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Electrical and Energy Engineering BEng

Undergraduate degree course in Electrical and Energy Engineering BEng:

Electronic, Electrical and Computer Engineers (http://www.birmingham.ac.uk/schools/eece/index.aspx) are involved in the design and development of technology that has become essential to all areas of the modern world; from satellites and mobile 'phones keeping our telecommunications networks connected day and night, to computers and digital networks storing and releasing, as required, the billions of bits of data that stream around the globe.

At Birmingham, we have been at the forefront of teaching and research in this area for over 100 years, engaging in each era of new technological advance and helping it to evolve into what we see around us today. We are a friendly, confident and all-embracing School, welcoming people from all over the world.

Our graduates have recently rated their satisfaction levels with us at 94% in the National Student Survey; and 80% of our graduates were employed six months after graduating with 90% of those finding graduate-level jobs.

Study here and find out why the University of Birmingham has been awarded The Times and The Sunday Times University of the Year 2013-14 (http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

UCAS code: HH68

Duration: 3 years for BEng

Places Available: 42 (across all programmes)

Applications in 2013: 317

Typical Offer: AAB (**More detailed entry requirements and the international qualifications accepted can be found in the course details (?OpenSection=EntryRequirements)**)

Start date: September

Related courses

Undergraduate degree programmes - Electronic, Electrical and Computer Engineering (/schools/eece/undergraduate/index.aspx)

Contact

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Telephone enquiries: +44 (0)121 414 4295
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School of Electronic, Electrical and Computer Engineering (/schools/eece/index.aspx)

Follow us on Twitter (http://twitter.com/eps_unibham)

Details

Feedback from the National Student Survey shows that 95% of our graduates from this three-year accredited programme were employed six months after graduating, with 95% of those finding graduate-level jobs and earning salaries in the region of £23-£27,000 per annum.

The Electrical Engineers of the future face a big challenge. How do we incorporate renewable energy sources like wind and solar power into our electricity distribution systems? How do we design machines and infrastructures with sustainable energy issues in mind? Electrical & Energy Engineering is one of a suite of interdisciplinary energy-themed engineering degree programmes. It includes an integrated set of modules addressing a breadth of energy issues, as well as highlighting important interactions with the other relevant engineering disciplines. One third of this degree programme consists of specialist, energy-themed modules, and you'll also study all the energy engineering topics that are naturally built into an electrical engineering degree.

First and second years

You'll learn the theoretical and practical skills you need to design, construct, program and test circuit building blocks and complex systems. You'll study in depth the underlying mathematical and physical principles of electronic and electrical engineering, and develop skills in computer programming and computer-aided design. You also have the option to study a foreign language, or other modules outside your main discipline.

Third year

You will now study your chosen specialist options in greater depth, as well as undertaking a major, research-based individual project. These projects span the breadth of our disciplines, are based on the world-leading research work being undertaken in the school and are well regarded by our industrial partners.

- **Electrical and Energy Engineering module details (BEng and MEng) pdf (/Documents/college-eps/eece/modules/electrical-energy.pdf)**

Related links

- **Undergraduate degree programmes - Electronic, Electrical and Computer Engineering (/schools/eece/undergraduate/index.aspx)**
- **Scholarships and awards - Electronic, Electrical and Computer Engineering (/schools/eece/undergraduate/scholarships.aspx)**

Why study this course

At Birmingham, we provide diverse, yet balanced, courses, enabling our graduates to gain employment in a wide range of industries. Teaching is provided by lecturers who are global experts in their field, with multi-million pound investment providing leading-edge teaching facilities and laboratories.

We produce graduates who can function in today's fast-changing marketplace, and your career prospects will be excellent. Your Birmingham degree is evidence of your ability to succeed in a demanding academic environment.

Employers target Birmingham students for their drive, diversity, communication and problem-solving skills, their team-working abilities and cultural awareness, and our graduate employment statistics have continued to climb at a rate well above national trends.

Housed in the refurbished Gisbert Kapp building with its dedicated state-of-the-art teaching and research facilities. We have three well-equipped computer laboratories and an agreement with Microsoft, through the MSDNAA, providing student access to key computing software. These labs are open until midnight every day. We also boast modern laboratories to support the teaching of electronic and electrical engineering, together with specialised labs that students can use for their individual projects. Students can also take advantage of the extensive facilities for embedded systems with microcontrollers, FPGAs, and DSP kits, or work with internationally leading research groups on projects in communications engineering, applied computing and novel electronic devices.

