PROGRAMME SPECIFICATION

KEY FACTS

Programme name	Engineering with Management and Entrepreneurship
Award	BEng (Hons)
School	School of Mathematics Computer Science and Engineering
Department or equivalent	Department of Electrical and Electronic Engineering
UCAS Code	H1N2
Programme code	USUEME
Type of study	Full Time
Total UK credits	360
Total ECTS	180

PROGRAMME SUMMARY

The BEng in Engineering with Management and Entrepreneurship is a three year multi-disciplinary Bachelors Undergraduate Programme which brings different engineering disciplines together to educate engineering graduates with management and entrepreneurial skills. The business model of the engineering industry is changing and as the engineers of tomorrow this programme will provide you with the opportunity to study a range of modules set within a multi-disciplinary environment. You will study a mix of engineering and management topics and gain a solid grasp of mathematical principles. You will find that a central theme running through the programme will be that of entrepreneurial behaviour and how this interacts with innovation, technology, the economic environment and opportunity recognition.

The programme consists of 360 academic credits spread over three full academic years (120 credits each year). You are required to successfully complete each year of study before progressing to the next year. The programme includes an optional placement year, which carries no academic credit but is it strongly recommended to you. Each academic year consists of a number of modules (seven, or eight), which typically carry 15 or 30 credits. You will learn at formal lectures, at tutorials and problem solving sessions, and in laboratory sessions. Modules are assessed using the typical range of assessment methods; majority of the modules are assessed through written examination and practical work. The programme includes individual and group project work and gives you the opportunity to develop your personal, presentation and communication skills.

In Programme Stage (Year) 1 and Programme Stage (Year) 2 you will study a range of electrical & electronic, and mechanical engineering modules, together with mathematics and management topics and a broad introduction to the key features of the engineering industry.

Certificate / Programme Stage One
For all of you completing Programme Stage one *or* the Certificate in Engineering with Management and Entrepreneurship you will be able to discuss underlying concepts and

principles associated with electrical/electronics and mechanical engineering, and key features of the engineering industry and interpret these within the context of your practice. Subjects covered include modules in engineering mathematics, engineering practice, introduction to engineering mechanics, engineering drawing and design, circuit theory, analogue electronics, signals and systems, introduction to microeconomics and management and entrepreneurship with a group project that goes on during all the three years of your studies.

Diploma / Programme Stage Two
For all of you completing Programme Stage Two *or* the Diploma in Engineering with Management and Entrepreneurship you will build on your previous knowledge and experience. You will develop skills of enquiry in your subject and develop different approaches to problem-solving as well as identify the limitations of your knowledge. Modules include further engineering mathematics, analogue electronics and digital logic, engineering materials, dynamics and control, accounting and finance, and engineering management.

In year 3 you will gain in-depth advanced knowledge and understanding of engineering systems principles together with management, sustainability, and corporate responsibility issues and the technology entrepreneurship skills you will require in business.

Degree / Programme Stage Three
For all of you completing Programme Stage Three *or* the degree you will further develop a coherent systematic, detailed knowledge of your discipline. You will be able to develop techniques for practice drawing on research and scholarship demonstrating your role as a reflective practitioner. You will cover core subject areas in computer systems and networks, in technology entrepreneurship and in engineering management and you will have to select four elective modules from areas in programming, engineering systems, systems modelling, corporate responsibility, economics of the power industry and systems reliability and management. You will also complete a major individual project. This project will enable you to analyse and understand part of, or a full engineering life cycle from requirements elicitation, design and product development to bringing the product to market.

The programme is delivered by the School of Mathematics Computer Science and Engineering.

Aims

The programme has three main aims:

- Firstly, to develop engineering managers for the future, by equipping you with specialist technical knowledge of engineering principles, mathematical concepts and a sound understanding of effective management techniques.
- Secondly, to promote opportunities for team-based learning and problem-solving, demonstrating a range of skills related to engineering management in the art and science of planning, organizing and allocating resources, leadership and effective controlling of activities which have a technical component.
- Thirdly, to enable you to develop business-thinking, creativity and innovation, by

exposing you to real-life industrial scenarios from the world of business.

