in collaboration with others
C5	To develop a strong sense of intellectual integrity
C6	To acquire substantial bodies of new knowledge

### How will you learn?

Independent study  
 For every hour spent at university you will be expected to complete additional hours of independent study. Your individual study time could be spent preparing for, or following up on formal study sessions; reading; assessing data from experiments; completing lab reports; and revising for examinations.  
 The direction of your individual study will be guided by the formal study and laboratory sessions you attend, along with your

reading and assignments. However, we expect you to demonstrate an active role in your own learning by reading widely and expanding your own knowledge, understanding and critical ability.  
Independent study will foster in you the ability to identify your own learning needs and determine which areas you need to focus on to become proficient in your subject area. This is an important transferable skill and will help to prepare you for the transition to working life.

### **How will you be assessed?**

To pass a module, you must achieve an overall mark of 40% or above. The overall mark in most modules is based on your performance in both the examination and coursework, the weighting of these two components vary per module.

### **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.

#### Structure

The programme structure outlined below is indicative of what you will study. It may change slightly from year to year as new topics are introduced and after we have listened to current student feedback on teaching.

The ISEFP Engineering modules are designed to best prepare you for continuing your studies in engineering at undergraduate level. You will take 8 modules in total over two semesters, starting in September.

#### Year Long Compulsory Modules

SEF041 Mathematics B

#### Semester 1

Based on your IELTS score, either:

SEF030A Communication in Science & Technology or

SEF009 English 1

#### Compulsory modules:

SEF005 Physics - Mechanics and Materials

SEF026 Essential Foundation Mathematics

#### Semester 2

Only for those who take SEF009 in Semester 1:

SEF030B Communication in Science & Technology (CST)

#### Compulsory module:

SEF024 Introduction to Engineering

SEF006 Physics- Fields and Waves

Additional options if taking SEF030 in Semester A:

SEF007 Physics – Electricity and Atomic Physics

### Academic Year of Study

**Programme Title:** FGH6 FdCert International Science and Engineering Foundation Programme (Engineering)

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Communication in Science and Technology	SEF030	15	3	Core	1	Semester 1 or 2
Mathematics B	SEF041	30	3	Compulsory	1	Semesters 1 & 2
Physics - Mechanics and Materials	SEF005	15	3	Compulsory	1	Semester 1
Essential Foundation Mathematics	SEF026	15	3	Compulsory	1	Semester 1
Introduction to Engineering	SEF024	15	3	Compulsory	1	Semester 2
Physics – Electricity and Atomic Physics	SEF007	15	3	Elective	1	Semester 2
Physics - Fields and Waves	SEF006	15	3	Compulsory	1	Semester 2
English 1	SEF009	15	3	Elective	1	Semester 1

### What are the entry requirements?

The International Science and Engineering Foundation programme (ISEFP) is suitable for international students with qualifications up to AS-level/Year 12 or equivalent. The ISEFP accepts applicants with a wide range of different qualifications. The grades you need to enter the course will vary depending on the qualification you have completed. For country-specific details, please refer to our detailed entry requirements: <https://www.qmul.ac.uk/international-students/pathway-programmes/ify/ify-entry-requirements/>

You will need to provide the following documentation as part of your application:

Copies of your high school qualifications/transcript so far. This must show the subjects you are studying in your final year;

A copy of your UKVI IELTS (or accepted equivalent) certificate if you have taken it already;

A scanned copy of the data page of your passport (including any previous UK visas);

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

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

The Education Committee advises the School's 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 proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in the committee's work in a number of ways, such as through consideration of student surveys and input from the SSLC.

All schools/institutes operate an Annual Programme Review of their taught undergraduate and postgraduate provision. APR is a continuous process of reflection and action planning which is owned by those responsible for programme delivery; the main document of reference for this process is the Taught Programmes Action Plan (TPAP) which is the summary of the school/institute's work throughout the year to monitor academic standards and to improve the student experience. Students'

views are considered in this process through analysis of the NSS and module evaluations.

### What academic support is available?

Each student is provided with an Advisor who is their main point of contact for advice regarding academic matters and for assistance with pastoral concerns, throughout their whole programme. Students can see their advisors in their office hours or arrange an appointment via email. Moreover, if and when advisors are unavailable or cannot help with a specific problem, the School has several Senior Advisors to assist with student concerns.

The School also operates a PASS (Peer Assisted Study Support) programme for peer guidance.

### 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

N/A

### Links with employers, placement opportunities and transferable skills

Some of our Engineering graduates transfer their skills into areas such as consultancy, IT or finance.

Recent Engineering graduates have been hired by:

Abelio Greater Anglia  
Air Mauritius  
An F1 team  
HM Treasury  
Jaguar Land Rover  
Schlumberger  
Aixtron  
BAE Systems Applied Intelligence  
MOOG Music  
Network Rail  
PEI-Genesis  
Y Solar.

## Programme Specification Approval

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**Person completing Programme Specification:**

Sarahlouise Lawrence

**Person responsible for management of programme:**

Dr Adrian Briggs

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

06 Jan 2022

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

06 Jan 2022