

Template C4



Programme Specification

Title of Course: *MEng Electronic Products Engineering*

Date first produced	21/08/2024
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Version number	4
Faculty	Faculty of Engineering, Computing and the Environment
School	School of Engineering
Department	Department of Mechanical Engineering
Delivery Institution	

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): <i>Up to 10 pathways</i>	MEng Electronic Products Engineering
Intermediate Awards(s) and Title(s): <i>There are 4 Intermediate awards for each pathway</i>	BEng (Hons) DipHE CertHE
Course Code <i>For each pathway and mode of delivery</i>	UFEPE1EPE80
UCAS code <i>For each pathway</i>	H693

Award(s) and Title(s): <i>Up to 10 pathways</i>	MEng Electronic Products Engineering with Professional Placement
Intermediate Awards(s) and Title(s): <i>There are 4 Intermediate awards for each pathway</i>	BEng (Hons) DipHE CertHE
Course Code <i>For each pathway and mode of delivery</i>	N/A
UCAS code <i>For each pathway</i>	H694

RQF Level for the Final Award:	
Awarding Institution:	Kingston University
Teaching Institution:	
Location:	Roehampton Vale
Language of Delivery:	English
Modes of Delivery:	With Professional Placement Full-time
Available as:	Full field
Minimum period of registration:	With Professional Placement - 5 Full-time - 4
Maximum period of registration:	With Professional Placement - 8 Full-time - 8
Entry Requirements:	The minimum entry qualifications for the programme are:

	<p>128-144 UCAS points from three A-levels or equivalent Level 3 qualifications. A-levels to include Mathematics and two Science subjects (Physics, Further Mathematics, Chemistry, Computer Science /Computing, Design and Technology, Electronics). Alternatively, BTEC Extended Diploma in Engineering or related subject such as Aerospace/Aeronautical/Electrical/Electronic/Manufacturing and Mechanical Engineering will be considered (grades DDM).</p> <p>Candidates are normally required to hold five GCSE subjects at grade C/4 or above, including Mathematics and English Language.</p> <p>Direct entry to Level 5 of the MEng is not normally permitted. The preferred route is to admit students on to Level 5 of the BEng (Hons) and then to transfer to Level 6 of the MEng provided they meet the provisions of the previous paragraph.</p>
Programme Accredited by:	Not accredited yet
QAA Subject Benchmark Statements:	Engineering
Approved Variants:	<ul style="list-style-type: none"> • 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?	

For Higher or Degree Apprenticeship proposals only

Higher or Degree Apprenticeship standard:	n/a
Recruitment, Selection and Admission process:	n/a

**End Point
Assessment
Organisation(s):**

n/a

SECTION 2: THE COURSE

A. Aims of the Course

The general aim of the Electronic Products Engineering course is to equip students with the theoretical and practical knowledge required to design, analyse, and implement complex electronic systems throughout all phases of the electronic product development cycle, from initial technical feasibility studies to final production-ready equipment development in our increasingly interconnected and technologically advanced world.

More specific aims of the course are to:

- equip students with a multidisciplinary skill set and knowledge base by offering common engineering modules throughout the programme that span across various disciplines.
- develop students' analytical and problem-solving skills, as well as their ability to critically evaluate evidence and assumptions to reach sound judgements, and to effectively communicate their ideas.
- furnish students with the leadership skills and know-how needed to generate new knowledge through research and development, as required for chartered engineers.
- equip students with the research and employability skills required for advanced studies and work in electronic products engineering, particularly in the areas of product development and project management.
- provide graduates with a comprehensive knowledge of the electronic product development cycle, including technical feasibility studies, requirements analysis, design, prototyping, testing, validation, and production.
- foster graduates' understanding of sustainability and health and safety within their discipline, and the reflective skills to continually develop themselves professionally.
- ensure that graduates have the ability and confidence to take on leadership roles in major engineering projects.