Our degree programmes equip our graduates with a firm understanding of the discipline, from the fundamental science and maths which underpins it to practical applications. It is this understanding, combined with the distinction of a good degree from Birmingham, which means many of our BEng/MEng graduates hold a graduate job offer before completing their study!

Because career progression for many engineers can lead to senior management roles we offer the opportunity to study engineering with business management. The business management modules, which make up one third of each year, are delivered by our colleagues in the internationally recognised Birmingham Business School.

All of our Undergraduate BEng/MEng and Postgraduate courses are accredited by the Institution of Engineering and Technology (IET), allowing you to take the first steps towards professional Chartered Engineer status. This ensures that studying at Birmingham will provide you with a professionally recognised degree, and one which has a great reputation within the industry.

Modules

- **Electrical and Energy Engineering module details (BEng and MEng) pdf (/Documents/college-eps/eece/modules/electrical-energy.pdf)**

Fees and funding

Standard fees (http://www.birmingham.ac.uk/students/ug/courses/fees/standard) apply
Learn more about **fees and funding (/undergraduate/fees/loans.aspx)**

Scholarships

- Please see the **Electronic, Electrical and Computer Engineering scholarships and awards page (/schools/eece/undergraduate/scholarships.aspx)** for information on available scholarships
- Learn more about the University of Birmingham's **scholarships and awards (/undergraduate/fees/funding/index.aspx)**

Entry requirements

Number of A levels required: 3

Typical offer: AAB

Required subjects and grades: Mathematics A level grade B and at least one physical science A level

General Studies: not normally accepted as one of the three A levels, but a good performance may be taken into account if you fail to meet the conditions of an offer marginally

Additional information:

Other qualifications are considered – learn more about **entry requirements (http://www.birmingham.ac.uk/students/ug/requirements)**

International students:

International Baccalaureate Diploma: 35 points, including both Mathematics and at least one physical science at HL

Standard English language requirements apply (/undergraduate/requirements/international/index.aspx) Learn more about **international entry requirements (http://www.birmingham.ac.uk/students/ug/requirements/international)**

Depending on your chosen course of study, you may also be interested in the Birmingham Foundation Academy, a specially structured programme for international students whose qualifications are not accepted for direct entry to UK universities. Further details can be found on the **foundation academy web pages (http://www.birmingham.ac.uk/students/foundation-academy/Pathways/index.aspx)** .

How to apply

Apply through UCAS at **www.ucas.com (http://www.ucas.com/)**
Learn more about **applying (http://www.birmingham.ac.uk/students/ug/courses/apply)**

Key Information Set (KIS)

Key Information Sets (KIS) are comparable sets of information about full- or part-time undergraduate courses and are designed to meet the information needs of prospective students.

All KIS information has been published on the Unistats website and can also be accessed via the small advert, or 'widget', below. On the **Unistats website (http://unistats.direct.gov.uk)** you are able to compare all the KIS data for each course with data for other courses.

The development of Key Information Sets (KIS) formed part of HEFCE's work to enhance the information that is available about higher education. They give you access to reliable and comparable information in order to help you make informed decisions about what and where to study.

The KIS contains information which prospective students have identified as useful, such as student satisfaction, graduate outcomes, learning and teaching activities, assessment methods, tuition fees and student finance, accommodation and professional accreditation.

Related links

Undergraduate degree programmes - Electronic, Electrical and Computer Engineering (/schools/eece/undergraduate/index.aspx)

Scholarships and awards - Electronic, Electrical and Computer Engineering (/schools/eece/undergraduate/scholarships.aspx)

Electronic, Electrical and Computer Engineering Course Brochure (PDF 1MB) (/Documents/college-eps/eece/brochures/eece-brochure.pdf)

Electrical and Energy Engineering module details (/Documents/college-eps/eece/modules/electrical-energy.pdf)

Learning and teaching

As a Birmingham student you are part of an academic elite and will learn from world-leading experts. At Birmingham we advocate an enquiry based learning approach, from the outset you will be encouraged to become an independent and self-motivated learner, qualities that are highly sought after by employers. We want you to be challenged and will encourage you to think for yourself.

Your learning will take place in a range of different settings, from scheduled teaching in lectures and small group tutorials, to self-study and peer group learning (for example preparing and delivering presentations with your classmates).

To begin with you may find this way of working challenging, but rest assured that we?ll enable you to make this transition. You will have access to a comprehensive support system that will assist and encourage you, including personal tutors and welfare tutors who can help with both academic and welfare issues, and a formal **transition review (https://intranet.birmingham.ac.uk/student/transitionreview/index.aspx)** during your first year to check on your progress and offer you help for any particular areas where you need support.

