

London South Bank
University

Careers in Engineering Guide



the **brighter** choice

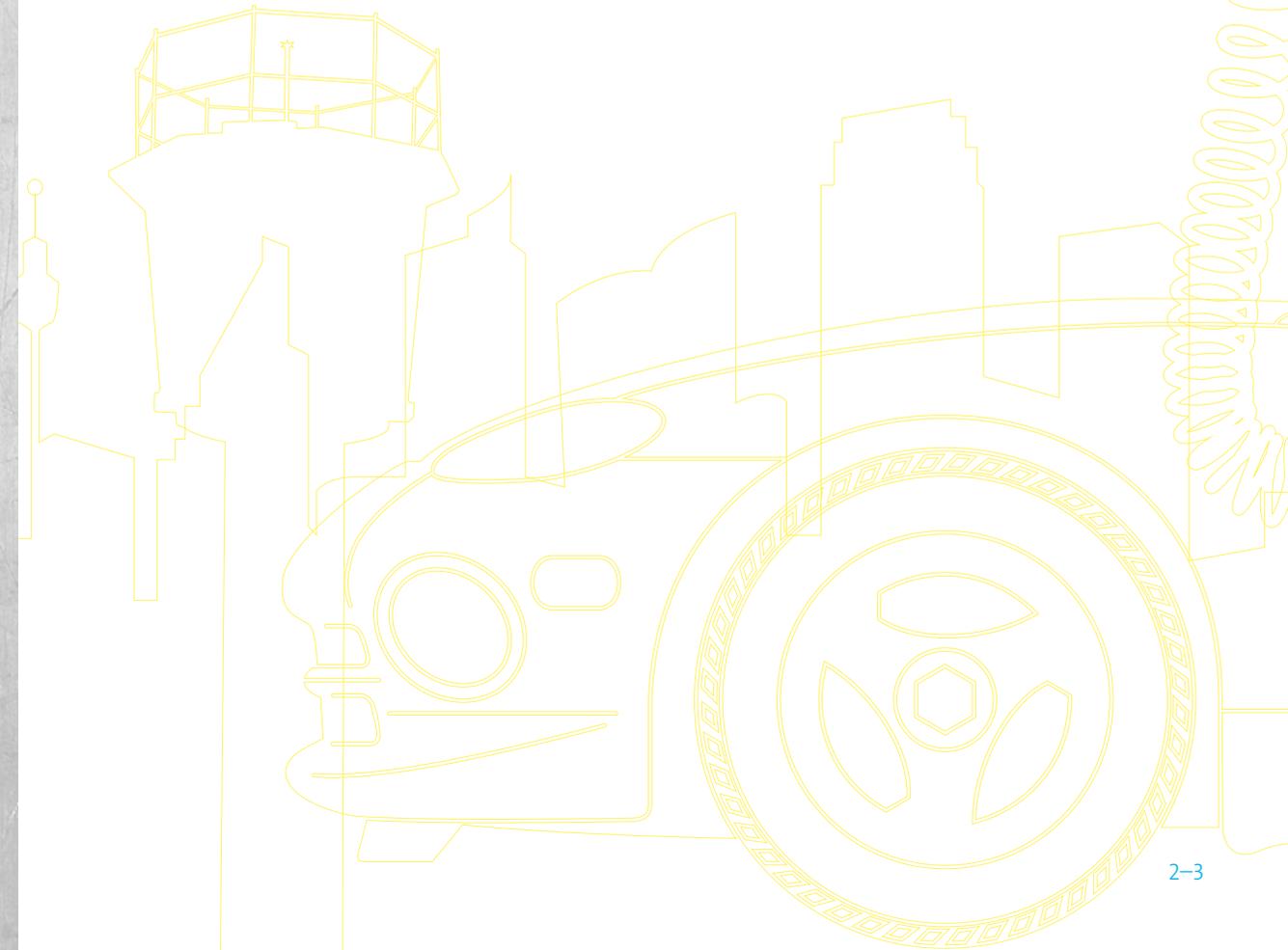


WHY ENGINEERING?