B. Intended Learning Outcomes

The programme outcomes are referenced to the QAA subject benchmarks for Engineering (2023) and the Framework for Higher Education Qualifications of Degree-Awarding Bodies in England, Wales and Northern Ireland (2014), and relate to the typical student. The programme provides opportunities for students to develop and demonstrate knowledge and understanding specific to the subject, key skills and graduate attributes in the following areas:

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

Programme Learning Outcomes					
	Knowledge and Understanding		Intellectual Skills		Subject Practical Skills
	On completion of the course students will be able to:		On completion of the course students will be able to		On completion of the course students will be able to
A1	Apply a comprehensive knowledge of mathematics, science, and engineering to design, analyse, and optimize electronic systems throughout the product development cycle	B1	Formulate and analyse complex electronic product development problems to reach substantiated conclusions	C1	Use practical laboratory and workshop skills to investigate and test electronic systems and components throughout the product development cycle
A2	Examine the behaviour of circuits and systems, including power, control, and communication systems, in the context of product development	B2	Select and apply appropriate computational and analytical techniques to model electronic product development processes, discussing the limitations of the techniques employed	C2	Select and apply appropriate materials, equipment, engineering technologies, and processes for manufacturing and assembling electronic products, recognizing their limitations
A3	Demonstrate a comprehensive knowledge of materials, devices, and technologies used in electronic products engineering, and their limitations	B3	Select and critically evaluate technical literature and other sources of information to solve electronic product development problems	C3	Design and conduct experiments to validate and optimise electronic systems and components throughout the product development cycle, interpreting and presenting data in a clear and concise manner
A4	Apply a comprehensive knowledge of electromagnetic fields and waves to analyse and design communication systems within electronic products	B4	Design electronic products that meet desired specifications and constraints while considering factors such as safety, reliability, and cost	C4	Demonstrate practical skills necessary for prototyping and testing electrical and electronic engineering systems, ensuring their effectiveness, reliability and safety
A5	Evaluate the environmental impact of electronic systems and design solutions that minimise adverse	B5	Identify and analyse ethical concerns related to electronic product development projects and	C5	Function effectively as an individual, and as a member or leader of a team, evaluating the

	impacts throughout the product development cycle		make reasoned ethical choices informed by professional codes of conduct		effectiveness of own and team performance in electronic product development projects
A6	Develop a critical awareness of new developments in the field of electronic products engineering and their potential impact on industry and society	B6	Use a risk management process to identify, evaluate, and mitigate risks associated with electronic product development projects or activities	C6	Communicate effectively on electronic product development matters with technical and non-technical audiences, evaluating the effectiveness of the methods used
A7	Apply the principles of coding and algorithms for signal and image processing, data analysis, and control in electronic product development	B7	Adopt an inclusive approach to engineering practice and recognize the responsibilities, benefits, and importance of supporting equality, diversity, and inclusion in electronic product development projects and activities	C7	Adopt a holistic and proportionate approach to the mitigation of security risks associated with electronic product development projects and activities

In addition to the programme learning outcomes, the programme of study defined in this programme specification will allow students to develop the following range of 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

C. Outline Programme Structure

The undergraduate Electronic Products Engineering programme at Kingston University is structured around four main themes designed to provide students with a comprehensive understanding of electronic engineering principles and practices throughout the product development cycle. The first theme focuses on establishing a solid foundation in core engineering concepts such as circuit analysis, digital electronics, signals and systems, and electromagnetics, which are essential for solving complex engineering problems. The second theme broadens students' knowledge base by introducing them to advanced topics such as control systems, communication systems, and power systems, with a focus on their application in electronic product development. The third theme is dedicated to acquainting students with the professional practice of electronic products engineering, covering topics such as project management, quality assurance, and business management within the context of product development. Finally, the programme incorporates a strong design theme that is interwoven throughout all the other themes. This theme emphasises the importance of a systems approach to engineering design and the development of practical skills such as communication, teamwork, problem-solving, and design thinking, tailored to electronic product development.

Our 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 Engineering and Technology (IET) Academic Accreditation. The course accreditation by IET signifies that our programmes adhere to the highest standards of education and provide a clear pathway towards achieving Chartered Engineer status. The MEng courses fully meet the exemplifying academic benchmark requirements for registration as a Chartered Engineer (CEng). The University provides students with relevant regulations and specific requirements for accreditation by external professional or statutory bodies.

To complete their degree, students are typically required to complete 120 credits at each level. During their first year (also known as Level 4), students will take a set of six modules, consisting of four 15-credit modules and two 30-credit modules. Full details of each module will be provided in individual Module Descriptors and student Module Guides. The list of modules provided below is only indicative and may include both core and optional modules.

