Wolfson School of Mechanical, Electrical and Manufacturing Engineering
Welcome

Loughborough University is regarded as one of the best institutions in the UK to study Mechanical, Electrical and Manufacturing Engineering.

Our reputation for pioneering and topical research is built on a rich and successful history, with courses dating back to 1909. By choosing Loughborough as your destination to study, you can draw on the wealth of experience and expertise acquired throughout the school’s 100 years of excellence.

The Wolfson School of Mechanical, Electrical and Manufacturing Engineering leads in technological research and innovation, with extensive national and international connections to industry. We provide international leadership in research and innovation, which feeds into our modules, providing you with an unrivalled educational experience.

Furthermore, our course content remains industry-focused, research-driven and exceeds industry standards. Our courses offer a blend of first-class academic and practical skills in partnership with commercial and industrial awareness, which ensures you will have the expert skills and knowledge required to have a successful and effective career in engineering.

Like 200 of our students a year, you may also choose to undertake a year working in industry, which will provide you with the opportunity to gain vital paid work experience in a professional environment, boosting your graduate employability prospects. We have links with some of the largest companies in the world, including 3M Health Care, Adidas, BAE Systems, Bentley Motors, BMW Group, Caterpillar, IBM, Nike, Proctor & Gamble and Unilever, to name just a few.

We hope this brochure gives you an insight into what it is like studying at Loughborough, and the enriching and valuable experiences that are available to you, opening routes to many career possibilities. We aim to realise the potential of all our students, and to help you find your place in the busy, exciting and fulfilling world of engineering.

Professor Paul Conway
Dean of Wolfson School of Mechanical, Electrical and Manufacturing Engineering
Why study Mechanical, Electrical and Manufacturing Engineering at Loughborough?

The Wolfson School of Mechanical, Electrical and Manufacturing Engineering is one of the largest engineering schools in the UK and provides an unrivalled educational experience.

We are ranked inside the top 10 for all three disciplines within subject league tables in the UK and our outstanding facilities, superb teaching and strong links with industry will ensure you are ready for your future engineering career.

Our courses are designed to allow you to receive a strong blend of first-class academic and practical skills in partnership with commercial and industrial awareness. Course content across the School remains industry relevant and research driven. So, by choosing Loughborough you can draw on the wealth of experiences and expertise acquired from active leading research in these fields and benefit from our close working links with Adidas, BAE Systems, IBM, Unilever and more.

Placement year and study abroad
To help you prepare for your future career, we place great importance on practical experience. That is why our courses are embedded with real-life projects, giving you the opportunity to boost your knowledge and skillset.

You may also choose to undertake a year working in industry, which will provide you with the opportunity to gain vital paid-work experience in a professional environment boosting your graduate employability prospects and earning an additional award – Diploma in Industrial Studies (DIS). Some of our courses also provide an opportunity for you to study abroad leading to a Diploma in International Studies (DIntS).

Teaching excellence
You will be supported by a network of personal and subject tutors and a caring team of administrative staff throughout your time at Loughborough. They will guide you through your choice of course electives including international study, industrial placement and a range of subjects with which you can tailor your degree to your individual requirements. Additionally, our laboratory facilities are managed by highly experienced technical staff, who will work closely with you to develop and realise your potential.

Equality and diversity in STEM
We are committed to creating a diverse and inclusive working, learning, social and living environment that enables students to achieve their potential and which celebrates and encourages diversity. Our aim is to maximise opportunities for all, and this has been recognised through our Athena Swan Bronze award.

“I chose to study at Loughborough because I was blown away by the student projects that I saw at the Open Day. Loughborough really stood out as somewhere that I could gain practical experience and apply what I was learning in lectures and the opportunity to complete a placement year was a huge draw.”

Leah
Mechanical Engineering
Engineer your career

Industry wants highly adaptable graduates with relevant practical experience and excellent communication skills. They consistently target Loughborough University, as industrial experience is a key component of all of our engineering and technology degrees.

Placements
We encourage all of our students to undertake a year in industry to gain significant and valuable experience. Typically, these placements are in engineering, design or technology focused roles, with successful competition leading to a Diploma in Industrial Studies (DIS).

Placements are available on all of our courses and are typically taken after your second year of study (for MEng students it can be after the third year of study), and last 12 months. You will earn a salary whilst having the opportunity to develop both technical and transferable skills, which are both useful when it comes to graduate employment.

There are many benefits to undertaking a placement as part of your degree course. 74.6% of engineering graduates who did a placement year were in full-time employment six months after graduation, compared to 67.8%, who opted not to undertake a placement.

At Loughborough, returning placement students may benefit from sponsorship arrangements from the host company for the final stages of academic study. In some cases, students may have initial offers of further employment upon successfully completing their degree course. Furthermore, students often perform better in their final academic year, gaining higher degree averages and higher salaries after graduation, than those who opt not to take part in industrial training.

The UK/EU university fee for the placement year is reduced to 20% of the tuition fee, which maintains your student registration and covers the cost of three placement visits to your company by academic staff, who will support you throughout the year.

Additional qualifications
During your placement year, you will work towards one of two Diplomas; Diploma in Industrial Studies (DIS) or Diploma in Professional Studies (DPS), both of which count as an additional qualification to your degree. Some students may opt to complete a Diploma in International Studies (DIntS) for work completed outside of the UK.

The DIS helps students to record their specific engineering skills, working towards the Engineering Council’s UK Standard for Professional Engineering Competence (UK-SPEC). Our DIS scheme is aligned to and integrates with the UK Engineering Council UK-SPEC, which sets out the competence and commitment required for registration as an Engineering Technician (EngTech), Incorporated Engineer (IEng) or Chartered Engineer (CEng), across five generic areas of competence and commitment. Students can register with a number of professional institutions, such as the Institution of Engineering Designers (BED), the Institution of Engineering and Technology (IET) or the Institution of Mechanical Engineers (IMechE).

