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**Programme Specification**

**Title of Course:** MEng Mechanical Engineering

**Date Specification Produced:** January 2013

**Date Specification Last Revised:** September 2016

This Programme Specification is designed for prospective students, current students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content of each module can be found in Student Handbooks and Module Descriptors.

**SECTION 1: GENERAL INFORMATION**

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| **Title:** | MEng Mechanical Engineering |
| **Awarding Institution:** | Kingston University |
| **Teaching Institution:** | Kingston University |
| **Location:** | Roehampton Vale Campus, Kingston |
| **Programme Accredited by:** | Institution of Mechanical Engineers (IMechE) |

**SECTION 2: THE PROGRAMME**

1. **Programme Introduction**

The Programme is aimed at preparing students who aim to work in Engineering and aspire to achieve their professional status of Chartered Engineer (CEng). The Programme embraces recent developments in education and industry. The Programme design is based on the guidelines provided by the Engineering Council UK Standard for Professional Engineering Competence (UK-SPEC), the Quality Assurance Agency (QAA) Subject Benchmark Statement for Engineering, and the Institution of Mechanical Engineers (IMechE) Academic Accreditation Guidelines.

MEng graduates should have the versatility and depth of understanding to enable them to deal with new and unusual challenges in their chosen field of engineering. They should be imaginative and creative so that they can become innovators. MEng graduates must be equipped to progress rapidly to a position of responsibility and provide technical, managerial, and entrepreneurial leadership in specialist or inter-disciplinary projects.

The programme has a reputation for academic excellence, intellectual rigour and industrial relevance and is designed to equip graduates with the knowledge, comprehension, intellectual ability and subject practical skills to become professional mechanical engineers or to follow careers in related professional areas. Employability is a key element of the Programme and hence the emphasis on communication, interpersonal and other skills that today’s industry sees as enhancing employment prospects.

The first two years, levels four and five, of the MEng provides a broad foundation in Mechanical Engineering appropriate to the aims, objectives and learning outcomes of the programme. All MEng graduates require a foundation that covers the broad spectrum of engineering and this is provided for by studying topic which go beyond specialisation in Mechanical Engineering, hence professional issues, engineering practice and topics such as computing and electrical and electronic systems are all introduced here. In the final two years, levels six and seven, the Programme deals in much more depth with those topics which are more specific to a specialisation in Mechanical Engineering and encourages independence through the use of individual and group project work, allowing students to showcase their abilities to deal with complex and unfamiliar data, problems and situations.

The Programme broadly follows four themes or threads, and this threads are built upon from level to level. Firstly the appreciation and application of the principles of engineering science through the core knowledge deepening subject areas of mechanical systems (statics and dynamics), thermodynamics and fluid mechanics are emphasised. Secondly, topics intended to widen the students’ knowledge base include electrical and electronic systems, control engineering, mechatronics and computing. Thirdly there is a professional theme, introducing the students to the practice of a Mechanical Engineer, covering such topics as professional practice, project management, quality and business management. Lastly there is a strong design theme linking together the other threads and emphasising the holistic nature of modern day engineering. Hence, the MEng provides both breadth and depth with an aim to develop the ability to identify, define and solve engineering problems from first principles.

This MEng course emphasises the development of practical skills and experimentation through the extensive use of modern well equipped laboratories and workshops. Sustainability and ‘Health and Safety’ are threaded throughout the Programme’s modules and students are encouraged to consider the impact that engineering has on their environment. There is a great deal of support available to students, both pastorally and academically, but in particular they are supported by a Personal Tutor Scheme (PTS) in which they are allocated a member of staff who, through one-to-one meetings, will assist and encourage students in their academic learning for the duration of their Course.

The MEng is offered as a four-year full-time degree course or a five-year sandwich course with an industrial placement taken between level 5 and level 6, or between levels 6 and 7. The industrial placement is strongly recommended and supported as the experience gained goes a long way in preparing students for employment and, along with the academic experience gained at Kingston University, ensures that our graduates are widely recognised as being well prepared for the world of work. Many of our graduates from the previous programme arrangement have gone on to very successful careers.

1. **Aims of the Programme**

The general aims of the course are:

* To equip graduates with the engineering, design, management, business and personal skills required to become professional Mechanical Engineers, as well as enabling them to follow careers in related professional disciplines.
* To fully meet the exemplifying academic benchmark requirements,. for registration as a Chartered Engineer (CEng) and for Chartered Membership of the Institution of Mechanical Engineers (IMechE), by ensuring that the course is accredited by that body.

More specific aims of the course are:

* To produce graduates with a breadth and depth of knowledge and a thorough comprehension of the key aspects of Mechanical Engineering.
* To allow students to develop analytical and problem-solving skills and an ability to evaluate evidence and assumptions to reach sound judgements and communicate these effectively.
* To provide graduates to industry who have a creative approach to the solution of design problems and the requisite technical skills to realise these solutions.
* To equip students with the research skills required for postgraduate study and the employability skills required for work in the mechanical and related engineering industries.
* To furnish graduates with a firm grasp of sustainability and ‘Health and Safety within the context of their discipline.
* To ensure that graduates have a the ability and confidence to take on leadership in major engineering projects.
* To provide graduates who have the reflective skills to recognise the need to continually develop themselves in order to exercise their Professional judgement.

1. **Programme Learning Outcomes**

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, intellectual skills and subject practical skills as outlined in the following tables. The learning outcomes are referenced to the QAA subject benchmarks for Engineering (2010) and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008).