MEng Electronic Products Engineering

Level 4							
MEng Electronic Products Engineering							
Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Electrical Engineering Principles	ER4002	15	4	TB2	None	2	
Electronic Circuits and Systems	ER4001	30	4	TY13		1	
Engineering Mathematics	EG4017	15	4	TB1		1	
Introduction to Programming	ER4003	15	4	TB2		1	
Microcontrollers and Interface Electronics	ER4006	30	4	TY13	None	1	
Navigate for the Professional Engineer	ME4021	15	4	TB1		1	
Optional Modules							

Progression to Level 5

The programme permits progression from Level 4 to Level 5 with 90 credits at Level 4 or above. The outstanding 30 credits from Level 4 can be trailed into Level 5 and must be passed before progression to Level 6. 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 in Electronic Products Engineering.

Level 5							
MEng Electronic Products Engineering							
Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Computer-Aided Electronic Design	AUG-25-07912	30	5	TY13	None	2	
Exploring Engineering Project Management	EG5017	15	5	TB2		2	
Instrumentation and Measurement	ER5001	15	5	TB1		2	
Introduction to Artificial Intelligence	ER5002	15	5	TB2	None	2	
Numerical Analysis and Computing	Aug24-ER5xx	15	5	TB1		2	
Systems Engineering	ER5003	30	5	Ty13		2	
Optional Modules							

Level 6							
MEng Electronic Products Engineering							
Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Advanced Devices and Electronic Systems Design	ER6001	15	6	TB2	None	3	
Advanced Microcontrollers	Aug25-ER6xx	15	6	TB2		1	
Applied Business Management	EG6026	15	6	TB1		3	
Deep Learning for Wireless Networks and Communications	AUG-26-07916	30	6	TY13	None	3	
Electronic Prototyping	ER6002	15	6	TB2	None	3	
Individual Project	ME6020	30	6	TY13	None	3	
Optional Modules							

Level 6 requires the completion of

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 Electronic Products Engineering.

Level 7							
MEng Electronic Products Engineering							
Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Advanced Computer-Aided Design	AUG27-07919	15	7	TB2		4	
Engineering and Business Resource Management	ME7X XX	15	7	TB1	None	4	
Fuel Cells Technology	ME7750	15	7	TB2	None	4	
Integrated Circuit Design	AUG-27-07918	15	7	TB1	None	4	
MEng Team Project	ME7021	30	7	TY13		4	
Product Design Cycle Analysis	ME7741	30	7	TY13		4	
Optional Modules							

Level 7 information

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

MEng Electronic Products Engineering with Professional Placement

Level 5							
MEng Electronic Products Engineering with Professional Placement							
Core modules	Module code	Credit Value	Level	Teaching Block	Pre-requisites	Full Time	Part Time
Industrial Placement	CI5999	60	5	TY13		3	
Optional Modules							

D. Principles of Teaching, Learning and Assessment

The undergraduate Electronic Products Engineering programme has been crafted with Kingston University's Curriculum Design Principles in mind, to cultivate graduates who are not only proficient in their field but also possess a range of valuable qualities such as professionalism, creativity, resilience, proactivity, global awareness, independence, and the ability to learn continuously throughout their lives. By incorporating sustainability into its activities, the programme aims to help prepare graduates to address the pressing environmental and social challenges of our time. The key United Nations Sustainable Development Goals that the programme contributes to include:



Goal 7: Affordable and Clean Energy



Goal 9: Industry, Innovation and Infrastructure



Goal 12: Responsible Consumption and Production

We believe that every student's learning experience is unique, and we strive to provide an inclusive curriculum that acknowledges and accommodates students' circumstances. Our Navigate programme, which is integrated into each year of our courses and aligned with Kingston University's Future Skills Student Journey, aims to cultivate the essential communication, problem-solving, and creative thinking skills that employers highly value.

At Level 4 of the programme, students will establish a strong foundation in mathematics, physics, circuits, programming and microcontroller operation, enabling them to understand the fundamental principles of electrical and electronic engineering. Level 5 of the programme builds on fundamental knowledge and skills acquired at Level 4, focusing on engineering principles underlying electrical and electronic technologies.

