

PROGRAMME SPECIFICATION

KEY FACTS

Programme name	Mechanical and Design Engineering Mechanical and Design Engineering with Placement
Award	MEng (Hons)
School	Mathematics, Computer Science and Engineering
Department or equivalent	Engineering
UCAS Code	H352 H353
Programme code	US?? US??
Type of study	Full Time
Total UK credits	480
Total ECTS	240

PROGRAMME SUMMARY

In all Engineering disciplines, the design of a product, or of a system represents the final synthesis of the work of an Engineer or of an Engineering Team. The variety of requirements and knowledge that underpins the final design of a product or procedure is nowadays conditioned by a large number of considerations and expertise. In particular, in the field of Mechanical Engineering the professionals should be equipped with a good mix of fundamental knowledge in thermo-fluid mechanics, structural mechanics, power systems with sound methodological approaches leading to the design of procedures and products that also meet impelling societal requirements such as environmental and ethical sustainability. The awareness of the society about these issues is constantly growing and any modern programme in mechanical engineering should take them at the heart of the preparation of the new cohorts of mechanical engineers.

In UK and abroad, mechanical engineers can find employment virtually anywhere where innovation takes place, and are sought out by employers within a variety of industries, such as: aerospace, automotive, chemical, construction, defence, electronics, consumer goods, marine, materials and metals, pharmaceuticals, rail, and utilities. It is therefore needless to say that the UK will continue to lead in the industrial sector and especially in new green technologies as long as it is supported by good quality academic engineering programmes graduating students, which are well trained in the theory and practice of the new technologies while mastering the knowhow of combining the different pieces from these new technology areas and integrating them into a proper and viable engineering design. Our new program will help the students to appreciate relevant modern technology and techniques and, with the introductions of new design modules, will set them into a position of being good practically oriented engineers whose mechanical and design engineering groundings allow them to work in an industrial or academic environment, as individuals or as part of a team. The proposed BEng/MEng programme aims to contribute towards all these objectives.

During the degree, engineering knowledge is built-up and nurtured, with specific objectives associated with each component Programme Stage. Development of design skills and teamwork are at the heart of the City University of London engineering degrees throughout the programme. Programme Stage 1 is common across five of the engineering degrees offered by City University. This introductory year is intended to give you a thorough grounding in the fundamental and applied science and mathematics appropriate for an engineer, as well as developing personal skills such as time and quality management. During Programme Stage 1, you will have the opportunity to undertake preliminary engineering designs through group activity. Common to all stage 1 and 2 and across all Engineering programmes, you will be offered a core module termed as the Engineering in Society. During stage 1 this module will introduce the engineering discipline with particular emphasis on some key topics such as sustainability, the environment, healthcare, space, autonomous vehicles. It will also incorporate personal tutoring and a series of seminars to improve your soft skills (presentations, CV building...). During the second year, the module will focus on an introduction to engineering management and the circular economy. It will also incorporate training in employability and promote multi-skills engineering. This module during the first two stages will be assessed by both the lecturers and the personal tutors. In stage 3 and in stage 4, the same module (called Mechanical Engineering Practice in the Society) is still offered but tailored to the engineering discipline you have chosen. Particular emphasis will be given to an interdisciplinary approach to engineering, sustainability, societal and moral impact of engineering. Further help in building your curriculum and enhancing your employability potential will also be provided. At the end of Programme Stage 1 (assuming that you have met the academic requirements described below) you will have the opportunity to decide whether to remain on the MEng (Hons) Mechanical and Design Engineering degree or switch to one of 6 other engineering MEng (Hons) degrees.

This flexibility in choice at the end of Programme Stage 1 enables you to follow the discipline that best matches your strengths and most attracts you. In Programme Stage 2 you will start to specialise and learn to apply engineering analysis to simple but representative components of engineering systems. You will further study mechanical design and given an engineering challenge, approaching a professional level exercise. You will also advance your knowledge of solid and fluid mechanics while studying mechatronics, computational methods and data analysis. As with other years, a significant proportion of Programme Stage 3 is focused upon design and individual project. It will be in Programme Stage 3 that you will select a realistic industrial related mechanical design/research project. This enables you to draw together and apply knowledge gained over a number of subject areas. In Programme Stage 3 you also study specialist topics including fluid mechanics, heat transfer, structural analysis, mechatronics and control, and Renewable Energy.