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| **Programme Learning Outcomes** | | | | | |
|  | **Knowledge and Understanding**  **On completion of the course, students will be able to:** |  | **Intellectual skills**  **On completion of the course, students will be able to:** |  | **Subject Practical skills**  **On completion of the course, students will be able to:** |
| A1 | Demonstrate knowledge and understanding of the core mechanical engineering subjects of statics, dynamics, materials, thermodynamics, fluid mechanics and design | B1 | Apply fundamental theoretical principles that underpin engineering and specifically mechanical engineering, to existing, new and emerging technologies | C1 | Use engineering workshop and laboratory equipment safely for manufacture and for experimental investigation |
| A2 | Demonstrate knowledge of electrical and electronic systems, mathematical and computer models, control systems and basic manufacturing processes. | B2 | Use mathematics as a tool for solving complex problems from first principles, communicate the results, concepts and ideas | C2 | Undertake practical work and analyse the data obtained for use in planning and design |
| A3 | Show a knowledge of broader technical and non-technical engineering subjects | B3 | Think creatively and imaginatively to solve design problems | C3 | Use a range of technical equipment and instruments, gaining an understanding of their underlying technology |
| A4 | Relate management and business applications to mechanical engineering | B4 | Manage projects, people, resources and time, taking account of legal and statutory requirements, risk, safety, quality and reliability. | C4 | Use computer technology to assist with information retrieval, management and problem solving |
| A5 | Demonstrate their understanding of the importance of Health and Safety in the engineering industry | B5 | Demonstrate a positive attitude to learning that encourages continuing professional development throughout their careers | C5 | Comply with Health and Safety regulations within the work place and as they apply to mechanical design |
| A6 | Relate all their studies to a knowledge and understanding and promotion of sustainability and have an awareness of the environmental impact of their industry | B6 | Recognise the importance of professional bodies and the professional conduct expected of Chartered Engineers |  |  |

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| **Key Skills** | | | | | |
|  | **Self-Awareness Skills** |  | **Communication Skills** |  | **Interpersonal Skills** |
| AK1 | Take responsibility for own learning and plan for and record own personal development | BK1 | Express ideas clearly and unambiguously orally and in writing | CK1 | Work effectively with others in a group |
| AK2 | Recognise own academic strengths and weaknesses, reflect on performance and respond to feedback | BK2 | Present, challenge and defend ideas and results effectively orally and in writing | CK2 | Work flexibly and respond to change |
| AK3 | Organise effectively, agreeing and setting realistic targets, accessing support and managing time to achieve targets | BK3 | Listen actively and respond appropriately to ideas of others | CK3 | Discuss and debate with others and make concessions to reach agreement |
| AK4 | Work effectively with limited supervision | BK4 | Prepare reports in prescribed and recommended forms | CK4 | Give, accept and respond to constructive feedback |
|  | **Research and information Literacy Skills** |  | **Numeracy Skills** |  | **Management & Leadership Skills** |
| DK1 | Search for and select relevant sources of information | EK1 | Collect data from primary and secondary sources and use appropriate methods to manipulate and analyse these data | FK1 | Determine the scope of a task or project |
| DK2 | Critically evaluate information and use it appropriately | EK2 | Present and record data in appropriate formats | FK2 | Identify resources needed to undertake the task or project and schedule and manage the resources |
| DK3 | Apply the ethical and legal requirements in the access and use of information | EK3 | Interpret and evaluate data to inform and justify arguments | FK3 | Show the ability to successfully complete and evaluate a task or project, revising the plan where necessary |
| DK4 | Accurately cite and reference information sources using the recommended standard method | EK4 | Be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data | FK4 | Motivate and direct others to enable an effective contribution from all participants |
| DK5 | Use software and ICT as appropriate |  |  |  |  |
|  | **Creativity and Problem Solving Skills** |  |  |  |  |
| GK1 | Apply scientific and other knowledge to analyse and evaluate information and data and to find solutions to problems |  |  |  |  |
| GK2 | Work with complex ideas and justify judgements made through effective use of evidence |  |  |  |  |

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| **Teaching / Learning Methods and Strategies** | |
| The range of learning and teaching methods and strategies include staff-student contact along with a strong encouragement to develop and use appropriate Technology Enhanced Learning techniques and methods: | |
| * Lectures * Computer workshops/laboratories (staff or student (e.g. PAL) led) * Group tutorials * One-to-one tutorials * Seminars | * Problem solving classes * Directed reading (texts and work books: hard or e-copy) * Directed research projects * Visits to / by outside organizations |
| **Assessment Strategies** | |
| The assessment strategies employed are designed to include formative and summative assessments which test the learning outcomes of the course using the following mechanisms: | |
| * Written examinations/tests * Multiple choice tests * Short answer tests * Practical laboratory sessions * Data interpretation exercises * Design exercises * Group presentations * Individual presentations * Group Seminars | * Dissertation * Individual reports * Group reports * Researched literature surveys * Simulation exercises * Case studies * Research * Computer-aided assessment |
| **Teaching/Learning Methods and Strategies and Curriculum** | |
| * Knowledge and understanding of the discipline of Mechanical Engineering will be developed progressively from level to level. In Level 4 students will be equipped with the knowledge and skills to study more advanced topics later in the course. * Students make progressive use of more primary, research based sources of information, and by the end of their course will have developed the skills to analyse and appraise original sources, assemble data from various sources, solve problems and carry out an individual piece of work from planning, through analysis and the design, to a solution. This proof of concept will be documented and presented in an individual capstone project at level 6 and within a major group project at level 7. * Throughout the degree emphasis is placed on developing team work skills, written and oral communication and presentation skills, data handling and analysis skills, a range of ICT skills and independent learning skills, which are supported by the SEC Study Skills drop-in sessions. | |

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| **Assessment** |
| Assessment is regarded as an integral part of the learning and teaching strategy, with ample opportunities given to students for formative assessment with rapid feedback, particularly pronounced in the laboratory based activities and problem solving tutorial sessions, many of which feed forward into the summative assessments.   * Key skills developed during study of the course will be assessed within the various types of assessment employed (for example, the use of ICT is a normal expectation in the preparation of written work, reports etc; data handling and analysis is inherent in many of the activities as well).   The summative assessments are a mixture of coursework, consisting of a range of workshop/laboratory based assignments and in class tests, and end of module written assessments, usually in the form of unseen examinations. Each module carries a final grade, which is made up of the marks for course work and end of module assessments. The contribution of the individual assessments to the module total and the requirements to pass each module are detailed in the module descriptors. |

**D. Entry Requirements**

The minimum entry qualifications for the programme are:

From A levels: 320 points to include A2 mathematics at grade C plus two suitable science subjects.

BTEC: Distinction, Distinction, Merit (DDM) from an engineering-related BTEC Extended Diploma including Merit for Mathematics and Further Mathematics.

Plus: GCSE (A\*-C) minimum of 5 subjects including English Language and Mathematics.