At Level 5, students will learn essential mathematical skills and knowledge required for analysing and solving equations, as well as handling complex data to improve efficiency and optimise processes. Electrical and electronic workshops and laboratories significantly enrich students' learning experiences by employing active learning techniques. These practical environments foster hands-on experience and direct engagement with the material, facilitating a deeper understanding of electrical and electronic concepts. Such immersive learning experiences not only enhance theoretical knowledge but also promote the development of practical skills, preparing students for real-world applications in their field. In addition, students will be introduced to the principles and commercial practices for managing engineering projects and related business operations in the context of time, quality, risk and sustainability aspects, which provides insight into the legal, commercial, social and ethical framework of engineering environments. Through team-based design activities and industrially-based projects, students will have ample opportunities to enhance their communication skills and develop their ability to work collaboratively.

At Level 6 of the programme, the theme is taken to the next level by placing a strong emphasis on the development of essential professional and leadership skills and management abilities in a collaborative group setting, where sustainability and ethics are woven into the fabric of the project, as well as fostering independent learning. The programme aims to build on the knowledge acquired in previous levels and provide a deeper understanding of electrical and electronic engineering, covering topics such as power systems, signal processing and advanced microcontrollers. By the end of Level 6, students should have acquired the skills and knowledge necessary to operate effectively in the professional world of electrical and electronic engineering, as well as the ability to adapt to changing technologies and practices. The Individual Project module is a culmination of the technical and academic aspects of the programme, offering students a unique opportunity to apply the knowledge and skills they have acquired during the course in a capstone project. This module challenges students to achieve agreed deliverables, while honing their research skills and using technical literature to inform their work. Through this experience, students will gain valuable practical experience and demonstrate their ability to synthesise complex information and apply it to real-world problems.

At Level 7, students will have the opportunity to significantly expand their knowledge and skills. They will undertake a challenging team project, which involves project-based learning that is driven by the students themselves, while being supervised by academic staff who will encourage the development of professionalism and leadership within a collaborative setting. This project provides students with valuable experience in project planning, allowing them to put theory into practice by working on an industrial project. In addition to gaining practical skills, students will also learn about sustainability and ethics, which are integral parts of the project context.

A Personal Tutorial System is seamlessly incorporated into the curriculum, offering a structured platform for regular and discipline-specific small-group discussions and debates. Scheduled tutorial sessions are dedicated to reinforcing the core themes and practices of the programme, thereby enhancing the understanding and application of key concepts. These sessions serve as a valuable opportunity for students to deepen their knowledge, engage in thoughtful discussion, and clarify any uncertainties within the context of the curriculum.

Most of the module teams are engaged in engineering research or industry-related professional activities, such as Knowledge Transfer Partnerships (KTPs), which have significantly influenced the design and content of the programme. The Department's Industrial Advisory Board also provides valuable input from industry, further informing the programme's development.

The academic staff are committed to continuous professional development in teaching and learning in higher education and wider pedagogic issues. Their research and development of innovative ideas informs the curriculum and enhances student learning experience both within and outside the classroom. As part of their pedagogic research, the staff has developed computing resources in fundamental subjects such as mathematics and mechanics, which are embedded in the Virtual Learning Environment (VLE) system. Furthermore, an electronic voting system has been adopted for summative and formative assessments, as an example of the staff's commitment to pedagogic research. This reflective and evidence-based approach to teaching serves as a model for students to follow in their future professional practice.

Integrated first year and interdisciplinary collaboration

Some of the Level 4 modules are shared with Aerospace and Aircraft Engineering students and throughout their studies at Levels 5, 6, and 7, these students will continue to take shared common modules. While students may enter the University with a clear idea of their preferred branch of engineering, being exposed to a range of disciplines in their first year can help them make a more informed decision. Moreover, this approach provides valuable experience in working collaboratively across interdisciplinary teams, which is highly valued by many industries as an essential employability skill. Additionally, shared modules at Levels 5 and 6 offer further chances for students to interact with and collaborate on real-world problems across different engineering fields.

The first year Navigate for the Professional Engineer module introduces students to the principles and importance of group work through project-based learning. Interdisciplinary teams collaborate to design, build and present solutions to small-scale engineering challenges, which are then assessed as part of the module. In the Exploring Engineering Project Management module at Level 5, students continue to develop their interdisciplinary group work skills and learn about group project management while working on a more complex challenge. These modules provide opportunities for students to tackle real-world problems supplied by well-known companies or organisations, giving them experience of working on engineering problems as part of a team. In the Applied Business Management module at Level 6, students consolidate their group working skills by undertaking a group design project within their own engineering discipline, building on the team working skills they have developed in earlier years.