An engineering degree is a big challenge to take on. There is no denying it's an intensive subject to study, but all the hard work does pay off in the long run. Employers do recognise and reward the discipline that engineering graduates show, and the **applied technical skills that you'll develop as an engineer will always be in demand.**

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Educating professional engineers for over 120 years. We are...

...modern

What we teach and the way that we teach it has to evolve to keep up-to-date with industry needs. This is how we can continue to deliver strong career prospects for our graduates. We've examined what employers mean by 'work-ready graduates' and as a result we've developed three fundamental principles that we've built into to all our engineering programmes: innovation, enterprise, and professionalism. These are designed to best prepare graduates for the realities of modern engineering jobs.

THE CENTRE FOR EFFICIENT AND RENEWABLE ENERGY IN BUILDINGS (CEREB) IS A PIONEERING, MULTI MILLION POUND NEW FACILITY IN PARTNERSHIP WITH CITY UNIVERSITY LONDON AND KINGSTON UNIVERSITY LONDON. IT IS A UNIQUE TEACHING, RESEARCH AND DEMONSTRATION FACILITY FOR LOW CARBON TECHNOLOGIES IN THE BUILT ENVIRONMENT.



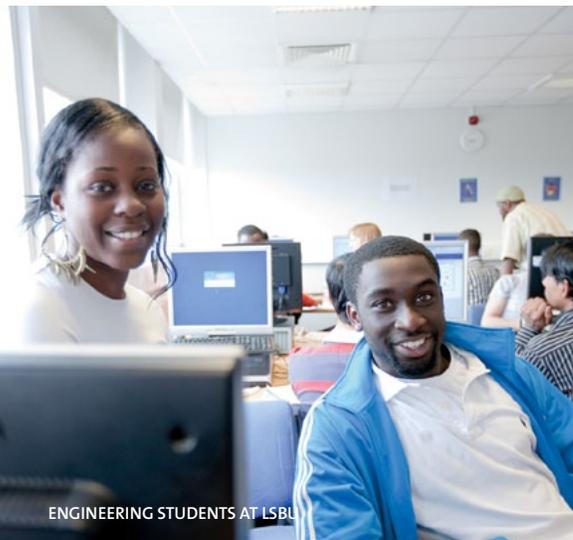
...innovative

The amount of project-based learning that you'll do on an engineering degree varies from university to university. At LSBU we offer design projects throughout the degree course rather than concentrating them all into your final year.

This means that you'll adapt theoretical principles to solve real-world engineering problems very early on in your university career. This experience of delivering innovation through these design-test projects makes you attractive to employers.

Innovation is at the very heart of what an engineer does on a day-to-day basis. Engineers look for practical ways of making things better, more efficient, cheaper, safer, stronger, more resilient, quicker, more integrated, more effective.

Our engineering courses will teach you first-hand how to develop these crucial skills and traits.



ENGINEERING STUDENTS AT LSBU

...professionally relevant

In reality most engineers will find themselves working side-by-side in multi-disciplinary project teams. One of the greatest professional assets that you can have is the ability to function well in this team set-up.

In part good team-working is about having good interpersonal and communication skills. It's also about the ability to appreciate the perspective and technical approach employed by different types of engineers. That's why some of our modules are shared across all our engineering courses.

Professional perspective is something that develops with work experience, but as an LSBU student you'll have a useful head-start.



REFRIGERATION LAB. LSBU

...enterprising

All of our undergraduate engineers take a module in the first year called Design and Practice and a module in the third year called Innovation and Enterprise.

These modules are about understanding the commercial priorities that shape engineering practice. They will help you to get to grips with commercialisation as an industrial process and start to appreciate the inherent challenges of bringing things to market and the steps you need to take to overcome them.

Guest lecturers from world-renowned companies, such as Rolls Royce, have lectured on these modules.



ARNOLD DU TOIT, LSBU ROLLEYGOLF® THE WORLD'S FIRST HOP ON GOLF TROLLEY BSC IN ENGINEERING PRODUCT DESIGN, MSC IN ENTERPRISE



MAKE YOUR MARK

BUILDING SERVICES ENGINEERING

covers pretty much everything you can think of in a building – all the things that make it safe, comfortable and functional. This includes both big and small buildings, and deals with everything from making sure the floodlights at Old Trafford don't cut out halfway through the match to developing homes that can generate their own sustainable sources of gas and electricity. Building Service Engineers help buildings to deliver on their potential – not just offering shelter, but enabling those who live or work in them to achieve their full potential.