A minimum International English Language Testing System (IELTS) score of 6.0 (min 5.5 in Speaking, Writing, Listening and Reading) or equivalent is required for those for whom English is not their first language.

1. **Programme Structure**

This Programme is offered in full-time and sandwich modes, this leads to the award of MEng Mechanical Engineering. Intake to both modes of study is normally in September.

Entry to the full-time and sandwich programme is normally at level 4 with A-level or equivalent qualifications (See section C). Transfer from a similar programme is possible at advanced entry levels with passes in comparable MEng preceding level modules; this is at the discretion of the Course Team and subject to the limitations and guidance of the accrediting professional body.

**i. Professional and Statutory Regulatory Bodies**

The Institution of Mechanical Engineers (IMechE).

**ii. Work-based learning, including sandwich programmes**

Work placements are actively encouraged. Students registered on the sandwich route must complete at least levels 4 and 5 before undertaking at least 36 weeks of suitable supervised work experience with an approved employer. It is the responsibility of individual students to source and secure such placements, but the Faculty and School offers considerable assistance in finding placement through the Faculty placements administrator and the School’s placement tutors. During their placement students will be visited at least once by a member of the School of Mechanical and Automotive Engineering. The placement is assessed and successful completion is required for the degree to be awarded. The credits are not graded and do not contribute to the final classification. If a student is unable to find a suitable placement, they will have to transfer to the non-sandwich route.

Industrial placements allow students to reflect upon their own personal experience of working in an applied setting. This opportunity enables students to focus on aspects that can clearly relate theoretical concepts to practice. Historically many sandwich placements have been reasonably well remunerated and students can often acquire industry relevant individual project proposals which directly relates their study to their industrial experience.

**iii. Outline Programme Structure**

Each level comprises four modules worth 30 credits. A student must complete 120 credits at each level. All students will be provided with the University Regulations and specific additions that are sometimes required for accreditation by outside bodies (e.g. professional or statutory bodies that confer professional accreditation). Full details of each module will be provided in module descriptors and student module guides.

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| **Level 4** (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** | |
| Engineering Applications and Practice | ME4010 | 30 | 4 | 1&2 | |
| Thermofluid & Mechanical Systems 1 | ME4011 | 30 | 4 | 1&2 | |
| Analytical Methods, Computing & Electronic Systems | ME4012 | 30 | 4 | 1&2 | |
| Engineering Design, Materials & Manufacture 1 | ME4013 | 30 | 4 | 1&2 | |
| Progression to level 5 requires passes in all four modules to give 120 credits at level 4  Students exiting the programme at this point, who have successfully completed 120 credits, are eligible for the award of Certificate of Higher Education. | | | | |

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| **Level 5** (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** | |
| Thermofluid & Mechanical Systems 2 | ME5011 | 30 | 5 | 1&2 | |
| Electronic Systems, Control & Computing | ME5012 | 30 | 5 | 1&2 | |
| Engineering Design, Materials & Manufacture 2 | ME5013 | 30 | 5 | 1&2 | |
| Project Engineering and Management | ME5014 | 30 | 5 | 1&2 | |
| Progression to level 6 requires passes in all four modules to give 120 credits at level 5.  Students exiting the programme at this point, who have successfully completed 120 credits, are eligible for the award of Diploma of Higher Education. | | | | |

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| **Level 6** (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** | |
| Thermofluid & Mechanical Systems 3 | ME6011 | 30 | 6 | 1&2 | |
| Mechatronics, Dynamics & Control | ME6012 | 30 | 6 | 1&2 | |
| CAE with CFD & Mathematical Modelling | ME6013 | 30 | 6 | 1&2 | |
| Individual Project (BEng/MEng) | ME6014 | 30 | 6 | 1&2 | |
| Completion of Level 6 requires passes in all four modules to give 120 credits and qualify for Beng (Hons) | | | | |

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| **Level 7** (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** | |
| Mechanical Group Project (Meng) | ME7015 | 30 | 7 | 1&2 | |
| Engineering Research Techniques, Entrepreneurship and Quality Management | ME7711 | 30 | 7 | 1&2 | |
| Advanced Stress Analysis & Materials | ME7723 | 30 | 7 | 1&2 | |
| Computational Fluid Dynamics for Engineering Applications | ME7724 | 30 | 7 | 1&2 | |
| Completion of Level 7 requires passes in all four modules to give 120 credits and qualify for Meng | | | | |

1. **Principles of Teaching Learning and Assessment**

This programme has been designed taking into account the Kingston University Curriculum Design Principles to help develop student learning from dependent to independent learning and encourage lifelong learners. A wide range of teaching and learning methods is utilised, allowing students to be fully engaged throughout the course.

Traditionally the programme has attracted a diverse cohort, with students coming from a wide range of backgrounds in terms of their education, age, gender, race, religion, sexual orientation and disability, this is seen as strong feature of the programme and results in the curriculum being designed to be as inclusive as possible. In particular the first year (level 4) is very general and allows everyone to develop their weaknesses and use their strengths to help their colleagues. Teaching, learning and assessment methods are constructed to align with the learning outcomes and syllabus content of the modules. The assessment regime of a module is designed to provide formative opportunities that allow students to improve their performance following feedback in preparation for later summative assessment. Key skills are developed throughout the programme, which are assessed both formatively and summatively. Students also have access to S3 (SEC Academic Skills Centre) for additional support on a drop-in basis giving students the opportunity to take responsibility for their own achievements and consequent learning. Generally the course will be delivered by instructional lectures whilst associated problem solving tutorials, laboratory practicals, ,industrial visits and design classes are used to enhance the lecture material. The course is devised to encourage and develop students making them confident in their interpersonal and communication skills, as well as emphasising group work, data analysis and ICT skills. The contact hours associated with a module very much depends on the module type, but typically a module would comprise five hours per week of contact, which would include lecture, seminar/tutorial and design/practical sessions in various combinations.

A range of assessment methods are used enabling students to, in the initial stages of the programme, demonstrate their acquisition of the relevant knowledge, whilst in the later stages of the course the higher skills needed in industry, such as problem solving, synthesis and critical analysis are brought to the fore. Methods such as oral presentations, multiple choice questions, online assessment, written examinations, group and individual project reports, laboratory reports, peer making and informal question and answer sessions are all likely to be used depending on the learning setting. The use of a range of assessment methods is intended to ensure that no student is disadvantaged despite their educational background or disability and care is taken to avoid as far a possible bunching of assessment deadlines.