WHAT WILL I BE EXPECTED TO ACHIEVE?

On successful completion of this programme, you will be expected to be able to:

Knowledge and understanding:

- apply knowledge of engineering principles and mathematical concepts to solve engineering problems;
- apply knowledge to design engineering systems, components, or processes to meet desired needs within realistic constraints such as economic, environmental, social, health and safety factors, and manufacturability and sustainability parameters;
- demonstrate understanding of the main challenges engineering managers and entrepreneurs face in building teams, raising finance, managing conflict, influencing, and negotiations;
- demonstrate knowledge and understanding of the main challenges and opportunities surrounding technology entrepreneurship;
- demonstrate knowledge and understanding of the current issues in energy, sustainability, and corporate responsibility, and how these impact on industry.

Skills:

- critically analyse and demonstrate the need to take account of the impact of engineering solutions in a global, economic and environmental context;
- develop values to become a responsible engineer in a corporate environment;
- appreciate the relevance of sustainability and green issues in future engineering systems design;
- respect the complexity of interdisciplinary engineering projects and recognise the contribution of the members of the team.

Values and Attitudes:

- maintain and develop a professional engineering attitude;
- maintain and develop an awareness of safety and environment;
- show respect and tolerance for other people on the group;
- show consideration for the rules and regulations of the University;
- maintain and develop leadership qualities and professional engineering and managerial attitude.

HOW WILL I LEARN?

An emphasis will be placed on your active engagement during module contact time. You will be taught through a range of methods including formal lectures, tutorials, laboratories, seminars, case studies, problem-based learning, presentations and group

work. Additional industrial lectures will be delivered by engineering professionals, all of whom have in-house extensive engineering and management expertise.

Each module comprises, on average, a total of 3 hours contact time per credit. You are expected to devote a further 7 hours of self directed learning, per credit point. A typical pattern of contact hours for a 15 credit module would be: 20 lecture hours; 10 hours of class-based problems; 15 hours of coursework and/or laboratory work and 75 hours of self-study. In Programme Stage 3 you will be required to undertake a major interdisciplinary design project and will be encouraged to pursue industrially relevant individual projects. In the self directed learning time you will be expected to engage in online forums using Moodle.

WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Assessment and Assessment Criteria

You will be assessed through written examination, coursework, presentations, laboratory work, group work and individual project. The group work will be assessed by the module leader and also through formative assessment. You will be expected to pass the individual components of all the modules. This includes examination, coursework, case studies, laboratory and group work. You will have revision tutorials at the end of the module period and also be given additional revision before the examination period. If a group of you identify a specific subject material difficult to follow you will be provided with extra tutorials and learning resources such as online resources and video recordings.

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade- Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

Feedback on assessment

Feedback will be provided in line with our Assessment and Feedback Policy. In particular, you will normally be provided with feedback within three weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. For end of module examinations or an equivalent significant task (e.g. an end of module project), feedback will normally be provided within four weeks. The timescale for feedback on final year projects or dissertations may be longer. The full policy can be found at:
https://www.city.ac.uk/__data/assets/pdf_file/0008/68921/assessment_and_feedback_policy.pdf

Assessment Regulations

In order to pass your Programme, you should complete successfully or be exempted from the relevant modules and assessments and will therefore acquire the required number of credits. You also need to pass each Programme Stage of your Programme in order to progress to the following Programme Stage.

The Pass mark for each module is 40% (50% for EPM modules). To pass a module, you need to obtain at least 40% mark (50% for EPM modules) in all the components of the module. The only exception to this is engineering mathematics. Details of progression for engineering mathematics can be found in the module specifications. The weight of each component of the module to the final module mark is given in the module specifications.