Hands-on practical work

Hands-on practical experience in workshops and laboratories is crucial for developing practical skills and enhancing data collection and analysis abilities. Our curriculum includes practical work closely related to the theoretical content to provide context and reinforce learning. At Level 4, students learn basic measurement and manufacturing processes and apply them in laboratory and testing environments. At Level 5, the focus is on measuring a variety of parameters, with supervised practical sessions that follow experimental protocols. At Level 6, students are expected to select and apply requisite practical skills in their own independent research. At Level 7, our students study specialised subjects such as advanced power systems and integrated circuit design, providing them with tools to solve more complex problems.

Development of independent learning through the programme

The learning, teaching and assessment strategy of the programme is designed to facilitate students' progression in both curriculum content and skill development as they advance through the different levels of study. At Level 4, students receive comprehensive guidance and structured learning that focuses on acquiring essential engineering knowledge and skills (e.g., mathematics, programming, IT and practical skills) while also facilitating the development of key employability skills (e.g., transferrable skills). These provide a strong basis for students to undertake deeper study in a particular engineering field at Level 5. At this stage, students will be expected to engage in independent learning, with less emphasis on traditional lectures. As they progress to Level 6, students will assume greater responsibility for their independent study, while academic staff will play a supervisory role. This is particularly evident in the individual and team project modules.

The Module Guides provide clear expectations for students to engage in guided independent learning. At Level 4, students will be directed to utilise Technology Enhanced Learning (TEL) packages to prepare for individual topics or sessions, and to complete problem sets or exercises to consolidate and test their understanding. The VLE at Kingston offers a wide range of TEL resources, including videos, screencasts, online multiple-choice questions (MCQs), discussion boards and interactive teaching packages, to support learning throughout the programme. Additionally, the VLE delivers lecture notes/presentations, problem sets, and worked examples. This inclusive approach allows students to access learning material at their convenience, work through it at their own pace and have the flexibility to pause and rewind as needed.

Assessment for learning

The assessment tasks are designed to be authentic, engaging and transparent, focusing on real-world engineering activities that improve students' employability. The programme employs a variety of assessment methods, including portfolios, quizzes, online tests, in-class tests, practical exercises, tutorial questions and end-of-module examinations. Additionally, all modules have explicit formative assessments to provide opportunities for practice and "feed forward" to help students improve their work for subsequent summative assessments. While examinations remain an effective way to assess basic knowledge and understanding, the strategy recognises that other assessment methods can also be well-suited to assess higher-level problem-solving skills. A well-balanced range of assessment methods is a key part of our inclusive assessment strategy, with group and teamwork assessment playing an instrumental role in developing and recognising this essential employability skill.

The programme employs various components to assess the modules including: practical exercises to evaluate students' technical competence and understanding; individual and group-based project work to assess the ability to provide solutions to realistic problems, work effectively in a team, and communicate effectively through written reports, oral presentations or video. Multiple choice or short answer questions are also used to evaluate basic techniques and understanding of concepts, while long answer structured questions in coursework assignments and end-of-module examinations assess the ability to apply learned techniques and provide accurate solutions within a restricted time; the individual project module to assess the ability to plan work, manage time effectively and research background information, culminating in a written report and interview; and finally, individual and group laboratory reports are used to evaluate students' technical competence and ability to work effectively in a laboratory setting.

Inclusive teaching practice

The University is committed to an inclusive curriculum, encouraging students to consider themselves as members of a professional community. The Student Voice Committee provides a platform for students to voice their opinions and suggest improvements for developing a more inclusive curriculum that takes into account the specific circumstances of the student body. To cater to different learning preferences and experiences, a diverse range of teaching activities is provided with a careful balance between individual and group-based activities. The assessment brief, provided at the beginning of the year, includes marking criteria for all assessments. The language used in the criteria is clear and concise to ensure that students understand the expectations. Additionally, in-class discussions are held to allow students to question and clarify any doubts regarding the marking criteria.