Stage 3 also incorporates a unique module called the Through-Life Engineering Studio. In this module you will learn to work collaboratively and co-design engineering solutions and optimise their through-life impact for social good. The Studio is set up to model a real little

industrial factory demonstrating the latest technologies training you with the modern tools, both hardware and software. These modules involve looking at analysis in increasing depth alongside examining a greater breadth of system complexity. The Engineering in Society module in Programme Stage 3 focus upon people and organisations, with case studies and invited lectures from industry professionals. At Programme Stages 3 you select one from a range of Level-6 individual research projects.

If you wish to gain practical experience during your degree, then you have the option of spending 12 months between Programme Stages 2 and 3 or split over two summers between the years of study, on a paid industrial placement. We strongly recommend this (see the subsequent section entitled 'What Placement opportunities are available').

At the end of the programme, you will have acquired the knowledge and understanding of analysis and design techniques, practical and personal skills required for a career in mechanical engineering. The Integrated Masters (MEng Honours) Programme develops you to a high level of professional as well as engineering competence, through broad engineering experience involving market analysis, commercial operational and regulatory constraints, project and team management, multi-disciplinary design and, where relevant, manufacture.

The MEng Honours Programme is a four-year, or five-year with placement, full time degree comprising 480 credits (4800 study hours) structured as four Programme Stages, each typically delivered over 22 contact weeks, 6 examination weeks, 4 reflective learning (private study) weeks and 8 vacation weeks (which may be used for private study) per academic year. An MEng (Hons) Programme therefore requires a commitment of 40 study hours per week during the academic year.

Certificate of Higher Education

Upon successful completion of Programme Stage 1 you will be able to: (i) discuss underlying concepts and principles associated with fundamental science and technology, (ii) to develop skills in time and quality management and (iii) present, interpret and evaluate quantitative and qualitative data within your subject of study appropriate to the formation of an engineer. At this stage, having gained all the necessary credits, you will either: (i) automatically progress onto Programme Stage 2 of the MEng (Hons) in Mechanical and Design Engineering or (ii) decide to switch onto one of 6 other MEng (Hons) engineering degrees or (iii) leave the University with a Certificate of Higher Education in Engineering.

Diploma of Higher Education

Upon successful completion of Programme Stage 2 you will have: (i) built upon your previous knowledge and experience, (ii) developed critical understanding of the well-established principles, and of the way in which those principles have developed in your area of study and (iii) advanced your skills of enquiry and different approaches to problem-solving as well as identify the limitations of your knowledge in your subject. At

this stage, having gained all the necessary credits, you will either: (i) automatically progress onto Programme Stage 3 of the MEng (Hons) in Mechanical and Design Engineering or (ii) leave the University with a Diploma of Higher Education in Mechanical and Design Engineering.

BEng Degree

Upon successful completion of Programme Stage 3 you will: (i) have developed a coherent systematic, detailed knowledge of your discipline and (ii) be able to confidently develop and employ appropriate techniques and methods in mathematical modelling and experimentation for engineering problem-solving, analysis and design. At this stage, having gained all the necessary credits, you will either: (i) automatically progress onto Programme Stage 4 of the MEng (Hons) in Mechanical and Design Engineering or (ii) exit the University with a BEng (Hons) degree provided all Stage 3 credits have been awarded for studies undertaken on the MEng degree programme or (iii) leave the University with a bachelors ordinary degree in Mechanical and Design Engineering if you failed to gain sufficient credits for the award of a BEng (Hons) degree.

MEng (Hons) Degree

Upon successful completion of Programme Stage 4 (having gained all of the necessary credits) you will have met the requirements of the MEng (Hons) in Mechanical and Design Engineering degree and will: (i) have developed an in-depth and comprehensive knowledge and understanding of mechanical engineering, (ii) be able to create, apply and synthesize techniques and methods in mathematical modelling and experimentation for problem-solving, analysis and design of a wide variety of mechanical engineering products and situations, (iii) be able to develop originality in the application of knowledge and techniques and advance scholarship in your area of study and (iv) be able to lead or participate in group design activities which mirror realistic engineering practices and situations.

