Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and title:	Engineering Management MSc
Name of interim award(s):	PGCert, PGDip
Duration of study / period of registration:	1 calendar year
Queen Mary programme code(s):	PFQM-H1NC-09
QAA Benchmark Group:	Engineering
FHEQ Level of Award:	Level 7
Programme accredited by:	Accreditation will be sought with IET
Date Programme Specification approved:	7 Nov 2023
Responsible School / Institute:	School of Engineering & Materials Science

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

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

Programme outline

This is an industry-centred learning programme that aims to provide highly skilled graduates for the engineering sector, fulfilling industry demands and requirements in a rapidly changing society.

The programme comprises six taught modules and one project module. In addition to learning key concepts of engineering management from the academic content, students will actively participate in various workshops focused on professional business skills and interpersonal skills.

Talks by industry experts and a range of other industrial engagement activities offer students direct contact with employers, providing them with an opportunity to reflect on what they have learned in class and apply their knowledge and analytical skills to real-world scenarios. Through regular communication with the Industrial Advisory Board, we will continuously review and revise our educational content and approaches to ensure they align with the evolving needs of employers and industry trends.

Aims of the programme

This programme aims to develop engineers with knowledge and experience in the management of innovation, finance, operations, strategy, systems, and sustainability. This is crucial for meeting the industrial needs of a rapidly changing society. To achieve this, we have specific aims for the programme:

- Equipping graduates with the skills to adapt engineering businesses in the face of digital transformation and other emerging trends.

- Providing students with industry-centred learning environments and industrial engagement events. We ensure that the programme content is industry-led, incorporating recent industry case studies and direct interaction with leading industry experts.

- Graduating engineers who are well-prepared for the job market by teaching core concepts, theories, and analytical tools of Management and Business used within the Engineering profession. This includes topics such as process innovation, business model innovation, new channel innovation, customer engagement, disruptive innovation, architectural innovation, lean manufacturing, cannibalization in product development, vertical integration in manufacturing, minimum viable product, offshore/onshore manufacturing, and agile innovation.

- Training students in business analytical techniques such as 'Porter's Five Forces,' 'McKinsey 7-S Framework,' 'Boston Matrix (Product Portfolio Model),' and 'Balanced Scorecard.' This enhances their capability to systematically analyse decision-making in engineering businesses.

- Inspiring student creativity in problem-solving related to real-world engineering, industry problems and global challenges. To achieve this, we introduce students to various types of 'wicked problems,' such as Mongolian air pollution and disaster management in Fiji. The process of identifying causes and effects in complex situations enables students to gain confidence in developing their own ideas and solutions for business and global challenges.

What will you be expected to achieve?

Prepare yourself for leadership roles in engineering with this unique programme, where you will learn to manage the challenges faced by the engineering sector. In this programme, you will gain knowledge and skills in managing operations, supply chains, systems, and resources within an engineering context, with a strong emphasis on sustainability and ethics.

As a graduate, you will possess the ability to lead engineering companies through changes brought about by technological innovations, economic volatility, and resource availability. You will utilise innovation, engineering, entrepreneurship, and financial expertise to navigate these challenges. Additionally, you will develop excellent communication skills, enabling you to effectively interact with both engineers and managers. With these skills, you will be well-equipped to work as a technically competent senior manager, capable of making strategic business decisions. These highly sought-after skills are in high demand in a rapidly evolving world, where innovation, business, and geopolitics are all advancing at a rapid pace.

Academic Content:	
A 1	To create efficient systems in engineering management
A 2	To develop better environment, ethics and economics in engineering design
A 3	To manage overall process of operations and logistics management
A 4	To understand and analyse firms' business strategy in digitalisation

A5	To find the best solution of cost engineering and to understand manufacturing strategy of a company
A6	To conduct research projects in engineering management

Disciplinary Skills - able to:	
B1	To develop business and strategies related to engineering management
B2	To analyse firms performance in operations and logistics management (as well as in manufacturing productivity)
B3	To conduct an analysis to understand of a business strategy and performance
B4	To identify problems and develop solutions for industry in the context of engineering management

Attributes:	
C1	Identify and appreciate the skills for personal and professional self-development
C2	Identify and solve real world problems, developing creative solutions with a full awareness of sustainability.
C3	Apply creativity in product and systems design, incorporating different disciplinary and cultural perspectives
C4	Evaluate, model and improve a range of multicomponent systems
C5	Convey complex technical, professional and other information in written, oral and presentation form to suit a range of audiences
C6	Understand and comply with professional engineering and scientific ethics and codes of conduct

How will you learn?