Focus on active learning and enhancing student engagement

The programme emphasises on active learning through collaborative, problem-solving and enquiry-based workshops and tutorials. Engaging sessions require students to prepare beforehand and actively participate during the class, as opposed to passively listening to lectures. Furthermore, the guided learning approach encourages students to consolidate their knowledge after the session. Additionally, students can benefit from opportunities for peer learning, group work and presentation practice. In these interactive sessions, the lecturer plays a crucial role in supporting students to construct their own knowledge and understanding while introducing and summarising key concepts through short mini lectures.

Active and collaborative learning techniques are utilised in the lectures, which may include interactive presentation software, question-and-answer sessions and brief student discussions integrated into the lecture. By incorporating these methods, valuable contact time is spent on applying and critically analysing knowledge, while also developing key skills such as problem-solving, communication and teamwork. To further promote student engagement and sense of belonging, the programme offers various opportunities for students to interact with staff and peers, including through the personal tutorial scheme (PTS), field work, industrial visits, extra-curricular seminars, research internships, course representative system, student ambassador work, peer mentoring and outreach initiatives, as well as hands-on activities such as IMechE Design Challenge, Formula Student and Robotics Club. These efforts also support improved retention and progression among students and enhance student engagement, creativity, confidence and self-reliance.

Development of employability skills

The programme not only focuses on imparting theoretical knowledge but also aims to develop a wide range of essential employability skills. This is achieved by embedding future-oriented skills throughout the curriculum via a personalised development programme called Navigate. Through the Navigate programme, students are equipped with effective communication, problem-solving and creative thinking skills – qualities that employers seek in graduates. The programme spans three years, with the first year being dedicated to understanding and reflection on the Kingston Graduate Attributes. The integration of 'Skills for Innovation' across both business and higher education domains ensures that graduates have the skills, experience and opportunities required to excel in their chosen careers.

Throughout all levels of the programme, students are encouraged to develop their research skills, which are a fundamental part of the curriculum. Through project work, they can collaborate with research-active staff on live projects. These experiences enable students to determine, distinguish and present appropriate evidence in an argument, which is highly valued by employers. Developing research skills is an essential component of the programme and will equip students with the necessary tools to conduct independent research and contribute to the field of electrical and electronic engineering. By honing their

research skills, students will be better equipped to solve complex problems, evaluate data and make informed decisions in their professional careers.

Employability criteria identified using feedback from employers, alumni, Industrial Advisory Board, and the Institution of Engineering and Technology (IET) are embedded in the curriculum. Each module is examined to determine opportunities to incorporate employability skills. The University's academic and Careers and Employability Service teams identify appropriate provisions and tailor opportunities to bridge gaps. To complement the development of employability skills in the curriculum, personal tutors enhance student engagement with employability opportunities by highlighting them within their sessions and encouraging students to participate in a variety of extracurricular activities. These activities may include student representation, part-time work, sports and recreation, society memberships, volunteering, student ambassadorship, leadership and mentoring, cultural and creative activities, academic and professional collaborations, placement opportunities, enterprise activities and events hosted by the University's Careers and Employability Service. The University's Kingston Award Scheme recognises participation in these areas.

Additionally, the Careers and Employability Service hosts a range of events, such as career fairs where employers promote internship, placement and graduate opportunities, as well as networking activities like spotlight on engineering, which invites employers and alumni to discuss career pathways on campus. Students develop a CPD record in the VLE to utilise for job applications and interviews.

For students pursuing the "with professional placement" degree on the sandwich route, the placement module is a crucial aspect of the programme. This module provides an extended opportunity to gain real-world employability skills in industry, making it a key element of the course. Moreover, the Careers and Employability Service offers support to students before and during their placement.

Placement Year

Students are strongly encouraged to pursue an industrial placement either between Levels 5 and 6 or between Levels 6 and 7 as it offers a valuable opportunity to enhance both their academic knowledge and personal growth. Having two opportunities to go on a placement year offers students more flexibility in terms of when they choose to undertake a placement as some students prefer to gain work experience earlier in their degree, while others prefer to do so later. This flexibility enables students to tailor their learning experience to their individual needs and interests.