How will I be taught?
As a Birmingham student, you are joining the academic elite and have the privilege of learning from world-leading experts in the field of computer science. Throughout your studies, you'll be encouraged to become an independent and self-motivated learner, thriving on challenge and opportunities to think for yourself.

Personal tutor
At the start of your degree, you'll be assigned a Personal Tutor who will remain with you throughout your studies to help you in three important areas: supporting your academic progress, developing transferable skills and dealing with any welfare issues.

Contact hours
In your first year the course is delivered via lectures, tutorials, workshops and laboratory classes. As you proceed through your course the number of structured hours decreases and there's a strong emphasis on project work in your final year.

Learning settings:

Laboratory-based work is an integral part of our Electronic & Electrical Engineering degree programme, vital not only to develop your experimental practical skills, but also to reinforce concepts introduced in lectures. Practical sessions typically last two to three hours, although more advanced experiments and activities may span over several sessions.

Lectures take place in our theatres which, as well as the traditional whiteboard and pen, are equipped with the latest technology, including facilities to show movies, animations and graphics, to record lectures and to interact with 'ask the audience' style electronic voting systems.

Small-group tutorials/personal tutorials run alongside the lecture course, addressing any individual problems you may have and allowing you to consolidate lecture material, as well as test your understanding through problem-solving exercises.

Project Work. All of our undergraduate programmes feature a significant level of project working in each year of study, with individual and group projects designed to prepare our graduates for teamworking, problem solving and project management. To support this the entire second year goes on a team-building weekend in the Lake District before starting their group project, and those who take an MEng degree programme do the same again before starting their major group project in the third year. For many of our students these weekends help to build skills and friendships which last long beyond their project work.

Enquiry Based Learning (EBL) is a group activity which requires you to work in a team, with a variety of assessment methods; in either a group or individually, by written reports and sometimes as a presentation. Based on techniques used in research-led organisations like the University of Birmingham, EBL gives you a research-orientated approach to a problem and helps you to gain essential skills that are highly valued by employers.

Assessment methods

The course modules are taught through lectures, tutorial problem classes, and laboratory and/or project work, and you'll be assessed through a mixture of written exams and continually assessed coursework. As your degree progresses, you will attend fewer lectures and perform more practical work in preparation for your final-year project. Around half of the total course marks are assessed through formal examination, and half through coursework or continuous assessment.

During your first year you will undergo a formal 'transition' review, mentioned above, to see how you are getting on and whether there are particular areas where you need support. This is in addition to the personal tutor who is based in your School or Department and can help with any academic issues you encounter. Our Academic Skills Centre also offers you support with your learning. The centre is a place where you can develop your mathematical, academic writing and general academic skills. It is the centre?s aim to help you to become a more effective and independent learner through the use of a range of high-quality and appropriate learning support services. These range from drop-in sessions with support with mathematics and statistics based problems provided by experienced mathematicians, to workshops on a range of topics including note taking, reading, writing and presentation skills.

Feedback is an essential part of learning and we use a wide range of methods, such as written feedback on your assessments, class feedback sessions and discussions with your tutor. You'll receive feedback on each assessment within four weeks, highlighting the positives of your work as well as any areas that need more attention. You will also be given feedback on any exams that you take; if you fail an exam we will ensure that you receive particularly detailed feedback to enable you to learn for the future.

Employability

Feedback from the National Student Survey shows that 95% of our students go on to work or further study after graduation and that 95% of them are in professional/managerial jobs six months after graduation, earning salaries in the range of ?23-?27,000 per annum.

Preparing for your career is one of the first things you need to think about when you start university. There is a great demand for trained engineers, and armed with a good degree from a world-renowned university like Birmingham, our graduates have the opportunity to get involved in all sorts of exciting projects close to home or further away. Our accredited degree programmes provide an excellent preparation for rewarding professional careers in the electronics, computing, telecommunications and energy industries. But the skills you'll gain, such as technical engineering, applied science and mathematical, computing, teamworking, and project and management skills, also open up career opportunities in the fields of financial services and consultancy.

At the University of Birmingham, we enhance your employability with superb opportunities to gain industry experience, assiting you to secure mentoring opportunities, global internships and placements. Spending a whole year in industry between your second and final study years is a chance to earn money and gain real-life experience, allowing you to get involved in serious projects and put into practice the skills and knowledge gained from your degree. It's a great chance to prove your worth and placements often lead to sponsorship and/or the offer of a graduate job.