The DPS enables students to work in different sectors to engineering, such as finance, business or management.

Support
Every year approximately 200 Wolfson School students opt to undertake a placement year. Our dedicated Placement Team offer a variety of support, from helping students develop their CVs, to discussing placement options. They also deliver the annual Loughborough Engineering Placement and Careers Fair, hosting over 70 companies each year. This Placement Fair is held at the beginning of the academic year and all second year students are invited to attend.

Placement companies include:

Inspiring graduates

Your time at Loughborough will form a launchpad from which you can build an exciting and successful career. With so many opportunities available, you’ll never be short of ways to improve your employability prospects.

Career Opportunities

The UK has a wealth of engineering and technology companies, ranging from SMEs to multinational global corporations, meaning everyone has the opportunity to find a company that suits them. Our degree courses provide you with a diverse skillset that includes project management, communication, teamwork, leadership, critical thinking and analysis, setting you up for a successful career in engineering.

From the most recent graduate destinations data, 94% of Wolfson School graduates were in full-time employment or further study, six months after graduating1. Furthermore, national engineering survey data published by the UK Engineering Council2 shows that the national average starting salaries for new graduate engineers and technologist was approximately £25,600, for electronic and electrical engineers £25,700, for manufacturing engineers £24,200 and for mechanical engineers £26,100. Loughborough graduates typically command initial salaries better than the national average, with the average starting salary being around £27,000 – with some graduates earning far more.

Graduate roles include:

• Control Engineer
• Design Engineer
• Electrical Engineer
• Electronics Engineer
• Field Engineer
• Financial Analyst
• Lab Operations Engineer
• Manufacturing Engineer
• Mechanical Engineer
• Network Engineer
• Packaging Design Engineer
• Performance Development Engineer
• Product Technologist
• Production Engineer
• Powertrain Engineer
• Systems Engineer

Support

The Loughborough University Careers Network Team are a central careers team who provide support for students from first year through to graduation and beyond. They offer CV advice, drop-in sessions, as well as running the largest University Careers Fair in the country, which is regularly attended by over 200 employers.

Graduate destinations include:

Wolfson School average starting salaries
DLHE 2016–2017 survey

<table>
<thead>
<tr>
<th>Course</th>
<th>MEng</th>
<th>BEng</th>
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</thead>
<tbody>
<tr>
<td>Electronic and Computer Systems Engineering</td>
<td>£27,600</td>
<td>£26,000</td>
</tr>
<tr>
<td>Electronic and Electrical Engineering</td>
<td>£27,700</td>
<td>£23,300</td>
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<tr>
<td>Engineering Management</td>
<td>£29,100</td>
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<tr>
<td>Manufacturing Engineering</td>
<td>£30,300</td>
<td>£28,000</td>
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<tr>
<td>Mechanical Engineering</td>
<td>£27,000</td>
<td>£26,900</td>
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<tr>
<td>Product Design Engineering</td>
<td>£26,700</td>
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<tr>
<td>Sports Technology</td>
<td>£26,700</td>
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</tbody>
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1 2016/17 Loughborough University Destination Leavers from Higher Education Survey
Focus on entrepreneurs

For some of our graduates, the journey after university does not include working for an established company. Instead, it is all about the drive to start their own business. In many cases, the idea starts during the third year Individual Project, which shows proof of principle, but also the potential for commercialisation.

Many of our entrepreneurs take advantage of our Enterprise Network and The Studio, who have supported over 50 start-up businesses since 2011, through developing an entrepreneurial mindset and expanding the skills and knowledge of our graduates. Below are just some of the companies our graduates have started with products successfully taken to market:

Alcuris
Alex Nash graduated with a BEng in Product Design Engineering. Taking inspiration from a family member, he decided to start his company Alcuris, an assistive technology start-up company. The Memo platform is a wireless sensing system which monitors day to day activity around the home of older or vulnerable individuals giving family reassurance and peace of mind.
www.alcuris.co.uk

ExpHand
Kate Walker graduated with an MEng in Product Design Engineering. She began her company during her degree, using the output of her Individual Project to start ExpHand. Her 3D printed prosthetic grows with an individual through a series of moving parts.
www.expandprosthetics.com

Omlet
Simon Nicholls graduated with a BEng in Product Design and Manufacture. During his fourth year, he and three others founded the Omlet company, originally selling innovative chicken coops. The company now sells a wide range of highly functional pet products globally. Simon is head of Product Design, Manufacture and Supply Chain.
www.omlet.co.uk

ORB Innovation
Robert Paterson and Thomas Quinn graduated with an MEng in Electronic and Electrical Engineering respectively. They have developed their company ORB Innovations, a hardware enabled sports analytics company focused on making contact sports safer through their smartguard mouthguard.
www.orbinnovations.com

Protean Advanced
Sophia Jones graduated with an MEng in Innovative Manufacturing Engineering. After working for an additive manufacturing SME for over five years she has now begun Protean Advanced, an additive manufacturing and 3D printing engineering consultancy, providing technology-agnostic expertise.
www.proteanadvanced.com

Stewart Golf
Mark Stewart graduated with a BEng in Manufacturing Engineering and Management. He then started Stewart Golf, a company that leads the way in designing luxury golf trolleys which are designed and hand built in the UK. Their ground-breaking XF Fellowship is owned by celebrities and club golfers alike.
www.stewartgolf.co.uk

Torpey Hurleys
Sean Torpey graduated with a BSc in Sports Technology. He took his learning throughout his degree programme, and his year long placement at Adidas in Germany, back to Ireland where he is now taking over the family business and bringing new innovations to the sport of hurling.
www.torpeyhurleys.com

Version 22
Simon Lyons graduated with an MEng in Product Design Engineering. He took the output from his individual project, Geco Hub, and brought it to market through crowdfunding. Since then Version 22 have launched two other brands of products; Nimble and Mobu. Geco Hub 2.0 is also now on the way to market.
www.version22.com
Outstanding facilities

Loughborough has an international reputation for being at the forefront of technological innovation. Our extensive range of first-class facilities are designed to help you throughout your studies and fully-equip you for your future endeavours.