Whilst the work at level 4 concentrates on recall of fundamental concepts, the work at the higher levels applies this knowledge and understanding to engineering problem solving, often with significant levels of unfamiliarity and complexity. During their final years, level 6 and 7, students are expected to be able to synthesise and critically evaluate knowledge from various diverse sources. The level 6 individual project module is likely to involve the development of new information generated by the students themselves.

At level 7 students will be involved in a final “capstone” group design project. This will be industry relevant and will allow students to apply their advanced knowledge and abilities to deal with complex often open ended engineering problems where there is a strong likelihood that the students themselves will generate new information.

The teaching and learning strategies utilised in this course are formulated to cultivate key transferable skills considered central to academic, vocational and personal development. These skills underpin how students learn, their ability to recognise their own achievement and ability, to review and evaluate that achievement and identify future learning requirements.

***Research Informed Teaching***

The majority of the course team are either engineering research active or are involved in industry related professional activities, through KTPs or other direct involvement with industry. These activities played a major part in informing the course design and content, as did the direct input from industry through the activities of the Industrial Advisory Board.

Most of the teaching staff are also actively involved in the various Research Centres and/or Research Groups of the Faculty, or may be following interest areas of their own. Their actives take them into, amongst other areas, materials research both coatings and compound, into fire and explosion research both cause and prevention, into active control research and on through sustainable power generation to electric vehicle technology with particular success of the zero emissions electric motorbike. Many modules, such as Mechatronics, Dynamics and Control, extensively use case studies from the teaching teams own research to illustrate current issues and thinking within their area of interest.

Students are also able to and are encouraged to develop their own research skills which are a fundamental part of the curriculum throughout all levels of the programme. They are often encouraged, through project work, to work with research active staff on elements of live projects, and these research skills enable students to determine, distinguish and present appropriate evidentiary information in an argument, which are of great value to employers.

Staff also engage widely with the research and development of ideas in teaching and learning in Higher Education and into wider pedagogic issues which will then feed through to support learning in lectures and other forms of student engagement the programme, both formal and extra-curricular.

***Technology Enhanced Learning***

The use of appropriate technologies to enhance and develop learning is strongly encouraged. All modules will make use of the university’s virtual learning environment StudySpace (Blackboard), not just as a repository but as an active learning tool, for example the use of video and audio recordings of lectures to additionally explain complex concepts and techniques is encouraged. Additional links to appropriate online information sources should be provided along with sign posts to appropriate resources, including MOOCs and OERs. However, the use of technology should not be restricted to the VLE, but should also embrace mobile technology and encourage students to use their mobile devices to enhance their own learning experience, this may well involve the use of social media or other application as additional aids to learning, again where appropriate given the nature of the particular module.

***Types of contact***

Contact with students and engagement with the programme takes many forms, some of the more widely encountered on the Meng course are:

*Lectures*

Lectures are formal staff-led sessions designed to introduce new topics and material or provide an overview of a topic for further student study. Lectures make use of various media, supplemented by material uploaded to StudySpace. The School’s academic staff is convinced that students learn better through active participation and hence lectures would generally overlap with tutorials in expecting students to be actively involved in sketching, designing and calculating.

*Tutorials*

Academic tutorials are provided where lecturers assist students in solving typical engineering problems and in discussing lecture material. In many modules the tutorials and lectures will be integrated as described above.

*Design workshops*

Workshops may be staff-led or student-led where students participate in group design work emphasising the need for effective oral communication. Design classes, case studies and workshops often integrate material from different academic areas and would include a practical real-world emphasis.

*Practical sessions*

Practical sessions are designed to enable students to acquire practical and analytical skills through the application of theory. The sessions will include data collection, analysis, presentation and reporting. Practical work will generally be carried out in small groups, requiring the production of individual or group reports depending on the nature of the activity.

*Engineering workshop sessions*

Throughout the first year of the course the students are given a basic introduction to common hand and machine tools, this helps reinforce design and manufacturing topics. In the following years of the programme students will have access to the engineering workshops in support of their project and design work.

*Group work*

Good team-working skills are an essential skill for graduates aspiring to work in any engineering industry; hence, teamwork plays an important role in the academic development of a Mechanical Engineering undergraduate. Group work projects throughout all three levels illustrate the value of team work, developing interpersonal skills and fostering cooperation and supportive peer relationships.

*Individual project*

A fundamental element of level 6 is the individual capstone project allowing students to integrate material from their programme in an independent study of a research topic. A student’s research skills will be developed with the assistance of targeted lectures, as well as an assigned supervisor, encouraging students to work effectively independently, communicating their findings clearly and succinctly through graphical, oral and written presentation.

***Assessment methods***

Various assessment methods are adopted appropriate to each module to enable students to demonstrate their acquisition of knowledge and skills along with the development of their learning, as outlined in the module learning outcomes. The assessment regime for each module has been designed to provide formative opportunities that allow students to improve their performance, following feedback, in preparation for summative assessment. These formative opportunities will include, but not be restricted to, online assessment with immediate feedback, use of voting system in class, feedback on presentations (where appropriate involving industrial partners), peer and self-assessment with tutorial support and discussion etc.. The development of skills is threaded throughout the programme and assessed both formatively and summatively. Some of the methods of assessment used in the course are:

* Report writing
* Individual and group project reports
* Individual and group designs
* Investigation of case studies
* Model building
* Short in-class tests
* Unseen and seen formal written examinations
* Individual and group practical laboratory reports
* Computer software and output analysis
* Individual and group oral presentations
* Posters

1. **Support for Students and their Learning**

Students are supported by:

* A Module Leader for each module
* A Course Director to help students understand their programme structure and provide academic support
* A Personal Tutor (PT) to provide academic and personal support
* A Student Support Officer (SSO) who provides additional pastoral and practical advice and support, especially to students encountering difficulties
* A dedicated Undergraduate Course Administrator
* An induction programme and study skills sessions at the start of each academic year
* An Academic Study Centre to provide support and advice to students on a daily ‘drop-in’ basis
* StudySpace – a versatile on-line interactive intranet and learning environment accessible both on-site and remotely
* A Staff Student Consultative Committee with student Course Representatives for each level
* A University Careers and Employability Service
* Comprehensive University support systems including the provision of advice on finance, regulations, legal matters, accommodation, international student support, disability and equality support.
* The Students’ Union
* An Academic Team that seeks to maintain an open door policy in the spirit of supporting students.

