Programme Title: HHY1 MEng FT Engineering with Foundation

Programme Specification

Awarding Body/Institution
Queen Mary University of London
Teaching Institution
Queen Mary University of London
Name of Final Award and Programme Title
MEng (Aerospace/Biomedical/Mechanical/Robotics) Engineering with Foundation
Name of Interim Award(s)
FdCert - as exit award only
Duration of Study / Period of Registration
5 years
QM Programme Code / UCAS Code(s)
HHY1
QAA Benchmark Group

Programme Outlined
The MEng (Aerospace/Biomedical/Mechanical/Robotics) Engineering with Foundation programme provides an alternative route onto undergraduate degrees, combining a foundation year with a traditional university degree in an integrated five-year programme (1+4). QMUL offers tailored pathways for subjects across science and engineering; go to the foundation programme website to see full details of all SEFP options.[ http://www.sefp.qmul.ac.uk/]

Foundation programmes are open to home/EU and international students and taught entirely at the Mile End campus by university staff. As a foundation student, you have access to all QMUL’s facilities and will be a full-time student of the university.

Institution(s) other than Queen Mary that will provide some teaching for the programme
Programme Title: HHY1 MEng FT Engineering with Foundation

Both UK/EU and international students should apply directly through UCAS.

Highlights:
- Opportunity to progress onto engineering undergraduate degrees
- Study at campus-based university within easy reach of all of London’s attractions
- Eligible for funding through Student Loans Company (UK/EU students only)
- 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
Our engineering foundation year will equip you with the skills and knowledge to undertake an undergraduate degree in engineering and materials science. Successful completion of this programme at the appropriate level guarantees you a place on a range of engineering programmes. You can also use your foundation qualification to progress onto degree programmes at other UK or overseas universities.

What Will You Be Expected to Achieve?
Pass of a minimum of 105 credits (7 modules) with an overall average of ≥65%, including ≥65% in SEF001 and passes in the core modules (see section “How Is The Programme Structured?” below).

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.
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:
Programme Title: HHY1 MEng FT Engineering with Foundation

| 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 |

QMUL Model Learning Outcomes - Level 4:

D1

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 typically being 70% and 30% respectively. You must attend a minimum of 75% of all scheduled classes and submit a corresponding level of coursework assignments for each module.
How is the Programme Structured?
Please specify the full time and part time programme diets (if appropriate).

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 engineering foundation programme modules are designed to best prepare you for continuing your studies in engineering and materials science at undergraduate level. You will take 8 modules in total over two semesters, starting in September.

Semester 1 - four modules
One from:
English Language I
Communication in Science & Technology

Compulsory modules:
Physics - Mechanics and Materials
Mathematics I

One from:
Introduction to Modern Physics
Essential Foundation Mathematics

Semester 2 - four modules
Students who take English Language I in semester 1 will take:
Communication in Science & Technology

Compulsory modules:
Mathematics II
Physics - Fields and Waves
Introduction to Engineering

Elective modules:
Discrete Mathematics
Physics - Electricity and Atomic Physics
Programme Title: HHY1 MEng FT Engineering with Foundation

QMUL Model

Students are required to undertake the equivalent of one module (15 credits in 2017/18) per year of study which has been identified as meeting the requirements of the QMUL Model. Each of these modules has been designed to combine the best of QMUL’s academic excellence with your ability to identify and develop your skills, networks and experience. This will help to ensure you become a graduate who can undertake further study or secure graduate employment in areas that interest you, and will support your ability to position yourself to find the right job or opportunity for you. The relevant module for your first year of study in 2017/18 is indicated below.

Where more than one module is specified, this is because pertinent elements from these modules have been identified as being appropriate to the QMUL Model and when studied together, deliver the equivalent content of one 15-credit QMUL Model module.

The QMUL Model modules for future years and associated Learning Outcomes will be identified as your studies continue.

Should Professional, Statutory and Regulatory Body requirements apply to your programme of study, these will be taken into account in the specification of QMUL Model requirements.

