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<th>Programme</th>
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<tr>
<td>MEng Electronic and Electrical Engineering</td>
<td>H605</td>
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<td>BEng Electronic and Electrical Engineering</td>
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<td>MEng Electronic and Electrical Engineering with Industrial Year</td>
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<tr>
<td>MEng Mechatronic and Robotic Engineering</td>
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<td>BEng Mechatronic and Robotic Engineering with Industrial Year</td>
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Welcome to the Department of Electronic, Electrical and Systems Engineering (EESE) at the University of Birmingham. We are delighted that you are interested in studying with us. Our Department supports students in developing the skills required to meet societal challenges in the 21st century. You will learn to connect the physical world and the digital world through the flow of energy and information between people, machines and computers. We have a distinguished history of innovation and impact around the world, dating back to the first Professor in Electrical Engineering, Gisbert Kapp, in 1905.

Professor Peter Gardner
Head of Department of Electronic, Electrical and Systems Engineering

ENTRY REQUIREMENTS

A level: MEng: AAA; BEng: AAB
IB: MEng: 6, 6, 6; BEng 6, 6, 5 at higher level
BTEC options considered

Required subjects and grades:
A level: A level Maths
IB: To include Mathematics with a minimum of 32 points overall

EPQ: We may reduce your offer by one grade if you achieve at least an A grade in this qualification

Visit www.birmingham.ac.uk/schools/engineering/courses/undergraduate.aspx
WHY STUDY ELECTRONIC, ELECTRICAL AND SYSTEMS ENGINEERING AT BIRMINGHAM?

- Our flexible three-year BEng and four-year MEng courses are structured to bring together all these facets to give you a thorough understanding of electronics-based technology, so that you are equipped to meet the challenges of your individual and group projects.
- Interdisciplinary project work designed in consultation with major employers is the thread that runs through your degree, underpinned by coursework.
- State-of-the-art facilities including our new School of Engineering building.

ACCREDITATION

We have a 40-year unbroken record of offering professional engineering qualifications. All the degrees in Electronic, Electrical and Systems Engineering are accredited by the Institution of Engineering and Technology.

The MEng programmes fully meet the academic requirement for registration as a Chartered Engineer. The BEng programmes fully meet the academic requirement for registration as an Incorporated Engineer and partly meet the academic requirement for registration as a Chartered Engineer.

ALL DEGREE PROGRAMMES – YEAR 1

All programmes have a shared first year. You will work and study alongside Civil and Mechanical Engineers. With a deep understanding of the fundamental principles of all engineering, you’ll be well-equipped to apply your expertise to the fascinating challenges of the future.

We are a small department within a large engineering school – so you get the best of both worlds. In the first year, you are part of a large interdisciplinary group of students (with whom you’ll keep contact throughout your degree), but as you start to specialise you will spend progressively more time within our department. It means you will get to know the staff and teaching assistants well.
ELECTRONIC AND ELECTRICAL ENGINEERING

YEAR 2 ONWARDS

Our Electronic and Electrical Engineering degrees gives you the opportunity to study core subjects and explore your own pathway with optional modules.

Year 2

In Year 2 you will begin to specialise. Your core courses will include Multidisciplinary Systems and Software Engineering, Digital Electronics and Electrical Machines and Engineering Mathematics. You will undertake both discipline-specific and interdisciplinary group projects. Integrated Design Project assessments are devised in consultation with our partners in industry.

CALLUM

Electronic and Electrical Engineering

‘Electronic and Electrical Engineering appealed to me because of the balance of studying the hardware and software of electronics, especially in modules like Digital Computing and Embedded Systems. Alongside this, the teaching of large-scale electrical components and systems ensures that a broad understanding of the entire electronic and electricity domain is obtained. This course also allows the theory to be applied within laboratory sessions, providing a “hands-on” teaching experience to reinforce the content covered. The investment in new laboratory and teaching facilities means that this can all be done with high-quality equipment and to the best possible standard.’

Year 3

In Year 3 of the BEng, you have the chance to focus on the areas that interest you through your choice of options, this includes Power Electronics and Power Systems and The Internet of Things. You will apply the creative, technical, analytical and decision-making skills you have developed into delivering an Individual Research Project and a group design project.

On the MEng, modules include Advanced Communications Systems and the Internet of Things.

