Template C4

Programme Specification

Title of Course: *MEng Mechanical Engineering*

Date first produced	30/06/2017
Date last revised	09/05/2025
Date of implementation of current version	01/09/2025
Version number	15
Faculty	Faculty of Engineering, Computing and the Environment
Cross-disciplinary	
School	School of Engineering
Department	Department of Mechanical Engineering
Delivery Institution	Kingston University

This Programme Specification is designed for prospective students, current students, academic staff and 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 they take full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes and content of each modules can be found in the course VLE site and in individual Module Descriptors.

SECTION 1: GENERAL INFORMATION

Award(s) and Title(s):	MEng Mechanical Engineering
Exit Award(s) and Title(s):	Cert HE Dip HE BEng (Hons) BEng
Course Code *For each pathway and mode of delivery*	UFMEE1MEE02
UCAS code *For each pathway*	H303 (full-time), H304 (sandwich)

Award(s) and Title(s):	MEng Mechanical Engineering (Automotive Engineering)
Exit Award(s) and Title(s):	Cert HE Dip HE BEng (Hons) BEng
Course Code *For each pathway and mode of delivery*	
UCAS code *For each pathway*	H323 (full-time), H324 (sandwich)

Award(s) and Title(s):	MEng Mechanical Engineering with Professional Placement
Exit Award(s) and Title(s):	Cert HE Dip HE BEng (Hons) BEng
Course Code *For each pathway and mode of delivery*	
UCAS code *For each pathway*	

Award(s) and Title(s):	MEng Mechanical Engineering (Automotive Engineering) with Professional Placement
Exit Award(s) and Title(s):	Cert HE Dip HE BEng (Hons) BEng
Course Code	

For each pathway and mode of delivery	
UCAS code *For each pathway*	

Awarding Institution:	Kingston University
Teaching Institution:	Kingston University
Location:	Roehampton Vale Campus, Kingston
Language of Delivery:	English
Delivery mode:	Primarily campus based (up to 20% of scheduled L&T hours delivered online)
Learning mode(s):	Full-time With Professional Placement
Minimum period of registration:	Full-time - 4 With Professional Placement - 5
Maximum period of registration:	Full-time - 8 With Professional Placement - 8
Entry requirements	Kingston University typically uses a range of entry requirements to assess an applicant's suitability for our courses. Most course requirements are based on UCAS Tariff points, usually stipulated as a range, and are sometimes coupled with minimum grades in specific relevant subjects. We may also use interview, portfolio and performance pieces to assess an applicant's suitability for the course. We recognise that every person's journey to Higher Education is different and unique and in some cases we may take into account work experience and other non-standard pathways onto University level study. Additionally, all non-UK applicants must meet our English language requirements. Please see our course pages on the Kingston University website for the most up to date entry requirements
Regulated by	The University and its courses are regulated by the Office for Students.
Programme Accredited by:	Institution of Mechanical Engineers (IMechE): · EngC ref 1330: MEng Mechanical Engineering · EngC ref 16901: MEng Mechanical Engineering with Professional Placement · EngC ref 16904: MEng Mechanical Engineering (Automotive Engineering) · EngC ref 16905: MEng Mechanical

	Engineering (Automotive Engineering) with Professional Placement
Approved Variants:	Where a module has more than one element of assessment, in addition to the normal requirement that a student must pass the module on aggregate, there are additional requirements for the student to pass elements of assessment in the module separately in order to achieve an overall pass for the module. Such additional module-specific requirements are outlined in the Module Descriptors. · To comply with the Engineering Council regulations, a maximum of 30 credits in the programme can be compensated.
Is this Higher or Degree Apprenticeship course?	No

SECTION 2: THE COURSE

A. Aims of the Course

The general aim of the Mechanical Engineering course, including the Automotive Engineering pathway, is to equip graduates with the engineering, design, management, business and personal skills required to become professional mechanical/automotive engineers, as well as enabling them to follow careers in related professional disciplines.