We also offer voluntary work which complements your studies by helping you gain practical experiences in occupational settings while contributing back to society. This can bring new skills that will be useful throughout your future and can make a positive impact on your learning whilst at university. Volunteering enables you to develop skills such as communication, interpersonal skills, teamwork, self-confidence and self-discipline all of which can be transferred into your studies.

Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge. In addition, our employer-endorsed award-winning **Personal Skills Award (PSA) (https://intranet.birmingham.ac.uk/as/employability/psa/index.aspx)** recognises your extra-curricular activities, and provides an accredited employability programme designed to improve your career prospects.

Your Birmingham degree is evidence of your ability to succeed in a demanding academic environment. Employers target Birmingham students for their drive, diversity, communication and problem-solving skills, their team-working abilities and cultural awareness, and our graduate employment statistics have continued to climb at a rate well above national trends. If you make the most of the wide range of services you will be able to develop your career from the moment you arrive.

Career destinations of recent graduates include:

- Engineering Officer (RAF)
- Graduate Engineer (Network Rail)
- Digital Media Assistant (Road Safety Analysis)
- Graduate Electrical Construction (National Grid)
- Design Engineer (IDX co. Ltd)
- Systems Designer (Amor Group)
- Graduate Test Engineer (Goodrich)
- Advanced Product Creation Engineer (Jaguar Landrover)
- Production Manager (Powelectrics Ltd)

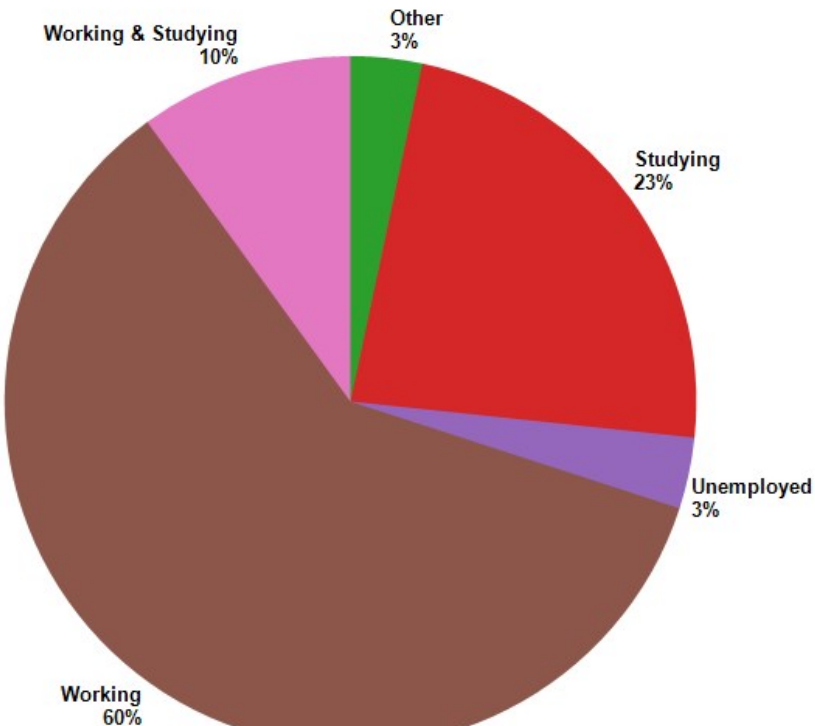
University Careers Network

Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

If you make the most of the **wide range of services (https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx)** you will be able to develop your career from the moment you arrive.

Destinations of Leavers from Higher Education (DLHE) 2011/12

The DLHE survey is conducted 6 months after graduation.



Examples of occupations

- Electronic Engineer
- Applications Engineer
- Communications (Electronic) Engineer - Officer
- Optimisation Consultant
- Manufacturing Engineer
- Junior Business Analyst
- Test Engineer
- Service Specialist
- IT Analyst
- Development Engineer

Further study - examples of courses

- MSc Project Management
- MSc Radio Frequency and Microwave Engineering
- MSc Electronic and Computer Engineering
- MSc Physics and Technology
- Postgraduate Certificate in Education - teaching
- AAT accountancy

Visit the **Careers section of the University website**

(https://intranet.birmingham.ac.uk/as/employability/careers/college/eps.aspx) for further information.

Professional accreditation

Professionally accredited by the Institution of Engineering and Technology and the Energy Institute

96% Students agreed staff are good at explaining things

BEng (Hons) Electrical and Energy Engineering
Full time

To see more details and compare with other courses

Visit UNISTATS

Official data collected by HEFCE

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