During the placement year, which lasts for at least 36 weeks and is conducted with an approved employer, students can apply their learning to practical situations that are relevant to their field of study. In addition to gaining work experience, students can reflect on their own personal development and evaluate the relationship between theory and practice. Students must maintain a comprehensive logbook documenting their activities and involvement in the company. At the end of their work period, students are expected to produce a final report that not only reflects on their experiences but also evaluates the organisational and business aspects of the company.

Students will be supported throughout their placement by their placement tutor who will maintain contact with the students. During the placement, two visits from the placement tutor will take place to provide guidance and support. The primary objectives of these visits are to: support the student with the planning necessary to maximise success in their penultimate undergraduate year; encourage the student to reflect on the employability skills they have developed and be proactive in moving towards a professional life and/or further study; help

the student 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.

The placement tutor will discuss the student's progress with both the student, their employer and the student's personal tutor (if different from their placement tutor) and recommend any necessary improvements to the learning opportunities. This approach ensures that students have a structured and supportive learning experience while gaining practical work experience in their field of study. The placement tutor's involvement provides students with valuable guidance and feedback, while the logbook and final report encourage students to reflect on their learning and apply academic concepts to real-world situations.

Historically, many sandwich placements offer reasonable remuneration. While the University's placement team provide support to students in securing a position, it is ultimately the student's responsibility to secure their own placement, and placements are not guaranteed.

E. Support for Students and their Learning

We are committed to helping our students succeed by providing tailored support and resources that meet their unique needs. Our personal tutor (PT) scheme plays a crucial role in delivering a personalised learning experience. For our Navigate for the Professional Engineer, Exploring Engineering Project Management and Applied Business Management modules at Levels 4, 5 and 6, we provide a core set of formative assessment problems that cover the curriculum. These problems enable students to test their learning and measure their progress. PTs use progress on these activities as a key discussion point during one-to-one meetings. To track their progress, students are required to upload their progress on these activities to their Learning Log, which is available to the relevant PTs. The PTs set milestones for students to meet at every level and monitor their progress, offering appropriate advice when needed. If students face difficulties, PTs can provide assistance or direct students to available support resources, such as peer mentoring schemes, Maths Aid and online resources. Students are supported by:

- A **Module Leader** for each module
- A **Course Leader** to help students understand their programme structure and provide academic support
- A **Personal Tutor** to provide academic advice and guidance
- An **Academic Team** that seeks to maintain an open-door policy in the spirit of supporting students
- A **Student Support and Engagement Team** to help students with any problem that is affecting their studies
- A dedicated **Course Administrator**
- An **Induction programme** and study skills sessions at the start of each academic year
- **Student Academic Success Centre (SASC)**, a one-to-one drop-in Study Skills session for students every weekday. Help is available on a range of academic skills from writing reports and note-taking to exam revision, referencing, programming and mathematical skills.
- **Virtual Learning Environment (VLE)**, a versatile on-line interactive intranet and learning environment accessible both on-site and remotely
- **Course Representative scheme**

- **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**

Personal Tutor Scheme (PTS)

PT meetings provide an opportunity for students to discuss their personal and professional development, as well as career options. During these meetings, students receive individualised guidance and support tailored to their specific needs and goals. The following outlines the overall aims of the PTS in our School:

- To build a rapport between staff and students and contribute to personalising students' experience within the School
- 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 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

PTs are allocated on a course basis during induction week. Student numbers are divided equally amongst the staff within the Department. Students will keep the same tutor throughout their course of study, except in cases where they change disciplines in their first year of study.

The PTS scheme is closely linked to the Navigate for the Professional Engineer, Exploring Engineering Project Management, and Applied Business Management modules, with specific aims and outcomes for each level. The scheme is progressive and cumulative, with students building on the skills developed in previous levels. Formative assessment is provided through regular feedback during meetings. Personal tutorials offer opportunities for students to develop CV writing skills, discuss their skill sets, learn and revise techniques, explore employment opportunities, and identify extracurricular activities that align with their interests and goals.

Group tutorials provide a forum for students to discuss issues and brainstorm solutions to problems. Attendance at personal tutorials is recorded by tutors using the Online Student Information System (OSIS). The PTS Lead oversees the scheme in the School in conjunction with the Faculty PTS Lead. Regular reports on student attendance in personal tutorials are consulted to identify and provide support for struggling students.