You will attend in-person learning activities such as problem classes, workshops, lectures and seminars. A range of learning materials will also be provided for self-study learning.
You will often work in teams to solve problems, enabling you to learn to manage the teams resources whilst investigating broader engineering management challenges. You will also conduct an individual extended research project where you can put your core engineering and engineering management skills into practice.

How will you be assessed?

You will be assessed by a mixture of in-person tests, online assignments, quizzes and coursework in your taught modules. There will be written assessments, but also assessment through posters and presentations. Regular formative assessment will help you develop the skills needed to pass credit-bearing assessments.

Some assessment will be done in groups, making use of peer assessment, but you will also undertake self-directed work in completing your extended research project.

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.

The programme is full -time and contains six compulsory 15 credit modules and a 90 credit core project module.

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Engineering Project Management	EMS771P	15	7	Compulsory	1	Semester 1
Operations and Supply Chain Management in Engineering	EMS772P	15	7	Compulsory	1	Semester 2
Cost Engineering and Financial Accounting for Engineers	EMS773P	15	7	Compulsory	1	Semester 1
Business Strategy and Technology Entrepreneurship	EMS774P	15	7	Compulsory	1	Semester 2
Introduction to Systems Engineering	EMS703P	15	7	Compulsory	1	Semester 1
Environment, Ethics and Economics in Engineering Design	EMS705P	15	7	Compulsory	1	Semester 2
Extended Research Project	DENM100	90	7	Core	1	Semesters 1-3

What are the entry requirements?

Standard SEMS IELTS requirements: 6.5 overall including 6.0 in Writing, and 5.5 in Reading, Listening and Speaking.

Minimum of a 2.1 bachelors degree in a STEM subject.

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

From our Industrial Advisory Board, we will regularly receive the feedback regarding our teaching directions of modules and workshop we provide. Also, we will review feedback from the students through the Student Staff Liaison Committee every semester. Programme improvements will be enhanced through actions taken at the Annual Programme Review and less frequently through Extended Programme Reviews.

What academic support is available?

We aim to support all students throughout their time with us. We encourage students to develop independently but this does not mean that you need to be alone. We know that support and encouragement from staff and fellow students is very important throughout your degree.

The Student Support Officer for SEMS is the first contact for any personal support; they can be contacted by email: semsstudents@qmul.ac.uk with any questions or to arrange an appointment.

Your project supervisor will be your Advisor, providing a first point of contact for study advice and information on programmes. Project supervisors will be allocated early in the first semester, with the Programme Director and the Director of PGT programmes being alternative academic point of contact until the project supervisor has been allocated.

Programme-specific rules and facts

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How inclusive is the programme for all students, including those with disabilities?

All teaching venues will be accessible for the student with disability. If needed, a sign language interpreter will join the teaching to support students with disability.

Disability and Dyslexia Service:
QMUL 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 QMUL students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites. You 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 module materials in alternative formats
• 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.

Advice and Counselling:
QMUL offers a wide range of advice, guidance and self-help material. These free and confidential professional services are available to all students. Details can be found at:
https://www.welfare.qmul.ac.uk/student-advice-guides/

Links with employers, placement opportunities and transferable skills

The school has an active Industrial Advisory Board, and strong links with engineering businesses. This has a direct impact on the programme content by encouraging employer engagement in the programme, for example by providing real-world case studies, delivering guest-lectures or engaging with research projects. We run an Industrial Liaison Forum twice per year where we bring our collaborators, advisory board and alumni to campus to engage with students. Students will have a chance to present their project work to our industrial contacts as well as receive career advice.

Programme Specification Approval

Person completing Programme Specification:	Oliver Fenwick
Person responsible for management of programme:	Jae-Hwan Park
Date Programme Specification produced / amended by School / Institute Education Committee:	6 Nov 2023
Date Programme Specification approved by Taught Programmes Board:	7 Nov 2023