Academic Year of Study

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credits</th>
<th>Level</th>
<th>Module Selection Status</th>
<th>Academic Year of Study</th>
<th>Semester</th>
<th>QMUL Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication in Science and Technology</td>
<td>SEF030</td>
<td>15</td>
<td>3</td>
<td>Core</td>
<td>1</td>
<td>Semesters 1 &amp; 2</td>
<td>No</td>
</tr>
<tr>
<td>English I</td>
<td>SEF009</td>
<td>15</td>
<td>3</td>
<td>Elective</td>
<td>1</td>
<td>Semester 1</td>
<td>No</td>
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<td>Mathematics I</td>
<td>SEF001</td>
<td>15</td>
<td>3</td>
<td>Compulsory</td>
<td>1</td>
<td>Semesters 1 &amp; 2</td>
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<td>Introduction to Modern Physics</td>
<td>SEF038</td>
<td>15</td>
<td>3</td>
<td>Elective</td>
<td>1</td>
<td>Semester 1</td>
<td>No</td>
</tr>
<tr>
<td>Physics - Mechanics and Materials</td>
<td>SEF005</td>
<td>15</td>
<td>3</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 1</td>
<td>No</td>
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<tr>
<td>Essential Foundation Mathematics</td>
<td>SEF026</td>
<td>15</td>
<td>3</td>
<td>Elective</td>
<td>1</td>
<td>Semester 1</td>
<td>No</td>
</tr>
<tr>
<td>Mathematics II</td>
<td>SEF002</td>
<td>15</td>
<td>3</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 2</td>
<td>No</td>
</tr>
<tr>
<td>Introduction to Engineering</td>
<td>SEF024</td>
<td>15</td>
<td>3</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 2</td>
<td>No</td>
</tr>
<tr>
<td>Physics - Electricity and Atomic Physics</td>
<td>SEF007</td>
<td>15</td>
<td>3</td>
<td>Elective</td>
<td>1</td>
<td>Semester 2</td>
<td>No</td>
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Programme Title: HHY1 MEng FT Engineering with Foundation

<table>
<thead>
<tr>
<th>Module Title</th>
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<th>Academic Year of Study</th>
<th>Semester</th>
<th>QMUL Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics - Fields and Waves</td>
<td>SEF006</td>
<td>15</td>
<td>3</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 2</td>
<td>No</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>SEF015</td>
<td>15</td>
<td>3</td>
<td>Elective</td>
<td>1</td>
<td>Semester 2</td>
<td>No</td>
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What Are the Entry Requirements?

For students studying A levels, offers are normally for minimum BBB (depending on the subjects being studied to advanced level). Offers will be higher for students who have not studied any science subjects at an advanced level. The School does not make offers to students on to the SEFP if they are studying qualifications that would entitle them to apply directly to the degree programme. For students studying the BTEC Extended Diploma, offer would be a minimum of DDD however could be higher. Applications from mature students, and from students studying vocational courses, will be considered on an individual basis. We do not accept application to the Foundation programmes (HHX1, HHY1, JJX5 or JJY5) during clearing.

Find out more:
School of Engineering and Materials Science
Tel: +44 (0)20 7882 8736
email: sems-ugadmissions@qmul.ac.uk

How Do We Listen 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 Teaching & Learning Committee advises the School's 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 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.

Academic Support

Each student is provided with a personal academic guidance tutor (or "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 programme for peer guidance.
Programme Title: HHY1 MEng FT Engineering with Foundation

Programme-specific Rules and Facts

N/A

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

N/A

Programme Specification Approval

| Person completing Programme Specification | Dr Henri Huijberts |
| Person responsible for management of programme | Mr Raza Shah |
| Date Programme Specification produced/amended by School Learning and Teaching Committee | 21 Feb 2018 |
Programme Title: HHY1 MEng FT Engineering with Foundation

Date Programme Specification approved by Taught Programmes Board