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Typical starting salary for an LSBU graduate is £25,000*

*which university comparison site

Types of career

Building Services Engineers get involved with buildings at a variety of different points, whether it is at the design and build stage (making sure new buildings are optimised and 'future-proof' from conception) through to contracting and consultancy work, or managing the use of buildings and facilities once they are up and running.

Typically, Building Services Engineers tend to specialise in electrical engineering, mechanical engineering or public health. Typical tasks will include negotiating and developing contracts and agreeing them with clients, commissioning work from contractors, using CAD software to design the systems needed for a project, sticking to the budget for the project, overseeing the installation of building systems and making sure that they will be maintained and operated properly, and advising clients and architects on energy use and conservation.

It is a varied career, where no two days (or buildings) are ever the same. Salaries for experienced engineers range from £25,000 to £35,000 – although partners in engineering firms can earn up to £85,000.

Professional accreditation

Our Building Services Engineering degree is accredited by the Chartered Institute of Building Services Engineers (CIBSE) and the Energy Institute, and our Architectural Engineering course is accredited by the Joint Board of Moderators. Our close relationship with these bodies enables us to make sure that what you study can be applied to the industry itself. This will help you to graduate as a Building Services Engineer with the skills to deliver innovative and sustainable solutions to help buildings maximise their potential, able to make a difference to your new employers immediately. Both degrees are stepping stones to qualification as a Chartered Engineer, with the increased earning potential that naturally accompanies chartered status.

You'll be in great company too; around half of all the graduates in this industry have studied at LSBU, so potential employers will understand the value you can add to their business from the moment they open your application.

**ALL IN A DAY'S WORK.
I'M AN ENGINEER.**

CHEMICAL AND PETROLEUM ENGINEERING

involves designing, developing, constructing and operating industrial processes to produce a huge range of products including oil and gas, pharmaceuticals, energy, water treatment, food and drink, plastics, and toiletries. It's an industry that is firmly focused on meeting the challenges of tomorrow; using the earth's resources as efficiently as possible to provide for the needs of future generations.

Engineers are involved at every stage from researching and testing new products through to making them commercially viable, helping them to be implemented on an industrial scale and then modifying and improving them once they are in operation.

Typical starting salary for an LSBU graduate is **£25,000***

*Faculty average engineering starting salary, source: Destination of Leavers from Higher Education Survey (DLHE)

Types of career

Petroleum Engineers will find themselves working with geoscientists, other engineers and commercial managers to find the best places to locate wells and predict how much oil or gas could be produced there, **using complex mathematical models** to make sure the material is recovered as efficiently as possible. They'll design parts of the well and production systems, and provide feedback to clients. Typical earnings range from £52,000 to £95,000 a year.

Chemical Engineers will work with process chemists and control engineers to make sure process plants are set up efficiently, and configure equipment to help with that process – all the while taking environmental and economic aspects of their role into consideration. **They'll apply new technologies, design, install and commission new production plants** and make sure that safety issues are considered at all stages. Examples of the kind of work involved would include developing new methods of safe nuclear energy production. Experienced engineers earn around £50,000.