If you fail an assessment component or a module, the following will apply:

1. Compensation: where you fail up to a total of one sixth of the total credits of a Programme Stage at first or resit attempt, you may be allowed compensation if:
    - Compensation is permitted for the module involved (see the What will I Study section of the programme specification), and
    - It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Programme Stage, and
    - A minimum overall mark of no more than 10% below the module pass mark has been achieved in the module to be compensated, and
    - An aggregate mark of 40% has been achieved for the Programme Stage.

Where you are eligible for compensation at the first attempt, this will be applied in the first instance rather than offering a resit opportunity.

If you receive a compensated pass in a module you will be awarded the credit for that module. The original component marks will be retained in the record of marks and your original module mark will be used for the purpose of your Award calculation.

2. Resit: where you are not eligible for compensation at the first attempt, you will be offered one resit attempt. a resit.

If you are successful in the resit, you will be awarded the credit for that module. The mark for each assessment component that is subject to a resit will be capped at the pass mark for the module. This capped mark will be used in the calculation of the final module mark together with the original marks for the components that you passed at first attempt.

If you do not meet the pass requirements for a module and do not complete your resit by the date specified you will not progress to the next Programme Stage and the Assessment Board will require you to be withdrawn from the Programme.

If you fail to meet the requirements for a particular Programme Stage or the Programme, the Assessment Board will consider whether you are eligible for an Exit Award as per the table below.

If you would like to know more about the way in which assessment works at City, please see the full version of the Assessment Regulations at:
http://www.city.ac.uk/__data/assets/word_doc/0003/69249/s19.doc

WHAT AWARD CAN I GET?

Bachelor's Degree with Honours:

Programme Stage	HE Level	Credits	Weighting (%)
1	4	120	0
2	5	120	33
3	6	120	67

Class	% required
I	70
II upper division	60
II lower division	50
III	40

Ordinary Degree:

Programme Stage	HE Level	Credits	Weighting (%)
1	4	120	0
2	5	120	33
3	6	60	67

Class	% required
With Distinction	70
With Merit	60
Without Classification	40

Diploma of Higher Education:

Programme Stage	HE Level	Credits	Weighting (%)
1	4	120	33
2	5	120	67

Class	% required
With Distinction	70
With Merit	60
Without Classification	40

Certificate of Higher Education:

Programme Stage	HE Level	Credits	Weighting (%)
1	4	120	100

Class	% required
With Distinction	70
With Merit	60
Without Classification	40

WHAT WILL I STUDY?

Programme Stage 1

To pass Programme Stage 1, you must have acquired 120 credits.

Module Title	SITS Code	Module Credits	Core/ Elective	Can be compen-sated?	Level

Accounting and Business Finance	EE1407	15	C	Y	4
Management and Entrepreneurship	EE1406	15	C	Y	4
Electronic Circuit Design 1	EE1502	30	C	N	4
Systems, Modelling and Control	EE1504	15	C	Y	4
Engineering Mathematics 1	EX1002	15	C	N	4
Introduction to Engineering Mechanics	EE1508	15	C	Y	4
Engineering Drawing and Design	EE1509	15	C	Y	4

Programme Stage 2

To pass Programme Stage 2, you must have acquired 120 credits. Those of you who undertake the optional placement year will register for the Professional Placement module (ET2014) after completing Programme Stage 2.

Module Title	**SITS Code**	**Module Credits**	**Core/ Elective**	**Can be compen-sated?**	**Level**
Technology Venture Development	EE2411	15	C	Y	5
Dynamics and Control	EE2401	15	C	Y	5
Analogue Electronics	EE2514	15	C	Y	5
Digital Logic	EE1501	15	C	Y	4
Engineering Management 2	ET2052	15	C	Y	5
Engineering Materials	EE2513	15	C	Y	5
Engineering Mathematics 2	EX2003	20	C	N	5
Numerical Computing and Statistics	EE2512	10	C	Y	5

Professional Placement	ET2014

Programme Stage 3

To pass Programme Stage 3, you must have acquired 120 credits including 60 credits from four elective modules.