**Personal Tutor Scheme (PTS) in the School of Mechanical and Automotive Engineering**

The following provides the aims and structure of the Personal Tutor Scheme (PTS) for the School of Mechanical and Automotive Engineering. It is intended that the PTS be embedded within the provision of the Meng programme.

**Overall Aims**

* To build a rapport between staff and students and contribute to personalising students’ experience within the School of Mechanical and Automotive Engineering
* To support students in the development of their academic skills providing appropriate advice and guidance to students throughout their time at Kingston, while monitoring their progress, helping to identify individual needs and referring students to other University services as appropriate
* To help students to develop the ability to be self-reliant and confident self-reflective learners who use feedback to their best advantage
* To encourage students to reflect on how their learning relates to a wider context and their personal career progression

**Allocation of Personal Tutors**

* Personal tutors will be allocated during induction week
* Tutors will be allocated on a course basis where appropriate with student numbers being equally divided amongst the staff within the school
* Students will keep the same tutor throughout their course of study

There are specific aims and outcomes for each level, as the PTS is progressive and cumulative students will find that they are building on the skills developed in previous levels. Formative assessment will be provided in the form of regular feedback during meetings.

**Level 4: Settling in and building confidence**

**Aims and Outcomes**

* To assist students in making the transition to Higher Education and to generate a sense of belonging to the School of Mechanical and Automotive Engineering with an emphasis on widening participation issues
* To help students to develop good academic habits and to gain the confidence to operate successfully in a university context
* To prepare students to make the most of feedback throughout their course

**Contact:**

* Teaching block 1: three one-to-one meetings during induction week, weeks 2 and 6-7
* Teaching block 2: two one-to-one meetings during week 1 and week 6-7
* End of academic year individual ‘wrap up’ email

**Embedded Module: ME4010 Engineering Applications and Practice**

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| **Outcome:** | **Assessment** |
| To assist students in making the transition to Higher Education and to generate a sense of belonging to the School of Mechanical and Automotive Engineering | Formative (one to one meetings) |
| To help students’ to develop good academic habits and to gain the confidence to operate successfully in a university context | Formative (one-to-one meetings, plus discussion and if necessary short exercises exploring such issues as email etiquette, report writing and general study skills) |
| To prepare students to make the most of feedback throughout their course | Formative (one-to-one meetings) |

**Level 5: Stepping it up and broadening horizons**

**Aims and Outcomes**

* To help students comprehend and plan for the academic demands of level 5 and to support increasing independence
* To encourage students to look forward, to take up opportunities to develop wider skills and to take responsibility for their personal development
* To foster students’ ability to build on and respond proactively to the feedback they have received
* To assist students in reflecting on the skills that they are developing and consider how they relate to employability

**Contact:**

* One-to-one meeting in week 1
* Email contact at the end of teaching block 1
* Individual ‘wrap up’ email at end of academic year

**Embedded Module: ME5014 Project Engineering and Management**

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| **Outcome:** | **Assessment** |
| To help students comprehend and plan for the academic demands of level 5 and to support increasing independence | Formative (one-to-one meetings, an explanation of how Level 5 modules contribute to degree classification, and any other differences in course structure and assessment procedures between Level 4 and Level 5) |
| To encourage students to look forward, to take up opportunities to develop wider skills and to take responsibility for their personal development | Formative (one-to-one meetings and preparation of a dissertation proposal or choice for level 6, plus discussions around planning for relevant placement activity) |
| To foster students’ ability to build on, and respond proactively to the feedback they have received | Formative (one-to-one meetings and discussions within module tutorial/seminar sessions) |
| To assist students in reflecting on the skills that they are developing and consider how they relate to employability | Formative (one-to-one meetings and preparation of a Curriculum Vitae) |

**Level 6: Maximising success and moving on**

**Aims and Outcomes**

* To support students with the planning necessary to maximise success in their penultimate undergraduate year
* To encourage students to reflect on the employability skills they have developed and be proactive in moving towards a professional life and/or further study
* To help students to make best use of the feedback they have received so that they can build on their strengths and take steps to address any weaknesses

**Contact:**

* One-to-one meeting in week 1
* Email contact at the end of teaching block 1
* Individual ‘wrap up’ email at end of academic year

**Embedded Module: ME6014 Individual Project (BEng/MEng)**

|  |  |
| --- | --- |
| **Outcome:** | **Assessment** |
| To support students with the planning necessary to maximise success in their final undergraduate year | Formative (one to one meetings) |
| To encourage students to reflect on the employability skills they have developed and be proactive in moving towards a professional life and/or further study | Formative (one to one meetings, along with the preparation and oral presentation of their Individual Project, the university Employability and Careers Service also provides activities which need to be signposted to students) |
| To help students to make best use of the feedback they have received so that they can build on their strengths and take steps to address any weaknesses | Formative (one to one meetings) |

**Level 7: Getting the most out of the Masters**

**Aims and Outcomes**

* To help students to make the transition to Masters level study and understand how to use feedback on the level 7 course.
* To encourage students to be proactive in making links between their course and their professional and/or academic aspirations
* To explore students’ research aspirations
* To help students gain confidence in contributing to, and learning from, constructive peer review
* To encourage students to become part of a wider disciplinary and/or professional community
* To prepare students for the dynamic of supervision.