The Wolfson School is a leading centre of engineering research in the UK. We have seven key research themes that are involved with internationally recognised cutting-edge engineering, science and technology. The School is home to the Sports Technology Institute and is a joint primary academic partner in the £40 million UK Manufacturing Technology Centre (MTC) based at Ansty Park (Coventry), and joint academic partner of the first UK Government funded Catapult Centre – High Value Manufacturing.

Our research funding provides additional equipment and facilities that are shared for teaching activities, which allows academic and research staff to develop specialist modules that can be chosen in the third and/or fourth year of each course. By joining Loughborough, you will have access to specialist equipment and research which will benefit your individual and group project work, as it will link with current research activities, allowing you to enter industry with the latest ideas and concepts.

We have over 15,000m² of outstanding facilities across five dedicated buildings, offering you the opportunity to learn and experience the latest technologies. We have specialised laboratories dedicated to:

• The acquisition of fundamental knowledge (ie control, dynamics, kinematics, materials, thermofluids and tribology)
• Developing an understanding of product realisation (ie additive manufacturing, machine tool systems and electronics manufacture)
• Collating your knowledge, skills and understanding in application domains (ie aerospace engineering, automotive engineering, healthcare engineering, sports engineering and mechatronics and robotics, sports engineering)
• Providing direct experience of industrial equipment (ie CNC machine tool systems, flow soldering, laser material processing, metrology instrumentation and production line systems)

You will also have access to computers, microprocessors and Computer Aided Design, engineering, manufacturing and simulation facilities. Our own machine shops, electronics workshops and design suite are found within our buildings. A wide range of additional facilities are also available across the university.

Our teaching and research activities are enabled and supported by our team of expert industrially trained technical staff who have specialist knowledge ranging from high precision machining to microprocessor electronics. They will help you to gain the most from our well-equipped teaching and research laboratories, that are subject to continuous investment and refurbishment.

Wolfson School laboratories
• 3D Printing
• Advanced Manufacturing
• Anechoic Chamber
• Electrical Machines
• Electronics Manufacture
• Fluid Flow
• Healthcare Engineering
• Heat Transfer
• Internal Combustion Engine
• ISO Class & Cleanroom
• Laser Materials Processing
• Materials Analysis
• Mechatronics
• Metrology
• Mobile Communications
• Nano Technology
• Noise and Vibration
• Optical Metrology
• Photovoltaic and Wind
• Power Systems
• Powertrains Facility
• RF Communications
• Robotics and Control
• Soldering
• Sports Technology
• Structural Integrity
• Sustainability
• Thermodynamics
• Underwater Acoustic Tank

Wolfson School software
• Abaqus
• Adobe Photoshop Elements
• Autodesk 3ds Max Design
• CATIA V5
• Dytran FEA
• Ecosy
• Mags
• Matl
• MATLAB
• MD Adams / MD Nastran
• Microsoft Office 365
• Microsoft Project
• Microsoft Visual Studio
• MindGenius
• Patran
• SAM
• Siemens SimPro
• Siemens Teamcenter Visualization
• Siemens PLM NX v11
• SASSIE CAD

STEMLab
A £17 million investment in a new state-of-the-art facility, which includes an adjacent student learning and teaching hub. It houses a suite of laboratories for practical work, including analogue and digital, electronics, control systems, dynamics, embedded systems, microcontroller programming and statistics, allowing students the crucial opportunity to gain applied experiences. These enhanced facilities further increase our ability to train and develop skilled graduates that are targeted by major employers from across the world.
Sophisticated electronic systems are everywhere, allowing us to communicate, monitor our health or be entertained. These embedded systems are now integral parts of our lives and developing these products needs special skills, requiring the application of both digital electronics and software expertise.

The MEng course is our premier course for high-calibre graduates to design and develop embedded systems for both the industrial and consumer sectors. The course provides a deep understanding of both the theory and practice of electronic and computer systems, together with the broad development of business and project management techniques.

The BEng course will equip you with the digital electronics, microprocessor and software skills needed to design, build and integrate technologies behind the products of the future, with relevance to many different industrial applications. It provides an ideal foundation for developing a successful engineering career.

This course has been accredited since 1981. In line with the Institution of Engineering and Technology (IET)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

Module overview
The first two years of the course provide an understanding of the fundamental principles of electronic engineering and computer systems. Compulsory modules concentrate on digital electronics, microprocessors and software. These are complemented by optional modules such as Communications, Communication Networks, Signal Processing and Microwave Circuits.

Teamwork and project management are critical in building practical and industry relevant skills and opportunities, so we ensure they are embedded throughout the course.

A key feature of the courses is the opportunity to work on industrial design problems and solutions with companies enabling group and individual project work. Multi-disciplinary teamwork is enhanced in the third year of the MEng course with a group project bringing in students from across a range of engineering courses.

All students are encouraged to spend a year in industry and to enrol for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in an industrial workplace setting.

Daniel
Electronic and Computer Systems Engineering

“The MEng Electronic and Computer Systems course at Loughborough University has given me a broad range of skills, progressing from fundamental concepts to more advanced specialisations, with the opportunity to apply these skills to real world projects whilst on placement. The course has been both challenging and rewarding.