Level 4: Settling in and building confidence

At Level 4, we provide students with a comprehensive list of engagement activities that complement the core set of problems assigned for each module. PTs regularly discuss with their tutees' progress on problem sets and participation in engagement activities throughout the academic year. PTs have access to the Learning Log, which

facilitates further discussion during one-on-one meetings. To ensure that students stay on track, there are milestones to meet at every level, and PTs closely monitor their progress and provide relevant guidance and advice to help them succeed.

The aims of these activities are threefold: to assist students in making the transition to Higher Education and to generate a sense of belonging to the School and Department 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; and to prepare students to make the most of feedback throughout their course.

The Navigate for the Professional Engineer module encourages students to engage in reflective practice and provides them with feedback on their progress towards acquiring essential skills. PT meetings will include discussions on these topics to ensure that students are adequately supported in their academic and professional development. PT meetings are scheduled throughout the academic year.

Level 5: Stepping it up and broadening horizons

At Level 5, students are expected to engage in reflection and evaluation of their skills acquisition and preparation for their industrial placement and future employment with the guidance of their PTs. This activity is integrated into the Exploring Engineering Project Management module and aims to: help students comprehend and plan for the academic demands of Level 5 and to support increasing independence; encourage students to look forward, to take up opportunities to develop wider skills and to take responsibility for their personal development; foster students' ability to build on and respond proactively to the feedback they have received; and assist students in reflecting on the skills that they are developing and consider how they relate to employability.

Level 6: Maximising success and moving on

PTs will have access to all formative and summative assessment results of their tutees and will be responsible for discussing them with the students. They will assist the students in preparing plans for further improvement and advise on any academic issues they may have. Additionally, PTs are responsible for providing a comprehensive overview of the learning, teaching, learning outcomes and assessments, linking them to the student's progress. This activity is also integrated into the Applied Business Management module.

F. 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
- Education Committee with student representation
- Annual Monitoring and Enhancement
- Continuous Monitoring of courses through the Kingston Course Enhancement Programme (KCEP+)

- Student evaluation including Module Evaluation Questionnaires (MEQs), level surveys and the National Student Survey (NSS)
- Moderation policies
- Feedback from employers and alumni
- Industrial Advisory Board
- Professional body requirements

G. Employability and work-based learning

Work placements are actively encouraged – although it is the responsibility of individual students to source and secure such placements. This allows students to reflect upon their own personal experience of working in an applied setting, to focus on aspects of this experience that they can clearly relate to theoretical concepts and to evaluate the relationship between theory and practice.

The programme is designed to develop employability skills and prepare students to apply their knowledge and skills in real-world contexts. Throughout the curriculum, students will have opportunities to work in groups with external organisations at Level 4, gaining valuable experience to add to their CV when they apply for placements in Level 5. At the start of Level 5, students will be required to produce a CV, which they will then improve based on feedback. The Department strongly encourages and supports students in applying for an Industrial Placement year as the benefits of gaining approved industry experience are significant.

Work-based learning, including sandwich courses and higher or degree apprenticeships

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H. Other sources of information that you may wish to consult

Engineering subject benchmark:

<https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements/subject-benchmark-statement-engineering>

Professional bodies:

www.theiet.org

Professional accreditation:

www.engc.org.uk

www.theiet.org

School Website:

<https://www.kingston.ac.uk/faculties/science-engineering-and-computing/about/schools/engineering>

I. Development of Course Learning Outcomes in Modules

This table maps where course learning outcomes are **summatively** assessed across the 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						
	ER4006	ER4002	ER4003	ER4001	ME4021	EG4017	ER5003	CIS999	ER5001	Aug24- ER5001	EG5017	ER5002	AUG-25- ME6020	ER6002	ER6001	EG6026	Aug25- ER6001	AUG-26- AUG27- AUG27-	AUG27-	ME7741	ME7021	ME7XXX	AUG-27- ME7XXX	ME7750				
Knowledge & Understanding	A1																											
	A2																											
	A3																											
	A4																											
	A5																											
	A6																											
	A7																											
Intellectual Skills	B1																											
	B2																											
	B3																											
	B4																											
	B5																											
	B6																											
	B7																											
Practical Skills	C1																											
	C2																											
	C3																											

C 4																																																						
C 5																																																						
C 6																																																						
C 7																																																						

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