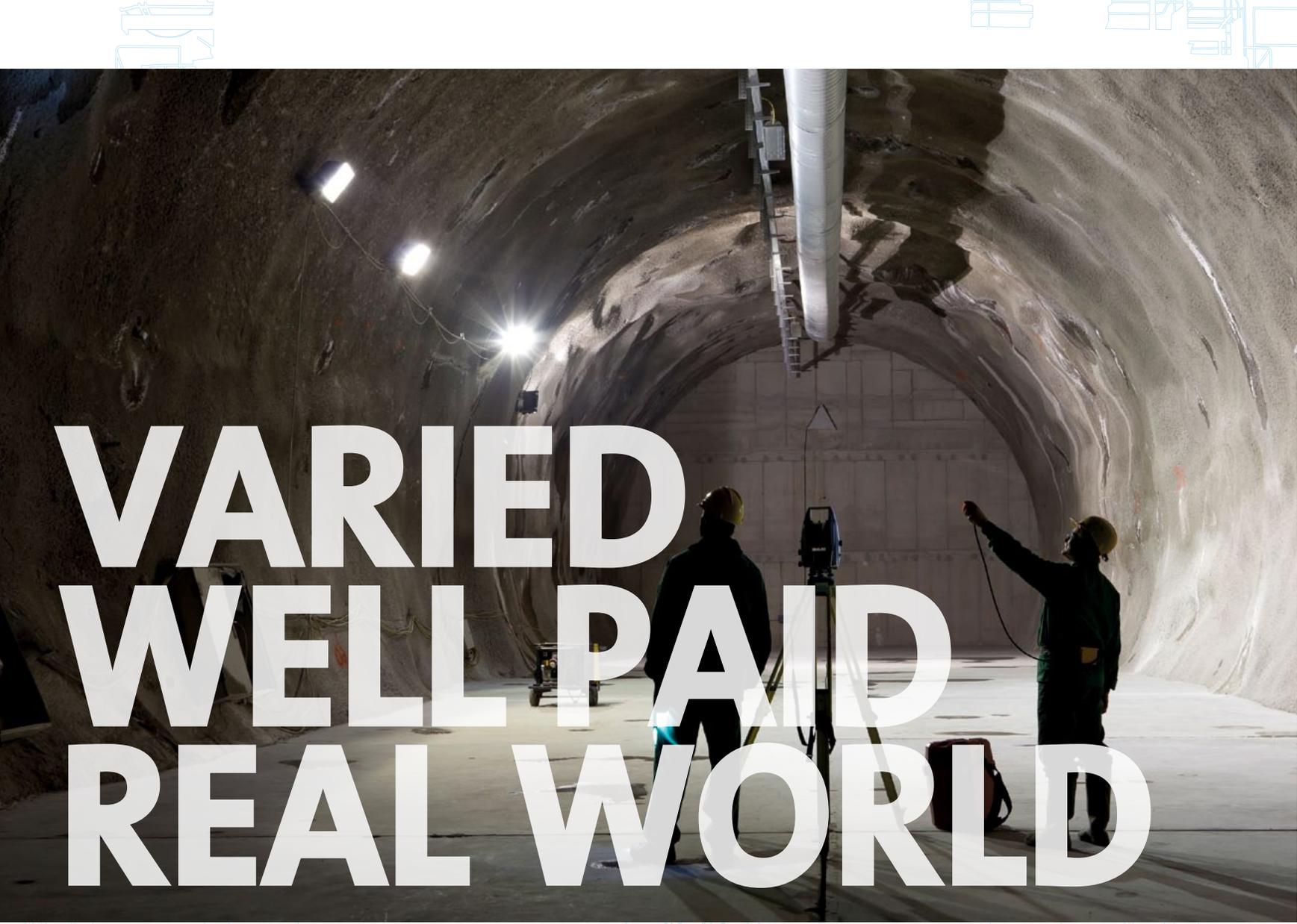
Professional accreditation

Our degrees are accredited by the Institution of Chemical Engineers (IChemE), which means that successful graduates are on a path to apply to become Chartered Engineers. On average, Chartered Engineers earn around £15,000 a year more than their colleagues, so the opportunity to start your career with an accredited degree gives you an exceptional advantage. It is also a demonstration of the close relationship we have with the industry, and the way in which **we work together to make sure that we are delivering the kind of graduate that the industry needs.**



DESIGN
TEST
DELIVER

ALL IN A DAY'S WORK.
I'M AN ENGINEER.



VARIED WELL PAID REAL WORLD

CIVIL ENGINEERING is all about designing, building and maintaining things that can change the world. Roads, bridges, canals, dams and buildings have all played an integral role in how the human race has developed over thousands of years – and Civil Engineering is the discipline that has laid the foundations for the growth of villages, towns, cities and ultimately – civilisation. Civil Engineers deliver a vital service in ensuring the safe, timely, well-resourced construction of a huge range of projects in the built and natural environment, from transport networks to the Olympic Stadium.