**Contact:**

* One-to-one meeting in week 1
* Email contact at the end of teaching block 1
* Individual ‘wrap up’ email at end of academic year

**Embedded Module: ME7015 Mechanical Group Project (MEng)**

|  |  |
| --- | --- |
| **Outcome:** | **Assessment** |
| To help students to make the transition to Masters level study and understand how to use feedback on the level 7 course. | Formative (one to one planning meeting) |
| To encourage students to be proactive in making links between their course and their professional and/or academic aspirations | Formative (one to one meetings, along with the preparation and oral presentation of their Group Project, the university Employability and Careers Service also provides activities which need to be signposted to students) |
| To explore students’ research aspirations | Formative (one to one meetings) |
| To help students gain confidence in contributing to, and learning from, constructive peer review | Formative (Group project meetings) |
| To encourage students to become part of a wider disciplinary and/or professional community | Formative (Group project meetings, one-to-one meetings to discuss employability and future development) |
| To prepare students for the dynamic of supervision | Formative (Group project meetings and on-to-one meeting) |

1. **Ensuring and Enhancing the Quality of the Course**

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

* External Examiners
* Boards of Study with student representation
* Annual review and development
* Periodic review undertaken at the subject level
* Student evaluation
* Moderation policies

Quality is also assured by the requirement for professional body (ImechE) reaccreditation, generally at a five year interval.

1. **Employability Statement**

The Mechanical Engineering course is designed equip students with the skills to work in many Engineering and related industries. Mechanical Engineers are found in a great many disciplines that require professional, intelligent and numerate individuals. This curriculum embeds the development of employability skills throughout the Course and is designed to equip students with the ability to relate the knowledge and skills that they have learnt to the real world contexts in which they may work in the future. Students are required to produce a CV early at level 5 and to improve this following feedback from Personal Tutors, placement advisors and Careers and Employability Service staff, ensuring that students have a good, high quality CV ready for sending out to potential employers. Employability is greatly enhanced by many of the extracurricular activities that students become involved in and students are encouraged to reflect upon these activities and include them in their CV as appropriate. Students are actively encouraged to take part in the activities hosted by the School, such as Formula Student, Robotics Club, Design Challenge and the Engineering Society amongst others.

The school is helped by its strong links with industry, local, national and international and these links influence the development of our programmes, working with our Industrial Advisory Board gives a forum where industry can inform us of the views of employers regarding the essential employability skills that they would want to see developed in a Kingston University undergraduate. To that end the school strongly encourages and supports all students in applying for positions in industry for an Industrial Placement year. This would normally take place between levels 5 and 6 or between levels 6 and 7, the school emphasises the benefits to be obtained from an approved placement in industry in terms of future employability. An Industrial Placement comprises a period of at least 36 weeks with an approved employer. Students are required to maintain a log book of their activities and involvement and produce a final report on their placement, they are supported throughout the period by their personal tutor, who will visit them at their place of work on at least one occasion. The tutor will discuss progress with the student and employer and will recommend any improvements to the learning opportunities. Students fulfilling the requirements for an Industrial Placement will be awarded a Sandwich Degree on the completion of level 7.

As well as discipline specific employability skills, the more generic employability skills are also embedded within the programme. During the first year in modules such as Engineering Application and Practice, students are encouraged to consider their chosen discipline in the light of the activities of the Professional Bodies. Again in the level 5 Project Engineering and Management modules the various careers within engineering are considered and students are encouraged to reflect on the paths open to them and to develop the skills and attributes employers are looking for in graduates. These include independent learning, the ability to work in teams, time management skills, verbal and written communication skills. Part of the role of the Personal Tutor is to encourage students to develop this skills outside of the curriculum as well as within it through extracurricular activities such as volunteering, positions of responsibility within clubs and societies, student ambassadorship and sports activities.

This programme has been designed to fully meet the exemplifying academic benchmark requirements, for registration as a Chartered Engineer (Ceng).. Most graduates will aspire to careers in mechanically related industries and to becoming Chartered Engineers. Graduates develop careers in all branches of mechanical and related engineering industries both here in the UK and throughout the world; as contract and consulting engineers, within local authorities, utility, manufacturing and transport companies, government organisations and the defence industry. In many cases, students taking an industrial placement are able to secure employment with the placement organisation following graduation. The academic and key skills developed throughout an engineering course also allow graduates to follow careers in other professions such as ICT, finance, accountancy and teaching.

1. **Approved Variants from the Undergraduate Regulations**

**Compensation**

Compensation is not permitted for the following modules:

ME6014 Individual Project (BEng/MEng)

ME7015 Mechanical Group Project (MEng)

**Reassessment of Level 6 and Level 7 modules**

Reassessment of ME6014 or ME7015, will normally be by repeat only with a new project brief.

1. **Other sources of information that you may wish to consult**

Engineering subject benchmark:

[www.qaa](http://www.qaa).ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Engineering-.aspx

Professional bodies:

[www.imeche.org/](http://www.imeche.org/)

Professional accreditation:

[www.engc.org.uk/](http://www.engc.org.uk/)

[www.imeche.org/](http://www.imeche.org/)

School Website:

<http://sec.kingston.ac.uk/about-SEC/schools/mechanical-and-automotive-engineering/>

**Development of Programme Learning Outcomes in Modules**

This table maps where the programme learning outcomes are assessed across the twelve Meng modules. It provides an aid to academic staff in understanding how individual modules contribute to the programme aims, a means to help students monitor their own learning and personal and professional development as the programme progresses, as well as a checklist for quality assurance purposes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Level 4** | | | | **Level 5** | | | | **Level 6** | | | | **Level 7** | | | |
|  | **Module Code** |  | ME4010 | ME4011 | ME4012 | ME4013 | ME5011 | ME5012 | ME5013 | ME5014 | ME6011 | ME6012 | ME6013 | ME6014 | ME7015 | ME7711 | ME7723 | ME7724 |
| **Programme Learning Outcomes** | **Knowledge & Understanding** | A1 | F | SF |  | SF | SF |  | SF |  | SF |  | F | SF | S |  | S | F |
| A2 |  |  | SF | SF |  | SF | SF |  |  | SF | S | SF | S |  | S | SF |
| A3 | F |  | F | SF | F | F | SF | SF | F | F | F | SF | SF | S |  |  |
| A4 | F |  |  | F |  |  | F | SF |  |  |  | F | SF | S | SF |  |
| A5 | F |  |  | F |  |  |  | SF |  |  |  | SF | F | F |  |  |
| A6 | F | F |  | SF | F |  | F | SF | F | F |  | SF | S | F |  |  |
| **Intellectual Skills** | B1 |  | SF | SF | SF | SF | SF | SF |  | SF | SF | F | F | SF |  | S | S |
| B2 |  | SF | SF | F | SF | SF | F | F | SF | SF | SF | F | S | F | S | S |
| B3 |  |  |  | SF |  | F | SF | F |  | F | F | SF | S | F | F | F |
| B4 | SF |  |  | SF |  |  | F | SF |  |  |  | F | S | SF |  |  |
| B5 | SF |  |  | F |  |  | F | SF | F | F | F | SF | SF | F | F |  |
| B6 | SF |  |  |  |  |  |  | SF |  |  |  | F | F | F |  |  |
| **Practical Skills** | C1 | SF | F | F | SF | F | F | F |  | F | SF |  | F | F |  |  |  |
| C2 | SF | SF | SF | SF | F |  | SF |  | SF | SF | S | F | SF |  | S |  |
| C3 | SF | F | SF |  | F |  | F |  | F | F | F | F | F |  | F |  |
| C4 |  | F | SF | SF | F | SF | SF | SF | SF | SF | S | F | S |  | S | S |
| C5 | SF | SF | F | SF | F |  | F | SF | F | F |  | F | F |  |  |  |