When I joined McLaren Applied Technologies for my placement I was given the opportunity to contribute to a range of real life projects. My role was very varied, covering software development, hardware design and computer modelling aspects, with real responsibility and I was making a genuine contribution to a very exciting and cutting edge area of electronics.

Aside from the learning opportunities, I have found particular interest in a wide range of extracurricular sporting and hobby societies. Of which I believe the inter-university motorsport competition, Formula Student, has been pivotal in obtaining my graduate position, where I have re-joined McLaren Applied Technologies’ hardware design team. I hope to continue working on a similar range of challenging and high profile projects.”
Electronic and Electrical Engineering

**MEng (Hons) DIS/DPS**: 5 years full-time with placement year 
UCAS code: H605

**MEng (Hons)**: 4 years full-time 
UCAS code: H601

**BEng (Hons) DIS/DPS**: 4 years full-time with placement year 
UCAS code: H604

**BEng (Hons)**: 3 years full-time 
UCAS code: H600

**Typical offers**

- A level: (MEng) AAA (BEng) ABB including Maths and either Computing, Computer Science, Electronics, Engineering, Further Maths or Physics
- IB: (MEng) 37 (6,6,6 HL) (BEng) 34 (6,5,5 HL) including HL Maths and either Computer Science or Physics at HL
- BTEC Level 3 National Extended Diploma: (MEng) D*D*D* in a relevant subject plus A level Maths at grade A (BEng) D*DD in a relevant subject plus A level Maths at grade B

*Systems in Industrial/Professional Studies

Entry requirements correct at the time of print. Please check our website for the latest version and other qualifications.

**MEng/BEng**

Devices and systems are vital to modern society – central to almost all the new and fast-moving technological changes of the 21st century. Electronic and electrical engineering combines the study of electricity, electronics and electromagnetism, defining, understanding and designing devices and systems that are found in all aspects of domestic and industrial life.

Our MEng course is our premier course for high-calibre graduates become leaders across different industrial sectors. The MEng course provides a greater depth of theoretical understanding coupled with broader development of business management and theory.

The BEng course has been developed to provide you with a balanced theoretical and practical understanding of electronic and electrical engineering principles, with relevance to many different industrial applications. It provides the ideal platform for developing a successful engineering career.

This course has been accredited since 1982. In line with the Institution of Engineering and Technology (IET)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

**Module overview**

The first two years of the course provides an understanding of the fundamental principles of electronic and electrical engineering. You will develop a thorough understanding in the electronic and software skills needed to design and develop embedded systems.

A broad range of optional modules provide opportunities to specialise in different areas according to personal strengths and interests, ranging from advanced control, sensor systems and network technologies, to microprocessor architecture, microwave circuits and energy systems.

Teamwork and project management are critical in building practical and industry relevant skills and opportunities to master these are embedded throughout the course.

A key feature of the course is the opportunity to work on industrial design problems and solutions with companies enabling group and individual project work. Multi-disciplinary teamwork is enhanced in the third year of the MEng course with a group project bringing in MEng students from across a range of engineering courses.

All students are encouraged to spend a year in industry and enrol for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in an industrial workplace setting.

Mohammed

Electronic and Electrical Engineering

“I graduated from the Wolfson School after completing a MEng in Electronic and Electrical Engineering. Studying at Loughborough provided me with an invaluable platform to kick start my career. This is due to the close links with industry as well as the broad range of modules taught by excellent lecturers and professors covering many exciting aspects of engineering.

Directly after graduation I began my graduate scheme with Mott MacDonald, a global engineering consultancy to work in the Buildings and Infrastructure industry. Shortly after, I was sent to India to form and lead a small team of engineers to work on a task as part of the Crossrail project, a major infrastructure project with an approximate £15 billion construction value.

I am only able to take on such roles as a graduate because my degree course provided me with the skill set required through extensive group project work and various project management modules which taught me how to assess individual skills and in turn delegate work accordingly. Furthermore, the practical and group element of this degree exposed me to not only the crucial engineering skills required in industry but also an engineering problem solving mind-set.”
David
Engineering Management

“I graduated from Loughborough University having studied Engineering Management BSc with a DIS Placement Year. The course was a perfect fit for me, giving a broad technical understanding while including a wide variety of modules from a business point of view. Modules such as ‘Engineering Science’ and ‘Product Innovation Management’ along with ‘Marketing’ and ‘Supply Chain Management’ have made me much more marketable for non-technical roles in industry. The Wolfson School has strong links with industry, which can be seen by the sheer volume of students who undertake a placement year working for a company. This shows that the school really understands industry and doesn’t just give you the tools to earn a good degree, but provides you with the knowledge and experience to become an employable graduate. I was able to secure a placement working in Purchasing at Jaguar Land Rover. I spent 15 months working as a buyer, purchasing services on behalf of various Jaguar Land Rover engineering departments. With my mix of technical and business acumen learnt from my degree, I was able to understand the technical aspects of sourcing projects, which enabled me to perform better in my commercial role. In my final year, I was able to complete my final year project working with Jaguar Land Rover Purchasing. Since graduating, I have returned to Jaguar Land Rover and am now responsible for all Purchasing of Outsourced Engineering Services for Research, Electrical Engineering, CAE and Prototypes.”

The course is aimed at those who wish to develop high profile management careers within various engineering companies and across different industrial sectors. The course is relevant to those wishing to move into multinational corporations, as well as new business ventures and small business enterprises.

The course has been developed to allow you to explore engineering as a business subject. It provides an opportunity for those with a broader range of prior learning compared to what is traditionally included in dedicated engineering degrees, to embark on an engineering related career.