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Typical starting
salary for an LSBU
graduate is
£26,000*

*which university comparison site

Types of career

Because Civil Engineering is such a broad area, there are lots of different specialisms for you to consider after graduating – but our degree will give you a solid foundation for entering any of them. Regardless of what it is that they are building, Civil Engineers will typically undertake site surveys and feasibility studies, analysing the risks of a project and coming up with designs to meet the challenges they face. They'll work with engineers and scientists from a wide range of backgrounds, assembling the right team of contractors for the job and overseeing their work as the build begins, managing budgets and ensuring all the relevant laws are obeyed in the new construction. They'll provide progress reports to their clients, and will play a crucial central role in the project until the building is finished – at which point a Civil Engineer will often draw up and hand over protocols for the maintenance and servicing of the construction too.

Civil Engineers typically earn around £31,000 with a few years' experience, but Chartered Engineers will find average earnings to be nearer to £47,000.

Professional accreditation

Our Civil Engineering degree is accredited by the Engineering Council, which accredits courses on behalf of the Institution of Civil Engineers (ICE), the Institution of Structural Engineers (ISE) and the Chartered Institution of Highways & Transportation (CIHT). Successfully completing the BEng (Hons) Civil Engineering will allow you to register as an Incorporated Engineer, and it also lays the foundations for you to continue your learning to eventually reach Chartered Engineer status, after postgraduate study and training. Our accreditations are testament to the strength of the structural and geotechnical engineering elements of the course.

MY CAREER WISH LIST.
THAT'S WHY I'M AN ENGINEER.

ELECTRICAL AND ELECTRONICS ENGINEERING

is all about designing, developing and maintaining electrical control systems. Engineers in this sector help to make sure our electronics and electrics are safe and reliable, and capable of performing to high standards of quality.

The impact of these engineers can be felt across many sectors. For example, they provide lighting, heating and ventilation for buildings, they make sure that our transport networks run efficiently and safely, they help to power the manufacturing and construction industries, they develop wireless technologies and networks and they play a crucial role in the production and distribution of power. You may not realise just how far-reaching the industry is, but it can be said that there are few parts of our life that don't owe at least something to the work of electrical and electronics engineers.

Typical starting salary for an LSBU graduate is **£24,000***

*which university comparison site

Types of career

Electrical and Electronics Engineers can find themselves **working in all kinds of environments and sectors.** You might work in a production plant, a workshop, an office, a laboratory, a factory or on site with a client.

Engineers can be involved in projects from the very start to the very end, and often find themselves involved in maintenance programmes too. Sometimes they specialise in a particular part of the process and on other occasions they may be involved at every stage. They tend to work in multi-disciplinary teams with engineers from other areas, as well as architects, marketers, manufacturers, technicians and more.

Typical tasks will include identifying the needs of the customer and user, designing systems and components, researching solutions and estimating costs and timescales, making prototypes, designing and conducting tests, ensuring safety standards are adhered to at all times, and modifying, improving and maintaining the product once it is finished.

Chartered engineers can earn between £40,000 and £50,000 per year, and some can earn even more.