Aims

The overall aim of the MEng (Hons) in Mechanical and Design Engineering is to provide an excellent education in engineering with specialised training for a professional career in the industries underpinned by the mechanical engineering disciplines, including energy engineering and automotive engineering. This will include the research, development, design, production, commissioning, operation and management aspects of those industries. In addition, students are expected to exercise leadership in project management and initiate independent research and critical analysis into specialized and advanced fields in engineering.

The aim (further elaborated below in the section *'What will I be expected to achieve?'*) is to produce graduates who:

- have a broad and in-depth knowledge and comprehensive understanding to solve a range of complex technical problems in Mechanical engineering, scientific research,

design environments and professional practice,

- are able to apply and integrate knowledge and understanding of other engineering disciplines to support their studies and researches in mechanical engineering,
- are logical, creative, numerate, have a natural curiosity about the scientific world and are able to problem-seek as well as problem-solve,
- demonstrate an attention thoroughly to detail of current problems of their academic discipline, without losing sight of the overall picture,
- have a sound knowledge and understanding of business and management to participate effectively in teamwork,
- are aware of their professional practices and ethical responsibilities, the global and societal impact of engineering solutions, as well as the economic and political issues,
- are able to communicate effectively with full technical details to a wide range of audiences,
- exhibit team loyalty and have the ability and confidence to be a leader in industry,
- are able to undertake postgraduate level study to advance their knowledge and understanding, and to develop new skills in engineering with minimum supervision.

WHAT WILL I BE EXPECTED TO ACHIEVE?

This Programme has been developed in accordance with the QAA Subject Benchmark for Engineering. Learning outcomes which must be delivered by MEng Programmes, accredited by Professional Engineering Institutions as meeting the educational requirements for registration as a Chartered Engineer, are defined in general terms in the 4th edition of the Accreditation of Higher Education Programmes, published at www.engc.org.uk. The module learning outcomes listed below are accordingly all cross-referenced to these mandated AHEP4 learning outcomes.

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

Knowledge and understanding:

- Explain and develop the scientific principles upon which mechanical engineering is based, including those which underpin current technological advances in the sector (M1).
- Analyse and solve different mechanical engineering problems using comprehensive knowledge and understanding of a range of mathematical and computational models; to be able to carry out an Engineering synthesis of Mechanical systems and design (M2).
- Propose, original and creative solutions to engineering problems with an open and informed and multidisciplinary attitude (M2, M3, M4).
- Apply novel engineering techniques to concept, design, build and test processes, including customer requirements, dependencies, assumptions, constraints, uncertainties and creative solutions to problems; also, with recent or planned

developments in practice (M5, M6, M7, M9, M12, M13).

- Apply practical experience of the concept of fitness for purpose and the separate consideration of innovative design for production, operation, maintenance and disposal of an engineering system to meet future needs (M5, M6, M7, M12).
- Apply practical experience of the multi-disciplinary character of engineering and making sound and clear decisions based upon social, environmental/sustainable development, ethical, legal, economic and commercial considerations (M7, M8, M15).
- Conform with current technological and manufacturing/operational practice in the engineering industry and with future trends in relevant areas (M4, M7, M13).
- Implement fully the concepts from outside engineering which nonetheless drive engineering practice and business development (M5, M13).
- Apply fully the broad range of management tools and techniques required to create and run an engineering business (M9, M10, M14, M15).
- Apply knowledge and understanding from other engineering disciplines, of the type described above, specific to the principles and practice of energy/transport/structure and to mechanical design, manufacture, operation and maintenance and extensive awareness of developments in the field (M5, M6, M12, M13).
- Assess and predict the mechanical engineering industry as a business enterprise in national and international economies (M5).