Combining subjects such as business, engineering and management, the course is designed to meet the increasing demand for graduates with an understanding of the application of economics, business and management knowledge in the industrial and engineering sectors.

On successful completion, you will have an understanding of the language of engineering, closely tied with the business, management, legal, intellectual property and economic principles necessary to tackle modern industrial and engineering management challenges, contributing to wealth creation.

The course provides a mix of engineering management theory and practice, operational business processes and legislative elements, alongside a platform of engineering technology, producing a graduate with a much stronger technical understanding.

This course has been accredited since 2010. In line with the Institution of Engineering and Technology (IET) and Institution of Mechanical Engineers (IMechE)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

Module overview
The course is delivered through a combination of lectures, group tutorials, seminars, workshops, problem solving classes, laboratory exercises and self-study. Teaching modules in the first year will prepare you for technical aspects of engineering technology. Backgrounds in subjects such as business studies and economics are encouraged as well as those in science subjects.

There is a significant proportion of project work undertaken in groups and individually. Students progress from descriptive understanding to critical evaluation and synthesis as the course develops.

All students are encouraged to spend a year in industry and enrol for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in a professional setting.

Alternatively, if you are interested in travelling whilst you study, there are placement opportunities in other countries through our Diploma in International Studies (DIntS), as well as options to spend three to 12 months at an overseas university.
Manufacturing Engineering
MEng/BEng

MEng (Hons) DIS/DPS/DIntS*: 5 years full-time with placement year
UCAS code: H707

MEng (Hons): 4 years full-time
UCAS code: H701

BEng (Hons) DIS/DPS/DIntS*: 4 years full-time with placement year
UCAS code: HH1T

BEng (Hons): 3 years full-time
UCAS code: H710

Typical offers
A level: (MEng) AAA (BEng) ABB including Maths and either Design and Technology, Engineering or Physics
IB: (MEng) 37 (6,6,6 HL) (BEng) 34 (6,5,5 HL) including HL Maths and either Design Technology or Physics at HL
BTEC Level 3 National Extended Diploma: (MEng) D*D*D* in a relevant subject plus A level Maths at grade A (BEng) D*DD in a relevant subject plus A level Maths at grade B

*Diploma in Industrial/Professional/International Studies

Entry requirements correct at the time of print. Please check our website for the latest version and other qualifications.

Modern manufacturing industrial sectors are very dynamic and exciting environments, combining advanced technology with challenging organisational and management practices. Manufacturing engineers manufacture products to the correct specification, in the right quantity, as efficiently as possible, anywhere in the world.

Our courses have been developed to provide industry with graduates possessing a wide range of professional engineering knowledge and skills necessary to overcome the modern manufacturing challenges, and contribute to wealth creation.

The UK is a major competitor in the £6.5 trillion global manufacturing economy, requiring companies to constantly improve their technology, manufacturing processes and management.

In addition to utilising the latest technologies, manufacturing engineers must be able to communicate effectively with a wide range of key players including design engineers and new technology providers.

Understanding the processes, techniques and resources of businesses is vital to the manufacture of quality products that meet customer needs and design specifications economically.

This course has been accredited since 1985. In line with the Institution of Engineering and Technology (IET) and Institution of Mechanical Engineers (IMechE)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

Module overview
The course provides a thorough understanding of manufacturing processes, manufacturing technologies linked through to design practice, as well as manufacturing organisational principles.

The management modules include human resource, process and facility management, as well as project planning material. This is supported with a background of mathematics, statistics and the principles of engineering science.

On completion of the degree course, you will have a thorough understanding of manufacturing principles, allowing you to embark on a range of career options in industry – following either technical specialisms or management routes.

All students are encouraged to spend a year in industry and enrolls for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in an industrial workplace setting.

Alternatively, if you are interested in travelling whilst you study, there are placement opportunities in other countries through our Diploma in International Studies (DIntS), as well as options to spend from three to 12 months at an overseas university.

Nick
Manufacturing Engineering

“I started studying at Loughborough for a BEng in Manufacturing Engineering. I chose the degree course because I had a keen interest in how things were made, and knew that manufacturing was a rapidly progressing industry. I found the course to be particularly useful for the development of a good engineering skill set, with modules such as manufacturing design and process technology providing a more comprehensive picture of manufacturing as an industry.

In the summer between my second and third year, I undertook work experience with a company that designed, manufactured and constructed power stations. I found myself working at a power station not far from Loughborough as a commissioning engineer, and came to realise how broad my engineering knowledge had become after only two years.

For my final year, I was able to choose modules that specifically interested me, or that would be useful in my career aspirations, and the third year gave me a much deeper understanding. I completed my degree to achieve a 2:1 grade. I managed to secure two job offers before I left Loughborough, and am now working in the manufacturing department of Renishaw near Bristol.”
Mechanical Engineering

**MEng (Hons)** DIS/DPS/DIntS*: 5 years full-time with placement year
UCAS code: H302

**MEng (Hons)**: 4 years full-time
UCAS code: H303

**BEng (Hons)** DIS/DPS/DIntS*: 4 years full-time with placement year
UCAS code: H301

**BEng (Hons)**: 3 years full-time
UCAS code: H300

Typical offers
- A level: (MEng) A**A** including Maths and Physics, with A in either Maths or Physics
- BTEC Level 3 National Extended Diploma: (MEng) D**D** in a relevant subject plus A level Maths at grade A
- IB: (MEng) 38 (7,6,6 HL) including Maths and Physics at HL
- Diploma in Industrial/Professional/International Studies: (MEng) A**A** including Maths and Physics at HL

Entry requirements correct at the time of print. Please check our website for latest requirements and other qualifications.