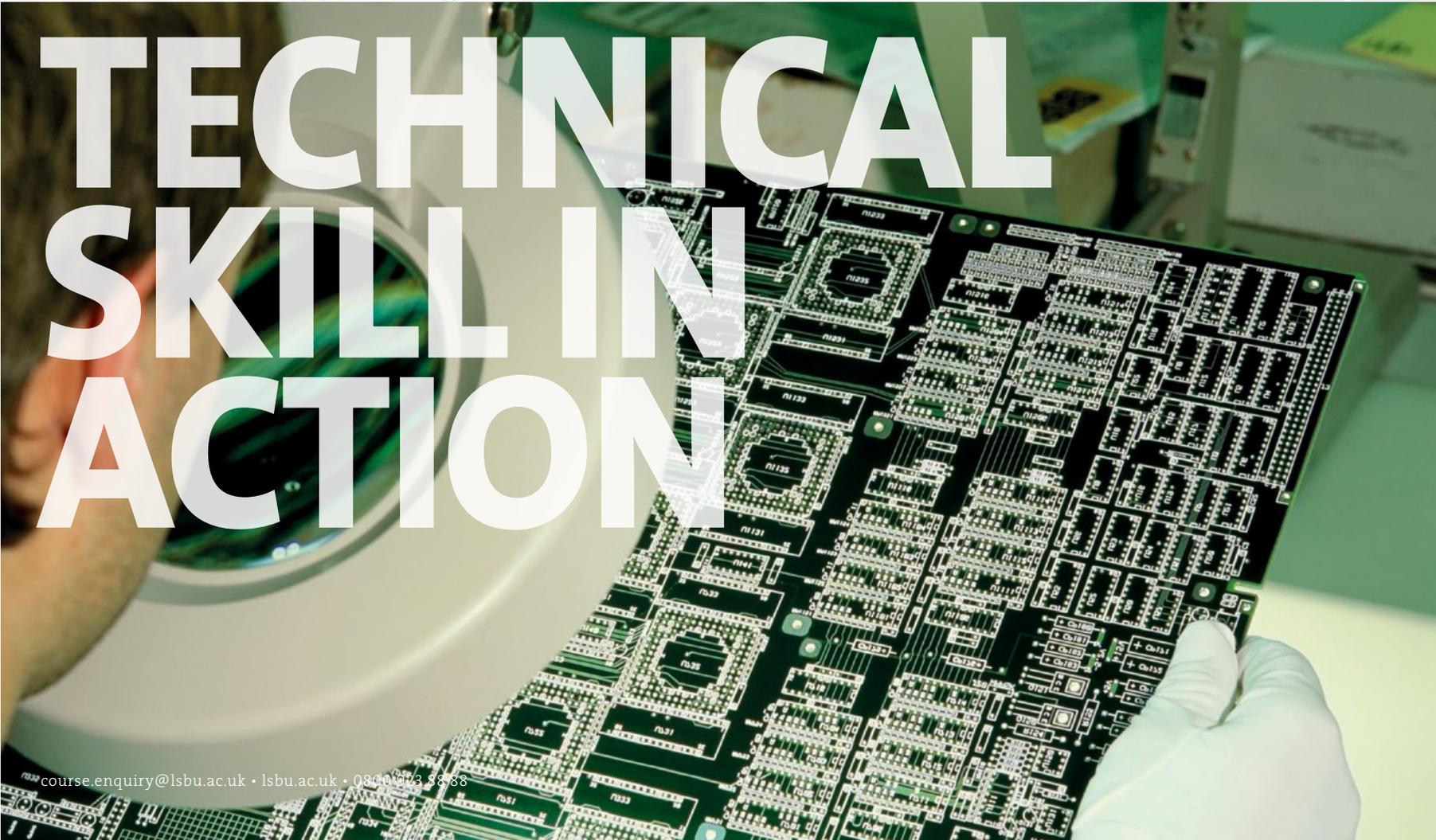
Professional accreditation

All our BEng courses in this area are accredited by the Institution of Engineering Technology (IET), which is a world-leading professional organisation for engineers and a trusted source of essential engineering intelligence. The IET has more than 150,000 members worldwide in 127 countries and by enrolling on any one of our BEng courses you will have earned the right to join the IET and to be on your way to a chartered engineer status.

Our courses are closely aligned with industry and this accreditation means that **our degrees have been developed in line with the latest thinking from one of the leading professional institutions in engineering.**

By adhering to the standards specified by the IET we can be sure that our graduates have the skills and experience required to hit the ground running. More to the point, companies that you apply to will feel the same way.

**ALL IN A DAY'S WORK.
I'M AN ENGINEER.**



TECHNICAL SKILL IN ACTION



MAKE YOUR MARK

MECHANICAL ENGINEERING

can be seen and felt everywhere in the modern world. Everything that has movement must have involved a mechanical engineer at some point. It will come as no surprise then, to learn that the role of the Mechanical Engineer is one of the most diverse of all engineering disciplines, with employment opportunities available across pretty much every sector you can think of – energy, transport, aviation, motor companies, robotics, pharmaceuticals, the marine industry – wherever you want to go, a degree in Mechanical Engineering can help you to get there. Mechanical Engineers can also find themselves involved in managing people and resources, as well as developing new materials and technologies.