More specific aims of the course are:

· To develop students' analytical and problem-solving abilities, enabling them to evaluate evidence and assumptions critically, make informed decisions, and communicate their findings effectively.
· To equip students with the research skills required for postgraduate studies and the employability skills essential for work in mechanical engineering and related industries.
· To produce graduates with an in-depth knowledge and understanding of the key aspects of mechanical/automotive engineering.
· To prepare graduates to approach design problems creatively and to possess the technical skills necessary to realise these solutions.
· To furnish graduates with a comprehensive understanding of sustainability and health and safety principles within the context of their discipline.
· To provide graduates with reflective skills to recognise the importance of continuous self-development in applying their professional judgment.
· To ensure that graduates possess the ability and confidence to assume leadership roles in major engineering projects.
· To provide students with multidisciplinary skills and knowledge by offering common modules throughout the programme.
· To furnish students with the leadership skills and knowledge required to generate new knowledge through research and development, as required for chartered engineers.

B. Programme Learning Outcomes

The programme learning outcomes are the high-level learning outcomes that will have been achieved by all students receiving this award. They have been aligned to the levels set out in 'Sector Recognised Standards in England' (OFS 2022).

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
A7	Develop a critical awareness of new developments in the field of mechanical engineering and their potential impact on industry and society	B7	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity, and inclusion in mechanical engineering projects and activities.	C6	Communicate effectively on mechanical engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used
A6	Evaluate the environmental impact of mechanical systems and design solutions that minimise adverse impacts	B6	Use a risk management process to identify, evaluate and mitigate risks associated with mechanical engineering projects or activities	C5	Function effectively as an individual, and as a member or leader of a team, evaluating the effectiveness of own and team performance
A4	Apply knowledge of thermodynamics and fluid mechanics to analyse and design thermal and fluid systems	B5	Identify and analyse ethical concerns related to mechanical engineering projects and make reasoned ethical choices informed by professional codes of conduct	C4	Develop practical skills to prototype and test mechanical systems, ensuring their effectiveness, reliability and safety
A3	Develop an understanding of the mechanical behaviour of materials and apply this knowledge to the design of components and structures	B2	Select and apply appropriate computational and analytical techniques to model mechanical systems and processes, discussing the limitations of the techniques employed	C3	Design and conduct experiments to validate and optimise mechanical systems and components, interpreting and presenting data in a clear and concise manner

A2	Identify and apply engineering concepts in design, analysis and optimisation of mechanical systems	B3	Select and critically evaluate technical literature and other sources of information to solve mechanical engineering problems	C2	Select and apply appropriate materials, equipment, engineering technologies and processes for manufacturing and assembling mechanical components and systems, recognising their limitations
A1	Apply a comprehensive knowledge of core mechanical engineering subjects of statics, dynamics, materials, thermodynamics, fluid mechanics and design to the solution of complex problems in mechanical engineering	B1	Formulate and analyse complex mechanical engineering problems to reach substantiated conclusions	C1	Use practical laboratory and workshop skills to investigate and test mechanical systems and components
A5	Demonstrate knowledge of manufacturing processes and materials selection, recognising their limitations	B4	Design mechanical systems that meet desired specifications and constraints, while considering factors such as safety, reliability and cost	C7	Adopt a holistic and proportionate approach to the mitigation of security risks associated with mechanical engineering projects and activities

C. Future Skills Graduate Attributes

In addition to the programme learning outcomes, the programme of study defined in this programme specification will engage students in developing their Future Skills Graduate Attributes:

1. Creative Problem Solving
2. Digital Competency
3. Enterprise
4. Questioning Mindset
5. Adaptability
6. Empathy
7. Collaboration
8. Resilience
9. Self-Awareness

D. Outline Programme Structure

Full details of each module will be provided in module descriptors and in the module canvas pages.

MEng Mechanical Engineering

Level 4							
MEng Mechanical Engineering							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Engineering Design and Manufacturing	ME4016	30	4	Year Long		1	1
Engineering Mathematics	EG4017	15	4	TB1		1	1
Engineering Mechanics and Materials	ME4015	30	4	Year Long		1	1
Navigate for the Professional Engineer	ME4021	15	4	TB1		1	1
Programming for Engineers	EG4016	15	4	TB2		1	1
Thermodynamics and Fluid Mechanics	ME4014	15	4	TB2		1	1

Optional Modules							
Formula Student Fundamentals	ME4222	0	4	Year Long		1	1

Exit Awards at Level 4

Students exiting the course at this point who have successfully completed 120 credits at level 4 or above are eligible for the award of Certificate of Higher Education.