**Matthew**
Mechanical Engineering

“The decision to study Mechanical Engineering here at Loughborough was an easy one. The course offers a great variety of subjects, allowing you to graduate as a well-rounded engineer. This was important to me because I didn’t know which area of engineering I wanted to go into, and didn’t want to limit my options.

While studying at Loughborough I learned a great deal of theoretical knowledge and practical skills; in lectures, tutorials, labs, group exercises and projects. Loughborough’s strong links with industry means you get involved in some really great projects from first year through to final year. I also had a great time living in halls and in town, participating in socials and sports clubs – the student experience really is exceptional here!

After two years of study I undertook a year in industry at JCB. This placement gave me insight into different aspects of engineering. I had roles in design, development, technical service and engine development. This experience gave me a new perspective when I returned to university, giving more meaning and context to the course material – as well making me appreciate the student lifestyle while it lasted!

Like many young engineers I considered it my dream job to work for a Formula One Team. So when Mercedes F1 gave a presentation at Loughborough I thought I’d give it a shot and apply. The experiences I have had at Loughborough and on placement were enough to impress them and I got the job! My role at Mercedes is in Mechatronics Design, and my initial responsibilities were working on reliability issues with the car relating to my department. This involved investigating problems and designing new solutions. It’s a very exciting role and one in which I am able to use a great deal of the knowledge and skills I learned at Loughborough.”

Mechanical engineering applies the principles of physics and engineering science for analysis, design and maintenance of mechanical systems. It defines how and why mechanical systems work and how long they will work for, and predict when they will fail.

The **MEng** course is our premier route for high calibre Mechanical Engineering graduates to become leaders of industry. The **MEng** course offers enhanced exposure to practical engineering and human resource management, and aims to broaden and deepen your understanding.

The **BEng** course has been developed to provide you with a balanced theoretical and practical introduction to fundamental mechanical engineering principles, and their application to real industrial problems. It provides the ideal platform for developing a successful engineering career.

This course has been accredited since 1984. In line with the Institution of Engineering and Technology (IET) and Institution of Mechanical Engineers (IMechE) review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

**Module overview**

Our degree is a blend of traditional disciplines such as stress analysis, dynamics, heat transfer and fluid mechanics, with contemporary subjects such as mechatronics, laser materials processing, healthcare engineering and the range of computational techniques known collectively as Computer Aided Engineering (CAE).

Teamwork and project management are embedded throughout the course to facilitate development of practical and industry relevant skills.

A key feature of the course is the opportunity to work on industrial design problems and their solutions with companies enabling group and individual project work. Multi-disciplinary teamwork is enhanced in the fourth year of the **MEng** course with a group project, bringing **MEng** students together from a range of engineering courses. You will put human and project management theory into practice by taking responsibility for the guidance and management of second year industrially based design projects, and the opportunity to take part in a challenging outdoor residential management course.

All students are encouraged to spend a year in industry and enrol for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in an industrial workplace setting.

Alternatively, if you are interested in travelling whilst you study, there are placement opportunities in other countries through our Diploma in International Studies (DIntS), as well as options to spend from three to 12 months at an overseas university.
Product Design Engineering

MEng (Hons) DIS/DPS/DIntS*: 5 years full-time with placement year
UCAS code: HHD7
MEng (Hons): 4 years full-time
UCAS code: HHC7
BEng (Hons) DIS/DPS/DIntS*: 4 years full-time with placement year
UCAS code: H715
BEng (Hons): 3 years full-time
UCAS code: H11R

Typical offers
A level: (MEng) AAA (BEng) ABB including Maths and either Design and Technology, Engineering or Physics
IB: (MEng) 38 (7,6,6 HL) (BEng) 35 (6,6,5 HL) including Maths and Physics at HL
BTEC Level 3 National Extended Diploma: (MEng) D*D*D in a relevant subject plus A level Maths at grade A (BEng) D*D*D in a relevant subject plus A level Maths at grade B

Product design engineers have the challenging task of combining creative, aesthetic and technical design skills, with a background of engineering science, to create innovative solutions and products.

Products change functionally and aesthetically, hence the key ingredient for any product's success is the skill of the product design engineer, blending creativity, innovation, and manufacturing principles to shape the new solutions. The goal is to be able to design a new product that satisfies the original functional specification, is appealing to the potential market, but can also be manufactured as cost effectively as possible.

Our MEng course is the premier route for high calibre graduates to become leading design innovators. The MEng course provides enhanced exposure to a broad range of design methodologies linked through to production techniques and product lifecycle management, and aims to broaden and deepen the students' understanding of successful product innovation.

Our BEng course has been developed to provide you with a balanced theoretical and practical introduction to fundamental product design engineering principles, manufacturing processes, manufacturing technologies, and their application to real product development problems. It provides the ideal platform for developing a successful product design engineering career.

This course has been accredited since 1985. In line with the Institution of Engineering and Technology (IET), Institution of Mechanical Engineers (I Mech E) and Institution of Engineering Designers (IED)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

Module overview
When designing a new product, the focus on combining technology with practical innovative solutions, to deliver the right quantities of product with reduced manufacturing cost and increased reliability is paramount. Our course focuses on this essential skill and blends artistic, aesthetics, design principles, ergonomics, science and technology together to create new products. This is reinforced with understanding of the operating principles of manufacturing processes, technologies, and knowledge to turn the designs into reality.

Multi-disciplinary teamwork is enhanced in the fourth year of the MEng course with a group project bringing MEng students together from a range of engineering courses. You will put human and project management theory into practice by taking responsibility for the guidance and management of second year industrially based design projects.

All students are encouraged to spend a year in industry and enrol for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply the academic skills in a design and/or an industrial workplace setting.