Skills:

- Tackle confidently unfamiliar engineering problems (M18).
- Gather, integrate and evaluate information from various sources including technical literature (M4).
- Break down a problem into a series of engineering tasks to be solved under a set of multi-disciplinary constraints (M5).
- Communicate effectively in technical and non-technical languages, written, oral and graphical forms to individuals and large audiences; be proficient with IT and communications systems (M17).
- Use laboratory equipment for data measurement, processing, interpreting and analysis (M3, M13).
- Use workshop equipment to produce or modify an engineering component (M12).
- Be proficient with analytical, computational and experimental techniques (including assessing the limitations of the results obtained), coupled with experience and decision-making, to solve engineering problems (M2, M3).
- Apply initiative, creativity and innovation to design, construct and test a system, component or process to meet specifications (M5).
- Evaluate designs, processes or products and make improvements, taking into consideration associated commercial risks, societal and environmental impact (M7, M9, M10).

- Work with technical uncertainty (M13).
- Work with levels of detail appropriate to the criticality of the task (M5).
- Plan for and manage time/cost/quality of an engineering project and, where necessary, use theory or experimental research to mitigate deficiencies, including adjusting plans to changing circumstances and controlling such adjustments (M7, M9, M10).
- Exercise leadership as an individual and as a member of a team (M14, M15).
- Be proficient in the application of analytical, computational and CAD techniques specifically to the analysis and design of different mechanical systems (M3).

Values and attitudes:

- Put the needs of the team ahead of one's own needs (M16).
- Willingly take on the professional and ethical responsibilities of engineers in society (M8); commit to continuous improvement to enhance professional skills and benefit society (M18).
- Willingly take the lead in difficult situations (M16).
- Value the impact of mechanical engineering to society and to the global economy (M7) while recognising the need for mechanical engineering industry to contribute in a sustainable way (M7).
- Recognise that there is only one type of engineer, a person that tackles and solves problems, independently of gender, religion or race and that promotes inclusion (M11).

HOW WILL I LEARN?

The majority of learning in Higher Education is typically conducted through a combination of supervised and private study. Engineering is a practical discipline which benefits from significant supervised study, but it cannot be learnt through lectures alone.

Teaching involves a combination of theoretical, experimental and computational study. Our approach is to encourage critical thinking and foster your curiosity. By the time that you reach Programme Stage 3, the tutorial and practical elements are managed more by you, especially in relation to your individual project work. In Programme Stage 4 the MEng Project gives you an opportunity to work independently, under the guidance of a member of staff, to undertake research into a topic that you may not have covered in taught material. You will have the opportunity to apply your knowledge and understanding to the solution of engineering problems, in topics related to mechanical, energy and aerospace engineering.

Contact hours are made up of: lectures, which direct you towards the most important topics in the field and which allow discussion and clarification of areas of uncertainty with expert staff; tutorials where staff are on hand to help with problem-solving exercises; laboratory and workshop classes where practical situations and methods are encountered; and research or design/build projects, both individually and in groups, where

personal skills, teamwork, creativity and critical thinking are developed and where knowledge built up elsewhere in the Programme is integrated and developed. Site visits are used to place taught sessions in the context of real-world industries or products.

Private study is essential to the achievement of the learning outcomes and are guided using both formative and summative coursework tasks set during the academic year. Your private study is also supported by the use of Moodle, City's Online Learning Environment. This provides online access to module content, feedback, guidance on completing coursework, audio-visual resources etc.

In Programme Stages 1 and 2 there is a higher proportion of supervised study (compared with Programme Stage 3 and 4), with typically 20-24 hours of contact timetabled each week. These supervised contact hours are designed to assist and to focus your private study.

WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Assessment and Assessment Criteria

The Programme is subdivided into Programme Stages (years of study) and each Programme Stage into modules (coherent groupings of syllabus topics addressing particular Learning Outcome types). Each module in the programme may have one or more assessment components of differing types. Assessment components may involve more than one assessment task (e.g. they may be an aggregate of different coursework marks or multiple examination papers). Modules that contain multiple assessment components (either coursework or exam) for which individual minimum pass marks are required are specified in the relevant module specifications.

Some modules will have an examination component in addition to a coursework (continuous assessment) component. Many skills need to be honed by practice: to this end formative assessments, may be organised within each module with appropriate and timely feedback mechanisms.