**S**  indicates where a summative assessment occurs.

**F** where formative assessment/feedback occurs.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Level 4** | | | | **Level 5** | | | | **Level 6** | | | | **Level 7** | | | |
|  | **Module Code** |  | ME4010 | ME4011 | ME4012 | ME4013 | ME5011 | ME5012 | ME5013 | ME5014 | ME6010 | ME6011 | ME6013 | ME6014 | ME7015 | ME7711 | ME7723 | ME7724 |
| **Programme Learning Outcomes (Key Skills)** | **Self-Awareness** | AK1 | F |  |  | F | F | F | F | SF | F | F | F | S | S | SF |  |  |
| AK2 | SF | F | F | F | F | F | SF | SF | SF | F | F | S | S | F | F |  |
| AK3 | F |  |  | SF |  |  | F | F | F |  |  | SF | S | F | F |  |
| AK4 |  |  |  | F | F | F | F |  | F | F | F | S | S | SF | S | S |
| **Communication** | BK1 | F | F |  | SF | SF | F | SF | F | S | S | S | SF | SF | S | F | SF |
| BK2 | SF |  | F |  | F |  | SF | F | SF | S | S | SF | S | S |  |  |
| BK3 | F |  |  | SF |  |  | F | F | F | F | F | S | S |  |  |  |
| BK4 | SF | SF | F | SF | SF | F | SF | SF | S | S | S | SF | S | S | F | F |
| **Interpersonal** | CK1 | SF | F | F | SF | SF | SF | SF | SF |  | F | SF |  | S |  |  |  |
| CK2 |  |  |  | F | F | F |  | F | F |  | F | S | S | F | F | F |
| CK3 | F |  | F | F | F | F |  | F |  | F | F |  | S | F | F | F |
| CK4 | SF | F | F | F | F | F | F | SF | S | SF | SF | S | S |  |  |  |
| **Research and Information Literacy** | DK1 | SF |  |  | SF | F |  | SF | SF | SF | F | SF | SF | SF | F | F | F |
| DK2 | SF | F | F | F | F | F | SF | F | F | S | S | SF | SF | SF | S | S |
| DK3 | F |  |  | F | F | F |  | F | F | F | F | SF | S | F |  |  |
| DK4 | SF | F | F | SF | F | F | SF | F | S | S | S | SF | S | F |  |  |
| DK5 | SF | F | SF | SF | F | SF | SF | F |  | S | S | S | F | F | S | S |
| **Numeracy** | EK1 | F | SF | SF | F | SF | SF | F | F |  | SF | SF | SF | S | F | S | S |
| EK2 | F | SF | SF |  | SF | SF | SF | F | F | S | S | SF | S | S | S | S |
| EK3 | F | F | F | F | SF | SF | F | F | F | S | S | SF | S | S | S | S |
| EK4 | SF | SF | SF | F | SF | SF | SF |  |  | S | S | SF | F |  | S | S |
| **Management and Leadership** | FK1 | F |  | F | SF |  | F | F | F | F |  | F | S | S | F |  |  |
| FK2 | F |  |  | SF |  | SF | F | F |  |  |  | SF | S | S |  |  |
| FK3 | F |  |  | SF | F | F | F | F |  |  |  | S | S | F |  |  |
| FK4 | SF | F |  | SF | F | F |  | F |  |  | SF |  | S |  |  |  |
| **Creativity and Problem Solving** | GK1 | F | SF | SF | SF | SF | SF | SF | F | SF | S | SF | S | S |  | S | S |
| GK2 |  | F |  |  | F | F | SF |  | SF | S | S | S | S | S | S | S |

**Mapping of Learning Outcomes for Professional Body Accreditation:**

EC UK-SPEC

Summary of Specific Learning Outcomes for an Integrated Meng degree.

**Specific Learning Outcomes in Engineering**

Graduates from accredited programmes must achieve the following five learning outcomes, defined by broad areas of learning. As set out here, the outcomes apply to accredited programmes at Integrated Meng degree level leading to Ceng registration.

The weighting given to these different broad areas of learning will vary according to the nature and aims of each programme.

**Underpinning science and mathematics, and associated engineering disciplines, as defined by the relevant engineering institution**

* A comprehensive understanding of the scientific principles of mechanical and related engineering disciplines.
* A comprehensive knowledge and understanding of mathematical and computer models relevant to the mechanical and related engineering disciplines, and an appreciation of their limitations.
* An understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects.
* An awareness of developing technologies related to mechanical engineering.

**Engineering Analysis**

* Ability to use fundamental knowledge to investigate new and emerging technologies.
* Ability to extract data pertinent to an unfamiliar problem, and apply its solution using computer based engineering tools when appropriate
* Ability to apply mathematical and computer-based models for solving problems in engineering, and the ability to assess the limitations of particular cases
* Understanding of and ability to apply a systems approach to engineering problems.

**Design**

Design is the creation and development of an economically viable product, process or system to meet a defined need. It involves significant technical and intellectual challenges and can be used to integrate all engineering understanding, knowledge and skills to the solution of real problems. Graduates will therefore need the knowledge, understanding and skills to:

* Wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations.
* Understand customer and user needs and the importance of considerations such as aesthetics;
* Identify and manage cost drivers;
* Ability to generate an innovative design for products, systems, components or processes to fulfil new needs.
* Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal;
* Manage the design process and evaluate outcomes.