Year 4 (MEng only)

This is the flagship year of the MEng degree, with a choice of options to follow your interests. All students carry out an Individual Research Project, where projects make up one-third of the year. The remaining two-thirds comprises four specialised Masters-level courses based around our research specialisms – Communications Engineering, Power Engineering and Computer Engineering.
ELECTRICAL AND RAILWAY ENGINEERING

YEAR 2 ONWARDS

Building on the global reputation of the Birmingham Centre for Railway Research and Education (BCRRE), you will obtain a thorough Electrical Engineering education alongside a specific focus on the railway industry. Unique in the UK, this programme ensures that upon graduation, you will have the skills and knowledge to benefit from the excellent career prospects in an industry experiencing significant growth. In the UK alone, passenger numbers are expected to grow by around 50% in the next ten years.

The rail industry around the world is changing. Electrical engineers who understand railway infrastructure and railway systems are in high demand. More journeys are being made, meaning new and improved infrastructure, digital systems and services are being introduced. Operational issues drive innovation in data flows, information processing, and decision-making too.

The Birmingham degrees in Electrical and Railway Engineering are the first of their kind in the UK. They have been designed in close collaboration with the railway industry; making them immediately relevant, ensuring graduates have the knowledge, experience and capability needed to have successful careers. Your studies will include core electrical engineering as well as specialised study on railway infrastructure, traction and energy, railway management, timetabling and control. Your design and research projects will all have a railway focus.

OLIVER
Electrical and Railway Engineering

‘I chose to study Electrical and Railway Engineering because the course is brilliantly tailored to the rail industry. The unique blend of electrical engineering fundamentals and their application to the railway environment has provided me with a firm base on which to build my career in the railway industry. The course is also strongly linked to industry; this shows in the relevance and realism of coursework assignments. Some assignments even gave me the chance to work with people from the railway industry and one of these assignments will potentially be used in the delivery of a real-life rail project.’
MECHATRONIC AND ROBOTIC ENGINEERING

YEAR 2 ONWARDS

Mechatronic and Robotic Engineering has been driven by our breadth of expertise in research and industrial collaboration.

The programme combines mechanical, computer and electronic and electrical engineering to address the challenges of designing and deploying intelligent technologies.

Year 2
The second year enables you to focus on combining computing, electrical and mechanical technologies. You will study mechanics alongside modules covering embedded computing, electronics and control theory, developing your learning in problem-based laboratory classes and a design project.

Years 3 and 4
If you are studying for a BEng, you will carry out an Individual Design Project and take core modules as well as one optional module. Details are on our website.

MEng students will spend Year 3 studying a range of core subjects including Mechatronic Design, Power Electronics and Power Systems and options including Telerobotics, Telepresence and Augmented Reality.

In Year 4, you will carry out an Individual Research Project and deepen your knowledge by choosing from a range of modules in areas such as machine learning and virtual and mixed reality.

Graduates of the programme will have the blend of the mechatronic and software integration skills required for successful careers in robotics, transport, medical technologies, advanced manufacturing, space technologies, research and development and product design.
WHERE COULD YOUR DEGREE TAKE YOU?

Industrial Year
All programmes provide the opportunity to take part in an industrial year. Our industrial support tutor arranges opportunities to meet employers and guides you through the application process. You will be involved in projects and receive training and support. You’ll gain experience of applying what you’ve learned in your degree to real engineering challenges and return better equipped for the final year.

Careers
The University’s Careers Network will support you in finding your ideal graduate job, with support in CVs, applications and preparing for interviews and assessment centres. Our graduates have joined many employers, including:

- Arup
- GlaxoSmithKline
- Network Rail
- Thales
- Rolls-Royce

ARUSHI

Electronic and Electrical Engineering with Industrial Year

‘The support I received from my professors, the industrial liaison officer and the Careers Network helped me land three placements for my industrial year, at Siemens Healthineers, Rolls-Royce Motor Cars and Rolls-Royce PLC. I was able to stand out from other applicants in the projects I had worked on, as part of my degree such as the Mechatronics project in Year 2, and the Integrated Design Project. These projects allowed me to talk about my technical growth and teamwork. I am glad to be part of a course which makes sure you’re ready for industry!’

UKESF

We have a great success rate of our students securing bursaries and placements from the UK Electronic Skills Foundation, providing these students with the opportunity to gain experience in the electronics industry. These are mainly summer placements and they run every summer you are registered as a student, as well as providing an annual bursary and summer school.
LEARNING SUPPORT

The teaching environment is designed to help develop your engineering mind. Engineering is a social activity. You'll complete group work and individual assignments.