Examinations are used because they provide a controlled environment in which to assess knowledge and understanding and problem-solving skills. The time pressure and lack of prior warning about specific issues to be tackled is representative of real-world situations faced by practicing engineers. Coursework assessments vary from paper assignments (which may be similar to examinations but with longer time scales and with access permitted to information sources) to the assessment of practical skills which cannot be done in the exam hall. For example, communication skills (e.g. presentations, drawings and written reports), personal skills (such as team work or leadership), planning and design (both software and hardware), data analysis, critical review of information and the use of workbench and CAE tools are usually assessed by means of coursework tasks.

Often coursework tasks may be set which are not to be assessed but which are valuable as a learning experience. This is known as formative coursework and is often the key to improving grades on assessed or summative coursework. You will receive feedback from all coursework assessments, both formative and summative, to enable you to develop and enhance your assessment performance. Extensive feedbacks will also be provided during the development of your Individual Project in stage 3.

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 to 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 may be written (on the hard copies and online) or oral (in class), specific to you or generally applicable, and would normally include a provisional grade or mark. If the coursework submitted is a laboratory report, then your work will not be returned until three weeks after the last report has been submitted. Laboratories are undertaken by groups of you in rotation over periods of many weeks and consequently the last group of you may complete the laboratory and submit the report many weeks after the first group.

For end-of-module examinations or an equivalent significant task (e.g. an end-of-module project), a generic feedback will normally be provided within four weeks of the last day of exam period. The timescale for feedback on final year projects or dissertations may be longer and starts from the date of the final presentation of the project.

The full policy can be found at:

https://www.city.ac.uk/data/assets/pdf_file/0009/452565/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 preceding Programme Stage of your Programme in order to progress to the following Programme Stage.

Your overall aggregate mark will be calculated by combining the aggregate marks from Programme Stages 1, 2, 3 and 4 in the ratio 1:2:3:4.

The pass mark for each module is 40%, except for Level-7 modules where the pass mark is 50%. In some modules there will be a requirement to pass individual components of the module (where the pass mark for these components will also be 40%, or 50% for Level-7 modules). Details of which assessment components need to be passed individually is provided in the Module Specification.

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

Compensation: where, if you fail no more than one sixth of the total credits 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 the Learning Outcomes of the modules in the Programme Stage, and a minimum overall mark of at least 30% has been achieved in the module to be compensated (40% for Level 7 modules), and an aggregate mark of at least 40% (50% for Programme Stage 4) has been achieved for the Programme Stage under consideration.

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 then you will be awarded the full 15 credits 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.

Note that the total amount of compensated credits cannot exceed 30 during your whole study degree.

Resit: Where you are not eligible for compensation at the first attempt, you will normally be offered one resit attempt.

If you are successful in the resit, you will be awarded the full 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 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 tables shown below.

If you would like further information about the way in which assessment works at City, please see the full version of the Assessment Regulations at:

https://www.city.ac.uk/_data/assets/pdf_file/0007/453652/s19.pdf

WHAT AWARD CAN I GET?

Integrated Masters degree with honours in Mechanical and Design Engineering

Programme Stage	HE Level	Credits	Weighting %
1	4	120	10
2	5	120	20
3	6	120	30
4	7	120	40

Class	% Required
-------	------------

I	70
II upper division	60
II lower division	50

Bachelor's degree with honours in Mechanical and Design Engineering

Programme Stage	HE Level	Credits	Weighting %
1	4	120	10
2	5	120	30
3	6	120	60

Class	% Required
-------	------------

I	70
II upper division	60
II lower division	50
III	40

Ordinary degree in Mechanical and Design Engineering

Programme Stage	HE Level	Credits	Weighting %
1	4	120	10
2	5	120	30
3	6	60	60

Class	% Required
-------	------------

With Distinction	70
With Merit	60
Without Classification	40

Diploma of Higher Education in Mechanical and Design Engineering

Programme	HE	Credits	Weighting %
-----------	----	---------	-------------

Class	% Required
-------	------------

Stage	Level		
1	4	120	25
2	5	120	75

With 70
Distinction
With Merit 60
Without 40
Classification

Certificate of Higher Education in Engineering

Programme Stage	HE Level	Credits	Weighting %
1	4	120	100

Class % Required

With 70
Distinction
With Merit 60
Without 40
Classification

WHAT WILL I STUDY?