Module Title	**SITS Code**	**Module Credits**	**Core/ Elective**	**Can be compen-sated?**	**Level**
Individual Project, BEng 3	EE3400	30	C	N	6
Computer Systems and Networks	EE3505	30	C	N	6
Engineering Management 3	ET3051	15	C	Y	6
Technology Entrepreneurship	EE3420	15	C	Y	6
Engineering Systems	EE3500	15	E	Y	6

Object-Oriented Programming	EE2425	15	E	Y	5
Systems Modelling	EPM744	15	E	Y	7
Corporate Social Responsibility	BS3214	15	E	Y	6
Economics of the Power Industry	EPM101	15	E	Y	7

TO WHAT KIND OF CAREER MIGHT I GO ON?

The knowledge and the skills you will gain by completing this programme will enable you to gain a range of jobs in a number of industries, including the energy, telecommunications, digital media and financial industries. Our graduates have excellent problem-solving, team-working and communication skills which makes them very attractive to modern interdisciplinary engineering companies.

In addition to this, our graduates are well received at major Universities in the United Kingdom and overseas, where they pursue advanced Masters and Doctorate courses in electrical and electronic engineering, control engineering, telecommunications, but also business and management studies.

City, University of London has excellent reputation for graduate employment. You will receive excellent support for industrial placement and careers throughout your studies and after you graduate. If you would like more information on the Careers support available at City, please go to: http://www.city.ac.uk/careers/for-students-and-recent-graduates.

WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?

At present these options are not available; they are still under development.

WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?

Industrial placements are offered to you after the second year of study. The School provides links between yourself and the companies, helps you prepare for interviews and encourages you to take industrial placements. You are informed about industrial placement in the Placement Brochure which is made available to you and also through a series of lectures facilitated by the Industrial Tutor and the University Career Service. You will not get any academic credit for doing the Industrial Placement.

WILL I GET ANY PROFESSIONAL RECOGNITION?

Accrediting Body: The Institution of Engineering and Technology

Nature of Accreditation
Accreditation of the BEng leads to partial fulfilment of the academic requirements for registration as a Chartered Engineer (CEng).

Accrediting Body: Institute of Measurement and Control

Nature of Accreditation
Accreditation of the BEng leads to partial fulfilment of the academic requirements for registration as a Chartered Engineer (CEng).
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HOW DO I ENTER THE PROGRAMME?

This program is suitable for people who have good mathematical skills and an interest in management & entrepreneurship. Minimum entry requirement is 320 UCAS points, ideally at GCE A-Level. You need to have an A-level in mathematics at grade B or higher.

14-19 Advanced Diploma: Acceptable on its own. Engineering at grade B/250; A-level mathematics at grade B/100.

IB: 32 including 5 in high level maths.
RPL/RPEL: Direct entry into Programme Stage 2: direct entry into Programme Stage 2 is possible following successful completion of Programme Stage 1 of a comparable accredited BEng (Honours) programme. Suitable HNC and HND equivalents (e.g., equivalent overseas qualifications) are also considered. However, in all cases the final decision is subject to the satisfactory evaluation of prior qualifications by Admissions Tutor.

English language requirements:
IELTS: 6.0 with a minimum of 6.0 in the writing sub-test
GCSE: English language grade C.
Please note that TOEFL is not accepted as evidence of English language ability for students that require a Confirmation of Acceptance for Studies.

Candidates successfully completing City and Islington College Foundation course H606 with City are permitted to enter Programme Stage 1 of the programme.

Scholarships

A range of scholarships are on offer for home and overseas students. Scholarships are awarded mostly on academic merit. A range of awards is given to students with best academic results.

Details of scholarships available to new undergraduate students can be found on City's website at http://www.city.ac.uk/study/why-study-at-city/fees-and-finance/scholarships.

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