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Typical starting salary for an LSBU graduate is £25,000*

*Faculty average engineering starting salary, source: Destination of Leavers from Higher Education Survey (DLHE)

Types of career

With such a varied list of career prospects, you can be sure that life as a Mechanical Engineer will never be dull. The kinds of projects you might be involved with will depend on the sector you choose to work in – you could find yourself designing a mechanical heart to prolong human life, or improving the production process on an oil refinery. It really is that diverse.

Mechanical Engineers will work on a project from the initial brief through to the final manufacture and implementation, and will generally work as part of a team with engineers from other disciplines. You'll find yourself involved in the early planning of a project, testing and evaluating theories and working with others to solve complex problems, as well as ensuring that your solutions can be made again reliably, and will work well in the environment it needs to operate in.

Professional accreditation

Our Mechanical Engineering degree is accredited by the Institution of Mechanical Engineers (IMechE), which means that it is a step towards qualifying as a Chartered Engineer. We have been continuously accredited by the IMechE for over 25 years.

ENGINEERS DO. EVERY DAY.

MECHATRONICS ENGINEERING

is a branch of engineering that does not separate individual disciplines and instead treats them all as integral parts of the engineering 'whole'. It is a mix of Mechanical Engineering, Electrical Engineering, Computer Engineering, Systems Design Engineering, Control Engineering and Software Engineering. A classic example of the kind of product that is the result of Mechatronics Engineering would be an industrial robot such as those used on car assembly lines. It is a complex yet hugely rewarding engineering discipline in an exciting and emerging field, and work is available across variety of different industries.

Typical starting salary for an LSBU graduate is **£24,000***

Types of career

A Mechatronics Engineer can expect to find themselves working in areas such as automotive design and manufacturing, robotics, transport systems, and engineering research and design. They will **design, develop, maintain and manage high-tech engineering systems, and be creative, lateral thinkers capable of identifying the ways** an automated solution could be applied to a particular problem or issue. As well as working in heavily industrial settings, they can also find themselves working in a more commercial environment – for example, improving the way in which a digital camera's autofocus works.

As with all modern engineers, Mechatronics Engineers will be heavily involved in conducting feasibility studies, providing detailed costing reports and understanding (and explaining) the financial implications of various automation programmes. They'll manage projects from start to finish and make sure that they not only meet the brief, but stay within budget too.

*which university comparison site



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VARIED WELL PAID REAL WORLD

PRODUCT DESIGN ENGINEERING

New ideas keep the world going round. Whether these new ideas are for a bicycle or a jet engine, a fountain pen or a super-fast laptop computer; product designers are the innovators who visualise tomorrow's products today, and then find ways to manufacture them. Design is a balance of art and science, so Engineering Product Designers blend brilliant creative thinking with striking scientific insight. The result is the creation of new products that help people deal with everyday problems – from solving minor inconveniences such as the user interface on a washing machine to tackling major issues like launching lifeboats faster.

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Typical starting
salary for an LSBU
graduate is
£18,000 – £25,000*

*Faculty average engineering starting salary, source:
Destination of Leavers from Higher Education Survey (DLHE)

Types of career

Product Design Engineers work on pretty much any product you can imagine – and probably a few that you can't! They work in multi-disciplinary teams alongside researchers, material specialists, marketers, manufacturing engineers and sales teams to get a real understanding of what a product needs to do, and the best ways to propose a solution. They are involved throughout the creative journey: brainstorming concepts and sketching them out, using 2D and 3D CAD software to create specific designs before producing prototypes or working models, testing the designs, researching the costs of production, and presenting the end result to senior managers at the end of the project. Due to the varied nature of product design, salaries can vary significantly, and designers with a few years' experience can earn between £25,000 and £45,000.

Professional accreditation

Our course is accredited by the Institution of Engineering Designers (IED) and is one of the longest-running degrees to hold that accreditation. Our links with the IED mean that our course content is regularly reviewed and revised, making absolutely sure that we are teaching the skills and techniques that the design industry needs from graduates. In addition, graduates will find that Incorporated Engineer or Chartered Engineer status is possible after graduation, once the relevant work experience has been completed.

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THAT'S WHY I'M AN ENGINEER.**

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