Level 5							
MEng Mechanical Engineering							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Computer-Aided Engineering	ME5018	30	5	Year Long		2	2
Electronic and Control Systems	ME5017	30	5	Year Long		2	2
Exploring Engineering Project Management	EG5016	15	5	TB1		2	2
Numerical Analysis and Computing	EG5015	15	5	TB1		2	2
Solid Mechanics and Vibration	ME5016	15	5	TB2		2	2
Thermofluids	ME5015	15	5	TB2		2	2
Optional Modules							
Industrial Placement	ME5023	120	5	Year Long		3	3

Exit Awards at Level 5

Students exiting the programme at this point who have successfully completed 120 credits at level 5 or above are eligible for the award of Diploma of Higher Education.

Level 6
MEng Mechanical Engineering

Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Applied Business Management	EG6026	15	6	TB1		3	3
Dynamics and Control	EG6027	15	6	TB2		3	3
Fluid Dynamics and Thermal Systems	ME6018	15	6	TB2		3	3
Individual Project	ME6020	30	6	Year Long		3	3
Machine Design with Finite Element Method	ME6019	30	6	Year Long		3	3
Microcontrollers	ME6017	15	6	TB1		3	3

Exit Awards at Level 6

Students exiting the programme without completing the full 120 credits but have successfully completed 60 credits at level 6 or above are eligible for the award of an Ordinary Degree.

Level 7							
MEng Mechanical Engineering							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Advanced Stress Analysis & Materials	ME7723	30	7	TB2		4	4
Computational Fluid Dynamics for Engineering Applications	ME7724	30	7	TB1		4	4
Engineering Projects & Risk Management	ME7712	15	7	Year Long		4	4
Group Design Project	EG7001	30	7	Year Long		4	4

Exit Awards at Level 7

To be awarded an MEng degree, students must pass all 480 credits.

MEng Mechanical Engineering (Automotive Engineering)

Level 4							
MEng Mechanical Engineering (Automotive Engineering)							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Engineering Design and Manufacturing	ME4016	30	4	Year Long		1	1
Engineering Mathematics	EG4017	15	4	TB1		1	1
Engineering Mechanics and Materials	ME4015	30	4	Year Long		1	1
Navigate for the Professional Engineer	ME4021	15	4	TB1		1	1
Programming for Engineers	EG4016	15	4	TB2		1	1
Thermodynamics and Fluid Mechanics	ME4014	15	4	TB2		1	1
Optional Modules							
Formula Student Fundamentals	ME4222	0	4	Year Long		1	1

Exit Awards 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 in Mechanical Engineering.

Level 5							
MEng Mechanical Engineering (Automotive Engineering)							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Automotive Design Team Project	ME5022	30	5	Year Long		2	2
Automotive Powertrain Systems	ME5020	15	5	TB2		2	2

Electronic and Control Systems	ME5017	30	5	Year Long		2	2
Exploring Engineering Project Management	EG5016	15	5	TB1		2	2
Numerical Analysis and Computing	EG5015	15	5	TB1		2	2
Vehicle Dynamics and Suspension	ME5019	15	5	TB2		2	2
Optional Modules							
Industrial Placement	ME5023	120	5	Year Long		3	3

Exit Awards at Level 5

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 in Mechanical Engineering.

Level 6							
MEng Mechanical Engineering (Automotive Engineering)							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Applied Business Management	EG6026	15	6	TB1		3	3
Automotive Design and Structural Analysi	ME6023	15	6	TB2		3	3
High Performance Vehicle Aerodynamics	ME6022	15	6	TB2		3	3
Individual Project	ME6020	30	6	Year Long		3	3
Machine Design with Finite Element Method	ME6019	30	6	Year Long		3	3

Microcontrollers	ME6017	15	6	TB1		3	3

Exit Awards at Level 6

This programme permits progression from Level 6 to Level 7 with 90 credits at Level 6 or above. The outstanding 30 credits from Level 6 can be trailed into Level 7 and must be passed before consideration for an award. Students who choose to exit the programme at this point and have completed a total of 120 credits at Level 6 will be eligible for the award of BEng (Hons) degree in either Mechanical Engineering or Mechanical Engineering (Automotive Engineering), depending on their chosen programme of study.