Programme Stage 1

Programme Stage 1 comprises eight core Level-4 modules, totaling 120 credits. To pass Stage 1 you must obtain all 120 credits, as specified in the Programme Scheme.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
The Engineering in Society - Social		15	Core	No	4
Engineering Design 1		15	Core	No	4
Introduction to Mechanics of materials and manufacturing		15	Core	No	4
Electronics - including circuits, digital and analog electronics		15	Core	No	4
Introduction to programming		15	Core	No	4
Engineering Science		15	Core	No	4
Mathematics - I		15	Core	No	4
Introduction to Thermodynamics and Fluid Mechanics		15	Core	No	4

Programme Stage 2

Programme Stage 2 comprises eight core Level-5 modules, totaling 120 credits. To pass Programme Stage 2 you must obtain all 120 credits, as specified in the Programme Scheme.

If you wish to gain practical experience you have the option of spending a year on paid industrial placement between Programme Stages 2 and 3. You also have the option to split the placement over two periods in the summer between the years of study.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
The Engineer in Society: Sustainability and Circular Economy		15	Core	No	5
Mathematics - II		15	Core	No	5
Engineering Design II		15	Core	No	5

Fluid Mechanics		15	Core	No	5
Structures and Materials		15	Core	No	5
Thermodynamics		15	Core	No	5
Mechatronics and		15	Core	No	5
Data Analysis for Engineers		15	Core	No	5

To continue to Programme Stage 3 of the MEng Programme, you must have achieved a module average of at least 50% at the end of Programme Stage 2. If you fail to meet the requirement to progress to MEng Programme Stage 3, but pass all modules in Programme Stage 2, then you will be allowed to progress to Programme Stage 3 of the BEng Programme.

Programme Stage 3

Programme Stage 3 comprises seven core Level-6 modules, totaling 120 credits. To pass Programme Stage 3 you must obtain all 120 credits, as specified in the Programme Scheme.

If you wish to gain practical experience you have the option of spending a year on paid industrial placement between Programme Stages 3 and 4, if not taken between Programme Stages 2 and 3.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
Individual project		30	Core	No	6
Mechanical Engineering in the society		15	Core	Yes	6
Structural Analysis and FEM		15	Core	Yes	6
Engineering Design (CAD-CAM)		15	Core	Yes	6
Mass, Momentum and Heat Transfer		15	Core	Yes	6
Through Life Engineering		15	Core	Yes	6
Control Engineering		15	Core	Yes	6

Having exhausted all re-sit opportunities, if you fail to progress to MEng Programme Stage 4, then you will be transferred to the BEng programme and considered for the award of a BEng (Hons) Degree.

Programme Stage 4

Programme Stage 4 comprises five compulsory Level-7 modules, totaling 90 credits, and two elective Level-7 modules of 15 credits. To pass Programme Stage 4 you must obtain 120 credits, as specified in the Programme Scheme.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
Design project group		30	Core	No	7
Mechanical Engineering practice in society		15	Core	Yes	7
Computational Fluid Dynamics		15	Core	Yes	7
Energy, Infrastructure and Sustainability		15	Core	Yes	7
Advanced Heat Transfer		15	Core	Yes	7
Electric and Hybrid Vehicles		15	Elective	Yes	7
Robotics Imaging and Vision		15	Elective	Yes	7
Advanced Manufacturing		15	Elective	Yes	7
Composite Assembly and Joining		15	Elective	Yes	7
Acoustics and Advanced Vibrations		15	Elective	Yes	7
Gas Turbine Engineering		15	Elective	Yes	7
Machine Learning		15	Elective	Yes	7
Acoustics and Vibrations		15	Elective	Yes	7

TO WHAT KIND OF CAREER MIGHT I GO ON?

Many Mechanical and Design Engineering graduates enter the profession via one of the major international companies such as Rolls Royce, BP and Shell, consultants in leading transport companies (like AVL, Ricardo and Perkins), car and electric vehicles manufacturers (including Jaguar Land Rover, Ford Lotus, Delphi, Siemens and Bosch), and specialist firms such as Howden and DBS. However, beyond the discipline of mechanical engineering, this degree equips you with the technical expertise, initiative and management skills to be able to face modern challenges in

any number of branches of the engineering industry (from F1 car design, to offshore oil and gas exploration and aircraft and aerospace engineering). Your creativity and innovation in design will serve you well in the broad profession.