Alternatively, if you are interested in travelling whilst you study, there are placement opportunities in other countries through our Diploma in International Studies (DIntS), as well as options to spend three to 12 months at an overseas university.

Katie
Product Design Engineering

“I found the broad base of practical experiences and technical knowledge I gained on the MEng Product Design Engineering degree at Loughborough invaluable for the variety of different projects I have worked on as a Graduate Engineer at Dyson. The broad ranging design and engineering course prepares you for undertaking work in the subjects studied as well as giving you strong foundations to undertake entirely new challenges.

When I first joined Dyson I worked in an engineering team involved in the specifying, purchasing and testing of vacuum motors. This involved working with a wide variety of people from project managers, to engineers, technicians and external suppliers, which was really interesting. I am now part of the Optimisation Team where we look to develop lean processes to support the engineers designing the latest technologies. We aim to make the development cycle faster, using fewer resources, creating even higher quality products, which I particularly enjoy. The breadth of skills I gained through the lectures and group projects at Loughborough have been key to giving me the independence to take on significant responsibility from the off.

The opportunities at Loughborough beyond the Wolfson School are also fantastic, there are boundless societies to be involved in that broaden your horizons and enhance your skills whilst you have a really good time. I found undertaking a Placement year and summer placements also really beneficial in getting an early understanding of the business world. Having a range of experiences in different organisations helps to enable you to quickly engage with new business cultures and make the most of opportunities that arise.”
Robotics, Mechatronics and Control Engineering

MEng (Hons) DIS/DPS*: 5 years full-time with placement year
UCAS code: H674
MEng (Hons): 4 years full-time
UCAS code: H673
BEng (Hons) DIS/DPS*: 4 years full-time with placement year
UCAS code: H672
BEng (Hons): 3 years full-time
UCAS code: H671

Typical offers
A level: (MEng) AAA (BEng) ABB including Maths and either Computing, Computer Science, Electronics, Engineering, Further Maths or Physics
IB: (MEng) 37 (6,6,6 HL) (BEng) 34 (6,5,5 HL) including HL Maths and either Computer Science or Physics at HL
BTEC Level 3 National Extended Diploma: (MEng) D*D*D* in a relevant subject plus A level Maths at grade A (BEng) D*DD in a relevant subject plus A level Maths at grade B

*Diploma in Industrial/Professional Studies
Entry requirements correct at the time of print. Please check our website for the latest version and other qualifications.

Robotic, Mechatronic and Control systems play a vital part in the advancement of industrial engineering. From unmanned flight to space exploration, robotic and mechatronic systems play a crucial role in many of the services which we now take for granted.

Graduates of our MEng course will be well equipped with industry relevant skills. Graduates will also be knowledgeable in the deployment, maintenance and adaptation to changing market factors within industry. As a student, you will push the boundaries of technological advancement, learning how to adapt to offline developments.

The manipulation and development of new complex processes will give you opportunities to design and improve systems as they progress from the development laboratory to harsh and unforgiving industrial settings, finding new limits of technological advancement. The experiences learnt across broad ranges of the industry will enable you to attain high calibre roles within an ever-expanding market, leaving you well-equipped with the skills necessary to support the advent of progressive industrial approaches.

This course has been accredited since 2018. In line with the Institution of Engineering and Technology (IET)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities.

Module overview
You will be introduced to the concepts and skills necessary to build both your theoretical and practical knowledge and expertise. In your first year you will share many modules with our Electronic and Electrical Engineering degree courses, giving you a fundamental appreciation of the electronics underpinning these systems. Studies in core mathematics and programming will also be undertaken to support your learning, as well as undertaking a group project relevant to industry.

In your second year, in addition to electronics and mathematics there will be an added emphasis on mechanical engineering for robotic applications, control system designs and engineering project management.

During your third year (and fourth year for those taking MEng), you will have the opportunity to explore your own interest within this field, studying the theoretical as well as the industrial applications for using these systems. These applications will include sensing technology, the use of robotics and mechatronics in manufacturing processes and the design and understanding of complex industrial systems.

A final year individual research project will be undertaken by both BEng and MEng students. For MEng students specifically, a group project is included, entailing an industrially relevant scenario that utilises industry compatible software and hardware equipment. Relevant management and legal elements will be provided to better prepare you for industry upon graduation.

All students are encouraged to spend a year in industry and enrolling for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply academic skills in an industrial workplace setting.
James
Sports Technology

"The Sports Technology BSc course at Loughborough was a perfect combination of my two main passions: engineering and sport. I found the course to be incredibly hands-on, with wide-ranging content delivered by an experienced team of lecturers. The Sports Technology Institute itself is a world class facility, which allows students access to state of the art equipment and expertise in a dynamic working environment.

During my degree, I took a placement year with Hawk-Eye Innovations. Hawk-Eye provided broadcast enhancement and officiating technology to sports federations, broadcasters and governing bodies, with the aim of making sport safer, fairer and more engaging. As a Systems Operator, my primary role was to install, calibrate and operate various Hawk-Eye technologies at sporting events across the world. Whilst primarily based within the Cricket Operations team, I have been lucky enough to gain operational experience at a range of sporting events including The Ashes, Wimbledon, Rugby World Cup and the Premier League.

Upon returning to Loughborough for my final year, I continued to work for Hawk-Eye on a freelance basis, and this was followed by a full time role upon graduation. I have now recently moved into a project management focused role, dealing directly with governing bodies to create and deliver innovative technical solutions within the world of elite sport."

The developed world has experienced a dramatic increase in the popularity of sports and leisure activities. Elite athletes demand better performance from themselves and their equipment whilst minimising energy losses. In response to these demands, the sports manufacturing industry has been developing sports products to allow people to enjoy sports and excel.