**Economic, social and environmental context**

* The ability to make general evaluations of commercial risks through some understanding of the basis of such risks.
* Extensive knowledge and understanding of management and business practices, and their limitations, and how these may be applied appropriately *to strategic and tactical issues*.
* Understanding of the requirement for engineering activities to promote sustainable development;
* Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues;
* Understanding of the need for a high level of professional and ethical conduct in engineering.

**Engineering Practice**

Practical application of engineering skills, combining theory and experience, and use of other relevant knowledge and skills. This can include:

* A thorough understanding of current practice and its limitations and some appreciation of likely new developments;
* Extensive knowledge and understanding of a wide range of engineering materials and components;
* Understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology development, etc.);
* Understanding use of technical literature and other information sources;
* Awareness of nature of intellectual property and contractual issues;
* Understanding of appropriate codes of practice and industry standards;
* Awareness of quality issues;
* Ability to apply engineering techniques taking account of a range of commercial and industrial constraints.

**Engineering Council Specific Learning Outcomes - Meng Mechanical Engineering**

Contribution of Module Learning Outcomes (numbered) to the specific Learning Outcomes listed in UK-SPEC

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Module Code** | **Module Title** | **Underpinning Science and Mathematics** | **Engineering Analysis** | **Design** | **Economic, Social and Environmental Context** | **Engineering Practice** |
| ME4010 | Engineering Applications and Practice |  | 5 | 4,5,6 | 4,6 | 1,2,3 |
| ME4011 | Thermofluid & Mechanical Systems 1 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |  | 1 | 2,4 |
| ME4012 | Analytical Methods, Computing & Electronic Systems | 1,2,3,4,5,6 | 3,4,5,6 |  |  | 2,3 |
| ME4013 | Engineering Design, Materials & Manufacture 1 | 4,5,6 | 2,4,6 | 1,2,3 | 3 | 1,2,5 |
| ME5011 | Thermofluid & Mechanical Systems 2 | 1,2,3,4,5 | 6 |  | 1,2 | 3 |
| ME5012 | Electronic Systems, Control & Computing | 1,3,4 | 2,3,4,5,6 |  |  |  |
| ME5013 | Engineering Design, Materials & Manufacture 2 | 2 | 3,4,5 | 1,4,5,6 | 1,2,6 | 3 |
| ME5014 | Project Engineering and Management |  | 2 |  | 1,2,4 | 1,2,3,4,5,6 |
| ME6011 | Thermofluid & Mechanical Systems 3 | 1,2,4,6 | 1,3,5,6 | 6 |  | 5 |
| ME6012 | Mechatronics, Dynamics & Control | 1,3 | 2,3,4,5 |  |  |  |
| ME6013 | CAE with CFD & Mathematical Modelling |  |  |  |  |  |
| ME6014 | Individual Project  (BEng/MEng) |  | 1,2,3,4,5 | 1,2,3,4,5 | 2,3,5 | 1,5 |
| ME7015 | Mechanical Group Project (Meng) | 1 | 1,4 | 1,2,3,4, | 1,2 | 1 |
| ME7711 | Engineering Research Techniques, Entrepreneurship and Quality Management | 1,2 | 3,4 |  | 3,4,5,6 | 3,4,6 |
| ME7723 | Advanced Stress Analysis & Materials | 1,2,4,5 | 1,2,3 |  |  | 5,6 |
| ME7724 | Computational Fluid Dynamics for Engineering Applications | 1,2,3 | 2,3,4 |  |  | 4 |

**Technical Annex**

|  |  |
| --- | --- |
| **Final Award(s):** | MEng Mechanical Engineering |
| **Intermediate Award(s):** | Cert HE in Mechanical Engineering  Dip HE in Mechanical Engineering  BEng (Hons) Mechanical Engineering |
| **Minimum period of registration:** | FT – 4 years |
| **Maximum period of registration:** | FT – 8 years |
| **FHEQ Level for the Final Award:** | Level 7 |
| **QAA Subject Benchmark:** | Engineering |
| **Modes of Delivery:** | Full-time, Sandwich and Part-time |
| **Language of Delivery:** | English |
| **Faculty:** | SEC |
| **School:** | Mechanical and Automotive Engineering |
| **JACS code:** | H300 |
| **UCAS Code:** | H303 (full-time, part-time) H304 (sandwich) |
| **Course Code:** | NMEKUDE4F (full-time)  NMEKUDE5S (sandwich) |
| **Route Code:** | NUMEE (full-time) NYMEE (sandwich) |
|  |  |

Key:

ica = in-course assessment

ex = examination

prac ex = practical exam

**MEng in Mechanical Engineering**

**LEVEL 4**

**LEVEL 5**

**Possible Industrial Placement**

Analytical Methods, Computing, Electrical & Electronic Systems

ME4012

100% ica

Engineering Design, Materials & Manufacture 1

ME4013

70% ica 30% ex

Thermofluid & Mechanical Systems 1

ME4011

40% ica 60% ex

Engineering Application and Practice

ME4010

100% ica

Engineering Design, Materials & Manufacture 2

ME5013

100% ica

Project Engineering & Management

ME5014

40% ica 60% ex

Electronic Systems, Control & Computing

ME5012

50% prac ex 50% ex

Thermofluid & Mechanical Systems 2

ME5011

50% ica 50% ex

**LEVEL 6**

Mechatronics, Dynamics & Control

ME6012

30% ica 70% ex

Individual Project (BEng/MEng)

ME6014

90% ica 10% prac ex

Thermofluid & Mechanical Systems 3

ME6011

50% ica 50% ex

**MEng in Mechanical Engineering**

**Alternative Industrial Placement**

**LEVEL 7**

Advanced Stress Analysis & Materials ME7723

50% ica 50% ex

Mechanical Group Project (MEng)

ME7015

80% ica 20% prac ex

Computational Fluid Dynamics for Engineering Applications

ME7724

100% ica

Engineering Research Techniques, Entrepreneurship and Quality Management

ME7711

100% ica

Key:

ica = in-course assessment

ex = examination

prac ex = practical exam

CAE with CFD and

Mathematical Modelling

ME6013

50% ica 50% ex