The Centre for Career & Skills Development provides a service to current undergraduates and postgraduates, as well as recent graduates of the University. Their aim is to provide you with advice, information and skills that you need to make a smooth transition into the world of professional engineering. If you would like further information on the careers support available at City, please go to: <http://www.city.ac.uk/careers>

WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?

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

WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?

If you wish to take a professional placement, then you will need to register accordingly prior to the start of your placement. We strongly encourage you to undertake a 12-month placement or 6–8-week Summer Internship, as you will benefit greatly from the experience; providing you with a distinct advantage when you seek employment upon graduation. SMCSE's Professional Liaison Unit (PLU) collaborates with the University Career and Skills Development Service to deliver a series of Professional Development workshops during Period 1 of Programme Stage 3 to prepare you for searching for and applying for a work placement. The PLU is in regular contact with companies and other organisations concerning the availability of training opportunities and will advise you on making applications.

You are welcome to make your own applications but you will be asked to discuss these with the PLU's Work Based Learning Advisor. Support is provided in the SMCSE Placement & Internships Resource Centre module on Moodle.

If you are on an approved Professional Placement then your experience will be graded on the basis of (i) reports from two visits made by the Visiting Tutor (a member of academic staff) familiar to the subject and (ii) your final report. Informal contact is maintained throughout the 12 months, as necessary. Although your placement is reported on the degree transcript, the grading does not contribute to the final degree result.

Placement guidelines are issued to you and your employer at the commencement of training, and these include a placement health and safety booklet. The guidelines also include a section on workplace learning. Early in the placement year, you are required to produce a placement plan in conjunction with your Workplace Supervisor and the Visiting Tutor.

WILL I GET ANY PROFESSIONAL RECOGNITION?

Accrediting Body: The Institution of Mechanical Engineers

Nature of Accreditation

Our current Mechanical Engineering degrees are accredited by the above institutions, providing a path for students on those programmes to gain Chartered Engineering status. This programme has been designed to satisfy the above institutions' accreditation criteria and an application for accreditation will be made in due course. We have every expectation that these degrees will similarly receive full accreditation.

HOW DO I ENTER THE PROGRAMME?

The following entrance requirements typically apply.

UCAS tariff points

128.

A-levels

ABB; including A-Level Mathematics. You are also required to have passed GCSE English Language at grade 4, or higher.

IB

31 points with 'Higher Level Mathematics at grade 6' OR 'Standard Level Mathematics at grade 7 AND Higher-Level Physics/Biology/Chemistry at grade 6'.

BTEC

BTEC (Level 3 Nationals only).

D*DD in Engineering (RQF) (First teaching Sept 2016) with minimum grade D in units 1 - Engineering Principles, 7 - Calculus to Solve Engineering Problems and 8 - Further Engineering Mathematics. Candidates must also have a minimum of grade 6 in GCSE Mathematics and Science/Physics.

English language requirements

For overseas candidates, an IELTS score of 6.0 (with a minimum of 5.5 in all components) is required. TOEFL is not accepted as evidence of English language ability for students that require a Confirmation of Acceptance for Studies.

Entry via Foundation Course

You will be offered a place on the MEng (Hons) degree in Mechanical and Design Engineering should you both (i) successfully satisfy the City University London interview panel and (ii) obtain an overall grade of at least 75% on an Engineering Foundation programme at: Westminster-Kingsway College, INTO City University

London International or Kaplan International College.

RPL/RPEL

Direct entry into Programme Stage 2 may be considered for candidates who have successfully completed the first year of a similar accredited MEng or BEng degree.

Scholarships

Undergraduate students are considered for a wide range of awards (scholarships, bursaries and prizes) throughout their studies in the School. These (internally and externally funded) awards range from £500-£9000 and they are based on a combination of academic merit and hardship. A number of these awards are also available to international students. Further information can be found at: <http://www.city.ac.uk/study/undergraduate/funding-and-financial-support/scholarships-and-bursaries>

Version: 1.1

Version date: December 2021

For use from 2023-24