A personal tutor will be assigned for you to discuss your progress, complete reviews and may be involved in project assessments. They will be your first contact for any aspect of your studies that you wish to discuss.

In your first year, you will have small group maths sessions in addition to lectures and example classes. We believe support in mathematics is essential because it underpins all aspects of engineering.

The wellbeing team is here to assist should something affect your studies and to provide practical and emotional support.

FACILITIES

Your learning experience will be enhanced by leading-edge facilities and laboratories.

The Collaborative Teaching Laboratory (CTL) is a hub for practical work. In different sessions you will work in small groups for ongoing projects or with a lab partner on experiments bringing lecture material to life. The University has bought over £400,000 of equipment for electronic engineering classes, ranging from industry-standard platforms to component-level circuit building.

The new School of Engineering building has been designed with spaces that enable the collaboration that’s central to everything we do. The state-of-the-art building will provide spacious seminar rooms, design centres, project labs and media stations to ensure we can meet the research and education needs of today and the future.
ENGINEERING SOCIETIES

There are a number of extra-curricular activities that you can get involved in outside of your degree to enhance your skills, knowledge and overall student experience. They are run by students with support from the School. Not to mention the 250 social and special interest clubs in the Guild of Students.

CAD SOCIETY
Forming in 2019, the CAD Society has an interest in designing in today’s digital world. With 3D printers, students can print their own models and designs.

UBRacing
UBRacing is the official Formula Student team at the University of Birmingham. Each year, students design, fund and build a single-seater racing car from scratch, in order to compete in a series of tests against other universities. In 2017, UBR20, the team’s 20th car, finished second overall and won the endurance race and overall dynamics, the team’s best-ever performance.

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UBeracing is the official Formula Student team at the University of Birmingham. Each year, students design, fund and build a single-seater racing car from scratch, in order to compete in a series of tests against other universities. In 2017, UBR20, the team’s 20th car, finished second overall and won the endurance race and overall dynamics, the team’s best-ever performance.

UBRobotics
You can design, manufacture and program autonomous robots and actuators to compete in competitions in the UK and further afield. The club has won several funding campaigns and works with key sponsors such as National Instruments, SMC and ParetoWorks. It also supports our hosting of an annual FIRST LEGO® League tournament.

UBeracing
Formed in October 2017, UBeRacing produces electric cars to race in the prestigious annual IMechE Formula Student competition. The team is a blend of electrical, mechanical and software engineers, perfectly combining the skills needed for this exciting new project.

EESE SOC
The Department has a dedicated social society run entirely by students. The Society provides fantastic opportunities to meet with students from all years and levels of study. What you do is up to you, previous events have included film nights, paintballing, industrial visits, sports and games nights.
I chose Electrical and Electronic Engineering because our everyday lives rely on the work of electrical engineers and the future is becoming increasingly electronic: from the workplace to our transport systems. I love the diversity of the course; learning about everything from Wi-Fi to computer processors to power networks and sustainable energy. Since studying my degree, I have used my maths and physics skills for many real-world applications including creating a robot and designing a tidal sustainable energy system.

APPLICATION STEPS TO STUDY AT BIRMINGHAM

Step 1
Find out more about the University and Electronic, Electrical and Systems Engineering at our open days.

Step 2
Apply to us through UCAS following UCAS deadlines.

Step 3
After receiving an offer you can join an Offer-Holder Visit Day, usually between December and April.

Step 4
Stay connected through social media and our student-led accounts.

SCHOLARSHIPS

The School of Engineering offers widening participation scholarships and scholarships for excellent academic performance. Eligible UK, EU and international students will be automatically considered for the scholarships offered by the School during the application process.

Full details of scholarships for 2021 entry, along with their terms and conditions, can be found by visiting the School webpages: www.birmingham.ac.uk/engineering-ug-scholarships

CONTACT US

General admissions enquiries:
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@schoolofenguob
@schoolofengineeringbirmingham
@schoolofeng_uob

FIND OUT MORE ABOUT THE DEPARTMENT OF ELECTRONIC, ELECTRICAL AND SYSTEMS ENGINEERING AT BIRMINGHAM:
WWW.BIRMINGHAM.AC.UK/EESE
This leaflet was produced in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be discontinued and new ones offered in their place. Before you apply, please visit our website to view essential information for all applicants: www.birmingham.ac.uk/applicantinformation

Please note the information in this brochure is correct at time of publication but may be subject to change (July 2020)