Level 7							
MEng Mechanical Engineering (Automotive Engineering)							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Automotive Aerodynamics and Structural Analysis	ME7733	30	7	TB2		4	4
Control Systems with Embedded Implementation	ME7731	30	7	TB1		4	4
Engineering Projects & Risk Management	ME7712	15	7	Year Long		4	4
Group Design Project	EG7001	30	7	Year Long		4	4

Exit Awards at Level 7

MEng students who have not achieved 120 credits are eligible for a BEng (Hons) degree subject to having passed EG7000

MEng Mechanical Engineering with Professional Placement

MEng Mechanical Engineering (Automotive Engineering) with Professional Placement

E. Teaching, Learning and Assessment

This course uses a range of teaching and assessment methods which have been designed to support students' learning and achievement of the learning outcomes. The course has been developed with reference to the Kingston University Academic Framework which sets-out core principles relating to Course and Credit Structure (including Module delivery Structure and Pattern, and Learning Hours and Learning Formats); Curriculum Design (inclusion Learning Design Principles and Inclusive Curriculum); and Future Skills.

Teaching and Learning on the course consist of Scheduled Learning and Teaching and Guided Independent Study (self-managed time). Scheduled Learning and Teaching includes the following, and the format for each module is set out in the module specification:

- Laboratory Sessions
- Lectures
- Seminars
- Tutorials
- Workshops
- Placements

Guidance for students on the use of independent study time is communicated through the 'Succeed in your module' section on the Canvas Virtual Learning Environment and through other communications during the course.

In addition to the core Scheduled Learning and Teaching activities for the course, the University may offer students additional optional opportunities for learning. Examples of these include Study abroad and Work-based learning.

The course will provide students with the opportunity to develop their knowledge and skills relating to at least two United Nations Sustainable Development Goals (UN SDGs). We are committed to empowering students with the knowledge, skills and opportunities to understand and address the UN SDGs: each course is thus also required to prepare students for at least two of the SDGs (not including Quality Education, which all courses must deliver).

F. Support for Students and their Learning

Students are supported through a range of services that provide academic and wider support. These include:

- A Module Leader for each module
- A Course Leader to help students understand the course structure
- Personal Tutors to provide academic and personal support
- Technical support to advise students on IT and the use of software
- Student Voice Committee – to ensure the views of students are heard
- Canvas – Kingston University's Virtual Learning Environment

- Student support facilities that can provide advice on issues such as finance, regulations, legal matters, accommodation, international student support
- Disabled student support
- The Kingston Students' Union
- Student Development and Graduate Success

G. Ensuring and Enhancing the Quality of the Course

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

- Continuous Monitoring of courses through the Kingston Course Enhancement Programme (KCEP)
- Student evaluation including Module Evaluation Questionnaires (MEQs), the National Student Survey (NSS)
- Internal and external moderation of graded assignments

H. External Reference Points

External reference points which have informed the design of the course. These could include:

- PSRB standards
- QAA Subject benchmarks
- Other subject or industry standards

I. Development of Course Learning Outcomes in Modules

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

Module Code	Level 4							Level 5									Level 6								Level 7					
	EG4016	ME4222	ME4015	ME4014	ME4016	ME4021	EG4017	EG5015	ME5020	ME5017	EG5016	ME5023	ME5019	ME5015	ME5016	ME5018	ME5022	ME6017	ME6019	EG6027	ME6018	ME6020	EG6026	ME6022	ME6023	ME7712	ME7723	ME7733	ME7731	ME7724	EG7001
Knowle A7		S							S							S	S	S			S			S						

dge & Understanding	A6					S							S			S	S					S								
	A4								S	S											S			S						
	A3														S				S					S						
	A2								S	S					S	S	S	S	S		S	S		S	S					
	A1	S					S		S	S				S	S	S	S	S	S		S	S		S	S					
	A5															S	S													
Intellectual Skills	B7												S																	
	B6															S	S													
	B5															S	S													
	B2						S		S					S		S	S		S			S		S	S					
	B3														S				S			S		S	S					
	B1															S	S		S			S								
	B4															S	S					S								
Practical Skills	C6																													
	C5												S			S	S													
	C4		S													S	S													
	C3								S	S														S	S					
	C2															S	S	S	S											
	C1		S						S	S						S	S	S						S	S					
	C7					S	S						S																	

Students will be provided with formative assessment opportunities throughout the course to practise and develop their proficiency in the range of assessment methods utilised.

Additional Information