Our courses are based in our dedicated purpose-built Sports Technology Institute, and focus primarily upon the design, manufacture and testing of sports equipment. They have been specifically developed to provide the sports industry with graduates possessing the required specialist technological knowledge and skills to develop sports goods and products.

In order to maintain a competitive edge, many sports related companies have identified the need for a significant improvement of understanding of sports technologies and the underpinning sciences, in order to develop better equipment and products. This requires an understanding of human biomechanics, physiology and psychology, combined with product design, manufacturing skills, science and technology.

Sports technologists combine engineering science, measurement and analysis, and sports science in order to relate the playing, or use characteristics, of sporting equipment, to the underlying principles of product design. This is further reinforced with an up-to-date knowledge of manufacturing processes and materials, in order to enable improvements in sports product performance and ease of use.

The BEng course has been accredited since 2013. In line with the Institution of Engineering and Technology (IET) and Institution of Engineering Designers (IED)’s review process, the course is undergoing reaccreditation to ensure it continues to offer professional registration opportunities. The MEng course is now to accreditation and will be put forward at the next accreditation visit.

Module overview
The courses provide detailed understanding of human performance, sport-related business studies and product design principles. This is supported with a background of manufacturing technology, engineering science, ergonomics, mathematics, statistics and experimental design.

You will work in the same facilities as research staff, and receive the latest research ideas, equipment and results in their third year optional modules. In many cases projects are provided and supported by major sports goods manufacturers.

All students are encouraged to spend a year in industry or study for either the Diploma in Industrial Studies (DIS) or the Diploma in Professional Studies (DPS), typically after the second year of study. This provides an opportunity to experience and apply the academic skills in a design and/or a sports related workplace setting.
Foundation Studies

Our Electronic and Electrical Engineering, Management, Manufacturing Engineering, Mechanical Engineering, Product Design Engineering and Sports Technology courses are all provided with a one-year full-time Foundation Studies course option.

It is primarily for those who wish to embark on a challenging career in science, engineering or technology, but are missing prerequisite subjects required or whose choice of existing qualifications are not usually considered directly relevant for entry onto the core degree.

If this is your situation, then our Foundations Studies course could be what you require to bridge the gap in your studies and provide the platform for successful progression into the world of science, engineering and technology. The Foundation Studies course provides access our corresponding engineering degree courses*.

Transfer onto the BEng course requires good performance in Maths and Physics, with an overall course average of at least 60%. For each degree course, you will be advised of the relevant progression requirements. All students can opt to enrol for a professional placement and spend a year in industry, between the second and third years of academic study of the core degree course, providing an opportunity to experience and apply the academic skills in a workplace setting.

Module overview

The Foundation Studies course provides a background of mathematical and physical sciences, along with ancillary subjects, designed to prepare you for successful progression onto the first year of your chosen degree course.

UCAS codes (UK/EU entry):
- Electronic and Electrical Engineering: H602
- Engineering Management: HN12
- Manufacturing Engineering: H700
- Mechanical Engineering: H306
- Product Design Engineering: HH17
- Sports Technology: CH6R

UCAS codes (international entry):
- Electronic and Electrical Engineering: H6FY
- Engineering Management: H3FP
- Manufacturing Engineering: H7FY
- Mechanical Engineering: H3FY
- Product Design Engineering: H7FP
- Sports Technology: CHFY

Typical offers

A level:
ABC or BBB from three A levels (or equivalent) in any subjects

GCSE:
minimum of 5 GCSEs grade A to C (7-4) are normally required. Minimum grade B/6 in Maths

Other qualifications will be considered on an individual basis.

*Degree course options

The Electronic and Electrical Engineering Foundation course option allows students to enter the Electronic and Computer Systems Engineering, Electronic and Electrical Engineering and Robotics, Mechatronics and Control Engineering degree courses.

Spencer

Mechanical Engineering with Foundation Year

“Having not met the rigorous entry requirements for the Mechanical Engineering MEng degree, the Foundation Studies course provided me with the opportunity to bridge the knowledge and qualification gap to enable me to pursue my career aspirations of doing a Mechanical Engineering degree and ultimately obtain Chartered Engineer status.

I found the Foundation Studies year extremely useful, as although being aware of the additional year of commitment, it provided me with the fundamental knowledge directly relevant to my degree subject, in addition to exceeding my existing knowledge of mathematics that fed directly into the first year of the degree. It was well-organised with a range of content across several STEM subjects. In addition, communication skills and report writing were explored. Finally, the Foundation Studies year enabled me to meet like-minded people and make friends who have worked with me throughout my time during and post university.

I cannot recommend more highly the value of taking the placement year. Loughborough University were amazing at supporting me through the whole process, through CV writing, mock assessment centres and interviews. During my placement year, I worked as a Design Engineering Intern with Procter & Gamble - Gillette. I was the project leader responsible for creation and development of prototype razors within the Gillette business. The placement provided me with a fantastic opportunity to apply the knowledge gained from the previous years of study and apply these to real world problems.

I saw a significant change in my academic performance having returned from Procter & Gamble, with my yearly averages increasing by 10% in the last two years of the degree. Upon graduation, I have taken up a role as a graduate Mechanical Engineer with SNC - Lavalin Rail and Transit on their graduate schemes. By undertaking the company’s IMechE accredited graduate schemes, I hope to achieve Chartered Engineer status within the next four years.”
This brochure was written several months in advance of the academic year to which it applies (2021). Every effort has been made to ensure that the information contained within is accurate at the time of publishing, but updates (for example to course content) are likely to occur due to the time between publication and the course start date. It is therefore important to visit our online prospectus at www.lboro.ac.uk/study before applying to check for any updates, as this will be the most up-to-date repository of information.